A Fragmented History

A methodological and artefactual approach to the study of ancient settlement in the territories of Satricum and Antium

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GRONINGEN 2012

Groningen Archaeological Studies

VOLUME 18

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Cover design: Siebe Boersma, GIA, Groningen
Photo cover front: Peter Attema; photos cover back: 1) Tymon de Haas; 2, 4) Gijs Tol; 3) Tim Kauling
Book design: Hannie Steegstra, Drachten

ISBN 9789491431036

RIJKSUNIVERSITEIT GRONINGEN

A Fragmented History

A methodological and artefactual approach to the study of ancient settlement in the territories of Satricum and Antium

Proefschrift

ter verkrijging van het doctoraat in de
Letteren
aan de Rijksuniversiteit Groningen
op gezag van de
Rector Magnificus, dr. E. Sterken,
in het openbaar te verdedigen op
donderdag 22 maart 2012
om 16.15 uur

door

Gijs Willem Tol

geboren op 26 maart 1979
te Leeuwarden

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Acknowledgements

I am indebted to many people for their practical and/or moral assistance in writing this dissertation. First of all thanks are due to my promotor Peter Attema for his encouragement to develop my own interests, that from early on focussed on pottery studies. I look back with a big smile on the many pleasant and stimulating fieldwork campaigns that I spent in the *Pontino* under his direction. I am also grateful to my other colleagues at the Groningen Institute of Archaeology, especially Tymon, Rik, Tanja, Sarah, Olaf and Martijn.

This study would not have been possible without the aid of the *Soprintendenza per I Beni Archeologici del Lazio*, in particular *soprintendente* dott.ssa M. Sapelli Ragni and *ispettore* dott. F. di Mario. During my stays in Nettuno I have been assisted and facilitated by many. Thanks are due to the late Ettore Cuccillato, Giampiero Pedace and Rita dello Chicchi from the *assessorato della pubblica istruzione e cultura* as well as Arnaldo Liboni and Agnese Fischetti from the *antiquarium comunale di Nettuno*. I am grateful to the staff of the *Poligono Militare* for their permission to work on their territory. For their hospitality I sincerely thank the personal of the *Caserma della Polizia di Stato di Nettuno*, in particular Gianni Schirò. The often long periods of study were greatly enlivened by the warm friendship of Michelangelo, Silvana, Carmela and the late Sergio.

For the execution and elaboration of the various case studies I was helped by many capable and enthusiastic students. Isa Azier, Marielle Bannink, Chiara Conte, Tycho Derks, Rosa Dorelijers (who studied the materials from the presumed votive deposit under the Villa Sarsina, Anzio), Tim Kauling (who studied the metal artefacts from the intensive on-site surveys and the Astura excavation), Chris Luinge, Arnaud Maurer, Harry Pape, Leontien Spoelstra, Kees van der Veer, Tanja van Loon and Sarah Willemsen thank you so much for your invaluable contribution! I also thank Marco Bakker, Tom Trienen and Yftinus van Popta for their study of the faunal materials from Astura.

I was privileged to discuss various aspects of this study with specialists. The material study has benefitted much from meetings and email exchanges with Marijke Gnade, John Hayes, Muriel Louwaard, Patrick Monsieur, Bert Nijboer, Gloria Olcese, Flavio Roma, Enrico Stanco and Gert van Oortmerssen. Advice by Rik Feiken was pivotal in selecting the sites for the intensive on-site surveys. For their methodological input I thank Peter Attema, Tymon de Haas and Martijn van Leusen.

For the lay-out of the book and the illustrations I am deeply indebted to the fantastic Hannie Steegstra, as well as Siebe Boersma, Erwin Bolhuis, Mirjam Los-Weijns and Sander Tiebackx. Part of the artefacts drawings were inked by Chris Luinge, Tanja van Loon and Sarah Willemsen. Simone Kops Hagedoorn corrected my English.

This book would not have been completed without the financial and logistic support of several funding bodies. The research was accommodated by the Groningen Institute of Archaeology and the Royal Dutch Institute in Rome. Generous grants were awarded by the 'Prins Bernard Cultuurfonds', the 'Stichting Philologisch Studiefonds', the 'Groninger Universiteitsfonds' and the 'Stichting dr. Hendrik Muller's Vaderlandsch Fonds'.

Over the years the progress of this dissertation has been helped by friends and family. I am grateful for the continuing support of my parents. Their visits, as well as those of my sister Sietske, Jos, Juan, Jacolien, Frans, Jasper, Karin and Francis provided a welcome distraction during the long periods of fieldwork and pottery processing abroad.

A special thanks to my two paranymphs Max Humme and Tymon de Haas. Max, I greatly value our almost lifelong friendship full of laughs, adventures and often long though incoherent conversations. Tymon, we have been working together for a long time and I am very pleased that we will continue to do so for the next couple of years. Thanks for all the good times and the fruitful conversations we had over the course of this study.

The final words are for my wife Tanja. The finalization of this study owes much to your company, support and patience. You and our beautiful son Thomas provide the most important benchmark in my life. It is to you two that I dedicate this book.

Introduction

This dissertation presents four methodological case studies that elaborate on the results of two field survey projects (the Astura and Nettuno surveys) that were carried out by the Groningen Institute of Archaeology (GIA).[1] *The case studies aim at investigating biasing factors that limit the analytical and comparative value of data from archaeological survey in general using these two projects as a suitable testing ground.*

Both surveys, carried out between 2003 and 2005, fell within the ambit of the Pontine Region Project (PRP), a long-term research program aimed at the diachronic archaeological investigation of the various landscape units forming this region. They covered two contiguous areas, situated on the Tyrrhenian seaboard, approximately 60 kilometres south of Rome. The study area comprises the communal area of the modern town of Nettuno, as well as the lower valleys of the Astura and Moscarello rivers (see fig. 0.1).[2] *As such it incorporates parts of the hinterland of the ancient towns of Antium and Satricum. In chronological terms this dissertation considers a time-span of 1300 years, from the 6th century BC to the 7th century AD.*[3]

0.1 Developments in survey archaeology

Since the early days of archaeological field survey, now some 50 years ago, it has matured into one of the major archaeological disciplines.[4] Evolving out of a well-established topographic tradition, early surveys, at least by modern standards, were rather extensive and unsystematic. This approach, coupled with a lack of established pottery typologies, favoured the recognition of Roman settlement over that of earlier and later periods. In comparison recent surveys have adopted more intensive and systematic methodologies. One of the most fundamental turns in approach has been the large-scale abandonment of site-oriented studies in favour of the investigation of continuous tracts of land, including the mapping of off-site and low-density distributions.[5] The publication of reference works on the major classes of fine ware pottery in the 1970's and 1980's was followed in recent years by a growing awareness of the importance of coarse ware pottery in the interpretation and dating of sites.[6] The more intensive methods and the increased pottery knowledge have been helpful both in the identification and interpretation of pre- and post-Roman settlement and in locat-

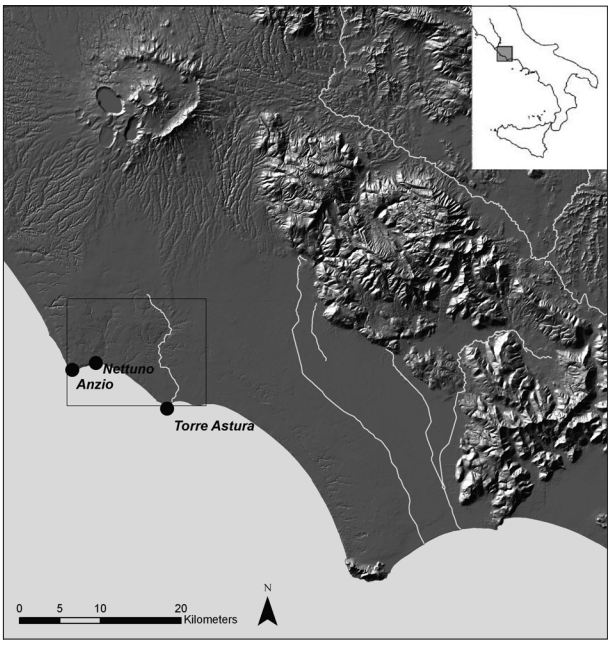


Figure 0.1 Location of the study area.

1 For the results of the Astura surveys see Attema *et al.* 2008; for the Nettuno surveys see Attema, de Haas & Tol 2010. The latter formed the backbone of the *Carta archeologica del comune di Nettuno* project (Attema, de Haas & Tol 2009 and 2011). The reason for continuing research in this area is the author's knowledge of this dataset and the specific methodological challenges that it poses.

2 Piccarreta (1977) studied rural settlement along the lower Astura and Moscarello river valleys for his *Forma Italiae* volume *Astura.*

3 The starting date of the 6th century BC was determined by two factors: 1) protohistorical settlement in south-central Latium, comprising the data obtained by the PRP, was already studied by Luca Alessandri (Alessandri 2007 & 2009) and 2) the author's familiarity with the material culture of the time-span mentioned.

4 The South Etruria Survey, executed between the '50's and '70's of the previous century, must be considered a milestone in Italian landscape archaeology (Potter 1979).

5 Especially in the late 1980's and early 1990's, much work was concerned with explaining the phenomenon of off-site pottery distributions. Among the most prominent publications on the subject are Bintliff & Snodgrass 1988; Wilkinson 1989 and Alcock, Cherry & Davis 1994. For recent examples of surveys recording so-called 'continuous landscapes' see for example Bintliff 2007 and De Haas 2011. However, these have come at the expense of surface coverage and research time. For a critical statement on costs vs. benefits of these intensive survey methods see Fentress 2000.

6 Important material publications for archaeologists working in Central Italy are Morel 1981 on black glazed ware; Ettlinger *et al.* 1990 on terra sigillata; Hayes 1972 on African red slip ware and Marabini Moevs 1973 on *ceramica a pareti sottili.* For utilitarian pottery see Carafa 1995 for the Archaic and post-Archaic period and Olcese 2003 for the Roman period.

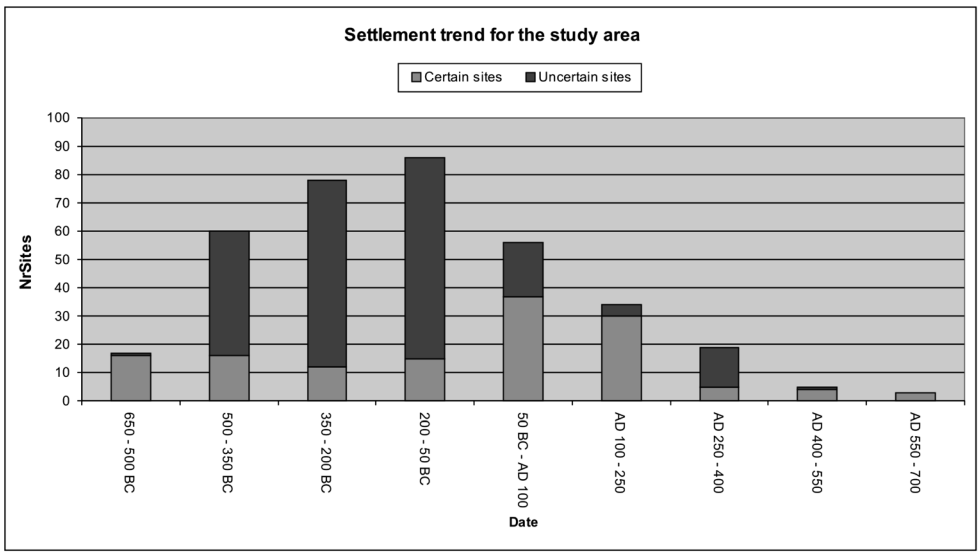


Figure 0.2 The settlement trend based on the Astura and Nettuno surveys.

ing and understanding ephemeral and vestigial *loci* of activity. Technological aid, such as the use of PDA's (equipped with GPS connection) and GIS has made a significant contribution towards the recording, analysis and visualization of survey data, whereas geophysical techniques are nowadays regularly employed to study the lay-out of individual sites.

At present, these detailed, more reliable and better controlled datasets are increasingly used as a proxy for the study of socio-economic issues. The main topics investigated are ancient demography and the study of economic growth and decline;[7] some scholars have, however, also highlighted the suitability of these data for the study of issues like social organization and identity.[8] At the same time the potential of employing survey data for intra- and supra-regional comparative research by combining local datasets has been recognized.[9] The identification of differences and similarities between study areas (the *macro*-scale) is used to assess the effect of historical processes and events mentioned in the ancient written sources.[10]

0.2 Survey data and the study of socio-economic issues

Along with the recognition of the potential of survey data as a proxy for the study of socio-economic issues, there is the growing awareness of the limitations of such analyses. This is due to the fact that the most significant metadata underlying reconstructions of past settlement (site chronology, site function, site development) based on data from archaeological survey in reality are far from straightforward.

To illustrate this I will first briefly discuss the principal interpretative problems based on the settlement trend that was the result of the Astura and Nettuno surveys.[11] This is followed by a summary of the effect that these problems have on the use of survey data to approach four aspects of the ancient economy: 1 and 2) reconstructing trade relations and the study of economic growth (both aggregate and *per capita*); 3) reconstructing past populations and; 4) tracing town-countryside relations.

Evidence for rural settlement in the study area

Figure 0.2 depicts the number of certain and uncertain sites that were identified during GIA's Astura and Nettuno surveys. These are presented in nine

7 For the use of survey data in the study of ancient demography see various contributions in Bintliff & Sbonias eds. 1999; Bowman & Wilson eds. 2009; Witcher 2005 and 2008b; Wilson 2008 and Attema & de Haas forthcoming. For a critical approach towards such studies see Osborne 2004. For the study of economic growth and decline see De Haas, Tol & Attema 2011.

8 Witcher 2006a. A similar optimistic view is expressed by Paterson 1991.

9 On the topic see Alcock & Cherry 2004. For the comparative study of three Italian regions see Attema, Burgers & van Leusen 2010. For the integration of some 30 Central-Italian surveys see Witcher 2006b.

10 See De Haas 2011 for a study of the effect of Roman colonization on three different parts of the Pontine Region. Various contributions in De Ligt & Northwood eds. 2008 study the impact of the Gracchi reforms. Launaro *forthcoming* investigated the assumed decline of the free-peasantry in Late Republican Italy.

11 Chapter 2 provides a more extensive discussion of these problems and their (possible) causes.

consecutive periods of equal length (150 years), spanning the period between the Archaic period and the Early Middle Ages.[12] A number of particularities of the trend strike the eye. Firstly, there is much variation in the overall number of recorded settlements per period, ranging from 86 for the Late Republican period to a mere 3 for the Early Middle Ages. Secondly there are rather abrupt fluctuations in the number of recorded settlements between successive periods (a fivefold increase from the Archaic to the post-Archaic period and an almost fourfold decrease from the late Imperial to the late Antique period). Thirdly there is substantial variation in the degree of certain occupation from period to period, ranging from around 15% for the mid-Republican period to almost 90% for the mid-Imperial period. These observations are less startling when we consider the often small and undiagnostic samples from the sites included in this trend. For instance the 45 sites sampled in the course of the Astura survey yielded an average of 2.4 diagnostic fragments per site, with more than half of the sites producing no diagnostic pottery at all.[13]

1) Reconstructing trade relations and the study of economic growth and decline

Although the role of pottery within the complex of ancient exchange systems is thought to have been relatively insignificant, it constitutes our most important and reliable material source for reconstructing such (changing) systems through time.[14] This importance is based on three distinctive features:

- Pottery has, compared to all other ancient materials, a high durability; in landscape archaeology it is often the most important, if not the only, indicator for the identification, dating and interpretation of *loci* of activity in the landscape;
- Pottery is thought to have been accessible to all segments of society for most historical periods;
- Since it was mostly transported as a secondary load, its movement can be taken to indicate larger networks of exchange.

Increased consumption of any kind was recently labelled one of the possible *reflections* of economic (aggregate and per capita) growth.[15] Based on the abovementioned characteristics pottery constitutes the best index for estimating (changing) volumes and directions of trade and as such is suitable for the study of economic growth.

Although the contribution of ceramics for more sophisticated types of analysis has been widely recognized, apart from its traditional use as a dating tool, such analyses have been only sparsely applied in landscape archaeology. This reluctance is for the largest part conditioned by the many uncertainties involved in the collection of the two types of closely related data fundamental to such analyses: firm artefactual evidence and detailed settlement data. Pottery assemblages collected during survey (usually obtained by partial coverage) often contain few (if any) diagnostic fragments that can be used in the construction of consumption trends.[16] Although settlement trends are generally more robust, the degree of 'certain' occupation, as illustrated in figure 0.2, more often than not varies considerably between different periods.

2) Reconstructing past populations

The most common method to extrapolate population numbers from survey data is rather uncomplicated. After establishing the number of settlements for a period, these are fitted into a site typology (villa, farms etc.). Subsequently a standard number of inhabitants is assigned to each site type and resulting population figures are corrected for the recovery rate (e.g. the percentage of the total number of sites of each type that is thought to have been identified).[17]

12 For an explanation of the employed periodization see chapter 2.

13 See chapter 3 for a more detailed discussion of these results. The 2.4 diagnostic fragments also include base fragments and handle fragments that can often not be typologically ascribed. These fragments are excluded when constructing trends of pottery consumption, as only few of them can be classified with certainty based on their distinctive shape.

14 Peacock 1982, 154; Pena 2007a. A neat example of the reconstruction of systems of production and consumption of (local) pottery for the area of Pompeii is provided by Pena & McCallum (2009a and b).

15 Bowman and Wilson 2009, 12-13.

16 In a recent article we used changes in the consumption of amphorae and fine wares on rural sites to probe whether aggregate and per capita growth took place in the *ager* of *Antium* in the course of the Roman period (De Haas, Tol & Attema 2011). Although aggregate growth was assumed to have occurred based on the available pottery data, the occurrence of per capita growth could not be approached due to the poor quality of the samples. The low amount of diagnostic pottery available for the construction of consumption trends, based on surface assemblages appears to be a common phenomenon. For example during recent intensive surveys in the Pontine plain only 25 datable amphora rim fragments were collected; similar work in the Lepine foothills yielded even fewer fragments (16 datable rims) (De Haas & Tol forthcoming and De Haas 2011). This appears to be a common phenomenon; also the extensive pottery database of the Tiber Valley Project includes only a handful of datable amphora fragments for various periods and substantial samples are only available for the first three centuries AD (Fontana 2008).

17 See for example Bintliff & Sbonias eds. 1999; Bowman & Wilson eds. 2009; Witcher 2008b.

Bluntly stated such extrapolations thus depend on three variables:
- Site recovery
- Site typology
- Site chronology

Obtaining data for all three of these variables is, however, far from straightforward and involves a number of generalizations and assumptions.

Concerning site recovery, it is thought that survey yields only a portion of the total number of sites that once scattered the landscape. Although it is impossible to establish the original number of sites, an estimate is normally made by quantifying factors thought to affect site recovery, such as research intensity, surface visibility and post-depositional processes (both natural and anthropogenic).[18] A complicating factor that is hard to correct for is the probable differential recovery rates of different types of sites.[19]

The basis of most demographic extrapolations is a site typology, comprising a number of site classes, such as towns/cities, villages, hamlets, villas, farms and so forth. Such classification schemes have in recent years been criticized as being simplistic, using (historically informed) 'ideal' sites classes and being ignorant of the varied nature of past rural activity.[20] Furthermore, there appears to be little consensus on both the specific features that characterize each class of sites and the number of inhabitants that should be assigned to them, limiting the potential for aggregate studies.[21] Another major concern is the high number of 'uncertain' sites (with regard to site type and/or site chronology) recorded during survey.

To establish the chronology of sites identified during survey we rely heavily on the collected sample of surface pottery. Due to a wide variety of factors (e.g. surface visibility, research intensity, site degradation, and occupational history) many of the sites yield small and undiagnostic samples. The chronological resolution of larger samples can be equally low, in the absence of local sequences with which to confront the collected materials. The identification of occupation in a certain period depends on closely datable pottery shapes (such as fine wares); a complicating factor is that not all areas had equal access to these wares, whereas their supply appears to be all but constant.[22] To optimize the rate of 'certain' sites a subdivision in broad periods, often spanning hundreds of years, is regularly employed. This possibly leads to the overstretching of the lifespan of sites and renders it impossible to address the issue of site (dis-)continuity. On a higher level it impedes the identification of any relevant spatial or chronological patterning (site contemporaneity) within local (or even larger) site inventories.

Although this overview is rather schematic, it makes clear that there are many (methodological) uncertainties and complications involved in the use of survey data in the reconstruction of past populations. These have especially limited the potential for the use of aggregate data and thus the contribution of landscape archaeology to the low count-high count debate. When attempts have been made, these were largely restricted to intensively studied areas, focusing on the Roman Republican and Imperial periods.[23] Not only is the Roman era characterized by a varied, highly diagnostic and well-known material culture; it also provides us with the best opportunity to compare survey data with other data sources, such as the ancient literature.[24]

3) Town-countryside relations

The traditional view of Roman Italy has been one of cities (with Rome a classic archetype), depending on the agricultural production of its hinterland. Based on the results of field surveys across Italy this strict consumer vs. producer model has been adjusted; in more recent studies focus has shifted to studying the nature of interaction and integration between town and countryside.[25] In the investigation of town-countryside relations the study of pottery assemblages again plays an important role. In short, large similarities in the composition of urban and rural assemblages are taken as indicative for an integrated settlement system (comprising both urban and rural areas); as a consequence, substantial differences between the two indicate the opposite.[26]

18 Out of an extensive bibliography see for example Terrenato 1992; Wilson 2008.

19 Fentress 2009; Witcher 2008b, 289-292.

20 A largely ignored phenomenon is for example non-permanent (squatter, seasonal, semi-permanent) settlement.

21 See Osborne 2004.

22 See Fentress & Perkins 1988 and Fentress *et al.* 2004 for African red slip ware supply. See Di Giuseppe 2005 for the supply of black glazed ware. On pottery supply in general see Millett 1991 and Keay 1991.

23 A good example is Witcher's work on the Roman *Suburbium* (Witcher 2005 and 2008b).

24 For example numbers of colonists are sometimes specified concerning the foundation of Roman and Latin colonies (Pelgrom 2008).

25 Laurence 2004, 285; Witcher 2005, 120.

26 Patterson 2008, 516; Keay 1991.

Two factors at present limit the possibility to properly address (changing) town-countryside relations:
- Often well-dated and fully published urban contexts are lacking.[27]
- Ceramic samples from rural sites often provide an insufficient quantitative basis for studying past town-countryside relations.

0.3 Research aims and methods

It must be stressed that this study is first and foremost a methodological one and will not primarily focus on the socio-economic issues mentioned. It is above all aimed at investigating ways of improving the data underlying both settlement reconstructions and, by extension, socio-economic issues. Based on the outcome, the possibilities and limitations regarding the future study of both lines of research will be postulated in general and for the Pontine region in particular.

Four case studies will be presented in this thesis. These are:
1. The execution of systematic revisits to previously recorded sites;
2. The integration of a local museum collection (the so-called 'Liboni-collection) with field data generated by the GIA;
3. The execution of intensive on-site surveys and;
4. Small-scale excavations at a late Imperial to early Medieval site (probably to be identified with the ancient town of *Astura*), meant to increase our knowledge of the pottery circulating in our study area in these periods.

Together these cases have a twofold objective:
1. To obtain a better insight in the history of settlement for the area under study and, by extension, to assess the potential of supplementary fieldwork in improving a dataset acquired by systematic field survey.
2. To assess whether such supplementary studies, individually and/or combined, improve (or further complicate) the suitability of survey data as a proxy for studying socio-economic issues.

In each of the four case studies the study of the available artefactual evidence (mainly pottery) takes a central position, providing information on site chronology and site function. In chapter 5 the pottery is also used to identify spatial patterning within surface distributions. Furthermore, in chapter 3 the pottery data from a number of sites yielding large samples are used to identify chronological and spatial differentiation within the study area.

0.4 Structure of the thesis

This thesis contains seven chapters. The first chapter gives an overview of available historical documentation and a summary of previous (topographical and archaeological) research for the area under study. Chapter 2 provides the methodological background for this thesis. The next four chapters will each present one of the four case studies. Chapter 3 discusses the results of a campaign of systematic revisits to already known sites. In chapter 4 an attempt is made to integrate a large collection of artefacts with existing and newly acquired field data. Chapter 5 presents the results of the intensive on-site (gridded) survey carried out on four sites in our study area. The small-scale excavations at *Astura* are discussed in chapter 6. Chapter 7 summarizes the contribution of the four case studies towards the archaeological knowledge of the study area and reviews to what extent the objectives formulated above have been accomplished.

27 For our study area we possess of a number of well-studied Archaic and post-Archaic contexts at Satricum (Maaskant-Kleibrink 1987 and 1992; Bouma 1996; Ginge 1996; Gnade 2002). However, we must keep in mind that the latter three publications are concerned with 'special' contexts, such as votive deposits and cemeteries.

Chapter 1 – Historiography and archaeology

This chapter provides the historical and archaeological context for the four case-studies presented in this thesis (chapters 3-6). Following a brief introduction to the landscape, the available literary and archaeological evidence for the study area will be presented. The second part of this chapter provides a short introduction to the Pontine Region Project. Special attention is drawn to the most recent field surveys and excavations carried out in the coastal part of this region by the GIA between 2001 and 2006 since their results provide the foundation for the study here presented.

1.1 Geology of the study area[1]

The study area is located on the Tyrrhenian seacoast, approximately 60 kilometres south of Rome, in the western-most extremity of the Pontine Region.[2] It comprises the communal area of Nettuno, including the eastern and western bank of the lower streambed of the Astura river (see fig. 1.1). As such, it covers all of the terrain subjected to investigations by the GIA between 2001 and 2005 (see later this chapter). The present-day surface of the study area is formed predominantly of Aeolian sands. These belong to the Latina complex, the oldest of a system of four marine terraces that represent different sea levels during the Pleistocene.[3] The subsoil, consisting of volcanic sediments and deposited during various eruption episodes of the *Volcano Laziale,* is nowadays exposed only in some isolated points in the coastal area and the river valleys of the Loricina and Astura. *Macco* (lime sandstone with fossils) forms the oldest (exposed) formation in the area, dating to the Middle to Late Pliocene (four-two million years ago). Directly on top of these *macco*-formations, for example, the *Villa di Nerone* at *Antium* as well as the Medieval *borgo* of Nettuno were built. Also in other parts of the communal area of Nettuno *macco* can be found close to the surface.[4]

Site degradation

Although in geological terms the study area can be considered rather stable, the sandy soils that form the present-day surface are prone to erosion, especially in undulating areas. Due to this, some archaeological sites are poorly preserved (fig. 1.2a).[5] Moreover, directly on the coast, sites have been exposed and eroded by a gradual rise in sea level since Roman times (fig. 1.2b).[6]

A likewise devastating influence to the archaeological record is formed by anthropogenic interventions in the landscape. The town of Nettuno has grown into one of the main Latial coastal resorts south of Rome. A recreational port has been built immediately south of the Medieval *borgo* and the built-up area has expanded considerably over the last decade. Suburban areas north of the town and along the Astura river still largely consist of agricultural lands, although the introduction of modern, mechanized farming techniques since the 1950's is considerably degrading archaeological sites in these parts.[7] Furthermore, especially in the Astura valley, the levelling of fields or the bringing up of soil is not uncommon, potentially removing or covering archaeological sites.

1.2 Historical and archaeological research in the study area: an overview

Archaeological research at Antium

Although it was certainly a town of considerable importance in both classical and Roman times, systematic archaeological investigations have never been carried out at *Antium.* Early excavations were mainly conducted by and on the properties of the many aristocratic families in the town, manifesting a strong antiquarian interest mainly in the 18th and 19th centuries.[8] These private undertakings have been supplemented, from the second half of the 19th century onwards, by chance finds and small-scale excavations of features identified

1 For a more extensive overview of the geology and geomorphology of the study area see Feiken in Attema, de Haas & Tol 2011.

2 Some, however, consider the Astura river to form the border between the Pontine Region and the *Campagna Romana* (Almagià 1976, 101-102).

3 Sevink, Duivenvoorden & Kamermans 1991; Van Joolen 2003, 11.

4 Cuccillato & Tamburino 2006.

5 Feiken 2011. The effect of this can potentially be further increased by ploughing.

6 Lambeck *et al.* 2004; Feiken 2011.

7 The devastating effect of this was already noted by Piccarreta in the early 1970's (Piccarreta 1977, 6).

8 Excavations are reported on the estates of the Cesi (later Adele), Costaguti (later Borghese), Albani and Corsini (later Sarsina) villas (e.g. NSc 1882, 67-68; NSc 1888, 394). The present location of many of the mentioned finds is unknown. For an overview of these early 'excavations' see Brandizzi-Vittucci 2000, 13-16.

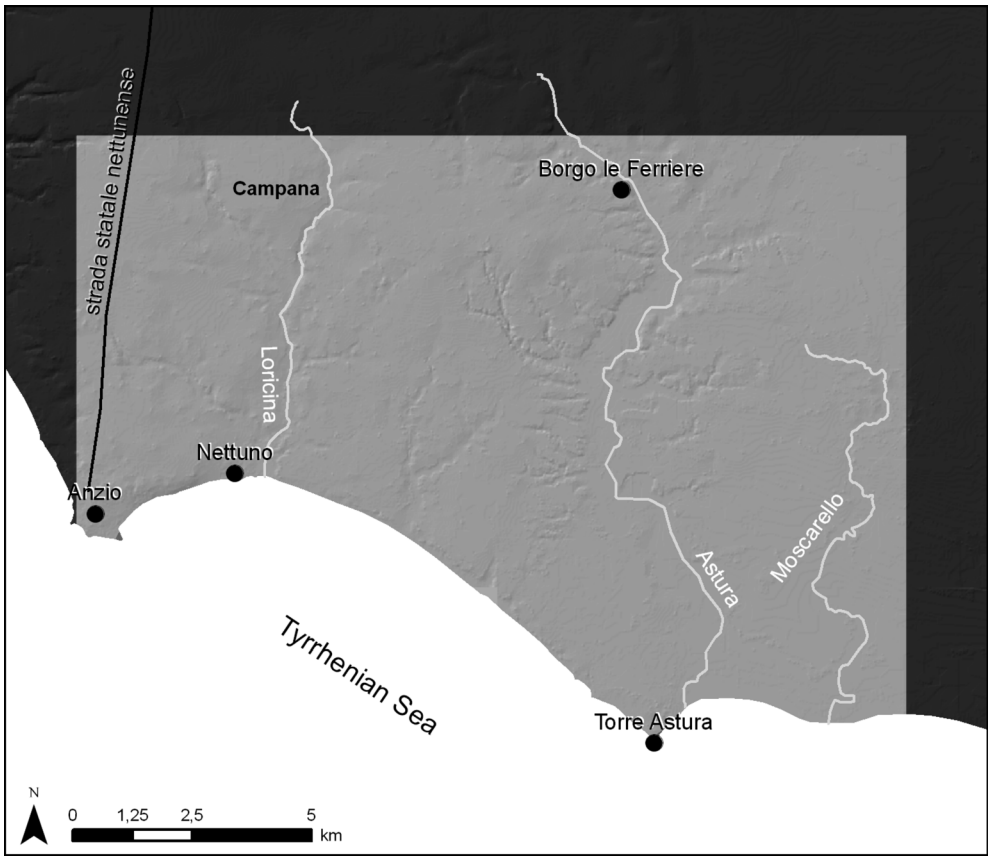


Figure 1.1 Location of the study area.

Figure 1.2a Erosion in the Campana area, northern part of the Nettuno municipality.

Figure 1.2b Erosion along the coast at the Roman villa of Le Grottacce.

during construction works.[9] Important finds were for example recovered during the construction of the railway Rome-Nettuno in the late 19th century. The fact that the supposed area of both the Archaic and Roman city of *Antium* is nowadays largely urbanized limits future studies of their lay-out.

Our knowledge of ancient *Antium* is therefore still largely founded on the excellent topographic study by Lugli.[10] In recent years several publications have also aimed to reconstruct ancient *Antium*.[11] Currently a research project is carried out by a team of the Roman 'Università La Sapienza', aimed at restudying the available archaeological evidence.[12]

Antium in the ancient sources

Antium is first mentioned in the ancient sources when it is included in the first treaty between Carthage and Rome (509/508 BC). The inclusion of *Antium* can be taken as evidence for the Latin origin of the town.[13] Soon, however, the town appears to come under Volscian control and it was considered one of the main Volscian strongholds during large parts of the 5th and the first half of the 4th century BC.[14] In this period *Antium* and its immediate surroundings were the scene of repeated skirmishes between the Volscians and the Romans, probably motivated by the town's strategic position and its harbour (see below). The Romans first established a colony at Antium in 467 BC, although the town soon after would come under Volscian control again.[15] In the 4th century the fate of Volscian *Antium* is closely tied to that of *Satricum*; a colony was established here by the Antiates in 348 BC.[16] *Antium* is finally defeated by the Romans after the destruction of *Satricum* in 341 BC. After this event, in 338 BC, a second colony is installed at the town.[17]

The historical record for *Antium* is somewhat limited for the next two centuries, but extensive evidence is again available for the later part of the Republican period as well as for the early Imperial period. In 171 BC Caius Lucretius used his war booty from Macedonia to embellish the sanctuary of Asclepius as well as for the construction of an aqueduct.[18] Furthermore, there is ample historical evidence that members of the Roman elite possessed estates in or around *Antium*.[19] The town is thought to have been of particular interest to the emperors of the Julio-Claudian dynasty. Augustus received the title *Pater Patriae* during an overnight stay in the town, whereas emperors Nero and Caligula were both born in *Antium*.[20] The former is thought to have commissioned the construction of a harbour and the establishment of a veteran colony at the town.[21] Sources describe that among the colonists were members of the Praetorian Guard as well as wealthy chief centurions.[22] Although the town is up to date void of archaeological evidence for the late Antique and early Medieval periods, it is occasionally mentioned in the ancient sources. In the year AD 465, an Episcopal see is founded at *Antium* that was subsequently abolished in the 6th century AD. [23] The continued use of the harbour is mentioned in AD 537.[24] The *Liber Pontificalis* mentions the foundation of a *domusculta Antias*, generally thought to be situated near present-day Anzio; to date, however, no archaeological evidence for its location has been found.[25]

Archaeological evidence at *Antium*

The earliest occupation at *Antium* dates to the 10th century BC, as is attested by graves located near the coast

9 The main source for these findings is the NSc, see for example 1879, 16-17, 116 & 224; 1880, 56; 1883, 133-134; 1884, 240-241; 1887, 241; 1888, 234-235; 1889, 164; 1890, 39-40 & 219; 1894, 170 & 314; 1897, 196-198; 1913, 53-54; 1915, 54-55; 1938, 426-440 & 1939, 79-82.

10 Lugli 1940. Several archaeological observations are however also included in earlier, 18th and 19th century topographical studies, see for example Volpi 1726, Lombardi 1847, Rasi 1832 & Soffredini 1879.

11 The most extensive works are Chiarucci 1989, Brandizzi-Vittucci 2000 and Caneva & Travaglini eds. 2003.

12 This 'Carta archeologica di Anzio'-project is carried out under the supervision of Dott. A.M. Jaia (Università di Roma "La Sapienza"). For publications see Jaia 2003, 2004, 2007 & 2008.

13 Van Royen 1992, 440 citing Polybius, *Histories* III, 22,11.

14 The principal accounts on the events of these periods are Dion. Hal., *Antiquitates Romanae* and Livy, *The History of Rome* (mainly books II, III, VI and VIII).

15 The colony is described as having a rather mixed population consisting of Romans, Volscians, Latins and Hernicians (Livy, *The History of Rome* III, 1, 7; Dion.Hal. *Antiquitates Romanae* IX, 59, 2).

16 Livy, *The History of Rome* VII, 27, 2.

17 Livy, *The History of Rome* VIII, 14, 8.

18 Livy, *The History of Rome* XLIII, 4.

19 Strabo, *Geography* V, 5; Cicero, *Ad Att.,* II, 6, 1 and 8, 2; Appianus, *'Ρωμαϊκά*; Suetonius, *Vitae Caesarum, Caligula*, 4. Some of the *villae maritimae* along the coast between *Antium* and Torre Astura have been attributed to members of the Roman elite. For example Maecenas is thought to have owned a property just north of *Antium* (Giacopini 2003, 336).

20 Suetonius, *Vitae Caesarum, Augustus*, 58; *Vitae Caesarum, Nero,* 6; *Vitae Caesarum, Caligula*, 8.

21 For the construction of the harbour and the establishment of a veteran colony Suetonius, *Vitae Caesarum, Nero,* 9.

22 Keppie 1984, 86. Tacitus mentions that the colony was made up of army veterans (*Ann.,* 14, 27). Suetonius however indicates that among the colonist were members of the Praetorian guard and chief centurions (*Vitae Caesarum, Nero,* 9).

23 For the foundation of the episcopal see Duchesne 1892.

24 Prokopius *bell. Goth.* I, 26 describes that the harbour was still in use in the early 6th century AD.

25 Brandizzi-Vittucci 2000, 136-138.

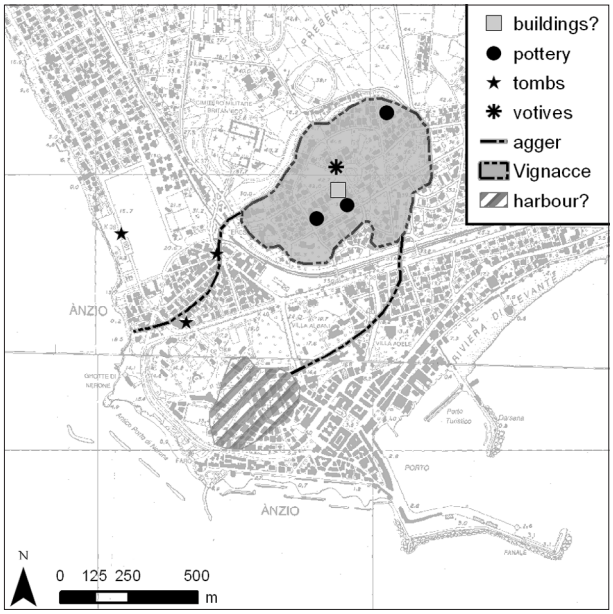


Figure 1.3 Map of Antium in the protohistorical and Archaic period.

east of the town and just north of the present-day centre of the town.[26] Both *necropoleis* also contain graves that are later in date, the former continuing at least until the 6th century BC and the latter possibly until the 7th century BC.[27] The find of an *orciolo* close to the present-day railway suggests the presence of burials in this area as well.

Protohistorical occupation at *Antium* was concentrated on the natural tuff hill of *Le Vignacce*, approximately 1.5km inland (see fig. 1.3). However, few systematic investigations have been carried out in this area and, until now, the evidence for protohistorical activity is limited to some sparse finds.[28]

The *Vignacce* plateau was surrounded by a defensive *aggere*. On various occasions stretches of this defensive system were studied. Recently, a development of the *aggere* in three consecutive phases has been proposed, with the earliest phase dating in the 9th century BC.[29] This early phase is based on the retrieval of Early Iron Age fragments from the fill of the second and main phase of the *aggere*, generally dated to the period between the 7th century and the 5th century BC.[30]

North of *Antium* several important protohistorical sites are documented. These include a necropolis, dated in the *Bronzo recente* period in the locality Cavallo Morto and two settlement sites in defendable locations at Tor Caldara and Colle Rotondo.[31]

The Archaic period

Although *Antium* is generally considered as an Archaic urban centre of some importance, surprisingly little is known of occupation in this period. As mentioned, activity is thought to have been concentrated on the Vignacce hill that was surrounded by a defensive *aggere*. However, the few concentrations of pottery found within the enclosed plateau are mostly of Iron Age date. Archaic pottery is possibly included among the votive materials recovered close to the theater. There is, however, some evidence for 6th century burials near the coast.[32]

The post-Archaic period

Based on the ancient written sources *Antium* is generally considered a Volscian town in this period. However, as for the Archaic period, evidence for post-Archaic activity is rather limited. The *aggere* is thought to have been strengthened by a wall in *opus quadratum*, whereas several scholars date the extension of the defensive wall towards the sea in this period; this would thus indicate that the settlement area was considerably enlarged as well.[33] Within the perimeter of the *aggere*, however, little evidence for occupation has been found. Possibly the votive materials found close to the theatre include materials of this period. On the other hand, Brandizzi-Vittucci reports that several chamber tombs of the 5th century were located inside the *aggere*, one of which was actually dug into it. This would indicate that

26 Both *necropoleis*, for which only fragmentary information is available, contain burials belonging to Colli Albani phase I (corresponding to the Final Bronze Age 3 period). For an overview see Alessandri 2009, 104. For the second necropolis see also Bergonzi 1976, 318-322.

27 Alessandri 2009, 104.

28 Jaia 2004, 256 mentions the find of 8th-3rd century BC votive material close to the later Roman theatre. Guaitoli (1981a, 83) mentions several locations yielding protohistorical remains identified during a survey of the *Vignacce* area.

29 Egidi & Guidi 2009, 358. It is, however, unclear whether these fragments indeed indicate the first phase of a defensive system or rather belong to other archaeological contexts (e.g. habitation, graves etc.).

30 Guidi 1980 and Egidi & Guidi 2009. Early materials under the *vallum* were also noted by Guaitoli 1981a, 83. Different dates for the main construction phase of the *aggere* are proposed. A date in the first half of the 7th century is proposed by Egidi & Guidi (2009, 358). However, most scholars date these works much later, in the early 5th century BC, associated with the Volscian occupation of the town. See for example Lugli 1940, 160; Guaitoli 1981b, 370; Gianfrotta 1980; La Pera Buranelli 1994, 168; Veloccia Rinaldi 1983, 15 and Brandizzi-Vittucci 2000, 67. Guaitoli however mentions an earlier phase of the defensive works, tentatively dated in the 8th century BC (Guaitoli 1981b, 370).

31 For an overview see Alessandri 2009, 113-116. For Colle Rotondo see Quilici & Quilici-Gigli 1984b; for recent more intensive work at this site see Guidi, Jaia & Cifani 2011. For Cavallo Morto see Angle *et al.* 2004.

32 Alessandri 2009, 104; De Meis 1984.

33 The main advocate for the enlargement of the defensive works in this period is Chiarucci (1989).

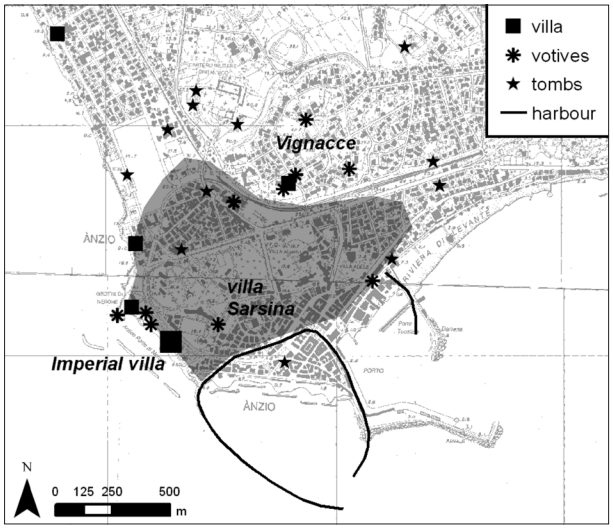


Figure 1.4 Map of Antium in the Roman period.

the settlement area rather contracted than expanded in this period.[34]

Based on the scarce remains, the archaeological record of *Antium* is of little help in evaluating the impact of both the supposed Volscian presence at the town as the foundation of a Roman colony in 467 BC, events both mentioned in the ancient written sources.

The mid-Republican period

Evidence for the 4th and 3rd centuries BC is ample but almost entirely confined to funerary and votive contexts (see fig. 1.4); again little settlement evidence is available.

A chamber tomb has been identified within the perimeter of a larger cemetery in the north-western part of the town.[35] The tomb is thought to belong to the *gens Mulakia*, based on an inscription in the tomb itself. Originally 43 burials were identified, dating between the 4th and 2nd century BC. Recent excavations under what was thought to be the pavement of the structure yielded additional burials, now totalling 49.[36]

This chamber tomb may have been part of a larger cluster, as both Chiarucci and Brandizzi-Vittucci mention similar tombs in the vicinity.[37] Furthermore, several *tombe a cappucina*, to be dated between the 4th and 1st century BC, were found within the area of the protohistorical necropolis near the coast.[38]

Several votive deposits have been uncovered at *Antium*, both on the Vignacce hill, in the lower part of the town (although the presence of wasters near the villa Albani probably rather indicates pottery production than the presence of a votive deposit) and along the coast within the area of the later Imperial villa.[39] These all appear to date in the 4th and 3rd centuries BC. Another votive deposit, containing mainly 3rd-century BC materials, can be situated under the villa Sarsina, based on a recent study by the GIA of materials in the archaeological collection of the *antiquarium* of Nettuno (see appendix to this chapter). Furthermore, votive deposits have been reported in the area of Colle Rotondo, north of *Antium*, and possibly near Tor Caldara.[40] Until now, however, no traces of sanctuaries connected with these deposits have been identified, although their existence can be extracted from the ancient sources. A partial preserved *dipinto* on a black glazed ware *skyphos* is taken as a confirmation of the existence of a Fortuna cult (and temple) at the town, although the few preserved characters allow alternative interpretations of the text.[41] Brandizzi-Vittucci hypothesizes the presence of a temple dedicated to Apollo and/or Aesclepius in the proximity of the so-called "*fonte dello speziale*". Here, remains of a thermal building were found as well as 3rd and 2nd century black glazed ware.[42] However, the reported remains are, in my view, insufficient for such identification.

To summarize: despite the absence of settlement evidence, the religious and funerary contexts provide firm evidence for the foundation of a Roman colony at *Antium* in the mid-Republican period.

The late Republican period

In the late Republican period several large *villae maritimae* were constructed along the coast, luxurious complexes owned by the elite and in some cases connected with industrial activity. At *Antium*, three such coastal villas have a first construction phase in this period, whereas another large villa was constructed on the

34 Brandizzi Vittucci 2000, 83.

35 Morpurgo 1944-1945.

36 Di Renzoni & Schiappelli 2007.

37 Brandizzi-Vittucci 2000, 81, note 392 (with refs.); Chiarucci 1989, 41.

38 Alessandri 2009, 104; Brandizzi-Vittucci 2000, 83.

39 For an overview see Jaia 2004; for the wasters see Brandizzi-Vittucci 2000, 43, note 189 and Bouma 1996, site 12a. For the deposit of viale delle Roselle on the Vignacce hill see also Jaia 2007. This deposit was first, erroneously, identified as related to pottery production (Chiarucci 1989, 95).

40 The possible deposit at Tor Caldara was reported by Lanciani (1909, 331-332); see also Bouma 1996, site 13. For the deposit from Colle Rotondo see Jaia 2004.

41 Preserved are the characters [...]une A[..]. See Jaia 2004, 260-261.

42 Brandizzi-Vittucci 2000, 47-49.

southern edge of the Vignacce hill.[43] This hill no longer formed the centre of settlement at *Antium,* as the main area of activity shifted to the lower parts of the town near the sea (fig. 1.4).

The evidence for public buildings, both in this area and in other parts of the town is still scarce, although a calendar (dated between 103 and 95 BC) as well as *fasti* (dated between 163 and 84 BC) must have been displayed in public buildings.[44] Chiarucci dates the first phase of a thermal complex, the same building where Brandizzi-Vittucci hypothesized the temple of Aesclapius, in the late Republican period.[45]

Furthermore, several of the votive deposits, as well as the two mid-Republican burial grounds, remained in use during the 2nd and possibly also the 1st century BC. The historical sources mention the construction of an aqueduct in 170 BC; identified fragments of aqueducts at *Antium* are, however, of Imperial date.[46]

The Imperial period

The early and mid-Imperial period can safely be identified as *Antium's* heyday. The many building activities attested in and around the town are historically closely tied to the Imperial court and the Roman (and local) elite.

In the second half of the 1st century AD a new harbour was constructed at the natural promontory of *Antium*. This harbour consisted of two opposing curvilinear piers, one larger than the other, leaving a large opening towards the sea. Within this opening an *antemurale* was constructed to break down the waves entering the harbour basin.[47] Recent research has identified a third pier somewhat to the south that is probably contemporaneous with the Neronian harbour.[48] Several of the large residential (coastal) villas discussed in the previous section, were restored, enlarged and embellished in the early Imperial period. This is most notably the case with the *Villa di Nerone*.[49]

The lower part near the sea has been identified as the centre of the town, although the evidence for (public) buildings is rather fragmentary. In the suggested forum area at least one building can be assigned to the 1st century AD, whereas the find of consular *fasti* indicates the presence of public buildings.[50] Furthermore, in the same area many marble decorations and statues are known, mainly dating in the 2nd century AD.[51] Brandizzi-Vittucci hypothesizes that the building referred to as the *sepolcro di Coriolano*, destroyed during the construction of the railway line in the late 19th century, constitutes the remains of a circus.[52] Other features (e.g. the famous *Sacello di Ercole*) are also dated in the 2nd century AD.[53]

The involvement of the Imperial court and the Roman and local elite cannot be assessed on the level of individual structures. However, that various elite figures were indeed involved in the building boom of the first two centuries AD is clear on the basis of tile and *fistula* stamps recovered from the town.[54] These attest to constructions ordered by Tiberius Claudius Spiculus, a former commander of the horse guard of emperor Nero, as well as by consuls C.Bruttius Praesens (either consul in AD 139 or AD 246) and T. Atilius Rufus Titianus (consul in AD 127). Other *fistulae*, bearing the names of emperors Vespasian, Domitian and Marcus Aurelius respectively, provide evidence for installations ordered by the imperial court. A *fistula* referring to a STATIO VRBANA AVG is evidence for the presence of an office at *Antium* that controlled (private or public) building activities directly commissioned by the emperor.[55]

Also on the Vignacce hill, the centre of pre-Roman *Antium*, several structures dating in the Imperial period are identified. A theatre, probably of mid 2nd century AD date, is based on its small dimensions, thought to

43 See Chiarucci 1989, Santamaria Scrinari & Morricone-Matini 1975 and Ceccarelli 2003, 323, fig.IX.3 for an overview. These villas along the coast comprise: 1) the first phase of the later *villa di Nerone*, close to the promontory of Anzio; 2) a villa in locality *Arco Muto* and 3) another villa more to the north (De Meis 1986). Furthermore, the first phase of the villa Spigarelli, located on the southern edge of the Vignacce hill, dates to the late Republican period.

44 See Brandizzi-Vittucci 2000, 60.

45 For a discussion of this thermal complex see Chiarucci 1989, 93; Brandizzi-Vittucci 2000, 46-47; Ceccarelli 2003, 330.

46 Livy, *The History of Rome* XLIII, 4. The aqueduct was supposedly financed by *Caius Lucretius* using his war booty from Macedonia.

47 For a description of the harbour see Ceccarelli 2003, 328-329; Brandizzi-Vittucci 2000, chapter 2; Chiarucci 1989, 83-87.

48 Felici & Balderi 1997.

49 For the various construction phases of the villa see Chiarucci 1989, 65-77. The latest restorations of the villa date to the Severan era.

50 Brandizzi-Vittucci 2000, 36-37; Chiarucci places the forum in the same area (1989, 50).

51 Brandizzi-Vittucci 2000, 38.

52 Brandizzi-Vittucci dates the building in the late 1st or early 2nd century (Brandizzi Vittucci 2000, 63-65), based on its wall decorations, which were described in the 19th century. Chiarucci assigns the same remains to the *sepolcro di Coriolano* and dates them in the Republican period (Chiarucci 1989, 61).Today, several remains of this structure can possibly still be recognized south of the railway line, close to the station.

53 Brandizzi-Vittucci 2000, 33-35.

54 De Haas, Tol & Attema 2011.

55 CIL XV/2, nos. 7790, 7791, 7792, 7793, 7794, 7796 & 7797.

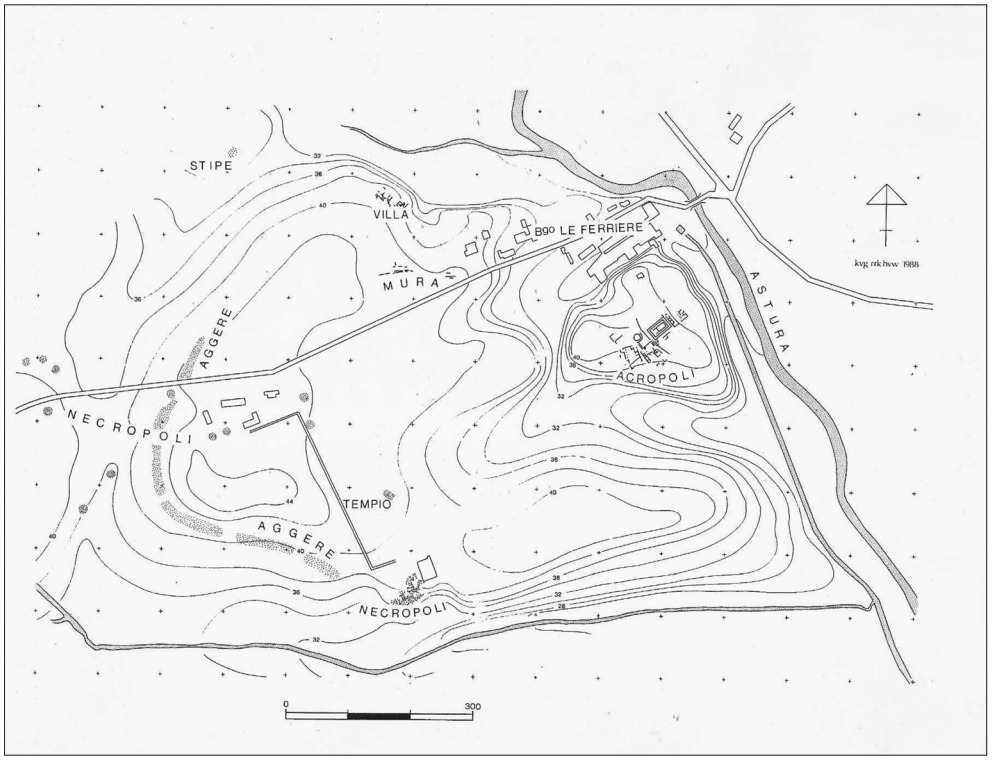


Figure 1.5 Map of Satricum with indication of the main archaeological features (courtesy of M. Gnade, UvA).

be of a private character.[56] Close to the Villa Spigarelli are the remains of an aqueduct, dated in the 2nd century AD.[57] Part of a second aqueduct that, based on its location must belong to another water supply system, is located just northwest of the town in the area of *I Cioccatti*.[58]

Epigraphical evidence points to continued building activity in the 3rd and 4th centuries AD, although the few attestations indicate that the town was probably past its glory days. One inscription dates to the Severan period, whereas a tile stamp is probably of 3rd century date as well.[59] The latest dating fragment mentions the restoration/renovation of the town baths with state finances in the late 4th century AD.[60]

Whereas for the Imperial period there is ample evidence for building activity, there is, in contrast with earlier periods, only sparse evidence for religious and funerary activity. Until now no convincing evidence for buildings associated with the many cults assigned to the town has been found. Furthermore, the various Republican votive deposits do not continue into the Imperial period. There is some evidence for Imperial graves; 2nd and/or 3rd century graves and funerary inscriptions are reported close to the coast. 3rd century tombs were also found in the area of the present-day centre of the town.[61] Evidence for burials of the Imperial period is also found along the *via Selciatella*, that connected the town of *Antium* with the *via Appia* and Rome (see below). In the collection of the villa Spigarelli are four funerary inscriptions and a burial monument that probably can be related to this road.[62] The remains of two burial monuments associated with this road are discussed later in this chapter, as they are located outside the town.

To date no evidence has been found for late Antique and early Medieval activity at *Antium*.

Archaeological research at *Satricum*

The town of *Satricum* (present-day Le Ferriere) is situated on a tuff plateau on the western bank of the Astura river, at a distance of approximately ten kilometres

56 As such it may even have been Imperial property. For the theatre see Brandizzi Vittucci 2000, 71-72; Sear 2006, 119-120 and Jaia 2008, 20.

57 See Brandizzi-Vittucci 2000, 78-79. In the early 19th century other segments of aqueducts were noted around *Antium* (see Brandizzi-Vittucci 2000, 77, note 374).

58 Brandizzi-Vittucci 2000, 134.

59 The tile stamp is of the ·AEMILI·PAVLLI type, produced along the coast between Nettuno and Torre Astura (see Tol 2010; De Haas, Tol & Attema 2011, 129-130; Attema, Derks & Tol 2010, 448; Tol & de Haas forthcoming).

60 CIL X, no. 6656, see also Brandizzi-Vittucci 2000, 46-47 & Santamaria Scrinari & Morricone-Matini 1975, no. 63. The fragment is dated between AD 379 and 382.

61 For the graves close to the coast see Brandizzi-Vittucci 2000, 84. The graves in the centre of the present-day town were identified during the construction of the first railway station (see Brandizzi-Vittucci 2000, 29-30, note 114 and Ceccarelli 2003, 329).

62 Brandizzi-Vittucci 2000, 84 (see also note 410).

from the coast. After the site was discovered in the late 19th century by the French scholar Henri Graillot excavations were carried out between 1896 and 1898 as well as between 1907 and 1910.[63] During these short campaigns the remains of the temple were identified and studied, as well as several hut features, part of the defensive wall and one of the burial grounds.[64] Apart from some small-scale interventions in the 30's and 50's of the last century, no systematic work was carried out until the late 1970's, when authorization for further study of the site was given to the Dutch Institute at Rome. The project brought together research teams of three different Dutch universities, Groningen, Amsterdam and Nijmegen. To date the excavations are continued by the University of Amsterdam. Due to this remarkable continuity of research *Satricum* can rightfully be considered among the best studied, and thus best known, Latin towns (see fig. 1.5). In the following both the historical and archaeological evidence for the town is summarized.

Satricum in the ancient sources

Like *Antium,* the town of *Satricum* figures prominently in the ancient written sources. A complete overview of the available evidence has been listed elsewhere; I will limit myself to a summary.[65]

The first mentioning of *Satricum* refers to the early 5th century BC, when the town is listed among the 29 Latin cities that rebelled against Rome, leading to the epic battle at Lake Regillus.[66] In the year 488/487 BC the Volscians, led by Coriolanus, defeated the Romans and seized control over several Latin cities.[67] After these episodes historical references to *Satricum* are absent for more than a century, until in 385 BC, after defeating the Volscian army, a Roman colony was founded at the town.[68] Whether this colony was ever established in practice is unclear, as subsequent years saw the town change hands on various occasions.[69] In 349 BC the Volscians of *Antium* sent a colony to *Satricum* to rebuild the town, only to be defeated again by the Romans three years later. The town is mentioned in 341 BC as an assembling point for Volscian troops.[70] In the year 207 BC reference is made once more to the temple of Mater Matuta, when it was supposedly struck by lightning.

Archaeological evidence for *Satricum*

The earliest occupation of the site can be dated in the (late) 9th century BC. To this period belong several huts identified on the acropolis as well as a number of burials.[71] Substantial Iron Age (and Orientalising) remains have been uncovered at *Satricum.* Most of these are situated on the acropolis, including a total of 47 huts. Among these huts are a number of larger structures and traces of cooking pits. Several votive pits (together forming the so-called Votive Deposit 1) are located under the later temple and the association of this deposit with hut features suggests the presence of an early cult building.[72] Burials are attested in the location S.Lucia/Botacci (the northwest necropolis) and four child burials were found within the perimeter of the acropolis.[73] That activity in this period was not constricted to the acropolis area alone is evidenced by orientalising remains recently excavated in the Poggio dei Cavallari area.[74] Furthermore, a 7th-century workshop, situated near the southern edge of the acropolis, was probably involved in the production of fine table wares.[75]

The Archaic period

In the subsequent Archaic period *Satricum* acquired what is generally conceived of as urban characteristics. The settlement area became protected by the construction of

63 The results of these excavations, carried out by Bernabei, Cozzo & Mengarelli (1896-1898) and Mengarelli (1907-1910), were never published.

64 For an extensive overview of these early excavations see Gnade 2007a.

65 For an overview of the available evidence see Maaskant-Kleibrink 1987 (especially 13-16); van Royen 1992 and Gnade 2002, chapter 4.

66 Dion. Hal., *Antiquitates Romanae* V, 61, 3. The reliability of the list is however doubted. The fact that no earlier reference to *Satricum* exists, despite the importance of the town in the Archaic period, is by some seen as evidence for the renaming of the town by the Volscians (see for example Stibbe 1987, 13-14 and Gnade 2002, 151-152).

67 See for example Plutarch, *Caius Marcius Coriolanus,* 13; Livy, *The History of Rome* II, 33.

68 Livy, *The History of Rome* VI, 16, 5-8.

69 Skirmishes are reported for example for the years 383 (Livy *The History of Rome* VI, 16, 5-8), 381 (Livy, *The History of Rome* VI, 22-27) and 377 BC. The latter event saw the complete destruction of the town by its Latin allies, sparing only the Mater Matuta temple. After this event Volscian *Antium* surrendered to Rome (Livy *The History of Rome* VI, 22 & 32-33).

70 Livy, *The History of Rome* VII, 27, 2 and 27, 8; Livy, *The History of Rome* VIII, 1, 1-6.

71 See Maaskant-Kleibrink 1987. For the early burials see Bartoloni *et al.* 1976, tombs 109 and 110.

72 Votive Deposit 1 still awaits full publication. Several of the finds are however published in Chiarucci & Gizzi 1985 and Gnade 2007a, 102-106.

73 For the northwest necropolis see Waarssenburg 1994.

74 Gnade 2009, 363.

75 Nijboer 1998, 79-83. In the surroundings of the kiln circa 400 wasters of thin-walled pottery were recovered. For the production of orientalising impasto pottery at the site see Beijer 1991. Gran-Aymerich (1993) suggests that also bucchero was produced at *Satricum.*

an *aggere*.[76] On the acropolis a monumental sanctuary with stone foundations was built, most likely dedicated to *Mater Matuta*. Three different phases of construction have been identified. In the first phase, generally dated in the early 6th century BC, a small rectangular building (an *oikos* or *sacellum*) was erected (temple 0).[77] This building was replaced by a larger temple (temple 1) in the second half of the 6th century that effectively sealed votive deposit 1. A third phase of the temple can be dated around 500 BC. Compared to the previous building, it is considerably enlarged, has a colonnade on all four sides and a slightly different orientation. In one of the foundation blocks of temple 2 the famous *Lapis Satricanus* was found.[78] A second temple was discovered in the early 20th century in the south-western part of the city, with two associated votive deposits. The temple, possibly preceded by a smaller structure, must have been constructed around the middle of the 6th century BC.[79]

In the area around the main temple several large buildings were constructed. Two different types of structures have been identified. The first type has a single wing and normally three different rooms that are not connected with each other. The second type is constructed with two opposing wings, with a courtyard in between (the so-called courtyard house).[80] The contemporaneity and spatial relation with the sanctuary has led to the association of these buildings with elite (banqueting) practices.[81] Recently two similar structures have been found in the lower part of the town.[82]

Also in the Archaic period, or possibly at the end of the preceding orientalising period, the so-called *via sacra,* passing in front of the sanctuary and running across the acropolis, was paved with pebbles of volcanic origin.[83] A stretch of road, identified in the area of Poggio dei Cavallari, was probably connected to this *via sacra,* and shows at least two phases of restoration, dating in the late Archaic and post-Archaic periods respectively.[84]

A kiln for the production of pottery, dating in the late 6th century BC, was excavated on the southern edge of the acropolis, involved in the production of storage jars, plain jars, bowls and tiles.[85]

The post-Archaic period

In line with other towns in Latium Vetus the town of *Satricum* underwent drastic changes in the post-Archaic period. These changes cannot be viewed separately from the historical record for the period that attests to an unstable time of continuous warfare. *Satricum* is generally considered – together with *Antium* – as one of the principal strongholds of the Volscians in this period.

Until present, there is no *in situ* evidence for post-Archaic habitation at *Satricum*.[86] The continuity of funerary and religious activity, as well as secondary depositions of materials associated with habitation are, however, clear signs of the settlements' continuity and rank *Satricum* among the best known post-Archaic towns in Latium.

Post-Archaic burial evidence comes from different parts of the town. The southwest necropolis contains 200 graves that can be dated in the 5th and early 4th century BC.[87] In one of the tombs a miniature lead axe bearing an Osco-Umbrian inscription was found.[88] This, combined with several pottery shapes commonly found in the graves (the amphorae *a doppio bastoncello*) are signs of the presence of at least a considerable 'Volscian' influence at *Satricum*.[89] Furthermore, the inscription

76 The *aggere* was constructed on only one side of the settlement, as the other three sides were already protected by a steep natural tuff slope.

77 The construction dates of the different phases of the temple are still subject of debate. Dates for the construction of temple 0 vary between the mid 7th century BC (see for example Knoop & Lulof 2007) and the early 6th century (recently van 't Lindenhout 2010, 87; Maaskant-Kleibrink 1992). Temple 1 is thought to have been erected shortly after 535 BC (Knoop & Lulof 2007; Van 't Lindenhout 2010, 87). Van 't Lindenhout argues that temple 1 shows evidence for a construction in two different phases (her temples 1A and 1B), each with a different lay-out and roofing system. The roof she reconstructs for her temple 1A is by others assigned to a late phase of temple 0 (Knoop & Lulof 2007, 35). Temple 2 is generally dated around 500 BC (Van 't Lindenhout 2010, 128; Knoop & Lulof 2007, 35), although stratigraphic evidence could point to an earlier construction date (Van 't Lindenhout 2010, 128).

78 For discussion of the *Lapis Satricanus* see e.g. Cornell 1995, 144-145 and recently Colonna 2007 and Gnade 2007a, cat.nr. 636.

79 For the southwest sanctuary see Ginge 1996. The two votive deposits span more or less the same chronology as the three votive deposits associated with the main temple on the acropolis. The first (large) deposit covers roughly the 7th to 5th century BC (with incidental donations until the 2nd century BC); the second (smaller) deposit dates between the 4th and 2nd century BC (Ginge 1996, 94).

80 For a recent typology of Archaic buildings, including those of *Satricum* see van 't Lindenhout 2010. The houses here described are her types 1 and 2 respectively.

81 For the courtyard houses on the acropolis see Maaskant-Kleibrink 1987 and 1992.

82 For the courtyard houses in the Poggio dei Cavallari area see Gnade 2006 and 2007b.

83 Maaskant-Kleibrink 1992, 15.

84 For the road see Gnade 2002, chapter 2; 2004, 2006, 2007b and 2009.

85 Associated with the kiln a building, a well and a drainage ditch were found. According to Nijboer (1998, 84-88) the remains belong to a semi-permanent workshop, with itinerant craftsmen producing temple decorations as well.

86 Gnade 2007a, 71.

87 Gnade 2002, chapter 3.3 and 2007a, 63-67.

88 Colonna 1984.

89 This pottery shape finds parallels in the area of Frosinone.

records a certain Lukos Comius or Cominius that held the rank of *aedil*; this is evidence for the persistence of an official urban administration in this period.[90] Other burials of the same period are known from the acropolis (30 graves), whereas the on-going excavations in the area of Poggio dei Cavallari are unearthing 5th-century (and possibly even early 4th-century) tombs as well.[91]

Associated with the *Mater Matuta* temple is a second votive deposit of 5th- and early 4th-century date.[92] This suggests that, although it is probable that the temple itself was already in decay, it still attracted worshippers.[93] The votive deposits associated with the southwest sanctuary also contain materials of the 5th (the large deposit) and 4th centuries BC (the small deposit).[94]

The road fragment, identified in the Poggio dei Cavallari area, shows major restoration works in the post-Archaic period. The road was raised and a new pavement included both re-used fragments of Archaic date and 5th-century fragments that provide secondary evidence for habitation of this period in the surroundings. On the acropolis, immediately behind the temple, a building was excavated in the early 2000's yielding 5th and 4th century BC materials. It is, however, uncertain whether these fragments are to be associated with habitation.[95]

In the late 19th century a kiln was excavated at the western edge of the town, in the area of *La Fornace*.[96] Field surveys in this area by the PRP indicated the presence of at least two different kilns, based on ploughed up kiln debris. Besides 4th-century BC anatomical votives also tile and domestic pottery were produced, probably from the late 5th century onwards.[97] Part of this pottery was dedicated at the sanctuary of *Mater Matuta* and it is plausible that this workshop functioned primarily to provide the sanctuary.[98]

The Republican period

Evidence for Republican activity is, compared to the earlier discussed periods, relatively scarce. There is clear continuity of religious activity connected with the two temples. In the area of the *Mater Matuta* temple votive deposit II is still in use in the second half of the 4th and part of the 3rd century BC. In a former cistern, located in front of the temple, dumped votive material of Hellenistic origin has been found (Votive Deposit 3). It contains mainly late 5th- to 3rd-century materials that have been deposited here in a relatively short time-span around 200 BC.[99] As such the content of the deposit is largely contemporaneous with VD-II. A special find includes a black glazed ware *skyphos* bearing a painted dedication in Greek to *Mater Matuta*.[100] Also the second of the two votive deposits associated with the southwest temple remained in use until at least the 2nd century BC. Votive material, dating from the mid-4th century onwards, is also known from the area of Macchia Bottacci.[101]

Further evidence for Republican activity comes from the acropolis area. The earlier mentioned building, originally of Archaic date, remained in use during the post-Archaic and mid-Republican periods.[102] Furthermore, mid-Republican materials have been unearthed in the area of Poggio dei Cavallari.[103]

During excavations in 1998 in the area of La Fornace no remains of the *aggere* and the earlier mentioned pottery workshop were found, although a stratum of 3rd- and 2nd-century date was identified. These small-scale excavations clearly indicate that the *aggere* was out of use in this period.

The Imperial period

In the area of Poggio dei Cavallari the remains of a Roman villa have been discovered, one of a number of Roman settlements along the lower course of the Astura river.[104] The first phase of the building, a typical *villa rustica*, can be dated in the early 1st century AD. Based on the material remains, the complex was abandoned somewhere in the 3rd century AD, with sparse and partial re-occupation from the early 4th century onwards. Based on several fragments of late African red slip ware habitation came to a definite end around the mid-5th century AD. To this second occupational phase belong three child burials. Occupation of the structure

90 Colonna 1992, 125-128; Gnade 2007a, 67.

91 See Gnade 2007a, 62. For the recent excavations Gnade 2004, 2006, 2007b, 2009 and 2010.

92 For Votive Deposit 2 see Bouma 1996.

93 Van 't Lindenhout (2010, 129) suggests that the temple itself was already on the decline around the mid-5th century BC. This would be indicated for example by the presence of fragments of architectonical terracotta's, belonging to temple 2, in Votive Deposit 2.

94 Ginge 1996, 94.

95 Gnade 2004 and 2007a, 71; Louwaard 2007.

96 Nijboer 1998, 89.

97 Nijboer 1998, 89-90.

98 Bouma 1996.

99 Heldring 2007 and in preparation.

100 Heldring 2007, 81; Gnade 2007a, cat.nr. 638. Elsewhere in the settlement a *cippus* commemorating *Mater Matuta* was found, dating in the 2nd or 1st century BC (Smith 1999, 475; Colonna 2007 and Gnade 2007a, cat.nr. 640).

101 For a description of the location see Bouma 1996, 79-80. Bouma also mentions two other locations where votives have been recovered, near the Fosso Pane e Vino and below the cardboard factory at Borgo Le Ferriere. The date and context of these materials are however unknown.

102 Gnade 2004; Louwaard 2007.

103 Gnade 2007a, 52.

104 For the *Satricum* villa see Raaymakers 2007. For the villas along the Astura see for example Maaskant-Kleibrink 1987, 25, figure XIII.

is also attested for the 9th and 10th century AD, based on the finding of fragments of Forum Ware and Sparse Glazed Ware.[105]

Caenon

The *oppidum* of *Caenon* is mentioned in the ancient sources as the harbour (town) of Volscian *Antium* and as the base of the much feared *Antiatine* pirates.[106] The harbour and the fleet were presumably destroyed by the Romans after *Antium* lost the epic battle near the Astura river in 338 BC. To celebrate the victory, the *rostra* of the fleet were set up in the *forum romanum*.

Since the 18th century, various locations for the ancient *oppidum* have been tentatively put forward. Many ancient cartographers as well as more recent scholars have hypothesized the location of *Caenon* at the natural promontory at *Antium* and thus at the same location as the later Neronian harbour.[107] Alternatively Brandizzi-Vittucci proposes a location more to the south near modern-day Nettuno, identifying the mouth of the Loricina river as a strong candidate.[108] This suggestion is predominantly based on the favourable natural position of this coastal stretch, providing more shelter from the wind than the completely exposed *Antiatine* promontory. More recently, a location in conjunction with the Fosso S. Anastasia, near Colle Rotondo has been put forward.[109] The suggestion of a river mouth for the location of a harbour (or perhaps more simply a landing place) seems rational. Harbours of these periods were not yet the large stone structures common in Imperial times, but rather places with naturally favourable conditions for access and the provision of shelter. The fact remains, however, that for all hypotheses archaeological evidence is completely lacking for now.

Astura (and Torre Astura)

An *emporion* is supposed by various scholars to have existed near the mouth of the Astura river from protohistorical times onwards.[110] Here, goods from overseas are thought to have been transferred onto smaller ships, to be transported upstream in the direction of *Satricum*. The finding of fragments of (Italo)-Mycenean pottery at Casale Nuovo, located six kilometres upstream, and at Piccarreta 13, along the coast north of Torre Astura, are indeed proof for the participation of the study area in wider networks of exchange from the 13th century BC onwards. From the 8th century BC, significant amounts of imported pottery also arrived in *Satricum*, evidencing its connection to exchange networks.[111]

To advocate the existence of an early settlement with associated harbour near the river mouth, scholars often refer to the ancient written sources that mention the toponym *Astura* several times. However, these sources all refer to events taking place in Roman Republican or Imperial times. Livy mentions the river as the scene of the decisive battle during the uprising of the Latins against Rome in 338 BC.[112] The river is also mentioned by Festus.[113] The presence of an anchorage in Roman times near the river mouth can be deduced from passages by Appian, Pliny, Plutarch and Suetonius, discussing sea travels by emperors Augustus, Tiberius, Caligula and Cicero, while a direct reference to its presence is made by Strabo.[114] Pliny also mentions an island by the name of *Astura*, probably referring to the artificial island on which part of the Torre Astura villa was built.[115] The villa itself is often ascribed to Cicero himself, who is known to have possessed an estate in the area.[116] The presence of a settlement in the area is mentioned by Servius.[117]

A road station by the name *Astura* appears on the *Tabula Peutingeriana*, a map that originates in the 4th century AD (fig. 1.6).[118] On this document, *Astura* is situated near the coast between the settlements of *Antium* (present-day Anzio) and *Clostris*, and for its location

105 Raaymakers 2007, 90.

106 Livy, *The History of Rome* II, 63,6; Dion. Hal, *Antiquitates Romanae* IX, 56. For the *Antiatine* pirates see Scevola 1969.

107 Lugli 1940; Chiarucci 1989.

108 Brandizzi Vittucci 2000, 140-143.

109 Guidi, Jaia & Cifani 2011.

110 See location maps in: Maaskant-Kleibrink 1987, 12, fig.6 and Bietti Sestieri & de Santis 2000, 10, fig.6. Although the site has never been the subject of systematic investigation, Fulminante (forthcoming) goes even further by assuming the presence of a settlement measuring 46 ha at this location as early as the Early Iron Age.

111 At *Satricum* imported pottery is predominantly found in graves and in connection with the temples (see Gnade 2007a, Waarssenburg 1994, Ginge 1996); During excavations at Casale Nuovo, several fragments of Mycenean and Italo-Mycenean manufacture were found; see Giardino 2006, 30 and Angle *et al.* 1993. For the Italo-Mycenean fragment from P13 see Attema, de Haas & Nijboer 2003 and Nijboer, Attema & Van Oortmerssen 2005/2006.

112 Livy, *The History of Rome* VIII, 13, 5.

113 Festus, 418.

114 Strabo, *Geography* V, 3, 6; Appian, *The Civil Wars* 4.19-20; Plutarch, *Cicero* 47.1; Suetonius, *De Vita Caesarum, Divus Augustus* 97.3, *De Vita Caesarum, Tiberius* 72.1; Pliny, *Natural History* 32.4.

115 Pliny, *Natural History* 3.57.

116 Plutarch, *Cicero* 47.1. Cicero's exchange of letters with Atticus was partly written from his Astura estate.

117 Servius *Ad Aeneidem* 7.801 (*nam haud longe a Terracina oppidum est Astura et cognominis fluvius*).

118 Frutaz 1972, II, TAV.If; Talbert 2000.

various hypotheses have been put forward.[119] The site appears in two other cartographic sources as well: the *Ravennatis Anonymi Cosmographia* of 7th century origin and the *Guidonis Geographica* thought to originate in the 12th century AD.[120] Whether these two documents depict a contemporaneous situation is, however, highly uncertain. The itineraries described are largely similar to that depicted in the *Tabula*. Therefore, the main view considers these itineraries as based on earlier (late Imperial) documents, of which the *Tabula* is at present the only known example.

Astura also figures prominently in Medieval sources. The first of these dates to the 9th of April 987, when the *console e duce* Giovanni and his sisters Bonizia and Teodora donate the island, three fishponds, a church dedicated to the *Salvatore* and a *cella* to the convent of S.Alessio all'Aventino in Rome.[121] A second donation, on the 23rd of October of the same year is made by count Benedetto and his wife Stefania. They include ruins, a public road located near the Astura river, the island and the harbour.[122] Again, the church dedicated to the *Salvatore* is mentioned as well as a church for the 'virgin'. In an act of the year AD 1037 a certain *Joannes de Astura* is mentioned, indicating the existence of a settlement near the river.[123] Further sources of the 11th and 12th century mainly refer to the artificial island and the fishpond as well as attesting to changing ownership of the area. In the early 12th century, the counts of *Tusculum* usurped the area from the convent of S.Alessio, who reclaimed the area in AD 1140. In AD 1193 the area is technically in the possession of the Frangipani family, although the continuous use of the area by the monastery is evident by a certificate issued by Honorius III.[124] *Astura* is mentioned in the act of navigation between Genova and Rome in 1166. This document stresses at least the economic importance of the location which, at this time, was considered the most advanced point of Rome's (coastal) defence. The castle of Torre Astura is mentioned several times in the late 13th century. In 1268 Corradin, duke of Swabia, sought refuge in the castle only to be betrayed by Giovanni Frangipani, leading to his assassination. The castle was subsequently destroyed by the aragonese fleet.[125] From the early 14th century onwards ownership of the area changed frequently. Part of the area was acquired by the Caetani in AD 1303, with the other part in possession of Angelo Malabranca, chancellor of Rome. After a short period of ownership by the Orsini, the area was repossessed by the Caetani in the late 14th century. Again, a settlement of some importance must have been located in the area as *Astura* was charged more taxes for salt than, for example, the town of Albano.[126] After another short period of ownership by the Orsini, the area was acquired by the Colonna in 1426. They, in turn, sold it to the Camera Apostolica in 1594. Between 1831 until well into the 20th century, the area was in possession of the Borghese family.

Notwithstanding this ample body of cartographic and historical evidence for activity near the mouth of the Astura, archaeological investigations in the area have been limited until now. Most studies have focused on the villa at Torre Astura and its associated fishpond, harbour and aqueduct.[127] There is sparse evidence for frequentation of this natural promontory between the Bronze Age and the construction of the villa itself.[128] The monumental remains of the villa originate in the late Republican or the early Imperial period and it remained in use until at least the early Middle Ages, as recent pottery studies as well as a study of the standing wall remains show.[129] A recent study dates several substructures of the Medieval castle in the 6th or 7th

119 Piccarreta proposes that the site discussed in this chapter should be identified as the settlement *Astura* (see below). However, Brandizzi-Vittucci favours a location more inland (Brandizzi-Vittucci 1998, 956). She also proposes the Bronze Age settlement site of *Casale Nuovo* as the location of the protohistorical harbour (Brandizzi Vittucci 1998, 956). Among other problems associated with the identification of these early harbours/landing places, there is also a large chronological gap between the settlement at *Casale Nuovo* and the heyday of *Satricum*.

120 An.Rav. IV, 32; Guid., 33. For a discussion of both maps see Cuntz, Schnetz & Zumschlinge 1990.

121 Galeazzi 2008, 68. The term *cella* is not unambiguous and its exact meaning is therefore unclear. The three mentioned fishponds probably refer to the *piscinae* of Torre Astura, La Banca and Saracca (see Piccarreta 1977, site entries 2, 5 and 7 and Higginbotham 1997, 137-157). If this is the case the estate of Astura comprised a large portion of terrain, extending at least two kilometres to the north.

122 Piccarreta 1977, 11.

123 Tomassetti 1976, 320. This Joannes is mentioned as a *potionarius* (someone making potions).

124 Piccarreta 1977, 12.

125 Piccarreta 1977, 12; Galeazzi 2008, 76-77.

126 Tomassetti 1976, 326.

127 The bibliography for the villa and its associated structures is ample: See for example Castagnoli 1963, 637-644; Quilici 1970; Tomassetti 1976, 385; Piccarreta 1977, 21-66; Piccarreta 1980, 113-115; Cenciarini-Giaccaglia 1982, 214; De Rossi 1984, 136-139; Higginbotham 1997, 143-151; Felici 1998, 275-340; Petrassi, de Simoni & Candeloro 2002, 14-20; Ceccarelli 2003; Petriaggi 2004.

128 For the Bronze Age materials see Alessandri 2007, 106-108. Also some bucchero, Archaic coarse wares and Republican fine and coarse ware pottery were recovered from the promontory (Attema, de Haas & Tol 2011, 186; see also chapter 3 of this thesis).

129 For the identification of late Imperial and early Medieval structures at Torre Astura see Galeazzi 2008. Late Imperial to early Medieval activity is also indicated by several materials in the collection of the museum (see Attema, de Haas & Tol 2011, 186) and fragments collected during our own investigations in the area (see chapter 3 of this thesis).

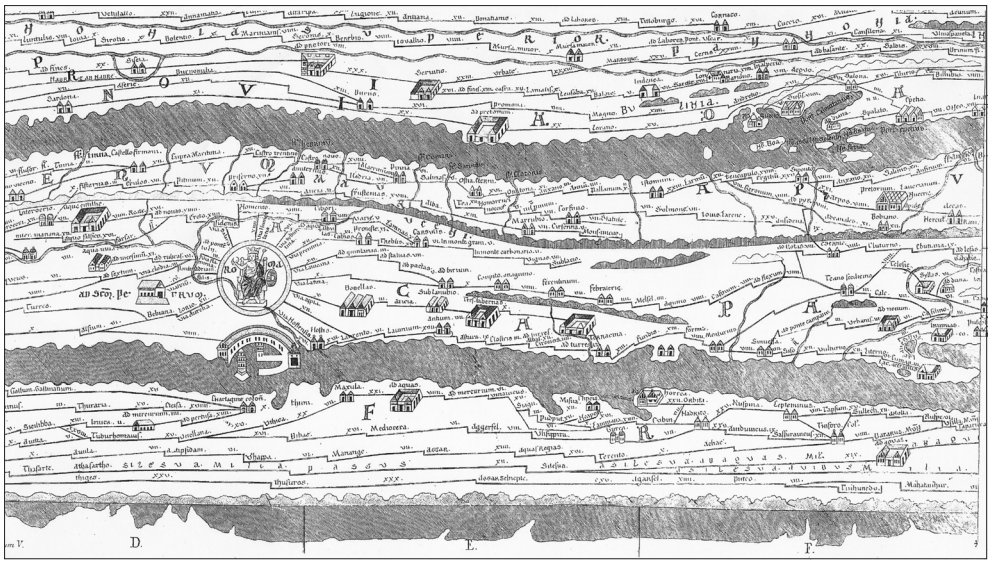


Figure 1.6 The Tabula Peutingeriana (Frutaz 1972, II, TAV.If).

century AD as well.[130] Although it is certain that these remains do not pertain to an earlier phase of the castle itself, it is unclear to what type of structure they belong. Satijn proposes they could be part of defensive structures aimed at keeping the area safe of incursions by foreign peoples, using part of the roman fishpond as a foundation.[131]

Literary references to the area increase considerably from the 10th century onwards, although the tower itself was not built before the 13th century. Associated with this period of renewed activity are several (late) Medieval pottery fragments that were collected around the tower.[132]

Apart from recording the ample remains at Torre Astura, Piccarreta also identified a large settlement between the promontory and the mouth of the Astura river. On various locations within the site area he recorded fragments of pottery and building materials as well as remains of standing structures. Based on reports by local people, he also mentions the presence of several *tombe a cappuccina* in the north-western part of the site. He proposed a possible identification of these remains as the road station *Astura* and estimated the total site area – based on the mapped remains – to encompass almost 1 km².[133] In recent years the southern-most extent of this site has been subject to investigations by the GIA (see chapter 6).

The coastal villas

Some of the large *villae maritimae* between Nettuno and Torre Astura, already briefly touched upon earlier in this chapter, have received scholarly attention. Four of these *villae* were incorporated into Piccarreta's *Forma Italiae*-volume.[134] One of these, the villa of 'Le Grottacce', yielded evidence for amphora production and was subsequently studied in more detail by several scholars.[135] The site has been subject of more intensive investigations by the GIA in the early 2000's (see below). For two other villas, La Banca and Saracca, studies have focused mainly on their associated fishponds.[136] Three other fishponds, located in front of the *borgo medievale* of Nettuno, were rediscovered, based on aerial photographs, in the late 1990's.[137] Their association with a (until now undiscovered) coastal villa can be hypothesized as well. The chronology of these villas and their associated structures is still far from clear. Most of them appear to be constructed in the late Republican period, whereas the site of *Saracca* shows restorations in *opus vittatum* to both the villa and the fishpond.[138] This indicates that both were still in use in the 4th century AD.

130 Galeazzi 2008, 76.

131 Satijn forthcoming, chapter 8.

132 A collection of late Medieval ceramics from this location is published by Bosi & Romoli 1995. The same collection is referred to in Satijn forthcoming.

133 Piccarreta 1977, 21.

134 Piccarreta 1977, sites 5, 7, 8 and 15. The same sites are included in the work of Marzano (2007).

135 Le Grottacce is Piccarreta's (1977) site 15. Locally, ownership of the villa, which dates later than the production activity, is assigned to Lucullus. The site is mentioned by Tchernia (1986), and was visited and sampled by Hesnard *et al.* (1989).

136 These sites are for example included in the works of Giacopini (1994) and Higginbotham (1997).

137 These structures were mentioned by Jacono (1924) and rediscovered by Gianfrotta (1997).

138 Piccarreta 1977, 68-74 and Marzano 2007, 279.

Torre del Monumento

Along the *via Selciatella* (see below), approximately five kilometres north of *Antium* are the remains of a burial monument, locally known as Torre del Monumento or Torraccio. The monument is already mentioned in 19th-century sources and appears to have remained largely intact until the 1940's.[139] Originally the structure consisted of three superimposed levels. The bottom was formed by a square element, measuring approximately six metres on each side and holding an entrance to the tomb. The second and third levels were of cylindrical shape, with the upper level surrounded by half columns. The structure was originally topped by a spire.

Two inscriptions have been related to this monument. Brandizzi-Vittucci mentions a funerary inscription of an A. Larcius Lepidus Sulpicianus.[140] A second inscription, present in the collection of the *antiquarium di Nettuno*, commemorates Caius Cassius Rufus, a former *praetor* of *Antium*.[141] The structure exhibits parts in both *opus reticolatum* and *opus mixtum*, suggesting a date in the 1st century AD. This date goes well with either of the two inscriptions mentioned. In the summer of 2007, the Soprintendenza per I Beni Archeologici del Lazio carried out small-scale excavations around the monument as part of a program of restoration and conservation of the structure. The results of this work have not yet been published.

Lanciani mentioned a second, nowadays completely vanished, similar structure, approximately 300 metres to the north.[142]

Rural habitation

Work on rural habitation in the area had been rather limited before GIA's Astura and Nettuno surveys (see below). An inventory of (rural) sites along the course of the Astura river was compiled by Piccarreta for his *Forma Italiae*-volume Astura.[143] His inventory includes a number of previously identified rural sites.[144] Based on Piccarreta's site descriptions, Marzano includes the sites of Colle Falcone and Pantano dei Frati in her inventory of Roman villas.[145]

Although in terms of chronology less relevant for this study, more extensive research has been carried out on the site of Casale Nuovo, located directly on the Astura river, approximately five kilometres from the coast. Here, a Bronze Age settlement, with evidence for specialized production (probably pottery) was found. The find of several fragments of *Italo-Mycenean* pottery, presumably manufactured in southern Italy, is evidence for the existence of early exchange networks.[146] Recently, based on bibliographical data supplemented by site visits, an inventory was made of Bronze and Early Iron Age settlement in the area.[147]

1.3 Roads and waterways: connectivity in the study area

The existence of communication routes, either by water or land, must have played a significant role in the development and success of each of the (urban) centres discussed in the previous section. *Antium* and *Astura*, as well as the mythical *Caenon*, were located at or near the coast, although to date no evidence has been found of the pre-Roman harbours of the latter two settlements. The river Astura is supposed to have been navigable in antiquity, either directly or by loading cargo onto smaller ships, and as such must have furnished an important direct route between *Satricum* and the coast.[148] The navigability in ancient times of the *Loricina* can also be hypothesized. In Imperial times, the colony of *Antium* as well as the villa complex at Torre Astura were equipped with a harbour. The latter is often - erroneously – identified as a refuge harbour, since its location forms one of the few places of shelter along the coastal stretch between Ostia and Terracina.[149]

Communication routes over land are already hypothesized in the area as early as the protohistorical period. In line with the strong urban development and population growth visible in the archaeological record from the late Iron Age onwards, a more complex road system is thought to have developed, connecting the larger settlement sites like *Antium, Ardea, Satricum* and the cult place of *Campoverde*.[150] Part of a road, dating in the Orientalizing period, was found on the acropolis at *Satricum*.[151] A second stretch of road of similar date (or somewhat later) has been identified in the area

139 The monument was still intact at the first visit by Giovannoni (1943), but it was partially destroyed at the time of his next visit after the monument had been used as a sheep shelter.

140 Brandizzi-Vittucci 2000, 126.

141 This inscription is known to derive from the area of Torre del Monumento, although it is unclear whether it belonged to the actual monument. The inscription is published in De Haas, Tol & Attema 2011.

142 Caneva & Travaglini 2003, 342.

143 Piccarreta 1977.

144 De La Blanchère (1885) mentions ancient remains in the areas of Cinfonara, Colle Falcone (Piccarreta's site 112, RPC site 11312), Colle del Pero (Piccarreta's site 113, RPC site 11313) and Acciarella (Piccarreta's site 68, RPC site 11268).

145 Marzano 2007. The site of Colle Falcone is Piccarreta's site 112, the site of Pantano dei Frati is his site 65.

146 See note 111.

147 Alessandri 2007 and 2009.

148 Waarssenburg 1994, 23.

149 Ceccarelli 2003, 343-345.

150 Maaskant-Kleibrink 1987, 12, figure VI.

151 Maaskant-Kleibrink 1992, 15.

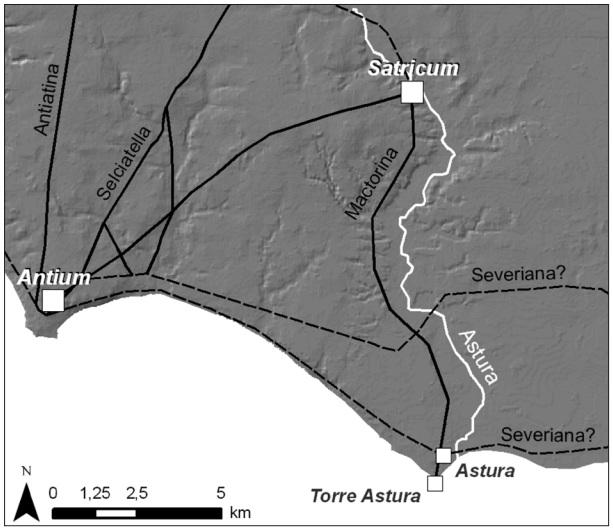


Figure 1.7 Reconstruction of the road network in and around the study area for the Roman period.

of Poggio dei Cavallari, probably forming a connection between this area and the *via sacra*.[152] The latter road sees at least two phases of restoration and reconstruction, dating in the late Archaic and post-Archaic periods respectively. There is at present no evidence for the existence of contemporary roads in and around the study area, but the existence (and persistence) of a road system connecting the major centres can be hypothesized based on the uninterrupted activity attested at *Antium*.

Evidence for roads of Roman Republican origin is scarce (see fig. 1.7). The construction of the *via Appia* in the late 4th century BC must have had a major influence on the connectivity of the Pontine Region. Several perpendicular roads connected the interior plain with the coastal region, including the *via Ardeatina* and the *via Antiatina*. One of these perpendicular roads, branching off from the *Appia* at *Lanuvium*, passes through the Nettuno municipality before reaching ancient *Antium*.[153] An early date for this road can be hypothesized based on the alignment of sites along the road as early as the mid-Republican period, although its paved surface likely belongs to a later (re)construction phase, probably in the late Republican or early Imperial period.[154] At least two roads branch off from this main artery within the Nettuno area; the first probably ran in the direction of the Roman villa at Torre Astura, whereas a second heads towards the present-day centre of Nettuno, where it probably met a coastal road. Two bridges of Roman origin were found in conjunction with these roads. The first, along the main road, provides a passage over the Fosso dell'Armellino. The second coincides with the track of one of the perpendicular roads suggested by De Rossi.[155] Another stretch of Roman road was identified near Campoverde, running more or less parallel to the course of the Astura river. This road can tentatively be identified as the *via Mactorina*, a medieval name for a more ancient road providing a connection between Velletri and the coast (and thus with the promontory at Astura).[156]

Although there should be little doubt about the actual existence of a coastal road, connecting the various coastal towns as well as the large *villae maritimae* its name, appearance, date and course have all been subject of debate.[157] The road is generally referred to as the *via Severiana*, based on an inscription found near *Ardea*, although a much earlier origin can be surmised.[158] However, besides a small segment of this hypothesized coastal road near Ostia, no other road stretches can be securely assigned to the *via Severiana*.[159] The sequence of towns connecting Terracina and Ostia, depicted on the *Tabula Peutingeriana*, is often cited as providing supplementary evidence for the course of the road. In this map, probably depicting an itinerary, a road appears to pass by eight intermediate stations.[160] Predominantly based on inconsistencies in the distances between the archaeologically known stations and those depicted on the map, several different courses have been hypothesized for this coastal route. The two prevailing reconstructions are one running directly along the coast and a course more inland, avoiding the water-logged areas around the coastal lakes of Fogliano, Paola, Monaci and Caprolace.[161]

There is only limited (secondary) evidence for the continued use of earlier roads, or the construction of new ones after the Roman period. The recently attested continuity of occupation on several of the large villas along the *via Selciatella* renders it probable that the

152 Gnade 2002, 8; see also Gnade 2006, 2007b and 2009.

153 The ancient name of the road is unknown and it is therefore generally referred to as the *via Selciatella*. For a discussion of the course of the road see De Rossi 1981; Negrini 2004. See also Garofalo 2007.

154 Attema, de Haas & Tol 2011, chapter 9.

155 See Attema, de Haas & Tol 2011, site cat. nos. 15015 and 15129; De Rossi 1981, 92.

156 See reconstruction in Maaskant-Kleibrink 1987, 25, figure XIII. See also Waarssenburg 1994, 22; De Rossi 1981 and Satijn forthcoming, chapter 8.

157 See for example Brandizzi Vittucci 1998; Cassatella 2003 and 2004; Fogagnolo & Valenti 2005.

158 Brandizzi Vittucci 1998, 929.

159 Brandizzi Vittucci 1998, 934.

160 Frutaz 1972, II, TAV. I-IV. However, evidence for several of these intermediate stations is lacking until now (*Clostris, ad Turres Albas* and *ad Turres*, as well as the stations of *Laurentum* and *Astura*). See Cassatella 2003 for the available evidence for each of the stations.

161 Brandizzi Vittucci (1998) hypothesizes a course behind the coastal lagoons. For a course along the coast see Westphal 1829 and Cassatella 2003.

road remained in use until at least the early 6th century AD.[162] Parts of the Roman road system must have survived into the Middle Ages, when parts of their pavements were used in the construction of the *Borgo Medievale* of Nettuno. The survival of a coastal road can be hypothesized as well.

Conclusions

An assessment of the available historical, archaeological and topographical data for the study area shows that several substantial gaps still exist in our knowledge. Both the historical and archaeological record are mainly urban-focused, whereas especially the archaeological knowledge of ancient *Antium* has been acquired in a rather haphazard manner. Furthermore, when attempting to integrate the historical and archaeological evidence rather large inconsistencies between the two can be noted.

As regards rural occupation, Piccarreta's site inventory, despite providing an excellent topographical source, is characterized by a low chronological resolution. Therefore, the (economic) relationship between the urban centres of *Satricum* and *Antium* and their respective hinterlands remains to be defined. Shedding more light on these relationships was the principal aim of the (landscape) archaeological research carried out by the GIA from 2001 onwards, providing another building stone for its long-running Pontine Region Project (PRP).

1.4 The Pontine Region Project

The Pontine Region Project (PRP), initiated in the late 1980's, is among the longest-running landscape archaeological projects in the Mediterranean. The initial aim of the project, the investigation of the landscape around the settlement of *Satricum*, was in the course of the project widened to cover the archaeological history of the different landscape zones of the region between prehistory and the medieval period.[163] In the last decade PRP research has focused mainly on the coastal zone; first on the area around lake Fogliano and subsequently on the area around the present-day town of Nettuno.[164]

Fieldwork in the latter area was executed within the framework of two consecutive sub-projects; 1) the Astura project and 2) Nettuno project (forming the foundation for the archaeological map of the municipal territory of Nettuno). As the research discussed in this thesis elaborates on these two sub-projects they will be discussed in more detail below.

Reconstructing rural settlement in the study area: the Astura and Nettuno projects

The Astura project (2001-2003) aimed at investigating settlement and land use in the lower valley of the homonymous river. The basis for this research was the inventory of archaeological sites published in Piccarreta's *Forma Italiae*-volume Astura.[165] Revisits to and small-scale excavations of sites mapped by Piccarreta were supplemented by intensive field surveys in the areas between these sites.[166] The revisits to sites mapped by Piccarreta were primarily aimed at obtaining additional dating evidence, as despite the importance of his work as a detailed topographical source, his site descriptions lack chronological precision. Site dates (if provided) are based foremost on architectural features, therefore providing only limited information on sites and periods without such durable remains. At the same time, these systematic revisits could provide insight into the degree of site deterioration and site loss caused by the large-scale interferences in the landscape that were already noted by Piccarreta during the execution of his study.[167] The supplementary intensive field surveys were aimed at shedding light on the method used by Piccarreta for the location of sites; this method can be assumed to have been rather extensive.

The subsequent Nettuno-project focused on the evidence for settlement in the municipal territory of Nettuno, thus incorporating several sites on the western bank of the Astura and along the coast already studied earlier in the course of the Astura project. Furthermore, complementary intensive field surveys were carried out on all accessible fields within the communal area in 2004 and 2005.[168] These investigations were supplemented by geophysical research on five of the identified sites and incidental revisits.[169] The acquired data

162 Brandizzi Vittucci's on the other hand suggests that the road already fell in disuse at an early date, possibly already in the 4th century AD, based on the excellent state of preservation of the road (Brandizzi Vittucci 2000, 126). For continued activity on settlements along the road see Attema, Derks & Tol 2010; Attema, de Haas & Tol 2011, chapters 15 and 16 and chapters 3 and 4 of this thesis.

163 Key publications include Attema 1993; Attema & van Leusen 2004; Attema, Burgers & van Leusen 2010 and Attema, de Haas & Tol 2011.

164 For the Fogliano surveys see Attema & de Haas 2005.

165 Piccarreta 1977.

166 The sites studied comprised five protohistorical sites (11213, 11214, 11216, 15122, and 15123), a large late Iron Age to Archaic site (*Depuratore*, site 15125) as well as investigations at the Roman villa complex of Le Grottacce, where evidence for the production of amphorae (and tiles) was found. For an overview of the excavations see Attema, de Haas & Nijboer 2003. The protohistorical sites are included as well in Alessandri 2007 & 2009; Alessandri & Tol 2007 and Tol *et al.* in preparation. For the amphora production at Le Grottacce see De Haas, Attema & Pape 2008, and earlier Hesnard *et al.* 1989. For the results of the Astura surveys: Attema *et al.* 2008.

167 Piccarreta 1977, 6.

168 For the surveys: Attema, de Haas & Tol 2010.

169 For the geophysical work see Moffa, Malagodi & Volterrani 2011.

was subsequently used for the compilation of the *Carta archeologica del comune di Nettuno* by integrating previously collected materials from known sites, brought together in the local museum, and available historical, epigraphical and cartographic information.[170]

170 A divulgative version of the *Carta* has been published in Italian (Attema, de Haas & Tol 2009). A more elaborate English version is published as a supplement to *BaBesch* (Attema, de Haas & Tol 2011).

Appendix 1 – A mid-Republican votive deposit under the Villa Sarsina, Anzio

Gijs Tol and Rosa Doreleijers

Introduction

During the inventory of the museum collection of the *antiquarium di Nettuno* (see chapter 4), two crates containing large fragments of black glazed ware were identified. An accompanying note records the find location as '*Anzio, sotto villa Sarsina dalle grotte*'. In the summer of 2006 one of these crates, containing mainly handle and base fragments was subjected to further study; the second crate, containing mainly rim fragments, had in the meantime been stolen from the storerooms of the museum.

The location and early archaeological research

The Villa Sarsina, a large renaissance building, is located just north of the centre of Anzio. Its construction, between 1732 and 1735, was ordered by Cardinal Neri Maria Corsini from Florence, grandson of the Orsini pope Clement XII. The building, however, takes its name from the Aldobrandini family, princes of Sarsina, who owned the building between 1874 and 1926. In the late 19th century AD, various communications in the *Notizie degli Scavi di Antichità* (NSA) report on 'archaeological excavations' carried out by the Aldobrandini on their property. A communication from 1882 for example reports the find of two statues and in 1887 an inscription, dating to the 1st century AD, was unearthed. In 1888 (illegal) excavations were carried out on the Sarsina property, during which the remains of a bath house were identified, and coloured marbles, copper nails and other objects were collected.

The materials presented here were reportedly retrieved from caves under the Sarsina estate. The existence of caves in the friable *macco*-formations that are characteristic for the area is widely attested.[172]

The material

The material sample studied consists exclusively of black glazed ware fragments; no complete pottery shapes are preserved (table 1.1). For reasons explained earlier the material available for study includes only a small number of rim fragments. These comprise a wide variety of forms, including a large bowl (pl.I-I.1), six *skyphoi* (pl.I-II.6-11), four jugs (one with a trefoil mouth – pl.I.II.12-15), three craters (pl.I-II.16, pl.I-III.21-22), two plates (pl.I-II.17-18), two bowls/dishes (pl.I-III.19-20) and a wide variety of normal-sized and (possibly) miniature plain bowls (pl.I-III.23-39). At least four large handles, decorated with applied buttons and knots, preserve a small part of the rim. These shapes can be identified as *situlae* (buckets – pl.I-I.2-5).

The handles and bases can in most cases not be related to a specific type, although, based on their shape, they must belong to a variety of both open and closed shapes. One fragment of an umbilical base can be identified as belonging to a *phiale* (pl.I-VI.74). Several large bases with vertical rilling on their lower exterior probably belong to *skyphoi* (pl.I-V.57-60). Seventeen bases bear one or more stamps on their interior floors, all belonging to the Gruppo dei Piccoli Stampigli (GPS). Remarkable is the fact that two types of *rosette* stamps appear in high numbers: four examples bear six/eight-petalled plain *rosette* (pl.I-IV.42-45), whereas seven fragments bear an eight-petalled *rosette* with intersecting leafs (pl.I-III.28-29 & pl.I-IV.46-50). The collection of stamps furthermore includes three *palmettes* (pl.I-IV.51-53), one fragment bearing a single stamp of seven dots (pl.I-IV.54) and two unidentified stamp types (pl.I-V.55-56). Five base fragments, all without stamps, bear concentric lines in white paint on their interior floors (pl.I-V.63-65, pl.I-VI.66-67).

The handle fragments display a wide variety of shapes (pl.I-VII.91 till pl.I-VIII.112). Several large fragments bear applied knots (pl.I-VII.91-94). The sample also contains lid fragments (pl.I-IV.40-41) and three *sovradipinta* wall fragments (pl.I-VIII.113-115).

Date and nature of the material

The collection of stamps comprises a set of well-dated types. The *rosette* stamps belong to the fourth production phase of the GPS, dated between 265 and 240 BC.[173] Stamp type pl.I-V.54, as well as the three rosette stamps date somewhat earlier, between 280 and 260 approximately.[174] The collection of stamp types is commonly associated with plain bowls Morel 2783/84, of which several examples are included in the sample (pl.I-III.28

171 The evidence for mid-Republican votive activity at *Antium* is discussed earlier in this chapter

172 Cuccillato & Tamburino (2006) have, for example, mapped the *macco* caves located under present-day Nettuno.

173 Stanco 2009, 178.

174 Stanco 2009, 178 and 187.

till pl.I-IV.39). The *situla*-fragments, as well as the *skyphoi* predominantly date in the later part of the 4th or the first half of the 3rd century BC. Further dating evidence is provided by the *phiale* that dates in the later part of the 4th or the 3rd century BC.

For the interpretation of this collection of materials the single *phiale* fragment is important as this shape is generally associated with ritual contexts.[175] The presence of special shapes like *situlae*, as well as the many elaborately decorated handle fragments provides further backing for such identification. Other shapes, such as the plain bowls (including the stamped bases) and the *skyphoi*, are commonly found in votive deposits as well.[176]

Conclusions

The material sample presents a homogeneous set of black glazed ware shapes that must have formed part of a votive deposit. Based on the identified pottery shapes this deposit must have been formed over a relatively short amount of time, probably in the course of the 3rd century BC.

The studied materials probably only comprise a small segment of the original deposit, as mid-Republican votive deposits generally contain a mixed set of materials.[177] The fact that fragments of only one pottery class are present in the museum collection suggests that a conscious selection from the original assemblage has been donated to the museum.

Another explanation for the sole presence of black glazed ware is that the collected materials are to be associated with the production of votive pottery. The occurrence of identical stamps on different fragments can indeed be considered 'untypical' for a consumption context.[178] However, the fact that the collection of shapes includes no wasters renders this explanation unlikely at present.

In conclusion, the black glazed ware provenient from the *macco*-caves under the property of the villa Sarsina, most likely represents part of a mid-Republican votive deposit. As such it adds to the already extensive evidence for religious activity at *Antium* in this period.

175 Similar fragments come from the votive deposit at Colle Rotondo (Jaia 2004, 261, figure 14.9-10).

176 To cite some nearby examples: Votive deposit 2 at *Satricum* contains large numbers of (stamped) plain bowls and *skyphoi* (Bouma 1996), as well as the Casarinaccio deposit at *Ardea* (Di Mario 2005). A collection of stamped plain bowls is also known from the Viale delle Roselle deposit at *Antium* (Rossini 2007). However, both pottery shapes are common in habitation contexts as well (see for example chapters 3 and 4 of this thesis).

177 Often black glazed ware is accompanied by anatomical votives, Genucilia-plates, loomweights and various coarse ware shapes; see for example Bouma 1996 and Di Mario 2005.

178 Moltesen & Brandt 1994, 108.

Table 1.1 Pottery types from the Villa Sarsina votive deposit.

Villa Sarsina			
Plate	**Shape**	**Date**	**Parallel/literature**
I-I.1	Rim of a large bowl	2nd century BC?	Similar to Aylwin Cotton 1979, 105, fig.25.21
I-I.2	Rim and handle of a *situla*	Ca. 300 BC	Morel 1981, pl.197, serie 6510
I-I.3	Rim and handle of a *situla*	Ca. 300 BC	Morel 1981, pl.197, serie 6510
I-I.4	Rim and handle of a *situla*	Ca. 300 BC	Morel 1981, pl.197, serie 6510
I-I.5	Rim and handle of a *situla*	Ca. 300 BC	Morel 1981, pl.197, serie 6510
I-II.6	Rim and handle of a *skyphos*	325 – 275 BC	Morel 1981, pl.131, form 4373
I-II.7	Rim and handle of a *skyphos*	325 – 275 BC	Morel 1981, pl.131, form 4373
I-II.8	Rim and handle of a *skyphos*	325 – 275 BC	Morel 1981, pl.132, form 4374?
I-II.9	Rim and handle of a *skyphos*	325 – 250 BC	Morel 1981, pls.130-131, form 4363/4373?
I-II.10	Rim and handle of a *skyphos*	325 – 250 BC	Morel 1981, pls.130-131, form 4363/4373?
I-II.11	Rim and handle of a *skyphos*	350 – 300 BC	Morel 1981, pl.128, form 4341
I-II.12	Rim of a trilobate jug	-	-
I-II.13	Rim of a jug	-	-
I-II.14	Rim of a jug	-	-
I-II.15	Rim of a jug	-	-
I-II.16	Rim of a *cratere*	350 – 200 BC	Morel 1981, serie 3500
I-II.17	Rim of a plate	300 – 100 BC	Morel 1981, pl.41, form 2256(b1)
I-II.18	Rim of a plate	300 – 200 BC	Morel 1981, pl.34, form 2212
I-III.19	Rim of a bowl/dish	250 – 200 BC	Similarities with Roth 2006, 132, fig.5.1 (= Morel 1981, pl.27, form 1646?)
I-III.20	Rim of a bowl/dish	-	-
I-III.21	Rim of a *cratere*	350 – 200 BC	Morel 1981, serie 3500
I-III.22	Rim of a *cratere*	350 – 200 BC	Morel 1981, serie 3500
I-III.23	Rim of a bowl	220 – 180 BC	Morel 1981, pl.51, serie 2521-24
I-III.24	Rim of a small bowl	-	-
I-III.25	Rim of a small bowl	-	-
I-III.26	Rim of a small bowl	-	-
I-III.27	Rim of a bowl	300 – 200 BC	Morel 1981, pl.79, form 2913/14
I-III.28	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84. Stamp: Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-III.29	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84. Stamp: Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-III.30	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84
I-III.31	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84
I-III.32	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84
I-III.33	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84

Table 1.1 continued

Villa Sarsina			
Plate	**Shape**	**Date**	**Parallel/literature**
I-III.34	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-3, form 2783/84
I-IV.35	Rim of a small bowl	300 – 200 BC	Morel 1981, pls.72-4, form 2783-87
I-IV.36	Rim of a small bowl	300 – 200 BC	Morel 1981, pls.72-4, form 2783-87
I-IV.37	Rim of a small bowl	300 – 200 BC	Morel 1981, pls.72-4, form 2783-87
I-IV.38	Rim of a small bowl	300 – 200 BC	Morel 1981, pls.72-4, form 2783-87
I-IV.39	Rim of a small bowl	300 – 200 BC	Morel 1981, pls.72-4, form 2783-87
I-IV.40	Fragment of a lid	300 – 200 BC	Morel 1981, pl.216, serie 9130
I-IV.41	Fragment of a lid	-	-
I-IV.42	Stamped base	300 – 200 BC	Stanco 2009, 187, fig.14.118
I-IV.43	Stamped base	300 – 200 BC	As Stanco 2009, 187, figs.109/118
I-IV.44	Stamped base	300 – 200 BC	As Stanco 2009, 187, figs.109/118, although six instead of eight petals
I-IV.45	Stamped base	300 – 200 BC	As Stanco 2009, 187, figs.109/118, although six instead of eight petals
I-IV.46	Stamped base	300 – 200 BC	Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-IV.47	Stamped base	300 – 200 BC	Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-IV.48	Stamped base	300 – 200 BC	Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-IV.49	Stamped base	300 – 200 BC	Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-IV.50	Stamped base	300 – 200 BC	Perez Ballester 1987, 59, fig.5.II-a/141; Stanco 2009, 178, fig.5; fourth phase, fragment 8 (= Morel 1969, 72, fig.5.11)
I-IV.51	Stamped base	300 – 200 BC	Possibly Rossini 2007, TAV.III.9
I-IV.52	Stamped base		*Palmette* stamp, too worn for identification
I-IV.53	Stamped base		*Palmette* stamp, too worn for identification
I-V.54	Stamped base	300 – 200 BC	Stanco 2009, 187, fig.14.137
I-V.55	Stamped base	-	Unknown stamp
I-V.56	Stamped base	-	Unknown stamp
I-V.57	Base of a *skyphos*	350 – 200 BC	-
I-V.58	Base of a *skyphos*	350 – 200 BC	-
I-V.59	Base of a *skyphos*	350 – 200 BC	-
I-V.60	Base of a *skyphos*	350 – 200 BC	-
I-V.61	Base fragment	-	-
I-V.62	Base fragment	-	-
I-V.63	Base fragment	-	-
I-V.64	Base fragment	-	-
I-V.65	Base fragment	-	-
I-VI.66	Base fragment	-	-
I-VI.67	Base of a stemmed cup/bowl		-
I-VI.68	Base of a closed vessel	-	-
I-VI.69	Base of a closed vessel	-	-

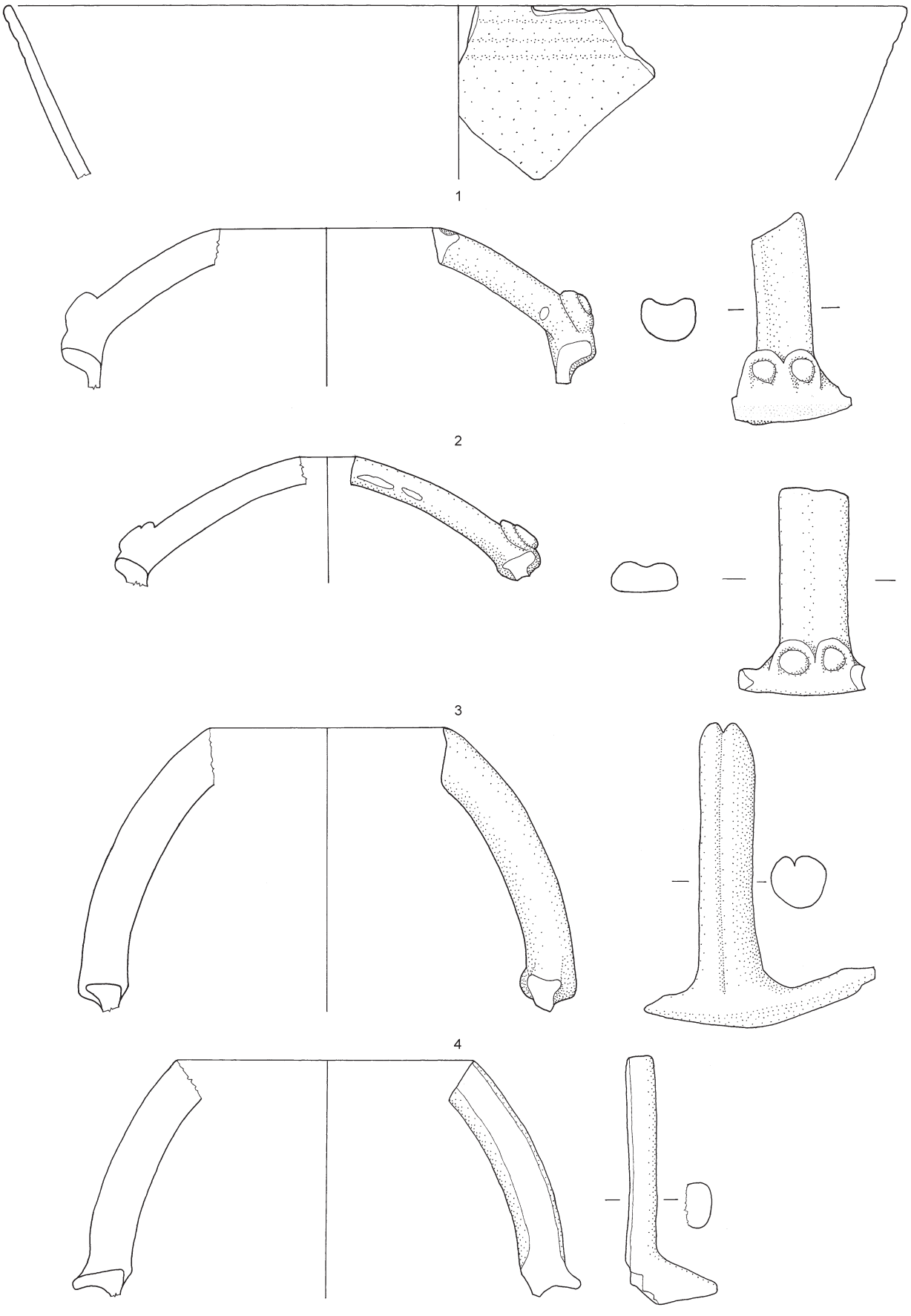
Table 1.1 continued

Villa Sarsina			
Plate	**Shape**	**Date**	**Parallel/literature**
I-VI.70	Base of a closed vessel	-	-
I-VI.71	Base of a closed vessel	-	-
I-VI.72	Base of a closed vessel	-	-
I-VI.73	Base of a closed vessel	-	-
I-VI.74	Base of a *phiale*	325 – 200 BC	Morel 1981, pls.33-4, serie 2170
I-VI.75	Base fragment	-	-
I-VI.76	Base fragment	-	-
I-VI.77	Base fragment	-	-
I-VI.78	Base fragment	-	-
I-VI.79	Base fragment	-	-
I-VI.80	Base fragment	-	-
I-VI.81	Base fragment	-	-
I-VI.82	Base fragment	-	-
I-VI.83	Base fragment	-	-
I-VI.84	Base fragment	-	-
I-VI.85	Base fragment	-	-
I-VI.86	Base fragment	-	-
I-VI.87	Base fragment	-	-
I-VI.88	Base fragment	-	-
I-VI.89	Base fragment	-	-
I-VI.90	Base fragment	-	-
I-VII.91	Handle fragment	-	-
I-VII.92	Handle fragment	-	-
I-VII.93	Handle fragment	-	-
I-VII.94	Handle fragment	-	-
I-VII.95	Handle fragment	-	-
I-VII.96	Handle fragment	-	-
I-VII.97	Handle fragment	-	-
I-VII.98	Handle fragment	-	-
I-VII.99	Handle fragment	-	-
I-VIII.100	Handle fragment	-	-
I-VIII.101	Handle fragment	-	-
I-VIII.102	Handle fragment	-	-
I-VIII.103	Handle fragment	-	-
I-VIII.104	Handle fragment	-	-
I-VIII.105	Handle fragment	-	-

Table 1.1 continued

Villa Sarsina			
Plate	**Shape**	**Date**	**Parallel/literature**
I-VIII.106	Handle fragment	-	-
I-VIII.107	Handle fragment	-	-
I-VIII.108	Handle fragment	-	-
I-VIII.109	Handle fragment	-	-
I-VIII.110	Handle fragment	-	-
I-VIII.111	Handle fragment	-	-
I-VIII.112	Handle fragment	-	-
I-VIII.113	Decorated body fragment	-	-
I-VIII.114	Decorated body fragment	-	-
I-VIII.115	Decorated body fragment	-	-

Site Villa Sarsina Plate I-I



1

2

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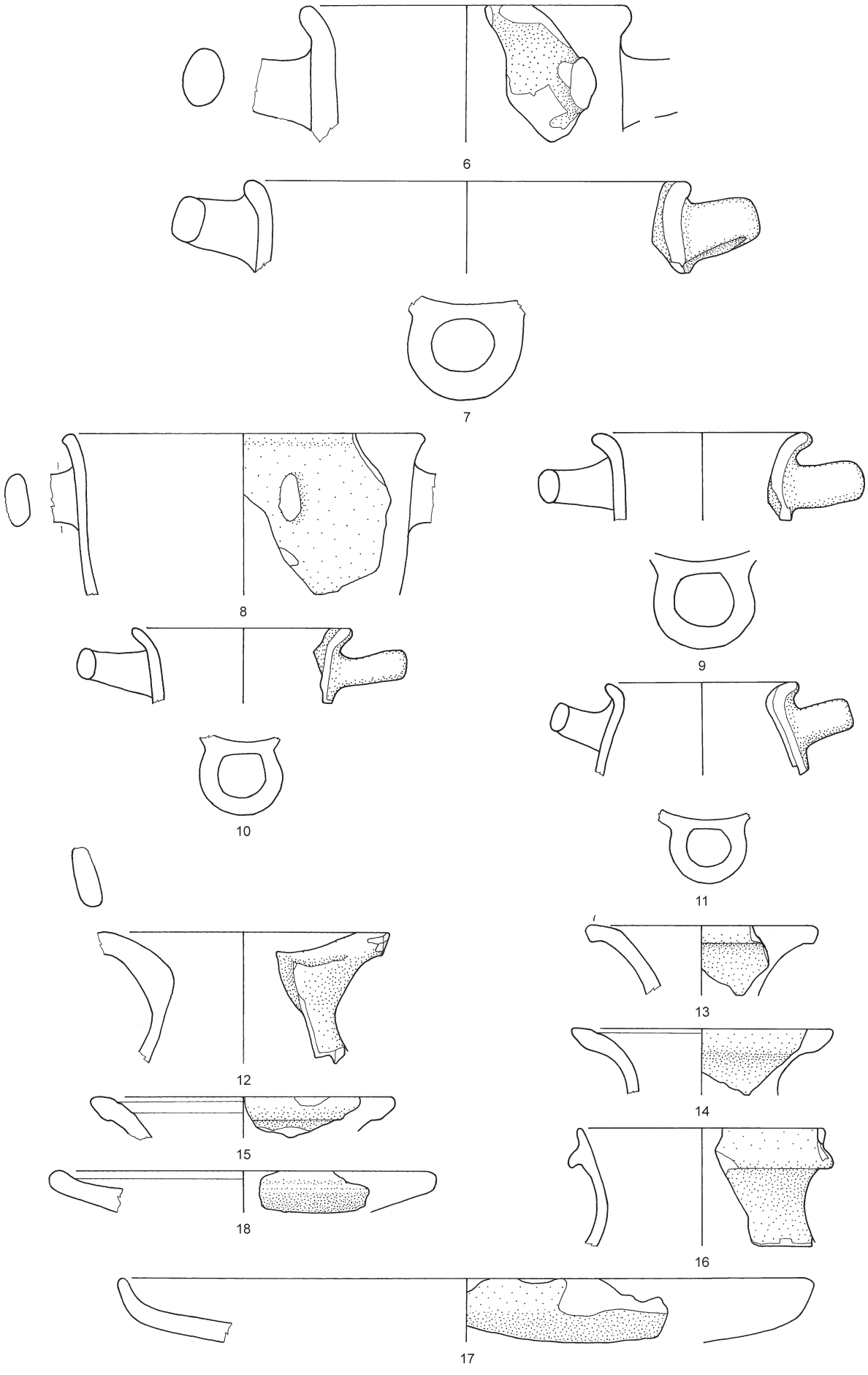
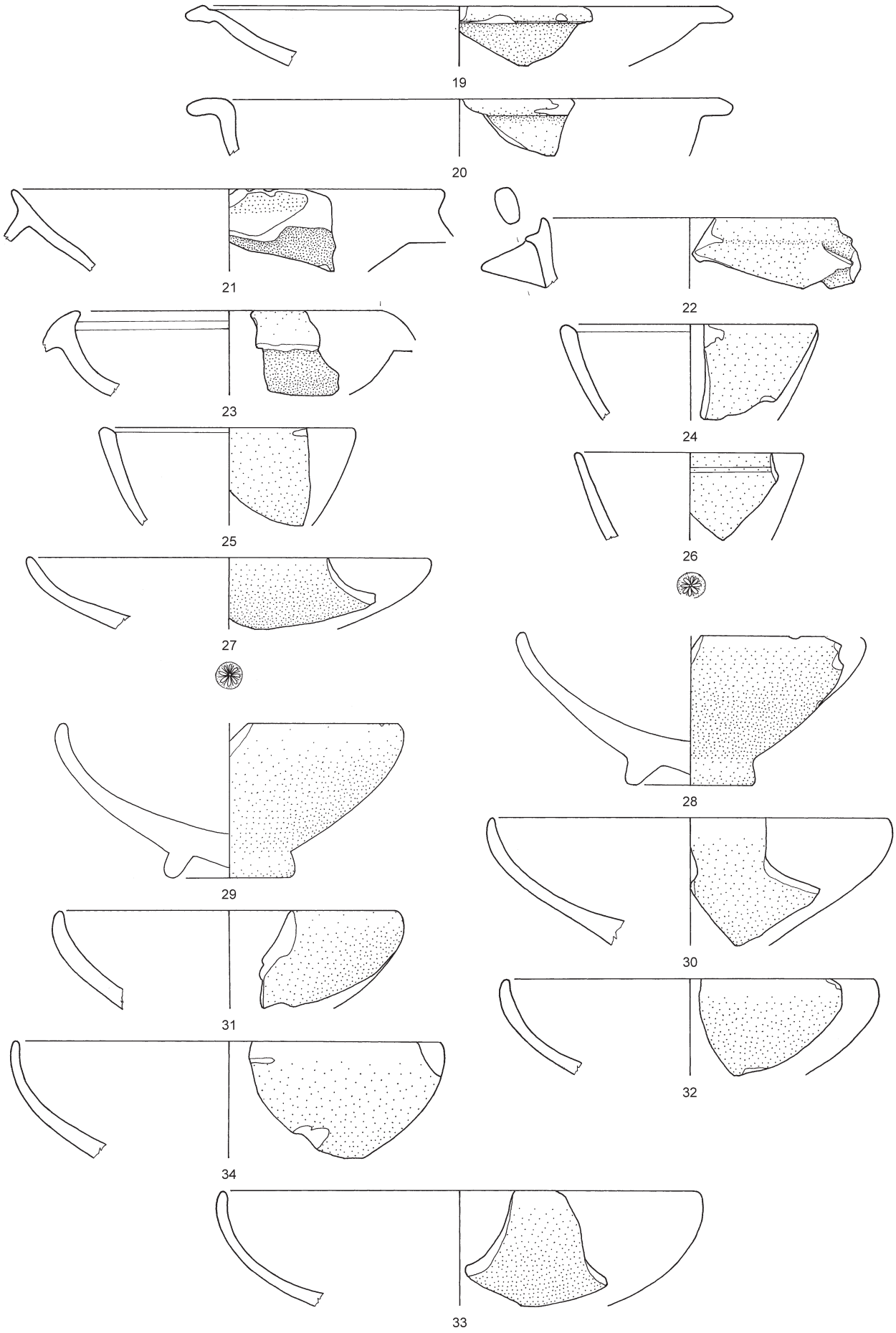
5

Site Villa Sarsina cont. Plate I-II

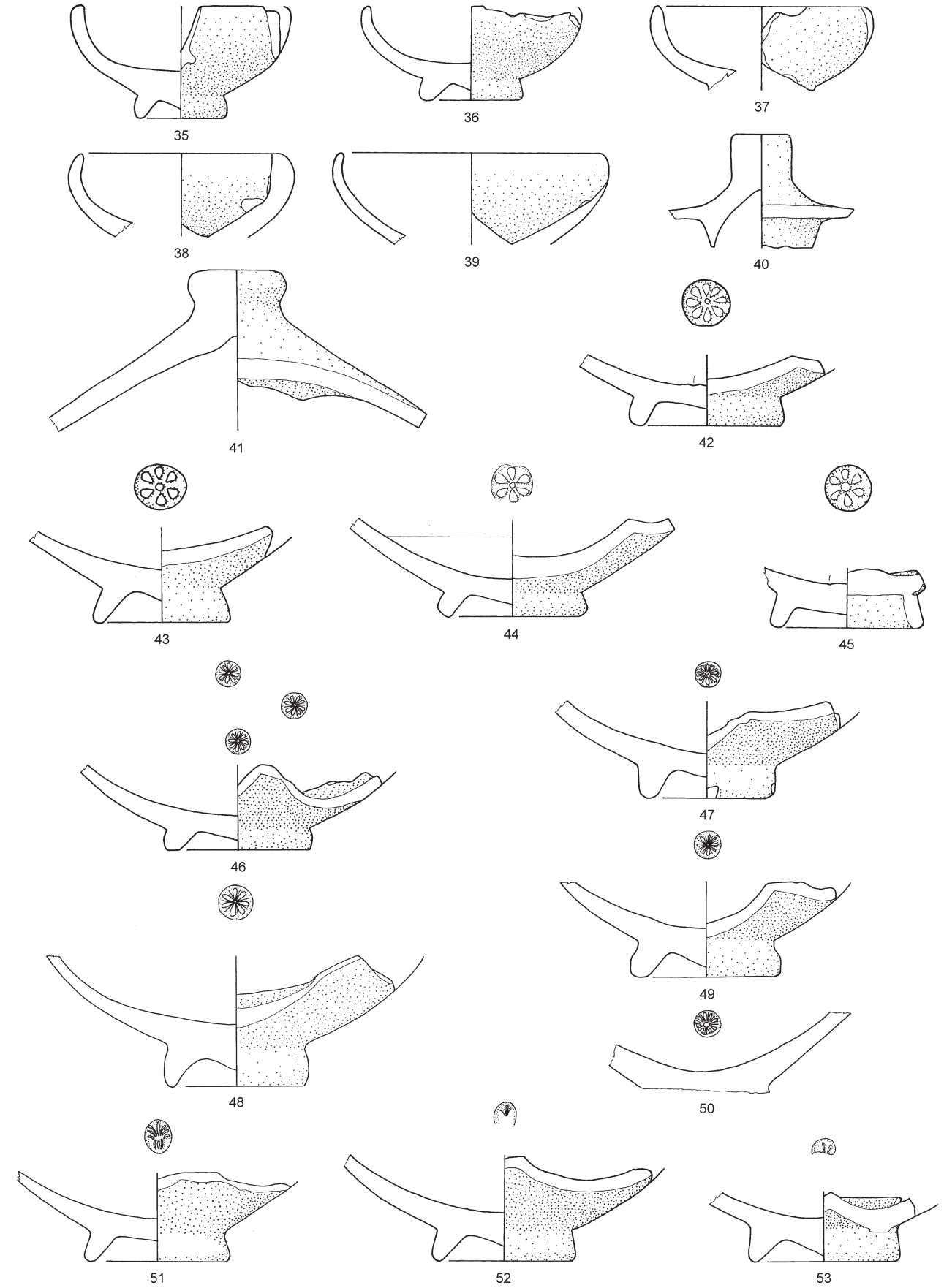


Site Villa Sarsina cont.

Plate I-III

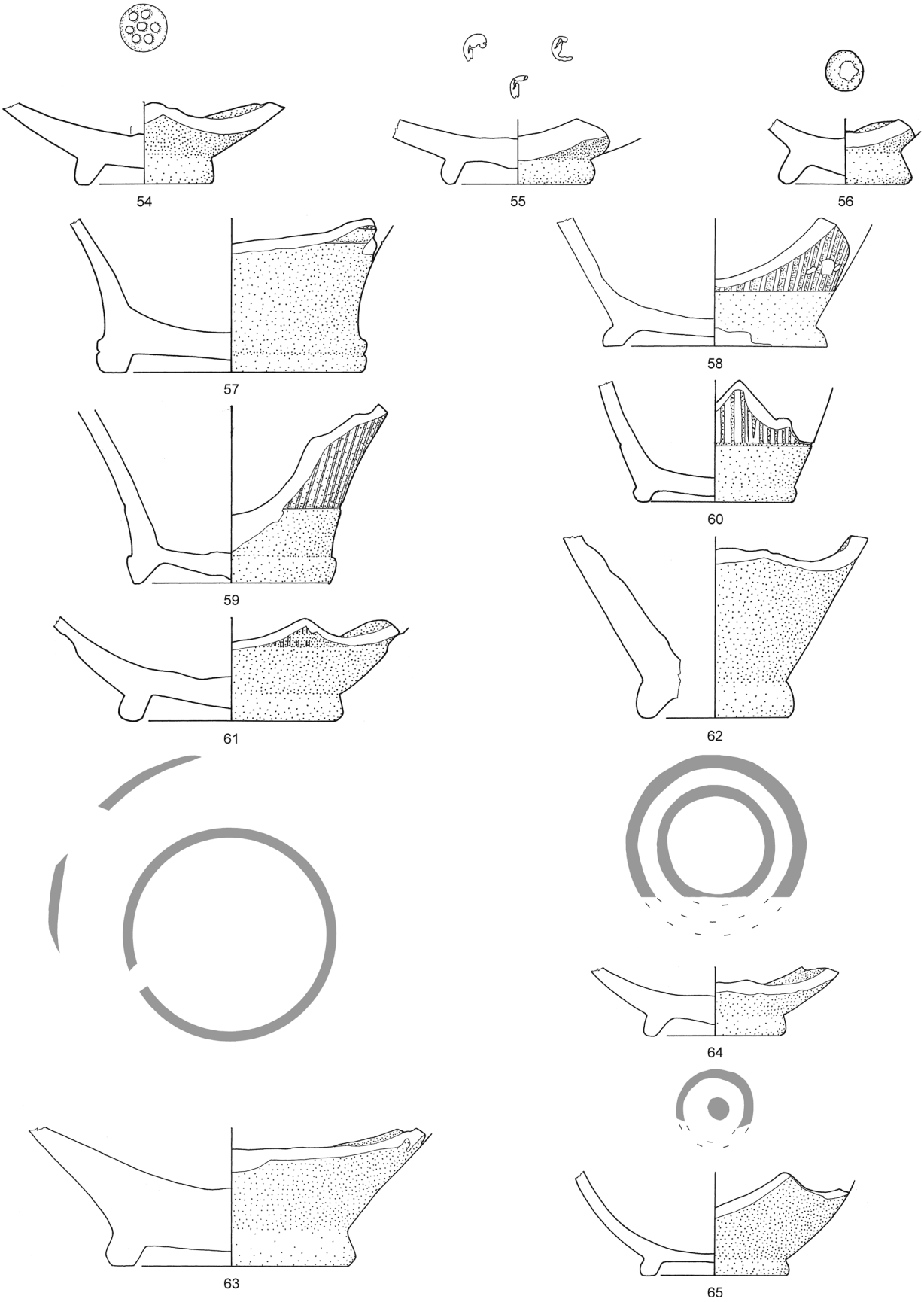


Site Villa Sarsina cont. Plate I-IV



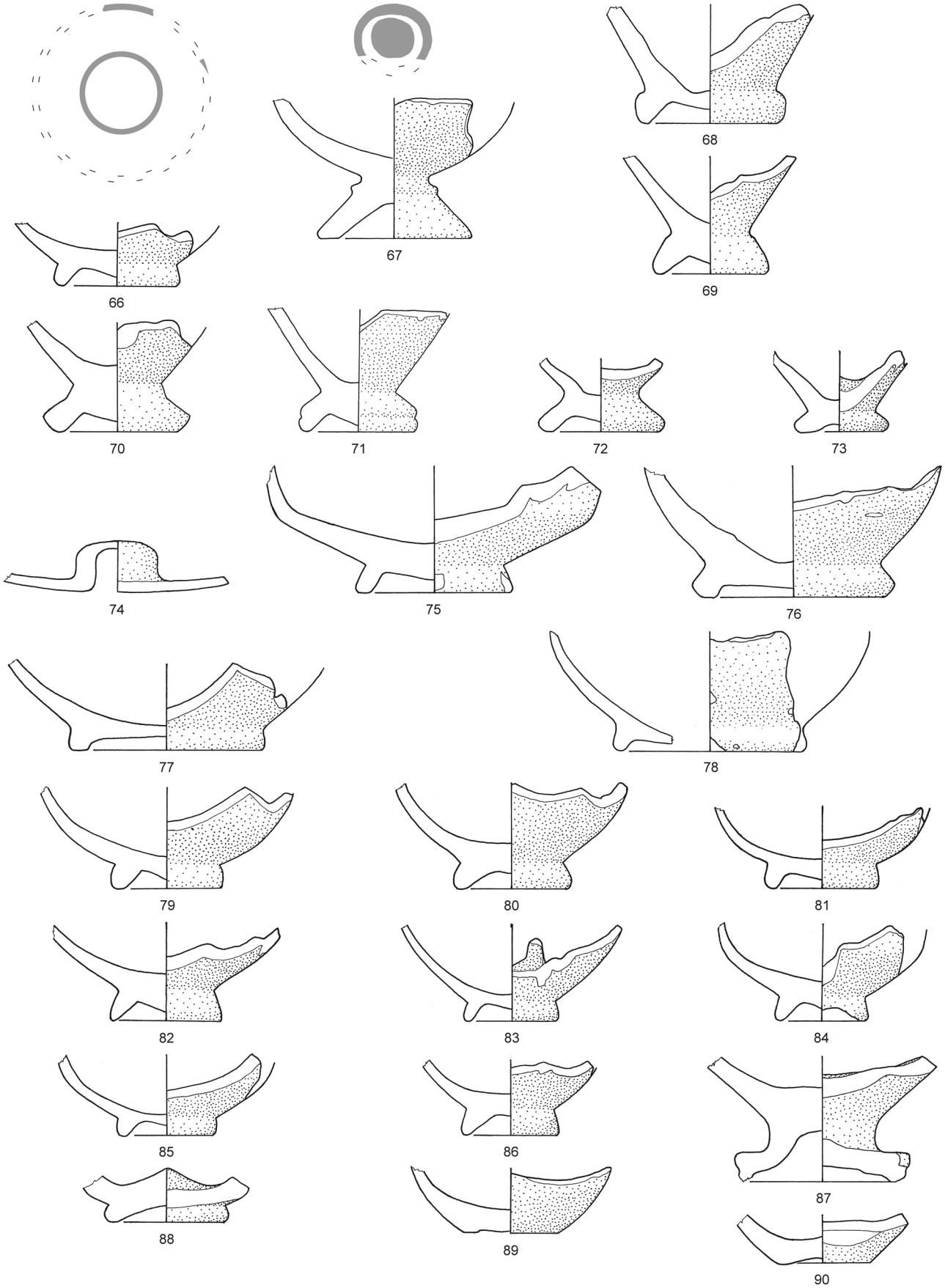
Site Villa Sarsina cont.

Plate I-V



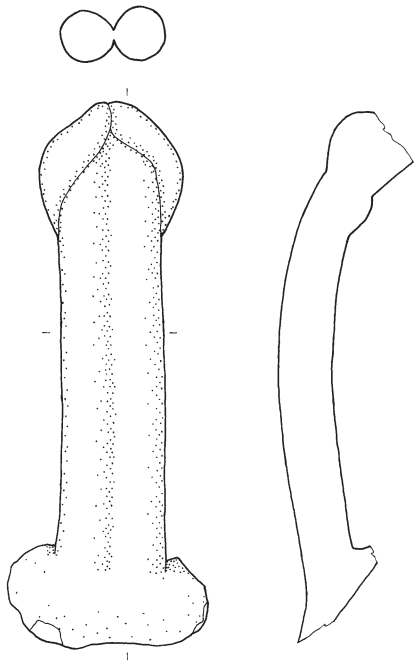
Site Villa Sarsina cont.

Plate I-VI



Site Villa Sarsina cont.

Plate I-VII



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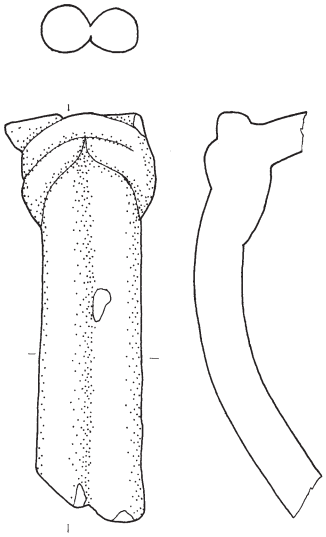

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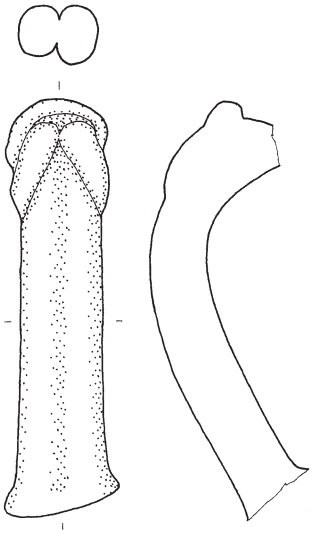

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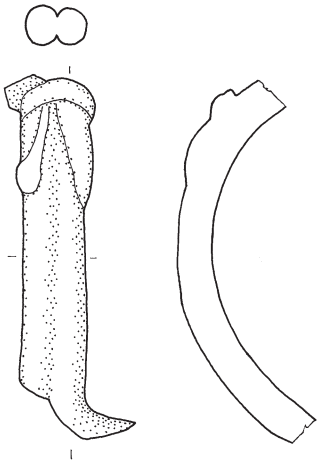

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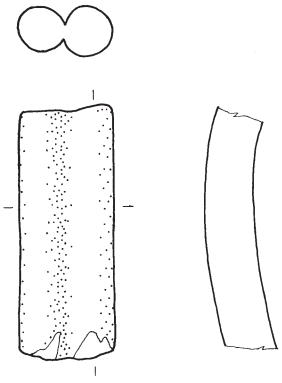

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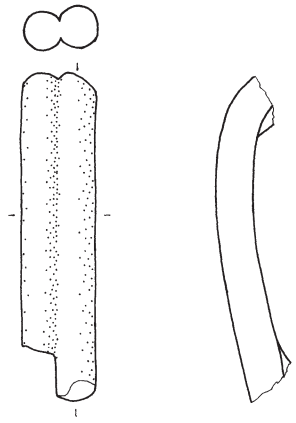

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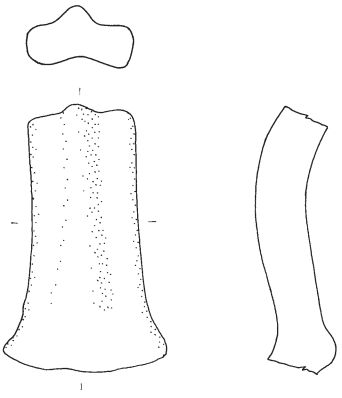

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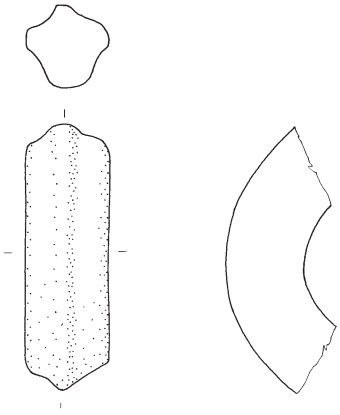

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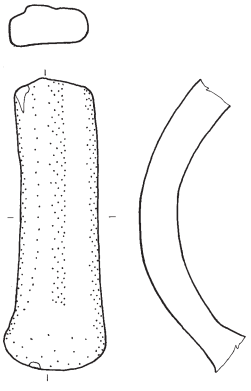

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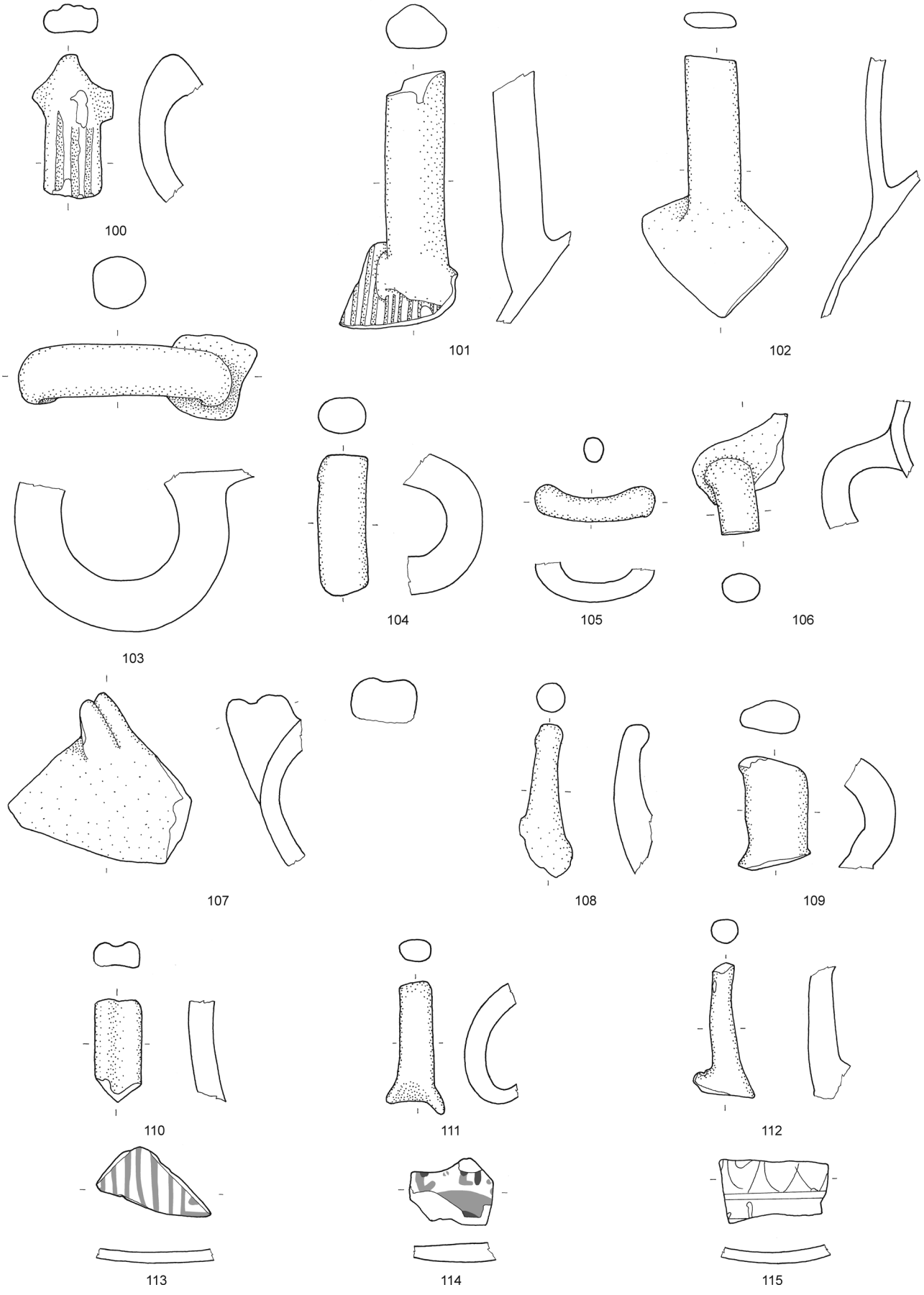
Site Villa Sarsina cont. Plate I-VIII



Chapter 2 – Methodological background of the study

This chapter provides the methodological background for this thesis. Using GIA's Astura and Nettuno surveys as a testing ground, the first part of this chapter problematizes the straightforward use of the most significant types of metadata underlying settlement histories (and by extension socio-economic issues), generated by archaeological field survey. These are: 1) Site dating (section 2.1), discussing three related topics, namely a) pottery evidence; b) survey and sampling strategies and c) methods of dating surface assemblages and periodization; 2) Site function (section 2.2) and 3) Site development (section 2.3). This is followed by the introduction of four case studies that are aimed specifically to investigate one (or several) of these types of metadata. The chapter concludes with a discussion of procedures of dating and data processing and the way in which the case studies are presented.

2.1 Site dating

The pottery evidence

As is common in survey archaeology, the main source for establishing the function and chronology of sites during the Astura and Nettuno surveys was formed by the collected surface pottery. Despite this strong reliance on pottery for obtaining data on individual sites (and by extension larger study areas), many survey projects have not used its full potential. The use of specialist knowledge in the study of surface pottery is rather limited, whereas only few survey projects take the trouble to publish a proper (full) account of the collected materials.[179]

It is well-known that the supply (and thus availability), durability, visibility and diagnosticity, and, as a consequence, present-day knowledge of pottery varies between wares and periods.[180] In early surveys, site chronologies were often established based on the collected fine ware pottery.[181] More recently however, the importance of (locally produced) coarse pottery has been recognized, not seldom representing additional occupational phases for which no such *fossil types* exist.[182] Although the variable knowledge of material culture inevitably is a potential bias in each landscape archaeological project, its exact nature and influence cannot be estimated with accuracy for other projects. However, an overview of the variable knowledge of material culture biasing our own dataset will be discussed below.

Pottery of the Archaic period, circulating in coastal Central-Italy, is well-known from various excavations, among which GIA's work at *Satricum*.[183] The period is characterized by an extensive repertoire of wares and shapes that – despite obvious local variations – show

179 A positive exception is the Tiber Valley Project that employed a large number of material specialists (see for example Patterson ed. 2004). The Pontine Region project has always aimed at full publication of the collected surface pottery (see for example Attema 1993, volume 2; Attema & de Haas 2005; Attema *et al.* 2008 and Attema, de Haas & Tol 2010).

180 For pottery supply see Millett 1991. For differences in the visibility of wares see *infra*, chapter 5, figs.13a/b. Furthermore, the typological (diagnostic) value of different wares is likely to show great variation. For example, a fragmented African red slip ware dish with a large diameter is likely to produce many more 'diagnostic' fragments than a fragmented amphora, having a long body and a small rim diameter. Furthermore, several existing typologies, such as that for black glazed ware (Morel 1981), are unsuited for confronting survey material, since the subdivision in types is based on metric differences in complete vessel shapes (for the same argument see Witcher 2006a, 45).

181 The most obvious example is the original South Etruria Survey (Potter 1979). However, these fine wares only constitute a small percentage of the total material assemblage (see McDonald 1995, 25), whereas access to fine wares is likely to have varied from region to region across Roman Italy (see Millett 1991, 18 and 2000, 55).

182 During the Tiber Valley Project, much emphasis was placed on the development of local coarse ware typologies. These have been especially significant for the identification of late Imperial and early Medieval occupation (Patterson & Roberts 1998 and Patterson 2008). For the importance of establishing coarse ware chronologies see MacDonald 1995 and Witcher 2006a. The knowledge of utilitarian pottery types circulating in coastal Central Italy during the Republican and early Imperial period has increased considerably over the last decade (for a typology see Olcese 2003). However, for other periods, such as the post-Archaic and the late Imperial period no 'umbrella' studies have been published, to my knowledge.

183 See Maaskant-Kleibrink 1987 and 1992. For a pottery typology of *Satricum* see Attema *et al.* 2001/2002.

remarkable similarities between different locations.[184] However, knowledge of Archaic material culture is – probably to an unrivalled extent – acquired by the study of urban (mainly religious) contexts. In contrast, pottery evidence for Archaic rural settlement is rather limited for our study area. Distinctive fine ware pottery (e.g. *bucchero*) is only found on a restricted number of sites and occupation is therefore mainly attested by the finding of fragments of red firing tile, containing augite and/or ferromanganese inclusions.[185] Fragments of storage jars and utilitarian pottery in this fabric are commonly found in our survey area and these fragments have been assumed to be of the same date. However, recent insights however show that, although the tiles are probably of Archaic date only, such red-firing fabrics continued to be used for pottery during the post-Archaic and mid-Republican period as well.[186]

Until now, no distinct post-Archaic pottery shapes have been identified for rural sites mapped during the Astura and Nettuno surveys. Pottery shapes that are known to have circulated in this period comprise predominantly conservative shapes that are not indicative for post-Archaic activity only, whilst *fossil types* for the period are until now restricted to graves.[187] The identification of certain occupation has until now been restricted to sites yielding yellow and white firing tiles containing abundant augite particles. This ware, called *impasto chiaro sabbioso,* was produced over a long period and comprises the production of pottery shapes and loomweights as well. However, the production of these tiles, based on earlier research at *Satricum,* is thought to be restricted to the post-Archaic period.[188] The limited knowledge of the pottery of this period reduces the archaeological visibility of settlements, resulting in many 'uncertain' sites.

While for the Archaic and post-Archaic periods we have to rely mainly on building materials for the identification of sites, Republican occupation in our study area is regularly indicated by a mixed assemblage consisting of both utilitarian and fine ware pottery (black glazed ware), as well as amphorae.[189] This increased variety in material assemblages does, however, not necessarily lead to more 'certain' sites. Many of the sites recorded during the Astura and Nettuno surveys yielded only small numbers of undiagnostic black glazed ware. Furthermore, the production of amphora (especially Graeco-Italic amphorae) and utilitarian pottery shapes generally comprises more than one period of our chronology. As a consequence a high number of 'uncertain' sites is recorded for both the mid- and late Republican period.

For the early and mid-Imperial periods a number of distinct pottery wares and shapes allow secure dating in a single period. Fragments of terra sigillata are taken as indicative for early Imperial occupation, whereas several extremely common African red slip ware (e.g. Hayes 6, 8, 9 and 14) as well as African cookware shapes (mainly Hayes 196, 197 and 23B) indicate mid-Imperial activity. Sites dating in the Imperial period generally yield other wares as well, including amphorae, utilitarian pottery and incidental fragments of vessel glass or metal artefacts. These products, however, generally have longer date ranges and are impossible to assign to a single period. Furthermore, the evidence for locally produced mid-Imperial utilitarian pottery is, until now, extremely limited. Overall, the increase in diagnostic pottery wares for this period results in a relatively high number of 'certain' sites for these periods.

After the mid-Imperial period, the ceramic evidence for certain occupation decreases dramatically,

184 This comprises utilitarian pottery (see Carafa 1995 for an overview), as well as various well-known fine wares, such as *bucchero* (see Rasmussen 1979) and Etrusco-Corinthian pottery (see Szilágyi 1992).

185 See Attema 1991; Attema *et al.* 2001/2002. During the intensive surveys, *bucchero* fragments were found on only three sites (Attema *et al.* 2008, site 11369 and Attema, de Haas & Tol 2010, sites 11294 and 15108). No fragments of Etrusco-Corinthian pottery were found.

186 This could mean that the number of Archaic sites in various parts of the Pontine Region may have been overestimated in the past. This is further highlighted when we consider the relative scarcity of diagnostic Archaic pottery that has been recorded in this ware during the Astura and Nettuno surveys, as well as during other surveys in the Pontine Region: see for example the finds catalogue in Attema, de Haas & Tol 2011, as well as the finds published in various preliminary reports (Attema & de Haas 2005, Attema *et al.* 2008, Attema, de Haas & Tol 2010). The same considerations lead to an overrepresentation of Archaic settlements in the *Agro Pontino* survey (see digital site and sherd catalogue pertaining to Voorrips, Loving & Kamermans 1991). Here several so-called Archaic sites appear to contain predominantly Republican pottery shapes (see for example Agro Pontino site 450). The distorting effect should not influence the result of each PRP survey to an equal extent, as in various areas Archaic pottery was indeed noted in considerable quantities (Attema 1993, volume 2).

187 This is well illustrated by the so-called 2nd votive deposit at *Satricum*, dated in the post-Archaic period. Without exception the attested forms have a much longer chronology than the deposit itself (Bouma 1996). Ongoing excavations at *Satricum* by the University of Amsterdam are unearthing post-Archaic graves containing closely datable pottery forms (mainly black glazed ware shapes). See Gnade 2009 & 2010 for the most recent discoveries.

188 For a discussion of the ware see Merlo 2005 and 2009. The hypothesis that these yellow baking tiles are restricted to the post-Archaic period must be considered untested, although Merlo mentions that later *impasto chiaro sabbioso* products are often of a yellowish or greenish colour (Merlo 2005, 420).

189 The classic typology for black glazed ware is Morel 1981. For later adjustments to the chronology of several shapes see Stanco 2009. Olcese (2003) published a typology of common Central Italian mid-Republican to early Imperial utilitarian pottery types, piecing together the evidence from several published and unpublished contexts.

contributing to a strong decline in the number of sites recorded from the mid-Imperial to the early Medieval period. The identification of activity from the late Imperial period onwards depends solely on the presence of late African red slip ware shapes, which appear to become increasingly uncommon, being restricted to only the largest (villa) sites.[190] Our knowledge of contemporary utilitarian pottery, as well as amphorae, was up till now extremely limited and could therefore influence the number of settlements recorded after the mid-Imperial period.[191]

The impact of survey and sampling strategies

The size and quality of surface samples from archaeological surveys depend on a combination of methodological choices, environmental circumstances (visibility etc.) and the specific nature of each surface assemblage. Almost without exception, fieldwalking projects use only partial coverage of each investigated unit, whereby the exact coverage used depends on research objectives as well as geological and environmental characteristics. Commonly the coverage assigned is deemed sufficient to map all relevant cultural features to a satisfactory extent. Although partial coverage of an area in most cases appears to appropriately identify *loci* of activity, its impact on the dating and interpretation of individual sites is less clear. During the Astura and Nettuno survey, it appeared that on an intra-site level, specific functional areas, as well as activities that predate or outdate the main phase of occupation (covering only a small part of the previous or later site area or using low amounts of pottery), can potentially be overlooked by applying partial coverage only.[192]

The use of sampling strategies is common practice in survey archaeology, although the nature and intensity of these strategies vary substantially between landscape archaeological projects. They range from processing finds in the field to applicating different sampling techniques (total sampling, diagnostic sampling, grab sampling etc.).[193] However, one should be aware that datasets are to a large extent shaped by sampling strategies, as the taking of 'representative samples' does not exist. Processing finds in the field is extremely problematic, especially when carried out without the aid of pottery specialists. Grab sampling and diagnostic sampling (and to some extent also total collection) is influenced by performances of individual walkers, as well as the durability (and thus the fragmentation), the visibility and the diagnosticity of different wares.[194] As a consequence, sampling choices influence the analytical potential of the obtained data. Grab sampling provides information on a single-site level, but its unsystematic character renders the collected materials unsuited for even the most basic (e.g. comparing shard counts, find densities etc.) comparative analysis. Diagnostic sampling allows reconstructing supply and consumption patterns for individual wares over larger areas.[195] However, comparing such patterns between different wares is problematic due to differences in their relative diagnosticity (see also chapter 5).

Due to the common application of partial ground coverage, correction procedures are usually employed to extrapolate the number of finds (both overall numbers and number of fragments for each pottery type/ware) towards 100% coverage of each recording unit. Although these extrapolations are necessary to compare relative density figures across a study area, they can (and most probably will) lead to homogenization of assemblages and as a result of observations. This lumping of data recorded within each individual recording unit potentially obscures functional and chronological patterning within surface assemblages and leads to a suppression of local variation in favour of overall trends.[196] A side effect is that these extrapolations impede further assemblage variety: they do indeed model the presence of more artefacts, but not that of more artefact variety.

During the Astura and Nettuno surveys, that provide the background for this study, units of 50x50 metres were walked with 20% coverage.[197] It is therefore possible that a portion of smaller sites is missing in our inventory, although overall these were probably not numerous.[198] Each walker was asked to collect all finds from his or her lane. At the end of each unit, fragments collected by individual walkers were not recorded separately, but put together. The recorded pottery data was

190 Attema, de Haas & Tol 2011, chapters 15 and 16.

191 The identification of late Imperial utilitarian pottery is a common problem in Central Italy; see also Bispham, Swift & Wolff (2008, 58) for the Abruzzo area. The identification of these products was one of the principal aims of the Tiber Valley Project (Di Giuseppe & Patterson 2009, 10).

192 This appears to be the case in identifying late Imperial, late Antique and early Medieval continuity on large villa sites (Attema, Derks & Tol 2010). A considerable decrease in the amount of consumed pottery in these phases was noted during the *Tarraconensis* survey as well (Millett 1991).

193 Processing in the field was for example done around *Cures Sabini* (Di Giuseppe *et al.* 2002). Total, diagnostic, and grab sampling incidentally supplemented 'standard sampling' during the Astura and Nettuno surveys.

194 Schon 2002, 141. See Bintliff, Howard & Snodgrass 1999 for the artificial boosting of the presence of certain wares to account for a number of the factors mentioned.

195 Witcher 2006a, 49.

196 Millett 2000a.

197 For a detailed description of the method used see Attema, de Haas & Tol 2011, chapter 3; Attema *et al.* 2008 and Attema, de Haas & Tol 2010.

198 If these smaller sites formed a substantial part of the settlements in the study area, we should statistically have encountered at least some of them, which was not the case.

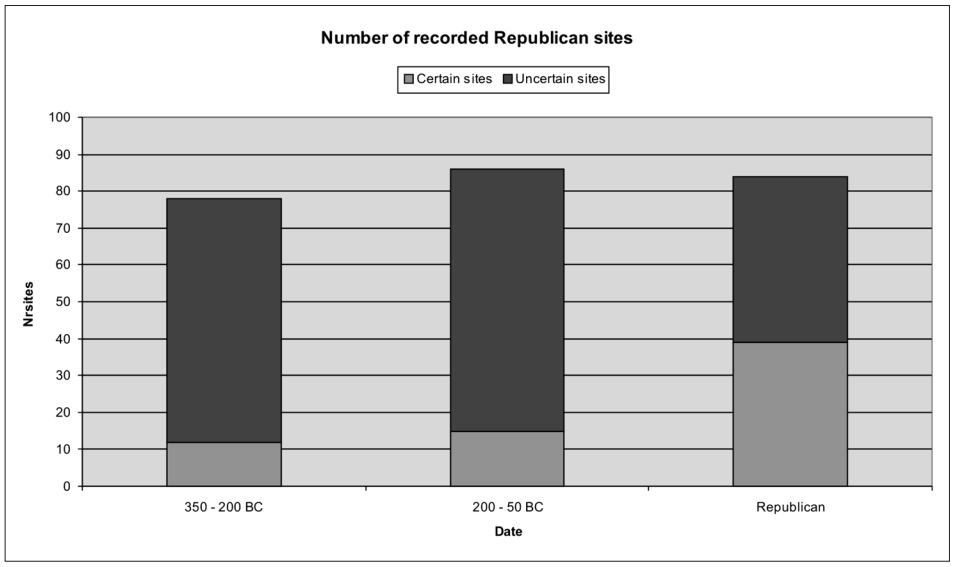


Figure 2.1 The number of certain and uncertain sites for the Republican period as a whole and when divided into two sub-periods.

subsequently extrapolated to account for the degree of coverage, as well as for biasing factors that supposedly limited surface visibility. These comprise an assessment of hindrance caused by stoniness, shadow, vegetation cover, tillage, weathering and modern materials. Based on these respective influences, an individual assessment was made by the team leader of the final visibility, providing the degree of correction that was subsequently applied.[199]

Dating of surface assemblages and periodization

In a general sense, the dating of finds from surface assemblages and therefore the dating of surface assemblages as a whole poses a particular challenge. Unfortunately not all sites yield large and highly diagnostic samples; often we have to content ourselves with a handful of undiagnostic pottery fragments, revealing little on the date of a location. Furthermore, surface finds are to be considered two-dimensional; they lack stratigraphical support and in most cases present a mix of materials from various depositional layers. Site chronologies extracted from surface materials are therefore generally aggregate datings that take the full date range of production of each identified fragment into account. This results in the construction of artificially long date ranges for sites, which, when considered for the study area as a whole, can have a substantial impact on overall settlement trends. Furthermore, the coarse chronological resolution of these assemblages makes it difficult to approach subjects such as site-(dis)continuity and site contemporaneity).

During the Astura and Nettuno surveys, site dates were also established by considering the full date range of each identified fragment. Activity in a period was only ascertained when the complete date range of a type fell within a single period. When this was not the case activity was classed as 'uncertain'. This obviously did have some unsatisfactory implications. For example, a site that yielded undiagnostic Republican black glazed ware was, based on these fragments, classified as 'uncertain' for both the mid- and late Republican period. This ignores the fact that the site was certainly occupied at some point during this time interval. The effect of this approach is visible in figure 2.1, which compares the number of certain and uncertain generically Republican sites with that for the two Republican subperiods, based on the data from the Astura and Nettuno surveys. Whereas the material evidence allows postulating the presence of twelve (mid-Republican) and 14 (late Republican) certain sites respectively, the merging of the material evidence for the two periods together records a total number of 39 certain sites (an increase of 13 certain sites).

Constructing settlement trends

Landscape archaeology is particularly suited to construct general trends in settlement intensity and fluctuations in pottery consumption for large study areas.

The results of landscape archaeological projects, including those of the GIA, are usually depicted as diachronic settlement trends. In these trends, a certain period of time is subdivided into several sub-periods, whereby much importance is given to fluctuations (either a decline or an increase) in the number of recorded sites between successive phases. It is rather striking that more often than not such subdivisions are made in a statistically unsound manner. Instead of representing periods of equal length, the subdivision of

199 For the recording of each visibility factor, as well as for the final visibility, a five-scale index was used. For an evaluation of the usefulness of this system (although applied to a different fieldwork area) see Van Tienhoven 2010.

these trends is generally motivated by either historical (based on classical periods, e.g. Archaic, Republican) or practical (to contain for example the complete timespan of the production of a specific ware) considerations. The results are individual trends that depict (and compare) periods of unequal length.[200] Furthermore, a lack of standardization in periodizations between different projects thwarts comparisons between their results.[201] A more unsettling consequence of such statistically unsound representations is that they can, whether consciously or unconsciously, be used to artificially 'knead' a settlement history. Since these histograms use fixed periods, one cannot model gradual developments, making every variation between different periods 'sudden', encouraging the identification of periods of either a boom or crisis in settlement.[202] On the other hand, the alternative of grouping sites using the *media ponderata* (weighed average), possibly creates a non-existing picture of gradual decline and rise in site numbers, potentially obscuring such periods. Furthermore, the smearing out of the data for all sites limits the possibility of discriminating between the degrees of 'certain' and 'uncertain' occupation for each chronological interval.[203]

In the final publication of the *Carta Archeologica di Nettuno* project (incorporating the results from the Astura and Nettuno surveys), period boundaries were based on both historical and practical (to include as many well-dated pottery types as possible within a single period) considerations. The resulting periodization comprised time intervals of unequal length, ranging from a mere 70 years (the late Republican period) to 300 years (the Medieval period), compromising direct comparison between different periods.[204]

Constructing trends of past pottery consumption

Both the use of fixed time intervals and the *media ponderata* are used in reconstructing and visualizing past trends in pottery consumption, on the level of single sites as well as for entire study areas.[205] The use of the *media ponderata* in such reconstructions is not bias-free. Wares with a shorter date range have a stronger influence on the shape of the graph, whereas it does not take variations in the supply of pottery into account.[206] The method is therefore better suited to analyse changes in pottery consumption over a wider area, although the above mentioned considerations to some extent remain valid on a larger scale.

Another way of approaching past pottery consumption based on surface assemblages is by diminishing the chronological resolution of your data and grouping finds into a few generic periods only.[207] This obviously only allows for very general comparative analysis between data for different periods (and between study areas) and rules out the possibility of identifying smaller scale inter-period changes.

The material samples gathered during GIA's Astura and Nettuno surveys were primarily used for the dating and functional interpretation of sites (for the latter see below). More recently, the ceramic data from these systematic surveys were used to probe a number of socio-economic issues. For this purpose, cumulative pottery

200 To mention some of the many examples: Patterson, di Giuseppe & Witcher 2004, Attema & de Haas 2005.

201 A case in point is the available evidence for Tyrrhenian coastal Central Italy. Recent surveys carried out in different parts of the Roman *Suburbium* and South Etruria potentially provide us with a unique chance of comparing settlement histories on a regional scale, as well as assessing the relation between Rome and its *campagna*. However, publications of both the TVP and the PRP use periods of unequal length, whereas the use of different sub-periods restricts direct confrontations between the two sets of data. For the original survey in the Middle Tiber Valley see Potter 1979. For the results of the Tiber Valley Project, restudying and amplifying the original dataset see e.g. Patterson & Millett 1998; Patterson 2004; Patterson, di Giuseppe & Witcher 2004; Di Giuseppe 2008; Witcher 2008a; Patterson 2008 and Di Giuseppe & Patterson 2009. For the results of surveys in the *Suburbium* see Capanna & Carafa 2009 and Carandini 2009. For the results of the more recent PRP work: Attema & de Haas 2005, Attema *et al.* 2008; Attema, de Haas & Tol 2010; De Haas 2011.

202 This is also emphasized by Witcher (2006a, 52). See Poblome *et al.* forthcoming for a good example of how different methods of visualization can produce different 'histories'.

203 See Capanna & Carafa 2009, 36, figure 9 for the use of the *media ponderata* in reconstructing site dates. In general a lack of standardization is also apparent in the way 'uncertain' occupation is handled. Although the inclusion or exclusion of such data can have a far-fetching influence on the settlement trend represented, many survey projects fail to make explicit whether such data are just lumped with the 'certain' sites, whether 'uncertain' sites are simply left out or whether the uncertainty has been smeared out over multiple periods.

204 Attema, de Haas & Tol 2011, chapter 3.

205 The *media ponderata* is used to reconstruct settlement histories for single rural sites (Di Giuseppe 2009), urban areas (Patterson *et al.* 2004, 19, figure 9) and even larger topographical areas (e.g. Capanna & Carafa 2009; Carandini 2009). For a slightly different way of distributing fragments of a pottery type over its entire date range see Orton & Orton 1975.

206 For example, it favors products with a short period of production over traditional forms that were produced for longer periods. In practice, this means that fine wares have a much stronger influence on the shape of the graph than utilitarian pottery and amphorae. To balance the variable influence of different wares on the shape of the graph a triangular model has been proposed by Van de Weghe *et al.* 2007. This method, however, appears primarily suited for the identification of residual pottery in stratigraphic contexts. Poblome *et al.* forthcoming probe different methods of data visualization (including linear models such as the *media ponderata*).

207 A good example of such an approach is provided by the *Terraconensis* survey. Key publications of the project include Carreté, Keay & Millett 1995, Millett 1991; Keay & Millett 1991.

trends were constructed for fine wares and amphorae, using the *media ponderata*.[208]

2.2 Site function

A conventional way of managing regional site inventories is to accommodate all recorded sites into a site classification scheme, comprising a range of site classes such as towns, villages, villas, farms and so forth. Such schemes are also thought to facilitate supra-regional comparisons between different datasets and form the basis for socio-economic analyses (such as demographic extrapolations). In recent years, however, such classification schemes have been criticized as being rather simplistic, using mainly historically informed 'ideal' classes of sites and being ignorant of the varied nature of past rural activity.[209] A major concern is a general lack of consensus on the specific features that characterize each 'class' of sites. This is especially true for 'classes' that are thought to constitute the lower end of the scale. 'Farms' probably form the worst defined category of sites commonly used in site typologies, comprising a broad spectrum of locations in terms of size and lay-out.[210] The undoubtedly wide variety of (small-scale) non-residential activities as well as non-permanent (squatter, seasonal, semi-permanent) settlement is, if not categorically ignored, usually lumped together in a single category.[211]

To avoid the use of the earlier mentioned historically informed site classes, more attention should be paid to the actual remains of past activity, the surface pottery.[212] However, also on this more practical level, extracting information on the function of sites is difficult.[213] This is mainly caused by sample size; many sites yield no more than a handful of undiagnostic pottery fragments, revealing little on their date, let alone their function. As mentioned before, this effect is certainly not reduced by the extrapolation of finds, bringing about a further homogenization of the collected samples. A further complicating factor for the Republican and Imperial periods is the general resemblance in material remains of different site types. For more marginal periods the available data can be so few and undiagnostic that no assessment of different site types can be made.[214]

For the Astura and Nettuno surveys a classification system, based primarily on qualitative (artefactual evidence) data, supplemented by some quantitative criteria (site size) and locational characteristics, was used. Such a system is rather flexible in the sense that sites can easily be moved from one site class to the other, based on additional evidence, and because it avoids the use of 'idealized' site types (mainly based on a dichotomy between villas and farms).[215] The use of such a flexible classification system in itself partially indicates the impossibility to capture the hypothesized varied nature of past rural activity.

2.3 Site development

Another relevant issue, barely addressed in landscape archaeology, is that of site development. Multi-period sites are sure to have undergone periods of rebuilding, expansion and contraction; furthermore, a site can have fulfilled a number of different functions during its lifespan.[216] Common methods of recording surface scatters are unsuited to investigate this phenomenon. Establishing the size of a scatter only provides one with a measurement of the moment of maximum extension of the site.[217] Furthermore, surveying at partial coverage (and thus recording of only a portion of the surface materials) leaves one with an aggregate assemblage unlikely to reveal anything on possible changes in the lay-out and function of a site at different stages of its lifespan; yet such transformations of space and function are well documented by excavations. [218]

Functional and spatial development of (rural) sites is hard, if not impossible, to map without the aid of more intensive site investigations. Geophysical prospections are now commonly applied, also on rural sites,

208 De Haas, Tol & Attema 2011; De Haas & Tol forthcoming.

209 Witcher 2008b; Rathbone 2008.

210 Rathbone 2008; Witcher forthcoming.

211 For example Arthur 1991, 19-21; Van Leusen *et al.* 2004, 331-334. For potential interpretations of small scatters see De Haas forthcoming.

212 Witcher 2006a.

213 Di Giuseppe & Patterson 2009, 13.

214 See also Attema & de Haas 2005, 127, as well as Van Leusen *et al.* 2004, 309-310.

215 For the site-classification on the basis of the Astura and Nettuno surveys see De Haas 2011, chapter 3. The 'flexible' classification system used (for a similar flexible system see Van Leusen *et al.* 2004) differs from that of previous GIA-surveys (see for example Attema & de Haas 2005), where both qualitative and quantitative aspects were used to discern certain 'idealized' site types. Such more rigid systems are still in use in many landscape archaeological projects (see for example Capanna & Carafa 2009). They have been criticized as providing a much too simplified picture of ancient rural activity and ignoring the importance of local and/or regional site hierarchies (see for example Witcher 2006b).

216 Tol 2008, 106; see also Barker 1995, 184.

217 This argument is also stressed by Van Leusen *et al.* 2004, 309.

218 For residential structures associated with the temporary production of pottery see e.g. Brecciaroli-Taborelli 1998 (in Pena 2007a) and Morelli *et al.* 2008. One can however think of many other activities, such as storage, agricultural processing, cult activity etc. A well-documented example of the functional transformation of sites are the many Roman villas that in late Antiquity are used for burials (see for example Di Gennaro & Griesbach 2003), industrial production (e.g. Fumo 2010) or simply become overbuilt (for example the Roman villa at the Mola di Monte Gelato; Potter & King 1997).

and these can certainly elucidate the functional lay-out of sites. On the other hand, geophysics provide a two-dimensional picture of a site as well; without the aid of other investigative methods (for example test trenches or complementary surface collection) little can be inferred on the concurrence of the observed features.[219]

Conclusion

In the first part of this chapter, several *lacunae* in the archaeological knowledge of the study area covered in the course of GIA's Astura and Nettuno surveys were identified, part of which are inherent to survey archaeology in general. A variable knowledge of the pottery in circulation in different periods, combined with methodological issues (sampling strategies and extrapolations) and choices of data visualization, have resulted in a settlement trend that shows rather abrupt increases and decreases in the number of settlements recorded for successive periods as well as exhibiting large varieties in the proportion of uncertain occupation between periods (see also figure 0.2). Furthermore, based on the available data, little information can be inferred on the function and the development of individual sites.

The circumscribed issues form the incentive for the present study, in which the above mentioned problems are investigated by means of four case studies.

2.4 Problem orientated case studies – introduction of the dataset

This thesis presents the results of four case studies, each aimed at further investigating one or several of the abovementioned methodological and interpretational problems that arose from an evaluation of the initial phase of the Astura and Nettuno surveys carried out by the GIA. These are:

1) *Systematic revisits to previously mapped locations*
   A campaign of systematic revisits to all accessible sites in our dataset is predominantly aimed at collecting supplementary information on the function and chronology of individual sites;[220]

2) *Study of the collection of the antiquarium di Nettuno (from now on the museum collection)*
   Additional information on the function and chronology of individual sites is provided by the study of a large collection of archaeological materials;

3) *The execution of intensive on-site surveys*
   On four sites in our dataset intensive on-site surveys were carried out aimed at the detailed investigation of their chronology, as well as their spatial and functional development;

4) *Investigating a reference site for the late Imperial to early Medieval period.*
   The mapping and sampling of a section near the mouth of the Astura river is aimed at providing insight in the pottery wares and shapes that circulated in our study area between the late Imperial and early Medieval period.

The four case studies combined yield additional evidence on 139 sites, with a particular focus on locations that were already visited before by the GIA in the period 2003-2005 (see figure 2.2).[221] Several sites were studied in the course of more than one case study (table 2.4 provides an overview of the sites studied during each case study). The four cases together comprise sites situated in three distinct topographical zones of the study area. A total of 76 sites were located along the lower valley of the Astura and Moscarello rivers. These include predominantly sites registered in the study of Piccarreta, supplemented by a small number of sites identified during GIA's intensive surveys and locations known through the study of the museum collection. Another 48 sites are located in the north-western part of the Nettuno municipality, in the area of Campana. These comprise both locations known from the study of the museum collection and sites mapped during GIA's intensive surveys. Finally, 15 sites are located along the coast. These enclose sites contained in Piccarreta's study as well as sites that were identified during reconnaissances made by GIA-team members.[222]

219 A good example of the application of geophysics, combined with surface collection and topographical studies is provided by the Roman towns-project of the British School at Rome (see for example Johnson, Keay & Millett 2004).

220 The sampled sites thus include sites mapped during Piccarreta's study, sites known through the study of the museum collection and sites identified during GIA's intensive surveys.

221 This makes it possible to draw comparisons between results obtained by using different methodological approaches. The sample of sites includes several site locations that during a previous visit did not yield any information (for example because its location was overgrown). The site-based approach of the study consequently means that systematic analysis of off-site patterns is not touched upon. The author is aware of the many biasing factors (e.g. visibility, correction procedures, performance of individual walkers, walker distance), that play a role in the building up of each site database. Since this study is however not concerned with providing solutions to these problems, these factors will not be discussed in any detail. For an assessment of the biasing factors associated with the original Astura and Nettuno surveys see Attema, de Haas & Tol 2011, chapter 3 and De Haas 2011, chapter 2.

222 Sites known from the museum collection and Piccarreta's study that have not been visited on any of the mentioned occasions are not considered, since the chronological resolution of these datasets is low (see chapters 1 and 4).

Table 2.1 The finds classification used for the four case studies.

1 lithics
1a unworked lithics
1b lithic tools
1c lithic nuclei
1d lithic flakes
1e obsidian

2 Impasto/handmade
2a plain impasto
2a1 plain impasto
2a2 red augite impasto, Archaic
2a3 thick red augite impasto, Archaic dolium
2b burnished impasto
2c impasto rosso

3 Architectonic material
3a red archaic tile, vulcanic inclusions
3b white/pink tile, vulcanic inclusions
3b1 yellow with much augite, post-Archaic
3b2 white/pale with much augite, post-Archaic/Republican
3b3 white/pink/orange with augite, Republican
3c depurated tile
3c1 depurated
3c2 white/orange/pink dep with some augite, Republican-early Imperial
3c3 white/orange/pink dep with lava
3d other coarse fabric tiles
3e burnt hut loam/grumo
3f architectonic terracotta
3g Roman bricks
3h marble
3i tesserae
3j plaster/stucco
3k cement

4 Other pottery
4a white/pink/light red pottery, vulcanic inclusions (impasto chiaro sabbioso)
4a1 "thin" chiaro sabbioso
4a2 "thick chiaro sabbioso, dolium
4b coarse ware
4b1 thin coarse ware (<5 mm)
4b2 medium coarse ware (5><10mm)
4b3 thick coarse ware (>10mm, not amphora)
4b4 loomweight
4b5 Pompeian red
4c amphora
4c1 various
4c2 Depurated (orange, pale, red)
4c3 Coarse (orange, pale, red)
4c4 Hard (red, orange, pale)
4c5 Red (to orange) with white inclusions
4c6 Pink (to orange) with black sand
4c7 Orange/red with white coating
4c8 Dark red with grey-black coating
4d depurated ware
4d1 thin depurated ware (<5 mm)
4d2 medium depurated ware (5><10mm)
4d3 thick depurated ware (>10mm, not amphora)
4d4 loomweight
4e black glazed ware
4f terra sigillata (Italian/Gaulish)
4g African red slip ware
4h other fine wares
4i votive material
4j bucchero
4k glazed
4l etrusco-corinthian pottery
4m oil lamps

5 Non-ceramic
5a metal
5b bone
5c glass
5d stone

6 indet
6 indet ceramics

7 production debris
7a slag
7b kiln debris
7c wasters
7d indet

Finds classification, processing and presentation
As is clear from the above, different sampling strategies were applied to the four case studies. However, after collection samples were processed in the same manner. Following washing and drying, finds were classified, counted and weighed. The classification used was almost identical to the one used during the compilation of the *Carta archeologica* (see table 2.1).[223] During this

223 For the classification system used for the *Carta* see Attema, de Haas & Tol 2011, chapter 3.

Table 2.2 Overview of the main publications used to date the pottery collected in the course of the four case studies.

Period	Ware	Principal typologies	Other dating evidence
Archaic period	Tiles	Attema 1991; Attema *et al.* 2001/2002	
	Fine wares	Rasmussen 1980	
	Utilitarian Pottery	Maaskant-Kleibrink 1987 & 1992; Attema *et al.* 2001/2002; Carafa 1995	
post-Archaic period	Tiles	Tiles in *impasto chiaro sabbioso.* For a description of the tiles Attema, de Haas & Tol 2010	
	Fine wares	Morel 1981	
	Utilitarian Pottery	Bouma 1996; Lambrechts 1989; Olcese 2003	
mid-Republican period	Fine wares	Morel 1981; Bernardini 1986; Stanco 2009	Coins
	Amphorae	*USAP*	
	Utilitarian Pottery	Bouma 1996; Di Mario ed. 2005; Dyson 1976; Olcese 2003; Lambrechts 1989	
late Republican period	Amphorae	*USAP*	Coins
	Fine wares	Marabini Moevs 1973; Morel 1981	
	Utilitarian Pottery	Aylwin Cotton 1979; Dyson 1976; Santrot & Santrot 1995	
early Imperial period	Amphorae	*USAP*	Coins, Metal artefacts, Tile stamps, Vessel glass
	Fine wares	Ettlinger *et al.* 1990; Marabini Moevs 1973; Oxé, Comfort & Kenrick 2000	
	Utilitarian Pottery	Aylwin Cotton 1979; Aylwin Cotton & Métraux 1985; Dyson 1976; Olcese 2003; Ricci 1985; Santrot & Santrot 1995	
mid-Imperial period	Amphorae	*USAP;* Bonifay 2004	Coins, Metal artefacts, Tile stamps, Vessel glass
	Fine wares	*Atlante I* 1981; Hayes 1972; Bonifay 2004	
	Utilitarian Pottery	Aylwin Cotton 1979; Aylwin Cotton & Métraux 1985; Dyson 1976; Bonifay 2004; Hayes 1972	
late Imperial period	Amphorae	*USAP;* Bonifay 2004	Coins, Metal artefacts, Tile stamps, Vessel glass
	Fine wares	*Atlante I* 1981; Hayes 1972; Bonifay 2004	
	Utilitarian Pottery	Arthur ed. 1994; Arena *et al.* 2001; Bonifay 2004; Paroli & Venditelli eds. 2004	
late Antique period	Amphorae	*USAP;* Bonifay 2004	Coins, Vessel glass
	Fine wares	*Atlante I* 1981; Hayes 1972; Bonifay 2004	
	Utilitarian Pottery	Arthur ed. 1994; Arena *et al.* 2001; Bonifay 2004; Paroli & Venditelli eds. 2004	
early Medieval period	Amphorae	*USAP;* Bonifay 2004	Vessel glass
	Fine wares	*Atlante I* 1981; Hayes 1972; Bonifay 2004	
	Utilitarian Pottery	Arthur ed. 1994; Arena *et al.* 2001; Bonifay 2004; Paroli & Venditelli eds. 2004	

study a subcategory was added to allow separate classification of oil lamp fragments (subcategory 4m).

The classification distinguished seven categories, that separate the collected materials into broad chronological or functional groups; 1) lithics; 2) impasto/handmade pottery; 3) architectonical materials; 4) other pottery; 5) non-ceramic materials; 6) indet materials and 7) production debris. These categories were then divided into subcategories that allowed a more precise functional or chronological determination of the object. After classification, selections for further processing were made. This included a detailed description of the object, normally accompanied by a drawing.[224]

224 Shard descriptions consist of the following elements: inventory number, ware (e.g. terra sigillata), shape (e.g. base of a jar), description (mentioning all physical characteristics of the preserved fragment), measurements (in general recording height in position and width of the fragment, as well as one or a number of relevant measures of the thickness of the vessel), colors (according to Munsell 1994; values were taken on the surface interior and exterior and -when possible – on the core of the fragment), comments (listing any other relevant comment that is not mentioned in any of the other headings) and parallel/date (references to similar fragment from published contexts and their date).

Fragments were dated by confronting them with published material from well-dated contexts, preferably located in the vicinity of our study area (for a table listing the main publications used see table 2.2). All data regarding sites and individual shards, was then entered into a relational database.

In this dissertation, the quantified pottery data for each of the case studies are published in full. For the intensive on-site surveys (chapter 5) this actually entails the publication of all collected diagnostic fragments. For the other three case studies the material is presented in typologies; the typologies for chapters 3 and 6 also include the diagnostic pottery shapes that were not identified by comparison with materials from well-dated contexts elsewhere. This was not done for chapter 4 (the museum collection), because of the haphazard manner in which these samples were collected. For each case study a shard catalogue is presented at the end of the chapter. A table lists additional information (ware, shape, date, parallel/date, spatial information and a reference to the drawing) for each catalogued fragment.

Pottery recording

As mentioned above, all collected pottery was counted and weighed. Both recording methods do, however, not provide an entirely bias-free reconstruction of past pottery consumption. By recording weights heavier vessel types are in general somewhat overrepresented. Shard counts are known to be biased by variations in the fragility and original size of different pottery wares and shapes. However, in general they correlate more than 90% with weight calculations.[225]

Nevertheless, these two recording methods are considered the most appropriate for the present study. Firstly, since they are easily applicable and secondly, because of the characteristics of the assemblages studied. These comprise surface assemblages (chapters 3 and 5), excavated materials without a primary stratigraphy (chapter 6) and materials collected without a clearly defined methodology (chapter 4). Although more sophisticated and statistically more reliable methods of pottery recording are available, these are foremost powerful tools in analysing assemblages collected from stratigraphically and spatially controlled situations (e.g. excavation).[226]

Site dating and periodization

In this study only sites are included that yielded material from GIA-fieldwork. As a consequence, all site dates mentioned are based on controlled collection of materials.[227] Two different manners of dating are used, depending on the size and quality of the collected samples. Chapters 3 and 4 present data acquired by extensive sampling of surface assemblages. The often small samples generally provide comparatively limited and generic dating evidence. The chronology for each individual site is reconstructed by considering the full date range of each identified pottery type. Certain activity on a site is assumed when a pottery type dates within a single phases of our periodization. When a fragment dates in two (or more) successive periods, it is taken as an indication for possible activity in both periods.

Based on the far larger amount of (diagnostic) materials collected for the sites presented in chapters 5 and 6, a more accurate assessment of their chronology could be made. This can be achieved by overlapping the date ranges of all diagnostic materials, assuming that a period can never be represented by a single fragment, except when its date ranges falls entirely outside that of all other materials. The start of activity on a site thus corresponds to the moment that date ranges of different ceramic types overlap, whereas the end date of a site corresponds to the moment that no new pottery types are introduced on the site.

The periodization that is used in this study is based on two, in my view equally valid, considerations. Firstly, to include the entire date range of some of the most common pottery wares and types in a single period, allowing the identification of the maximum number of 'certain' sites. Secondly, to divide the chronological span of this study into periods of equal length to permit direct comparisons in site numbers between different periods. The periodic divisions and their respective denomination have no other purpose than to facilitate the reading of the results (see table 2.3).[228]

225 Millett 2000b. Carreté, Keay & Millett (1995, 60) noted a 95% correlation between the number of shards and shard weight.

226 For a discussion on the way to study ceramic assemblages see Orton 1982. His conclusions are restated by Millett 2000b. Further analytical methods for example include the EVE (Estimated Vessel Equivalent) and the EVREP (Estimated number of Vessels Represented). See Peña 2007b for use of the method on assemblages from the eastern Palatine. The EVE is thought to represent the only unbiased way to study ceramic assemblages.

227 However, for a small number of sites visited, earlier observations made by Piccarrata (1977) are incorporated.

228 The author is aware of the much-debated chronology of several of the mentioned historical periods. The chronology used should not be seen as a contribution to this discussion.

Table 2.3 The periodization used in this study.

Period	Chronology
Archaic period	650 – 500 BC
post-Archaic period	500 – 350 BC
mid-Republican period	350 – 200 BC
late Republican period	200 – 50 BC
early Imperial period	50 BC – AD 100
mid-Imperial period	AD 100 – 250
late Imperial period	AD 250 – 400
late Antique period	AD 400 – 550
early Medieval period	AD 550 - 700

Table 2.4 List of all sites considered in this thesis. A X indicates that materials from this site were actually collected (or studied in the case of the museum collection) in the course of this thesis; an O indicates that the site was sampled by the GIA on a previous occasion. .

			Chapters				
Site ID	Toponym	Previous GIA-studies	3	4	5	6	Bibliography
11201	Astura	2004: Revisit 2006: Revisit				X	Piccarreta 1977, 21; Attema, de Haas & Tol 2011, 186
11202	Torre Astura	-	X	X			Castagnoli 1963, 637-44; Quilici 1970; Tomassetti 1976, 385; Piccarreta 1977, 21-66; Piccarreta 1980; Cenciarini-Giaccaglia 1982; De Rossi 1984, 136-139; Higginbotham 1997, 143-151; Petrassi, de Simoni & Candeloro 2002, 14-20; Ceccarelli 2003; Petriaggi 2004; Alessandri 2007, 106-108; Marzano 2007, 283; Attema, de Haas & Tol 2011, 186-187.
11208	Saracca	-	X	O			Piccarreta 1977, 74-5; Attema, de Haas & Tol 2011, 188-189
11209	Saracca	-	X	O			Piccarreta 1977, 75-76; Alessandri 2007, 100 & 104-106; Marzano 2007, 281; Attema, de Haas & Tol 2011, 189
11215	Le Grottacce	2001/2002: small-scale excavations	X	O			Blanc 1937; Piccarreta 1977, 76; Hesnard *et al.* 1989; Ansuini & La Rosa 1989; Attema, de Haas & Nijboer 2003, 137-138; Alessandri 2007, 100-103; De Haas, Attema & Pape 2008; Marzano 2007, 276-277; Attema, de Haas & Tol 2011, 191
11266		-	X				Piccarreta 1977, 87
11267		-	X				Piccarreta 1977, 87
11268	Acciarella	-		X			Piccarreta 1977, 87
11269	Casale Nuovo	Revisits in 2003 & 2004; Block survey in 2004	O	O			Piccarreta 1977, 87; Attema *et al.* 2008, 463; Attema, de Haas & Tol 2010, 187
11270	Casale Nuovo	Revisit in 2003	X	O			Piccarreta 1977, 87; Attema *et al.* 2008, 463
11275	Fico Mancino	Revisit in 2003	X	O			Piccarreta 1977, 87-88; Attema *et al.* 2008, 464
11276	-	Revisit in 2003	X	O			Piccarreta 1977, 87-88; Attema *et al.* 2008, 464
11277	Spinacceto	Block survey and one long transect in 2004	X	O			Piccarreta 1977, 88; Attema, de Haas & Tol 2010, 188-189; Attema, de Haas & Tol 2011, 204
11280	Orti Maoni/Intossicata	Revisits in 2003, 2004 and 2006	X	X			Piccarreta 1977, 88; Attema *et al.* 2008, 465; Attema, de Haas & Tol 2010, 190; Attema, de Haas & Tol 2011, 204-205
11281	Orti Maoni/Pantano dell' Intossicata	Revisit in 2003; Block Survey in 2004	X	X			Piccarreta 1977, 88; Attema *et al.* 2008, 466; Attema, de Haas & Tol 2010, 190-192; Attema, de Haas & Tol 2011, 205
11283	Piscina della Farna	Revisit in 2003	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 466; Attema, de Haas & Tol 2011, 205-206
11284	Piscina della Farna	Revisit in 2003; Block survey and long transects with 3m interdistance in 2004	O	O			Piccarreta 1977, 88; Attema *et al.* 2008, 467; Attema, de Haas & Tol 2010, 193; Attema, de Haas & Tol 2011, 206
11286	Tre Cancelli	-		X			Piccarreta 1977, 88; Attema, de Haas & Tol 2011, 206
11287	Intossicata	Revisit in 2003	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 468
11288	Intossicata	Revisit in 2003	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 468
11290	Intossicata	Revisit in 2003	O	O			Piccarreta 1977, 88; Attema *et al.* 2008, 469
11291	Intossicata	Revisit in 2003; Block survey in 2005	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 469; Attema, de Haas & Tol 2010, 194
11292	Intossicta	Revisit in 2003	O	O			Piccarreta 1977, 88; Attema *et al.* 2008, 470

Table 2.4 continued

			Chapters				
Site ID	**Toponym**	**Previous GIA-studies**	**3**	**4**	**5**	**6**	**Bibliography**
11294	Quarto delle Cinfonare	Revisit in 2003; Block survey in 2005	O	O			Piccarreta 1977, 88; Attema *et al.* 2008, 470-471; Attema, de Haas & Tol 2010, 194
11296	Quarto delle Cinfonare	Revisit in 2003	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 471
11297	Quarto delle Cinfonare	Revisit in 2003; Block survey in 2004 and 2005	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 472; Attema, de Haas & Tol 2010, 195
11298	Quarto delle Cinfonare	Revisit in 2003; Block survey in 2004	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 472-473 Attema, de Haas & Tol 2010, 195
11303	Quarto del Cerrone	Revisit in 2003	X	O			Piccarreta 1977, 88; Attema *et al.* 2008, 473
11304	Quarto del Cerrone	Block survey in 2005	O	O			Piccarreta 1977, 88; Attema, de Haas & Tol 2010, 196
11305	Quarto del Cerrone	-	X	O			Piccarreta 1977, 88
11308	Valle d'Oro	Revisit in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 474
11310	-	Revisit in 2003	O	O			Piccarreta 1977, 89; Attema *et al.* 2008, 475
11312	Colle Falcone	Block survey in 2003	X	X			Piccarreta 1977, 89; Marzano 2007, 276; Attema *et al.* 2008, 475-476
11313	Colle del Pero	-		X			Piccarreta 1977, 89
11316	Colle del Pero	Block survey in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 477
11317	Colle del Pero	Revisit in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 477
11318	Riserva di Rottura	Block survey in 2003 at both 20 and 50% coverage	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 478-481
11319	I Norcini	Revisit in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 481-482
11321	S. Antonino	-	X	O			Piccarreta 1977, 89
11322	S. Antonino	-	X	O			Piccarreta 1977, 89
11323	S. Antonino	Revisit in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 482-484
11326	-	Revisit in 2003	X				Piccarreta 1977, 89; Attema *et al.* 2008, 484
11327	-	Revisit in 2003	O	O			Piccarreta 1977, 89; Attema *et al.* 2008, 485
11329	Canneto di Rodi	-	X	O			Piccarreta 1977, 89
11330	Canneto di Rodi	-	X	O			Piccarreta 1977, 89
11331	Canneto di Rodi	Block survey in 2003	X	O			Piccarreta 1977, 89; Attema *et al.* 2008, 485-487
11345	Macchia Grande	-	X	O			Piccarreta 1977, 89-90
11347	Satrico	Block survey in 2003	O	O			Piccarreta 1977, 90; Attema *et al.* 2008, 487
11351	Strada Alta	-	X	O			Piccarreta 1977, 90
11352	La Fibbia	Revisit in 2003	X	O			Piccarreta 1977, 90; Attema *et al.* 2008, 488
11354	La Fibbia	Revisit in 2003	O	O			Piccarreta 1977, 90; Attema *et al.* 2008, 488
11356	La Fibbia	Revisit in 2003	O	O			Piccarreta 1977, 90; Attema *et al.* 2008, 489
11359	Cannucceto	Revisit in 2003	O	O			Piccarreta 1977, 90; Attema *et al.* 2008, 490
11367	-	Revisit in 2003	X	O			Piccarreta 1977, 90-91; Attema *et al.* 2008, 490

Table 2.4 continued

			Chapters				
Site ID	**Toponym**	**Previous GIA-studies**	**3**	**4**	**5**	**6**	**Bibliography**
11368	-	-	X	O			Piccarreta 1977, 90-91
11369	-	Revisit in 2003	X	O			Piccarreta 1977, 90-91; Attema *et al.* 2008, 491
11371	Macchia Grande	-	X	O			Piccarreta 1977, 90-91
11373	Moscarello	-	X	O			Piccarreta 1977, 90-91
11375	-	Revisit in 2003	X	O			Piccarreta 1977, 90-91; Attema *et al.* 2008, 491
11378	Piano Rosso	Block survey in 2003; revisit in 2003	O	O			Piccarreta 1977, 91; Attema *et al.* 2008, 492
11384	Cerreto La Croce	Revisit in 2003	X	O			Piccarreta 1977, 91; Attema *et al.* 2008, 492-493
11386	-	Revisit in 2003	X	O			Piccarreta 1977, 91; Attema *et al.* 2008, 493
11387	-	Revisit in 2003	X	O			Piccarreta 1977, 91; Attema *et al.* 2008, 494
11389	-	Revisit in 2003	O	O			Piccarreta 1977, 91; Attema *et al.* 2008, 494
11390	-	Revisit in 2003	X	O			Piccarreta 1977, 91; Attema *et al.* 2008, 495
11391	Borgo Sabotino	-	X	O			Piccarreta 1977, 91
11392	Borgo Sabotino	Revisit in 2003	O	O			Piccarreta 1977, 91; Attema *et al.* 2008, 495
15001	Cadolino	Revisit in 2005	O	X			Attema, de Haas & Tol 2010, 196; Attema, de Haas & Tol 2011, 207
15002	Cadolino	Revisit in 2005	X	X			Attema, de Haas & Tol 2010, 197; Attema, de Haas & Tol 2011, 207
15003	Cadolino	-		X			Attema, de Haas & Tol 2011, 207
15004	Ospedaletto	Block survey in 2004; Revisit in 2005	X	O			Attema, de Haas & Tol 2010, 198-205; Attema, de Haas & Tol 2011, 207-208
15005	Piscina Cardillo	Revisit in 2004; Block survey in 2005	X	X			Attema, de Haas & Tol 2010, 205; Attema, de Haas & Tol 2011, 208
15008	La Campana	-		X			Attema, de Haas & Tol 2011, 208-209
15010	La Campana	Revisit in 2004; Block survey in 2005		X			Attema, de Haas & Tol 2011, 209
15014	La Campana	Revisits in 2004 & 2005; Block survey in 2005; Magnetometer survey in 2005	X	X			Attema, de Haas & Tol 2010, 207-220; Attema, de Haas & Tol 2011, 209-210
15017	La Campana	Revisit in 2004; Block survey in 2005		X			Attema, de Haas & Tol 2011, 210-211
15019	Torre del Monumento	Revisits in 2004 & 2005	X	X			Attema, de Haas & Tol 2010, 221-222; Attema, de Haas & Tol 2011, 211
15020	Torre del Monumento	Revisit in 2005	X				Attema, de Haas & Tol 2010, 223; Attema, de Haas & Tol 2011, 211
15029	Pineta della Campana	Block survey in 2004; Revisit in 2005; Magnetometer survey in 2005	X	X			Attema, de Haas & Tol 2010, 223-227; Attema, de Haas & Tol 2011, 213
15034	La Campana	Revisit in 2004; Block survey in 2005	X	O	X		Attema, de Haas & Tol 2010, 228-230; Attema, de Haas & Tol 2011, 214-215
15035	La Campana	-		X			Attema, de Haas & Tol 2011, 215
15036	La Campana	Revisit in 2004; Block survey in 2005; Magnetometer survey in 2005	X	O			Attema, de Haas & Tol 2010, 231-241; Attema, de Haas & Tol 2011, 215
15038	La Campana	Block survey in 2005	X	X			Attema, de Haas & Tol 2010, 241; Attema, de Haas & Tol 2011, 216
15046	Intossicata	-	X				Attema, de Haas & Tol 2011, 217

Table 2.4 continued

			Chapters				
Site ID	Toponym	Previous GIA-studies	3	4	5	6	Bibliography
15049	I Marmi	-	X	X			Attema, de Haas & Tol 2011, 218
15051	Pantano Granieri	-		X			Attema, de Haas & Tol 2011, 218-219
15059	Cretarossa	-		X			Attema, de Haas & Tol 2011, 220-221
15066	La Campana	-		X			Attema, de Haas & Tol 2011, 221
15068	La Campana/Sughereto/ Fosso del Quinto	Revisit in 2004; Block survey in 2005	X	X			Attema, de Haas & Tol 2010, 242-244; Attema, de Haas & Tol 2011, 222
15070	Loricina	-		X			Attema, de Haas & Tol 2011, 222
15072	Villa Borghese	-		X			Attema, de Haas & Tol 2011, 222-223
15076	Spinacceto	-		X			Attema, de Haas & Tol 2011, 224
15078	La Campana	-		X			Attema, de Haas & Tol 2011, 224
15079	Campo Cerreto	-		X			Attema, de Haas & Tol 2011, 224
15080	La Campana	-	X	X			Attema, de Haas & Tol 2011, 224-225
15081	La Campana	-		X			Attema, de Haas & Tol 2011, 225
15082	Cadolino	-		X			Attema, de Haas & Tol 2011, 225
15083	Cadolino	-	X	X			Attema, de Haas & Tol 2011, 225
15084	Cretarossa	-		X			Attema, de Haas & Tol 2011, 226
15085-01	I Cioccatti	-	X				Attema, de Haas & Tol 2011, 226
15085-02	I Cioccatti	-	X				Attema, de Haas & Tol 2011, 226
15085-03	I Cioccatti	Revisit in 2004	X	X	X		Attema, de Haas & Tol 2010, 242; Attema, de Haas & Tol 2011, 226
15085-04	I Cioccatti	-	X		X		Attema, de Haas & Tol 2011, 226
15106	Zucchetti	Block survey in 2004	X	O	X		Attema, de Haas & Tol 2010, 247-251; Attema, de Haas & Tol 2011, 227
15107	Zucchetti	Block survey in 2004	X	O			Attema, de Haas & Tol 2010, 251-256; Attema, de Haas & Tol 2011, 227-228
15108	Spino Bianco/La Fossa	Block survey in 2004; Revisits in 2004 & 2005	X	O			Attema, de Haas & Tol 2010, 257-259; Attema, de Haas & Tol 2011, 228
15109	Torre del Monumento	Block survey in 2004	O	O			Attema, de Haas & Tol 2010, 260; Attema, de Haas & Tol 2011, 228
15110	La Campana	Block survey in 2004	O	O			Attema, de Haas & Tol 2010, 261; Attema, de Haas & Tol 2011, 228
15111	La Campana	Block survey in 2005; Magnetometer survey in 2005	X	O			Attema, de Haas & Tol 2010, 262-268; Attema, de Haas & Tol 2011, 229
15112	La Campana	Block survey in 2004	X	O			Attema, de Haas & Tol 2010, 269-270; Attema, de Haas & Tol 2011, 229
15114	Padiglione	Block survey in 2004	X	O			Attema, de Haas & Tol 2010, 270-273; Attema, de Haas & Tol 2011, 229-230
15115	Castelverde	Block survey in 2003	O	O			Attema *et al.* 2008, 496
15116	-	Unsystematic survey in 2003	X	O			Attema *et al.* 2008, 496-498
15117	Piano Rosso	Block survey in 2003	O				Attema *et al.* 2008, 498

Table 2.4 continued

			Chapters				
Site ID	**Toponym**	**Previous GIA-studies**	**3**	**4**	**5**	**6**	**Bibliography**
15118	-	Block survey in 2003	X	O			Attema *et al.* 2008, 499
15119	-	Block survey in 2003	O	O			Attema *et al.* 2008, 499
15125	Depuratore	Small-scale excavations in 2002; Revisit in 2003	O				Cardarelli *et al.* 1980, site 322; Attema, de Haas, Nijboer 2003, 124-125; Tol 2003; Alessandri 2007, 82-86; Attema, de Haas & Tol 2011, 231
15126	Depuratore	Unsystematic revisit in 2005	O	O			Attema, de Haas & Tol 2010, 274; Attema, de Haas & Tol 2011, 231
15127	La Campana	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 274; Attema, de Haas & Tol 2011, 231
15128	La Campana	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 275; Attema, de Haas & Tol 2011, 232
15130	La Campana	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 276; Attema, de Haas & Tol 2011, 232
15132	La Campana	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 277; Attema, de Haas & Tol 2011, 232-233
15134	La Campana	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 277; Attema, de Haas & Tol 2011, 233
15135	Piscina Cardillo	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 278; Attema, de Haas & Tol 2011, 233
15136	Piscina Cardillo	Block survey in 2005	X	O			Attema, de Haas & Tol 2010, 278; Attema, de Haas & Tol 2011, 233
15137	Campo Cerreto	Block survey in 2005	X	O			Attema, de Haas & Tol 2010, 279; Attema, de Haas & Tol 2011, 234
15138	Rovito	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 279-281; Attema, de Haas & Tol 2011, 234
15146	Quarto del Cerrone	Block survey in 2005	O	O			Attema, de Haas & Tol 2010, 282-283
15148	Quarto del Cerrone	Block survey in 2005	X	O			Attema, de Haas & Tol 2010, 283
15149	Quarto del Cerrone	Block survey in 2005	X	O			Attema, de Haas & Tol 2010, 284
15150	Villa Verdiana/Scopone	Unsystematic sample in 2005; Magnetometer survey in 2005	O	O			Attema, de Haas & Tol 2010, 284-287; Attema, de Haas & Tol 2011, 235
15151	Villa Borghese	-	X				Attema, de Haas & Tol 2011, 235
15152	Quarto delle Cinfonare	Block survey in 2005	X	O			Attema, de Haas & Tol 2010, 288
15153	Zucchetti	Block survey in 2004 (no site found)	X				Attema, de Haas & Tol 2011, 235-236
15258	Astura	-	X				-
15259	Poligono	-	X				-
15260	Poligono	-	X				-
15261	Poligono	-	X				-
15262	San Giacomo	-		X			-

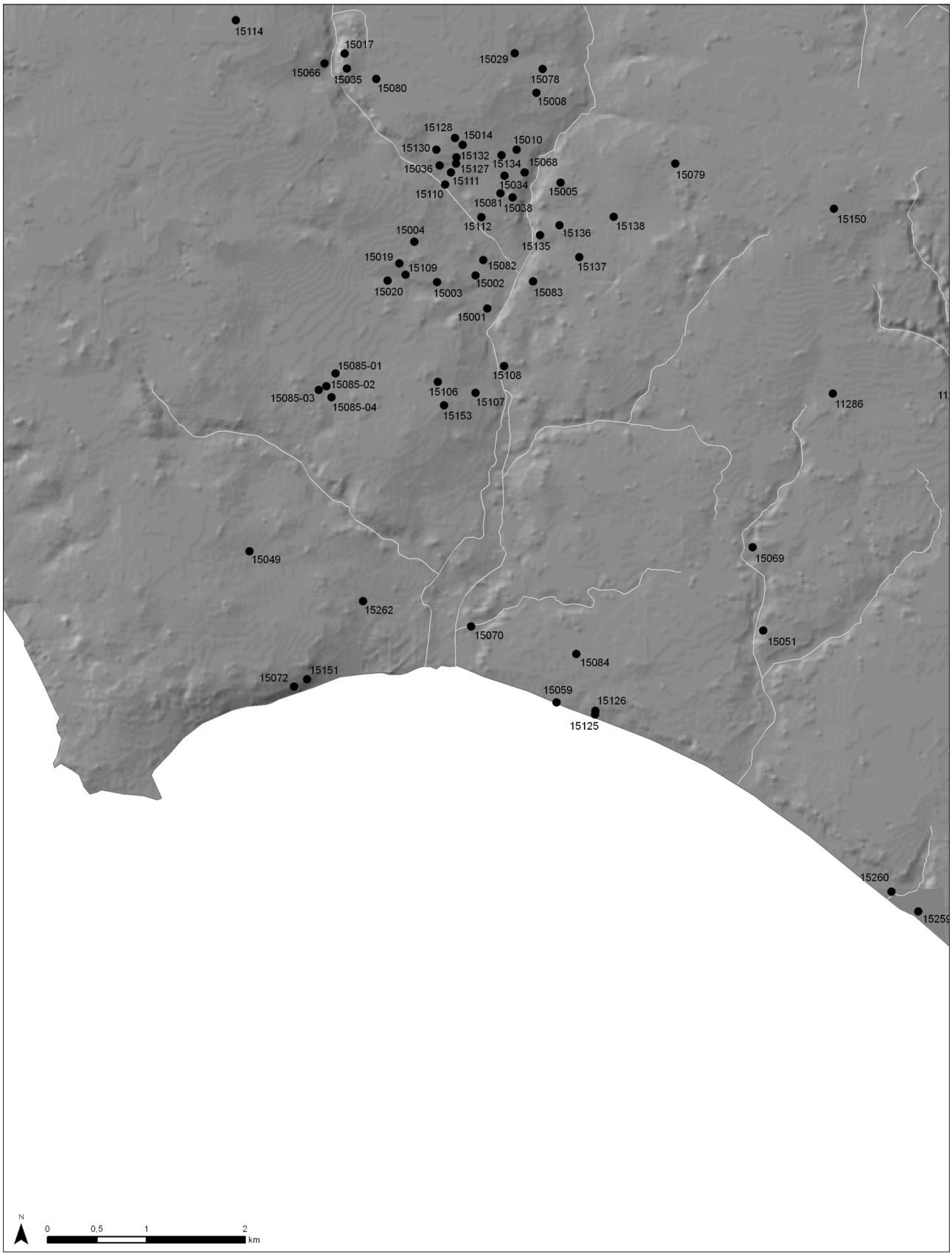
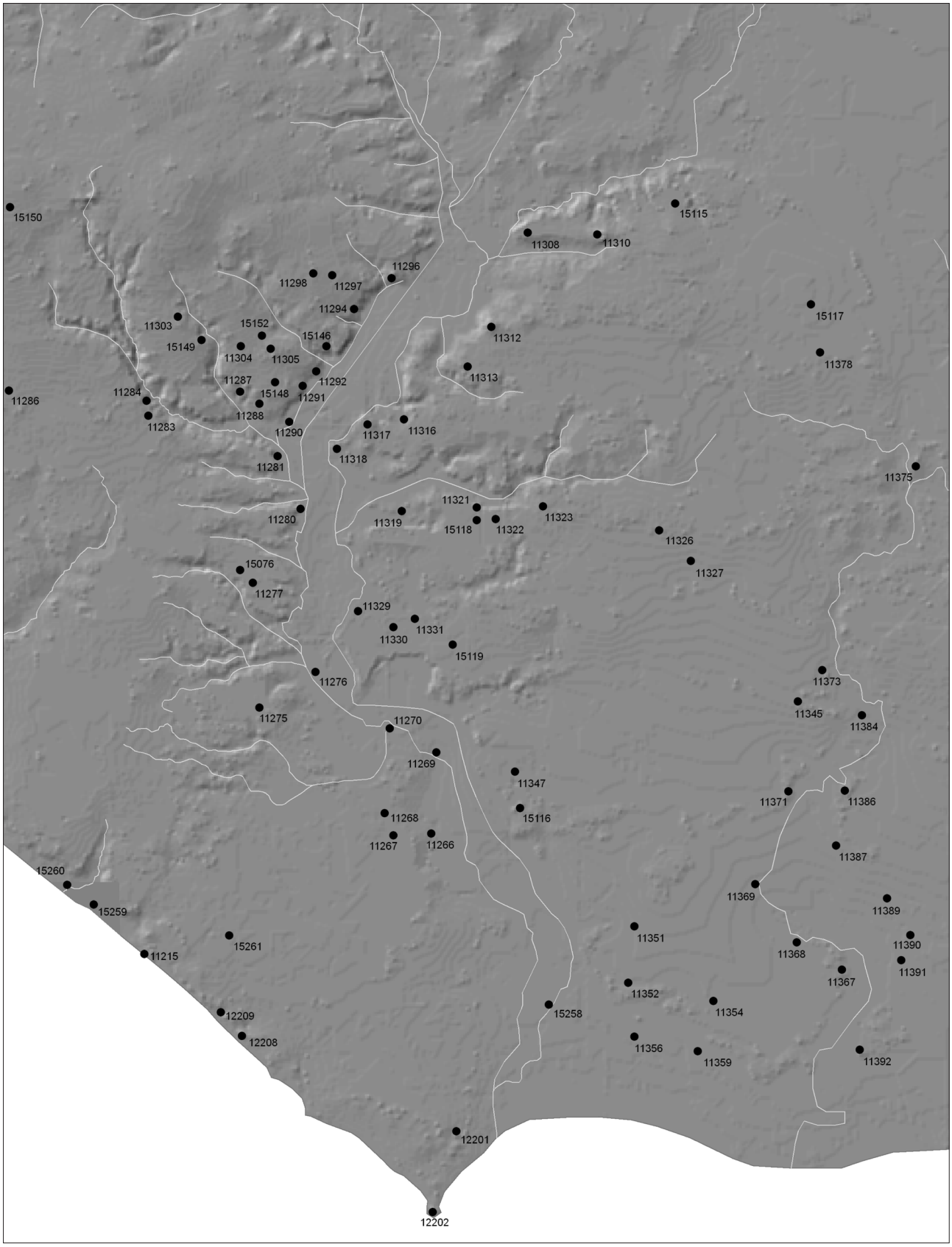


Figure 2.2 Location map of all sites included in this study.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Chapter 3 – Case study 1:

Revisiting previously mapped sites

This chapter presents the results of a programme of revisits to sites that were mapped during previous GIA-studies. The first part of the chapter provides the methodological background to these revisits, followed by the presentation of the dataset. The second part comprises a detailed discussion of all collected materials, including a study of diachronic fluctuations in the supply and consumption of several functional classes of pottery (e.g. fine wares, amphorae and utilitarian pottery) in the study area. The chapter concludes with an assessment of the added value of the study to the settlement trend of the surveyed area. A catalogue at the end of this chapter presents a typology of all materials collected during the initial GIA-studies and subsequent revisits combined.

3.1 Background of the study

Carrying out (systematic) revisits to already mapped locations is nowadays incorporated in the design of many survey projects. In general, these are performed to answer specific methodological or chronological questions.[229] However, the scale and aims of such revisits, as well as the applied methodology, varies considerably from one project to the other.

A resurvey of regional landscapes that have been studied in the past with more selective or methodologically less refined methods is particularly suited for examining previously recorded site density figures and site chronologies.[230] These studies can also provide insight in the rate and degree of site degradation in a specific area. Revisiting selected site locations is normally aimed at obtaining supplementary functional or chronological information.[231]

On a more methodological level, the execution of site revisits has contributed to the identification of biases influencing datasets of regional surveys. During Barker's survey in the Molise (South-Central Italy) the phenomenon of the flickering 'on' and 'off' of sites in subsequent years was noted, whereas also in other areas a strong variation in appearance of the same sites at different moments has been documented.[232] In several areas, degraded or small, ephemeral sites were identified by revisiting locations that on initial inspection yielded small, but varied samples.[233]

The revisits discussed in this chapter predominantly aimed at collecting additional samples from sites that were mapped during the initial phase of the Astura and Nettuno projects.[234] In the course of these projects information was obtained on more than 300 archaeological sites by combining two existing topographical studies with complementary intensive surveys. Many of these sites yielded small and undiagnostic samples only, providing limited chronological and functional information.[235] Furthermore, since the two topographical studies were both predominantly compiled in the 1970's, these systematic revisits could provide further insight into the degree of site deterioration (and site loss) caused by urban expansion and the use of destructive agricultural techniques.

3.2 The revisits

Methodology

The revisits were all carried out in October, when circumstances for field walking are particularly favourable. In our study area, fields tend to be ploughed in this period, whereas sowing doesn't occur before the

229 Out of the many advocating the importance of resurveys see Bintliff 2000a, 5 and 2000b, 205; Patterson 2000, 115; Mattingly & Witcher 2004, 178 and Cavanagh, Mee & James 2005, 318.

230 To list some examples: a partial resurvey of the *Ager Sabinensis*, covered by the South Etruria Survey, was conducted during the Tiber Valley Project (Di Giuseppe *et al.* 2002); parts of the area studied in the initial Metapontum survey were redone in the 1990's (Thompson 2004). The restudy of areas covered in the course of previous topographic work appears to be particularly fruitful (e.g. the *Forma Italiae* volumes); see for example Di Giuseppe *et al.* 2002; Attema *et al.* 2008 and Attema, de Haas & Tol 2010.

231 These revisits generally aim at sites that contain materials from phases that are poorly documented (see for example Bintliff 2000a, 4-6; Patterson 2000, 114).

232 Lloyd & Barker 1981; Bintliff 2000b, 207.

233 Waagen forthcoming. The execution of such investigations was recommended as well by Schon (2002, 236).

234 The study of complete site inventories is also recommended by Bintliff 2000b, 214. The revisits discussed in this chapter thus focused only on locations that in previous studies were classified as 'sites'.

235 For the complete dataset see Attema *et al.* 2008; Attema, de Haas & Tol 2010 and Attema, de Haas & Tol 2011. In chapter 2 of this thesis, several of the factors contributing towards the limited knowledge of many sites are discussed.

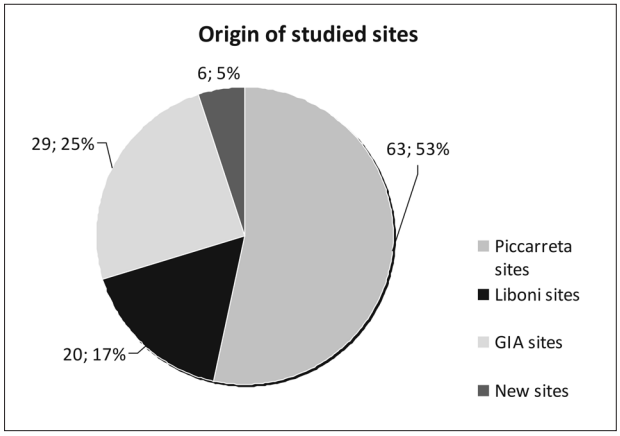


Figure 3.1 Origin of the studied sites.

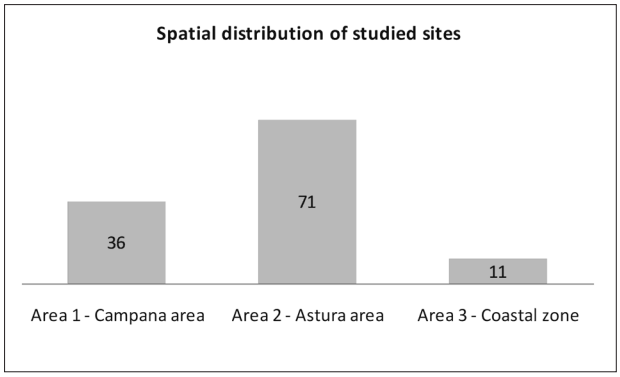


Figure 3.2 No. of sites per topographical area.

beginning of November.[236] Site locations were retraced by using a handheld field computer (PDA), equipped with GPS receiver. The total area of each relocated site was walked. With the exception of a handful of sites from which an abundant sample was already in our possession, all diagnostics materials were collected (see below).[237] For each site detailed information was recorded in a fieldbook. This normally comprised a listing of the observed classes of material (see chapter 2 for the finds classification used), remarks on the find circumstances (visibility and weather conditions) and an estimate of the size of each site. The collected samples were subsequently washed and described and, when useful, drawn.

The dataset

A total of 118 sites is considered in this chapter. This includes 86 sites that were actually visited (and sampled) in the course of the systematic revisits, supplemented by 32 sites that, despite not being retraced during the present study, were located and sampled by the GIA between 2003 and 2005 (see table 2.4).[238]

More than half of these 118 sites were originally included in Piccarreta's inventory, whereas around 20% were originally known from either the study of the archaeological collection of the *antiquarium di Nettuno* (see chapter 4) or our own intensive surveys. Furthermore, six new sites were discovered in the course of the revisits (fig. 3.1).

Sites are located in three different topographical areas: 60% of all sites are located along the lower valley of the Astura river, whereas the Campana area and the coastal zone hold 31% and 9% of all sites respectively (fig. 3.2).[239]

Site loss

Based on the two topographical sources, the revisits provide further insight into the percentage of sites that has been lost in the past decades both in the Astura (based on Piccarreta's *Forma Italiae* volume) and the Campana area (the focus of Liboni's topographical study).[240]

A total of 59 Piccarreta sites, 44% of the total, could be relocated between 2003 and 2007 (fig. 3.3a). Of the other 73 sites in his inventory 18 locations appeared to be overbuilt, whereas the location of 45 sites showed no preserved archaeological remains. Furthermore, for ten sites no permission for a visit to its location was obtained from the landowner.

Of the 72 sites recorded by Liboni only 36% (26 sites) could be relocated (fig. 3.3b). For the visit of nine sites no permission was obtained, whereas the location of 16 sites could be visited, but showed no preserved archaeological remains. The location of 21 sites was overbuilt.

These figures show that the influence of modern farming as well as progressive urbanization has been substantial, destroying or covering almost 50% of the archaeological record in both areas over the last 40 years. The loss of sites in the Astura area is mainly caused by

236 The agricultural calendar was also taken into consideration in the original Metaponto-survey (D'Annibale 1983a and b; see also Thompson 2004, 69). The Astura and Nettuno surveys were carried out in summer (July), supplemented by a single campaign in February 2005.

237 In these cases, collection was aimed at supplementing existing samples. Diagnostic fragments normally include all rim, base and handle fragments. Furthermore, decorated and otherwise 'distinct' body fragments were collected as well.

238 However, an attempt was made to visit each of these sites.

239 It is certain that ancient activity focused on other parts of the study area as well. These are, however, not or only marginally accessible (see also Attema, de Haas & Tol 2011, 20).

240 A first assessment of site loss in the Astura area, based on the intensive surveys in 2003, was calculated to lie somewhere between 30 and almost 60% (Attema *et al.* 2008, 432). After conducting the initial intensive surveys in the Campana area site loss was thought to lie between 34,1% and 68,3% (Attema, de Haas & Tol 2010, 173-174).

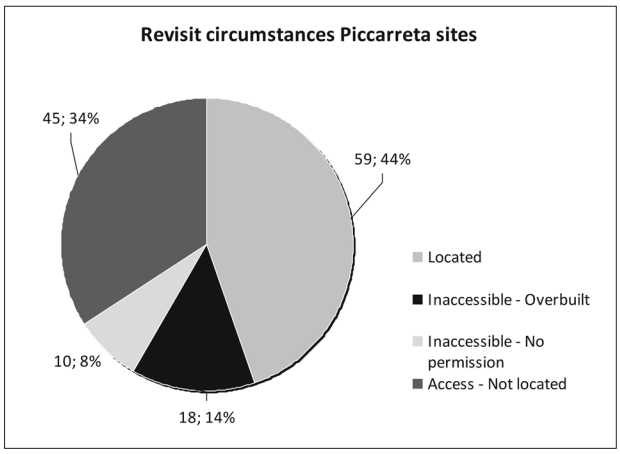


Figure 3.3a Revisit circumstances for Piccarreta sites.

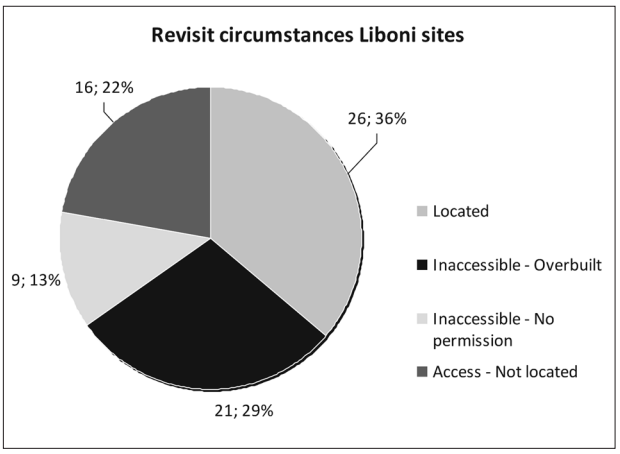


Figure 3.3b Revisit circumstances for Liboni sites.

agricultural practices, whereas in the Campana area a large part of the sites is overbuilt.[241]

Collected materials and chronological information

The revisits to 86 sites yielded a total of 1688 diagnostic fragments. The amount of (diagnostic) pottery collected during these revisits can be confronted with that gathered during GIA's intensive surveys in the period 2003-2005 (see fig. 3.4). Such a comparison demonstrates to what extent the more intensive sampling method applied during the revisits, has resulted in the collection of larger (ceramic) samples.

Between 2003 and 2005 45 Piccarreta sites were studied, yielding a total of 106 diagnostic fragments; an average of 2.4 diagnostic fragments per site. More than half of the sites located did not yield a single diagnostic fragment, whereas from only three sites more than ten diagnostic fragments were collected, with a maximum of 31 fragments. During the revisits, 43 Piccarreta sites were relocated. Of these, 31 are among the 45 sites sampled earlier, while twelve sites had not been visited by the GIA before. From these 43 sites, a total of 533 diagnostic fragments were collected, an average of 12.4 diagnostic fragments per site. The number of sites yielding no diagnostic materials is almost halved, whereas nine sites yielded more than ten diagnostic fragments. From three sites, more than 50 diagnostic fragments were collected, with a maximum of 108 fragments (fig. 3.4).[242]

The same comparison is, however, not possible with regard to the sites known from the study of the museum collection. Some of these were visited during the intensive survey as well, yielding large samples up to 208 diagnostic fragments. Therefore, on three sites (15004, 15014, 15036) sampling for the present study was merely aimed at collecting materials to supplement existing samples.[243]

For the 27 sites that were identified during GIA's intensive surveys the same applies.[244] Although during the revisits diagnostic samples were collected on most of the sites visited this was not done on site 15111, which already yielded a substantial amount of diagnostic fragments (and thus a substantial amount of chronological information) during the intensive survey. Furthermore, the six 'new' sites were not sampled on previous occasions.

Sample size per topographical area

Including the diagnostic fragments collected during GIA's intensive surveys we possess a total of 2747 diagnostic finds from the 118 sites considered in this chapter. The average number of diagnostic fragments per site varies considerably between the three topographical

241 The exact percentage of sites lost therefore remains hard to establish. The fact that an archaeological site is overbuilt does not necessarily mean that it is destroyed. The fact that no permission was obtained to visit a location in most cases probably indicates that archaeological remains are still present. The 45 sites of which no traces could be found include locations with visibility circumstances ranging from minimal to maximal. Therefore, under more favourable conditions, part of these sites could possibly be traced back. The locations visited under more favourable visibility conditions are probably lost (in many cases due to soil cleaning and movement), although smaller sites are sometimes known to flicker 'on and off' in various years (Lloyd & Barker 1981, 291).

242 The graph is based on Attema, de Haas & Tol 2011, figure 3.5. The diagnostic fragments of these surveys are published in Attema *et al.* 2008 and Attema, de Haas & Tol 2010.

243 In the Campana area several sites yielded up to 200 diagnostics during the intensive survey (see Attema, de Haas & Tol 2010), including many fragments of the same types (mainly African cookwares and table wares). These fragments were not collected systematically during the subsequent revisits.

244 Excluded are sites of either prehistoric or protohistoric date.

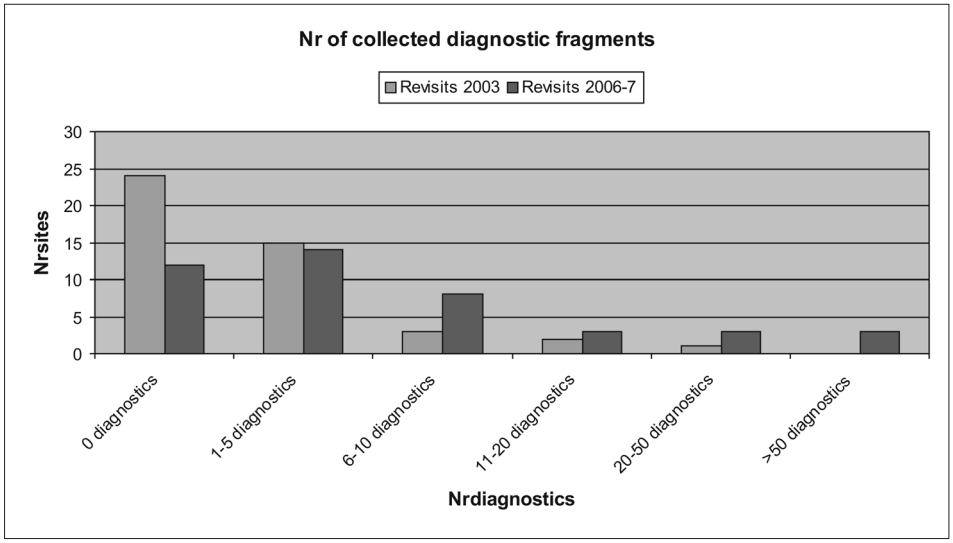


Figure 3.4 No. of diagnostics collected on Piccarreta sites in 2003 and for the present study.

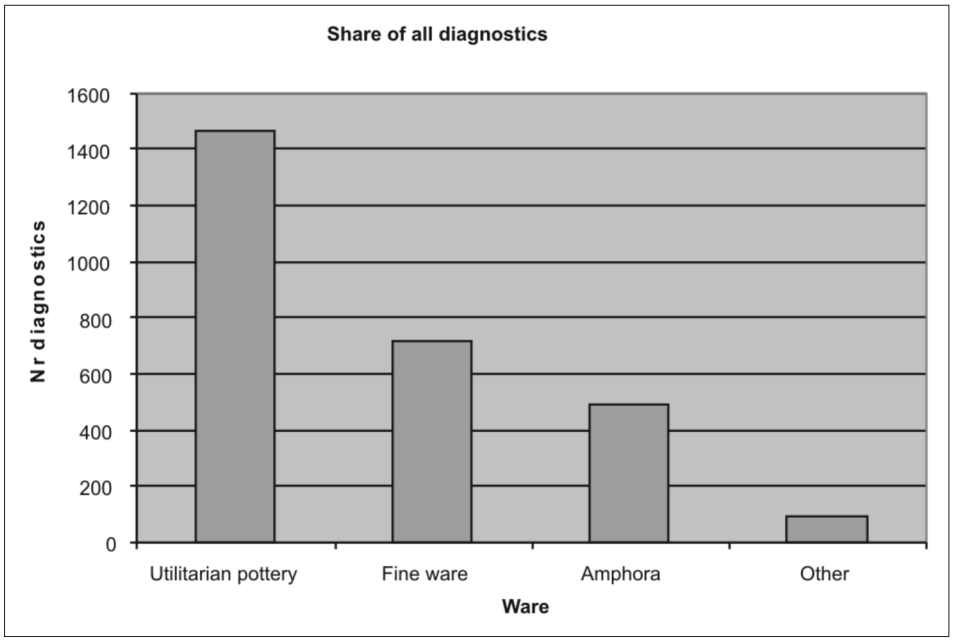


Figure 3.5 No. of diagnostic finds per material category.

areas (see table 3.1).[245] On sites in the Astura area the lowest amount of fragments per site was collected, whereas the average number of diagnostic fragments per site was almost five times higher in the Campana area.[246] Differences between these areas are due to a number of reasons, varying from visibility conditions, accessibility of sites, the general chronology and typology of sites in each area, and the rate of deterioration of sites between areas. These aspects will be further commented upon in the conclusions to this chapter.

3.3 The material remains

This section presents an overview of the (diagnostic) pottery collected on the 118 sites discussed in this chapter. It combines the material evidence gathered during previous GIA-investigations with that from the subsequent systematic revisits. The collected materials are subdivided into the following material classes: building materials (tile and brick; other building materials), fine wares, amphorae, coarse and cooking wares, and 'other' materials (loomweights, glazed fragments, glass, oil-lamps, coins, other metal objects, miscellaneous).

245 Since materials from sites 11215 and 15125 were obtained by small-scale excavations these have been excluded from this table. As a consequence the average of 15,55 diagnostic fragments per site is based on samples from nine sites only, whereas the overall average of 23,55 diagnostic per site is based on samples from 116 sites.

246 Sites from which not all diagnostics fragments were collected lie exclusively in the Campana area. If all fragments were collected the difference in the amount of diagnostic fragments between the Astura and Campana area would thus have been even more substantial.

Table 3.1 Summary results of the revisits.

Area	Nr_sites	Nr_diagnostics	Nr_diagn per site
Astura	71	781	11,00
Campana	36	1811	50,31
Coast	11	140	15,55
Total	118	2732	23,55

Table 3.2 Typology of tile fabrics.

Date	Fabric characteristics
Archaic tile	Red-baking tile containing augite particles or ferromanganese nodules
post-Archaic tile	Yellow-baking tile containing much augite
post-Archaic/Republican tile	White/pale-baking tile containing much augite
Republican tile	White/pink/orange containing augite
Republican – early Imperial tile	White/orange/pink depurated tile containing some augite

Furthermore, the large number of diagnostic fine wares, amphorae and utilitarian pottery fragments (see fig. 3.5) allow reconstructing diachronic changes in their consumption volume, both for the study area as a whole and for the Campana and Astura areas separately. Such an analysis can possibly identify differences or similarities in both settlement and economy between these individual areas. The sample of sites from the coastal area unfortunately is too small to perform a similar exercise. The graphic method used in visualizing these data is the *media ponderata*. Although this method is certainly not bias-free, in my view it constitutes the graphic method most suitable when dealing with surface assemblages.[247]

Building materials

Tile and brick

All sites sampled yielded tile fragments, indicating the presence of permanent, roofed structures. Based on their characteristic (clay colour and mineral inclusions) several tile fabrics provide chronological information (table 3.2).[248]

Fragments of Archaic tile were collected on 15 sites. The greater part of these (13 sites) is located in the Astura area. However, fragments were collected on two sites (15005, 15108) in the Campana area as well. Post-Archaic tile, characterized by its yellow colour and a high percentage of augite inclusions, was identified on 33 sites. It is especially common on sites in the Astura area (27 sites), but fragments also derive frrom six sites in the Campana area. On five sites in the Astura area, located at short distance of each other, wasters of this post-Archaic tile were found. This identifies this area, known as *Quarto delle Cinfonare,* situated just south of *Satricum*, as a production area of these tiles.

Augite-rich tiles in different colours, mainly white/pale, pink and orange are thought to be indicative of post-Archaic and/or Republican occupation.[249] Their presence is attested on a total of 66 sites. They are particularly common in the Astura area (56 sites), but fragments were also collected on nine sites in the Campana area and on one coastal site. The chronology of tiles with a more depurated fabric, containing lesser amounts of augite, is thought to comprise both the Republican and the early Imperial period. This type of tile was collected on 48 sites, mainly locations in the Astura area (37 sites). Also, eleven sites in the Campana area yielded fragments of this type of tile.

On sites of Imperial date a far less homogeneous set of tile forms and fabrics occur. These fragments are unfit to provide detailed dating evidence.

During GIA fieldwork four (fragments of) tile stamps were found. From site 15110 comes a badly preserved circular stamp consisting of two concentric lines of text, of which only a few characters are legible.[250] The shape of the stamp, however, dates in the 2nd century AD. From site 15151 comes a closed circular stamp

247 As explained in chapter 2, the *media ponderata* favours products with a short period of production over traditional forms that were produced for longer periods. Furthermore the use of 'fixed' classes makes the trend susceptible to exaggerated breaks. Also, the *media ponderata* is a method of lumping data, therefore possibly suppressing local variation in favour of overall trends (see also Millett 2000a, 218).

248 The classification of the various types of tile was done by the eye. Although we are aware that this has possibly led to interpretational differences between sites, we are convinced that the study as a whole contributes to the overall chronological picture of sites. The chronology of these tile fabrics is predominantly based on fabric research on stratified contexts from *Satricum* (see Attema, de Haas & Nijboer 2003).

249 These products are thought to be mentioned by Piccarreta as *tegole sabbiate* (see Piccarreta 1977).

250 This fragment is published in Tol 2011 (fragment Misc_01).

with a raised circular centre. The complete text is preserved, reading AEMILI•PAVLLI•. These tiles were with certainty produced locally and probably date, based on the shape of the stamp, in the 3rd century AD.[251] A fragment of a similar tile was found during excavations at the coastal site of Le Grottacce (site 11215).[252] Finally, part of a rectangular stamp was found on site 11323. It consists of two, partially preserved lines of text, reading ..DOMI../...H.... and when complete should read L•DOMIT[I] DAPH[NI]. It can be dated in the 1st century AD.[253]

Brick fragments, especially in survey assemblages, are difficult to distinguish from tiles. However, on several sites complete bricks were found.

Other building materials

The revisits also yielded several fragments of decorative architecture. Pieces of marble were collected from five sites; four in the Campana area (15014, 15085-01, 15085-03, and 15153) and one coastal site (15151). These comprise mainly slabs in white and grey marble, whereas also single fragments of *giallo antico* (site 15151) and *porfido rosso* (site 15085-01) were collected.

Fragments of (painted) plaster were collected from eight sites. Five of these were located in the Campana area (15002, 15014, 15036, 15085-01, and 15085-04), two along the coast (11208, 15151) and one site in the Astura area (11312). The bulk of these fragments bear traces of coloured paint, mainly red, yellow, pink and purple. The fragment from site 15151 depicts part of a painted scene in yellow and light blue applied on a red background colour.

Ten sites yielded *tesserae*. Five of these were situated in the Campana area (15002, 15004, 15014, 15036, and 15085-04), three in the Astura area (11312, 11318, and 11387) and two along the coast (11208, 15151). They are mostly simple white and black examples, probably belonging to floor mosaics. On sites 15004 and 15014 however, respectively a small light blue and a small dark blue *tessera* was found. These small coloured fragments could also have been part of wall mosaics.[254]

On site 15259 a worn, but complete antefix was found, the front side decorated with a *palmette* motive that was especially common in the late Republican and early Imperial period; our fragment must date within this time span.

***Fine wares*[255]**

The oldest fine ware type found in our study area is *bucchero*. Small quantities of this ware, consisting exclusively of non-diagnostic fragments, were found on eight sites. These comprise four sites in the Astura area, as well as three sites in the Campana area and one coastal site.

Republican black glazed ware is the most frequently found fine ware (49 sites; see fig. 3.6); however, it generally occurs in small numbers per site and includes few diagnostic fragments. The ware is commonly found on sites in the Astura area (33 sites). Based on the date ranges provided by the diagnostic fragments, consumption of black glazed ware commenced somewhere between the late 4th and the early 3rd century BC; the latter date appears to be more probable considering the overall lack of distinct earlier types. The 3rd century BC comprises the heyday of the production of vessels in the *Etrusco-Latial* tradition, and its typical products are commonly found in our study area.[256] After the cessation of this production, black glazed ware continued to arrive in our study area, albeit in smaller quantities, until at least the second quarter, and possibly the end of the 2nd century BC. No 1st-century fragments were identified.

Terra sigillata is found on 45 sites and, compared to black glazed ware, generally occurs in relatively large quantities, includes a larger number of diagnostics. Fragments were found on many sites in the Campana area and on more than half of the coastal sites. On the other hand it occurs less frequently in the Astura area.

Our collection of terra sigillata shows a wide variety of forms, most of them present in low overall numbers. Together they span a period between the beginning of the 1st century BC and the mid-2nd century AD. However, most fragments date between the last decade of the 1st century BC and the late 1st century AD. Five stamped fragments were collected; four *a planta pedis* and one anepigraphical stamp. Three stamps point to a Pisan origin of the vessel, while another stamp identifies it as a Central-Italian product.

Identified in lower numbers are fragments of *ceramica narbonese* (only one fragment), dating in the mid-Imperial period and *ceramica a pareti sottili*. Fragments of the latter ware comprise, apart from a handful of

251 Production of these tiles must have taken place in the coastal area, as is indicated by the find of a die. They must have had a primarily local distribution (see Attema, Derks & Tol 2010; Tol 2010; De Haas, Tol & Attema 2011); single fragments are reported from Anzio (NSc 1883, 134) and Ostia (Steinby, Helen & Solin 1977, no.1140).

252 For the fragment from Le Grottacce see De Haas, Attema & Pape 2008, 552, no.47.

253 For the fragment from site 11323 see Attema *et al.* 2008, 509, no.2; see also CIL XV/1, no. 122.

254 Christie 1991, 262.

255 Among the diagnostic fine ware fragments are two bucchero fragments, 80 fragments of black glazed ware, 33 fragments of *ceramica a pareti sottili*, 180 fragments of terra sigillata and 447 fragments of African red slip ware.

256 The fact that most diagnostic fragments are of 3rd century BC date makes it plausible that also the largest part of the undiagnostic fragments date in this period.

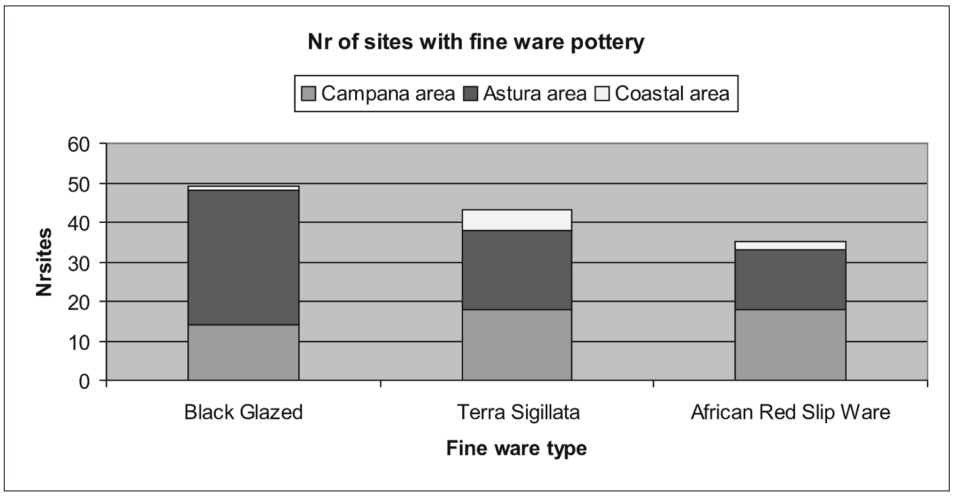


Figure 3.6 No. of sites with fine ware pottery in each topographical area.

rims, mainly decorated body fragments. Especially common are various variants of the so-called *pine crust decoration*, characterized by the presence of pine-shaped appliqués on the outer surface of the vessel. Together these fragments, collected on twelve sites in our study area, cover the period between 100 BC and the third quarter of the 1st century AD.

African red slip ware fragments are found on 35 sites in our study area, considerably less than the other major fine ware productions black glazed ware and terra sigillata. The ware is less commonly found on sites in the Astura area, whereas the number of sites with African red slip ware in the Campana area is high. Fragments of this ware were also identified on two coastal sites.

Notwithstanding the fact that it was found on fewer sites than fragments of black glazed ware and terra sigillata, a much larger aggregate number of African red slip ware fragments is recorded. This can only partly be explained by the fact that the ware has a much longer chronology than all other identified fine wares categories. The earliest fragments of the ware can be dated in the late 1st century AD and the consumption of African red slip ware fragments continues until the early 6th, and possibly even the late 6th/early 7th century AD.[257] A wide variety of forms is attested, occurring in different quantities. Especially common are several of the 2nd and 3rd century forms, whereas only few fragments belonging to the latest phase of African red slip ware production were identified.

Fine ware consumption

Figure 3.7 depicts the cumulative trend of all dated diagnostic fine ware fragments.[258] The earliest fragments possibly date in the 4th century BC and the use of fine ware reaches a first, yet modest, peak in the 3rd century BC. This is predominantly brought about by black glazed ware pottery of the *Gruppo dei Piccoli Stampigli*, thought to be of Etrusco-Latial production. After the heyday of this production, fine ware consumption becomes marginal for the entire 2nd and the first half of the 1st century BC. In the course of the second half of the 1st century BC, new fine ware types (*ceramica a pareti sottili* and Italian terra sigillata) come available on the market, provoking an increase in fine ware consumption towards the 1st century AD. After a period of relative stability, fine ware consumption reaches an overall peak in the first half of the 2nd century AD, and remains on a high level until the middle of the next century. This increase corresponds to the introduction of African red slip ware in our study area. From the second half of the 3rd century AD onwards consumption levels are much lower, attesting to a collapse in the supply of these African products.[259] Small amounts of fine ware pottery (exclusively African products) continue to arrive in our study area until the first half of the 6th century AD. A single fragment from site 11202 may even date somewhat later.

Spatial differentiation in fine ware consumption

In the Astura area, small amounts of black glazed ware are consumed from the 3rd century BC onwards (fig. 3.8a). There is also evidence – although on a more modest level – for continuity of the consumption of this ware during the 2nd century BC. The first half of the 1st

257 We must note that no exclusively later 6th and 7th century AD African red slip ware types are found. This renders it likely that African red slip ware supply to our study area came to a halt somewhere in the first half of the 6th century AD.

258 Since only diagnostic fragments are considered, the small number of bucchero fragments collected is excluded from this graph.

259 Fentress 2000.

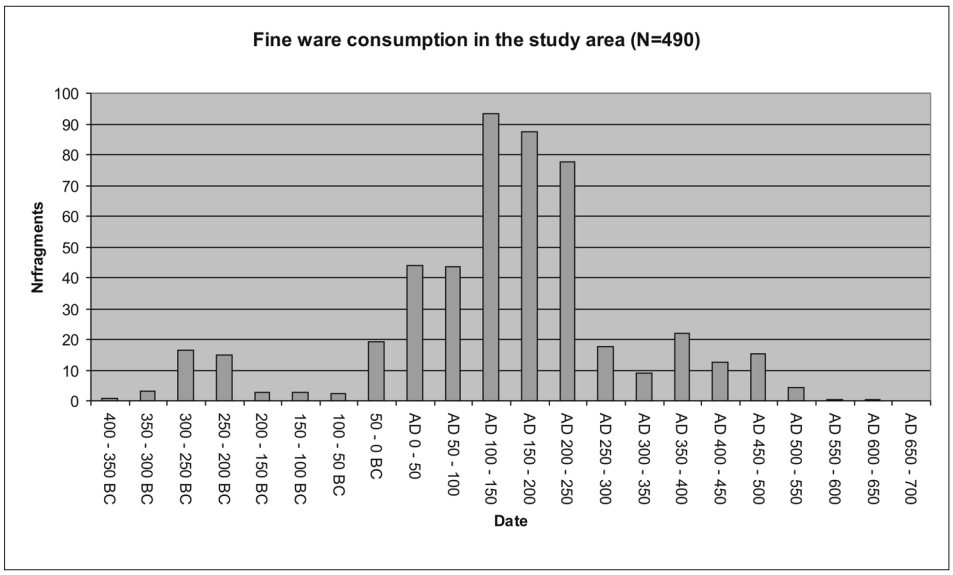


Figure 3.7 Cumulative trend of diagnostic fine ware fragments for the study area.

century BC sees the first examples of *ceramica a pareti sottili* and terra sigillata, whereas no 1st century black glazed ware was found in this area. Consumption levels of terra sigillata follow a general trend of increasing consumption of fine wares during the 1st centuries BC and AD. The first African red slip ware fragments probably predate the 2nd century AD and this ware almost exclusively accounts for the strong rise in the volume of consumed fine ware pottery in the first half of the 2nd century AD. A subsequent minor decrease in the first half of the 3rd century AD is followed by a much stronger decline from the second half of that century onwards. Small quantities of African red slip ware continue to arrive in the Astura area, restricted to a small number of sites. Just before or after the turn of the 4th century fine ware supply to the Astura area comes to a complete stop.

In the Campana area fine wares possibly were consumed as early as the 4th century BC (fig. 3.8b). A small peak is noted for the 3rd century BC, provoked by pottery of the *Gruppo dei Piccoli Stampigli;* recently, evidence for the production of this ware was attested on one site in the Campana area.[260] Black glazed ware fragments of a later date are virtually absent in this area and the consumption of fine wares only resumes in the second half of the 1st century BC. The first fragments of terra sigillata date in this period, thus slightly later than in the Astura area. The overall supply of this ware to the Campana area increases significantly in the first half of the 1st century AD and comprises, in contrast with the Astura area, also the first half of the 2nd century AD. In the Campana area, the introduction of African red slip ware also causes a sharp increase in fine ware consumption from the first half of the 2nd century onwards. However, this increase is less abrupt than in the Astura area. A high level of consumption is maintained until at least the first half of the 3rd century AD. Hereafter, although less dramatically than in the Astura area, a sharp decline in the amount of consumed fine wares is noted in the Campana area as well. The supply of African red slip ware to this area continues on a lower level (and with a temporary dip in the first half of the 4th century AD) until at least the beginning of the 6th century AD.

Amphorae[261]

Amphora fragments are common on almost all sites. However, only a small fraction of these constitute rim fragments.[262] Of the 172 rim fragments collected, 124 could be assigned to a specific amphora type. Furthermore, several amphora types were identified on their distinct handle and base/spike shape.

There is no evidence that amphorae already circulated in our study area before the mid-4th century BC. The earliest dating amphora fragments encountered are of the Graeco-Italic type, mostly belonging to its late production (MGS IV-VI).[263] Other Republican amphora types such as the Dressel 1 (A-C), and the Van der Werff 2 and 3 are also commonly found. Furthermore, several diagnostic fragments of a probably locally produced

260 This site (15106) is discussed in more detail in chapter 5.

261 Diagnostic amphora fragments (486 in total) include both rim, handle and spike/base fragments. For the graphs reconstructing consumption levels of amphorae, only rim fragments are used. Bases/spikes and handles were excluded as these can only be readily identified for a restricted number of types.

262 Amphorae generally have a small rim diameter and a long body. Therefore, compared to other pottery shapes, a relatively low percentage of the whole shape is 'diagnostic'.

263 For a detailed description of the chronology of the Graeco-Italic amphorae see Caravale & Toffoletti 1997, 86-89.

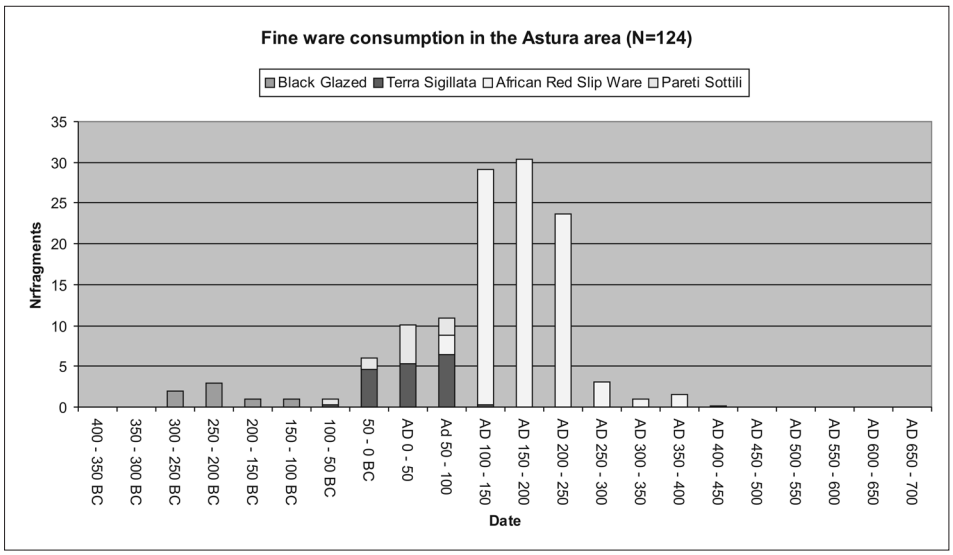


Figure 3.8a Cumulative trend of diagnostic fine ware fragments for the Astura area.

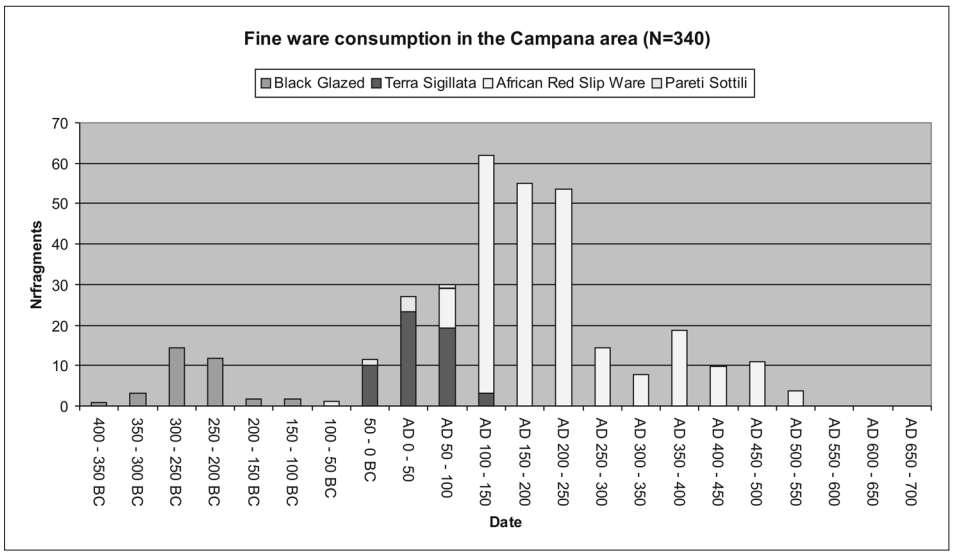


Figure 3.8b Cumulative trend of diagnostic fine ware fragments for the Campana area.

amphora type and a single spike of a van der Werff 1 amphora were collected.[264]

Most identified amphorae are of early Imperial date and this period sees the consumption of a wide variety of types of different origin. The most commonly encountered type is the Dressel 2-4 amphora, comprising specimens of both Italian (for the largest part produced in the Bay of Naples) and Catalonian manufacture. Other identified types include the Haltern 70 (from Spain, identified on its characteristic handle), the Tripolitana 1, and single examples of the Pupput, Leptiminus 1, Dressel 7-11 and Forlimpopoli amphora (the latter identified on its characteristic base). Early to mid-Imperial amphorae include the Gauloise 4, variants of the Africana 1 and 2, the Tripolitana 2, the Dressel 20 and the Cretoise 2 (based on its characteristic double-bar handle). Amphorae of the late Imperial and late Antique periods are far less numerous, but include various examples of Africana 3A and B and single fragments of Keay forms 35B, 36 and 62.

Amphora consumption

Figure 3.9 shows that the consumption of amphorae did not commence before the mid-4th century BC.[265] After an increase from the mid-2nd century BC onwards, consumption levels reach a peak in the first half of the 1st century BC. After remaining rather stable throughout the early and mid-Imperial period, a second peak is

264 Evidence for the production of these amphorae, characterized by their poorly mixed clays, was found at the coastal villa of *Le Grottacce* (Attema, de Haas & Nijboer 2003; De Haas, Attema & Pape 2008). The type and its fabric(s) are also described by Hesnard *et al.* 1989, Ricq *et al.* 1989 and Empereur & Hesnard 1987.

265 An earlier attempt to identify patterns in the consumption of foodstuffs was made in De Haas, Tol & Attema 2011. This analysis was, however, based on a lower number of fragments, deriving from our intensive surveys only.

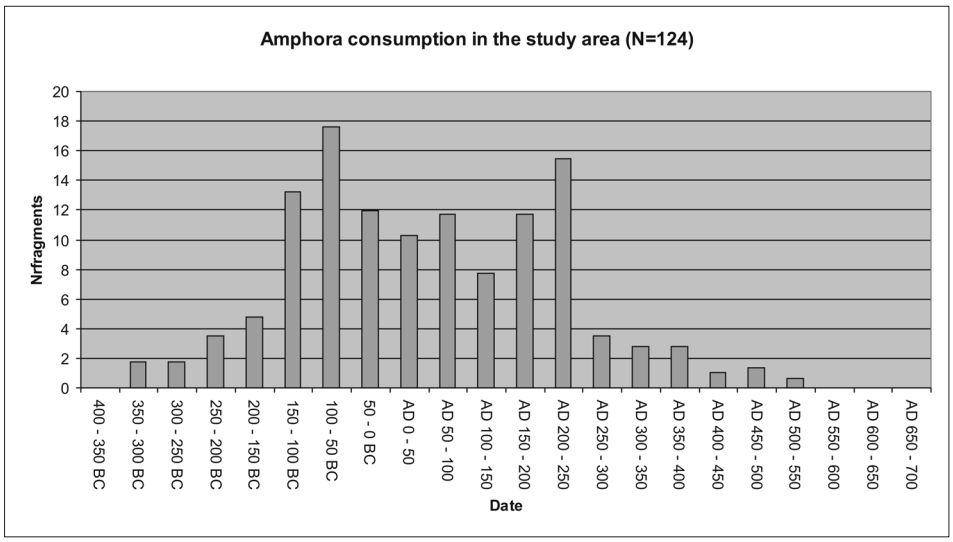


Figure 3.9 Cumulative trend of diagnostic amphora fragments for the study area.

reached in the first half of the 3rd century AD. After this date, consumption of these commodities drops considerably and continues to slump backwards until the first half of the 5th century AD, after which no more amphorae occur in our study area.

Spatial differentiation in amphora consumption

In the Astura area, mid-Republican amphorae occur in very low numbers only (fig. 3.10a). Between the mid-2nd and mid-1st century BC, consumption levels show a sudden increase and reach an overall peak. The most commonly attested amphora type of this period is the Dressel 1, comprising many fragments in the Campanian 'black sand' fabric. Several sites yielded (mainly undiagnostic) fragments of an amphora of local production, thought to date between the second and first quarter of the 1st century BC.[266]

Early Imperial amphorae are surprisingly rare in the Astura area and consumption levels only recover in the 2nd century AD, reaching a second – although smaller – peak in the first half of the 3rd century. This second peak is mainly provoked by the finding of variants of Africana 1 amphorae on a restricted number of sites. From the mid-3rd century onwards, the consumption of amphorae subsides and none of the identified types dates later than the 4th century AD.

The Campana area shows a rather different trend, although also here a first peak is noted in the first half of the 1st century BC (fig. 3.10b). This peak is, however, the result of a gradual increase in the consumption of amphorae from the mid-4th century BC onwards. Amphora supply remained stable throughout the early and mid-Imperial period, reaching an overall height in the first half of the 3rd century AD. The most common late Republican and early Imperial amphora is the Dressel 2-4; both vessels of Italian and Catalan manufacture are found in large numbers. The frequent presence of the latter on sites in this area is somewhat surprising since the type is attested in the Astura area by only a few undiagnostic wall fragments. Apparently, the good connection between the Campana area and the city of *Antium* facilitated access to these imported products. After the mid-2nd century AD, a large share of the market is taken in by Tripolitana and Africana amphorae, both of North-African origin and predominantly used for the transportation of olive oil. A sudden drop in the consumption of amphorae (and thus in imported foodstuffs) from the first half to the second half of the 3rd century AD is recorded for the Campana area as well. After this date, only few amphorae occur and consumption appears to come to a halt in the first half of the 6th century AD.

***Coarse and cooking wares*[267]**

On most sites utilitarian pottery forms the principal ceramic class.[268] The earliest fragments considered for this study are of 6th-century BC date. These comprise a small group of storage jars and decorated fragments (plain and notched cord decorations, lugs) that based on their shape find parallels in stratified contexts of the Archaic period at nearby *Satricum* and are thought to be of local or regional production.[269]

266 De Haas, Attema & Pape 2008, 527-528.

267 Diagnostic fragments (1462 in total) include base, handle and rim fragments, as well as several distinct decorated body fragments. In the following graphs showing trends for the consumption of utilitarian pottery, only rim fragments were used.

268 This class comprises a wide variety of coarse and cooking ware shapes and productions that are often not chronologically and morphologically connected; see also Olcese 2003 and Cortese 2005.

269 For a typology of Iron Age to Archaic pottery found at *Satricum*, see Attema *et al.* 2001/2002.

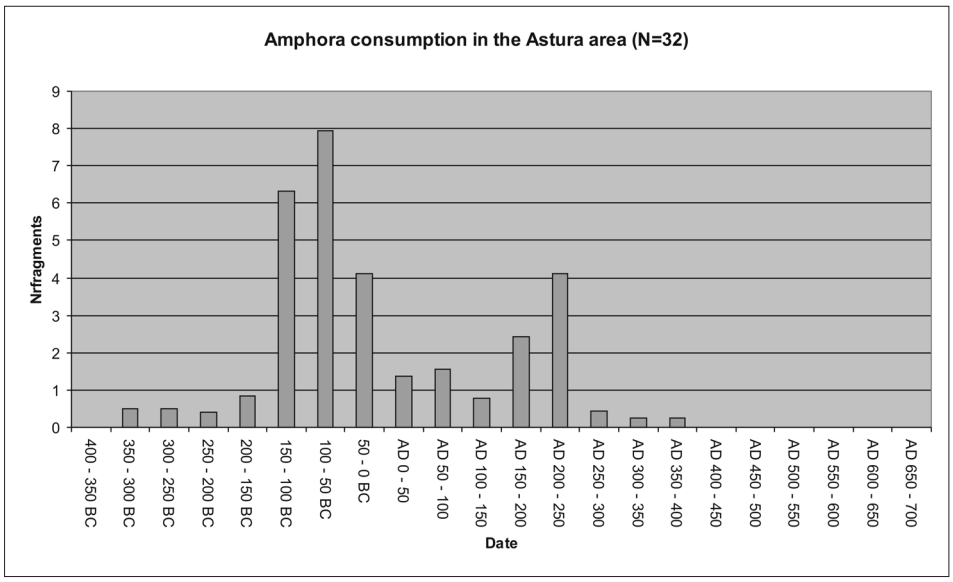


Figure 3.10a Cumulative trend of diagnostic amphora fragments for the Astura area.

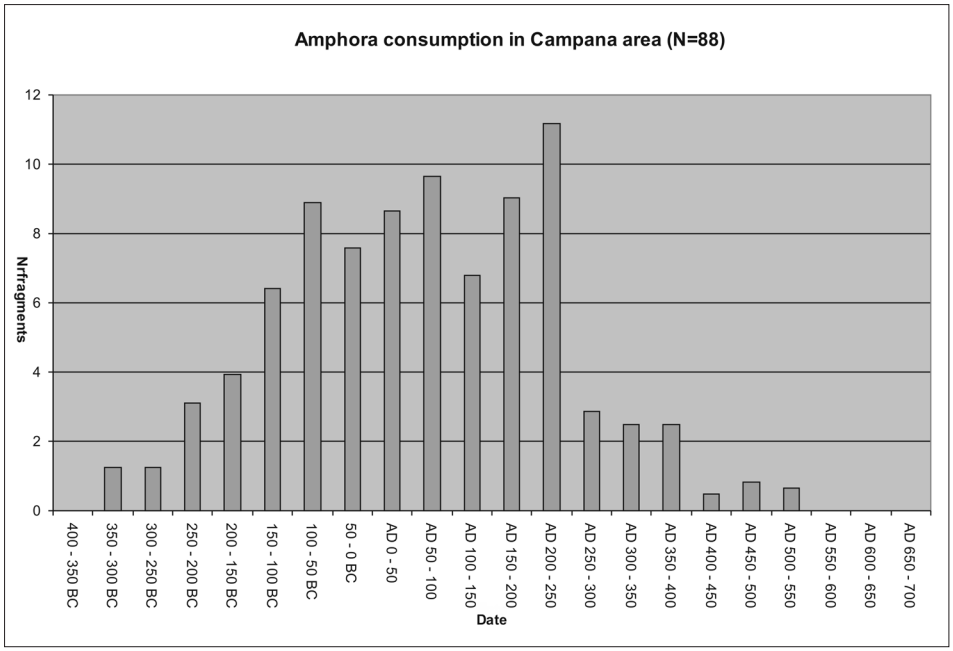


Figure 3.10b Cumulative trend of diagnostic amphora fragments for the Campana area.

Fragments of *impasto chiaro sabbioso* pottery, typified by a light-coloured depurated fabric containing abundant augite particles, are found on many of our sites, particularly in the Astura area. They comprise predominantly fragments belonging to large vessels (dolia, mortars/basins).[270] The ware has a long chronology, starting in the late 7th century BC, but is particularly common in the 5th and 4th centuries BC.

A wide variety of shapes, predominantly of central Italian manufacture, is characteristic of mid-Republican to early Imperial period assemblages.[271] The mid-Imperial period sees a substantial shift in the consumption of coarse and cooking wares. Between the middle of the 2nd century AD and the mid to late 3rd century AD enormous quantities of African products are imported. At the same time, the consumption (and thus the production) of locally made utilitarian pottery appears

270 The same fabric was also used for the production of building materials (see heading *building materials*) and loomweights (see heading *other materials*). Early fragments in the ware are for example known from Gravisca (Gori & Pierini 2001) and Rome (Carafa 1995). For a detailed description of the ware see Merlo 2005.

271 The larger part of these shapes is classified in Olcese 2003.

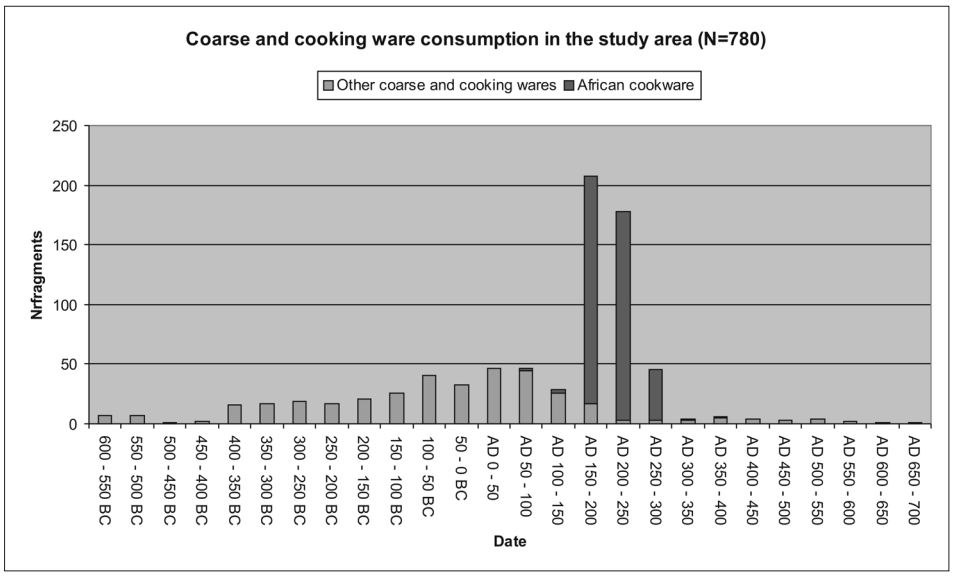


Figure 3.11 Cumulative trend of diagnostic coarse and cooking ware fragments for the study area.

extremely limited.[272] In the late Imperial period there is evidence for the small-scale consumption of both African imports and local products. From the 5th century onwards, predominantly local products are consumed on inland sites, whereas the coastal site of Torre Astura maintained access to imported goods.

Coarse and cooking ware consumption

Figure 3.11 depicts the chronological trend for all dated coarse and cooking ware fragments. Few fragments date in the Archaic period, whereas the absence of distinct post-Archaic types results in very low aggregate numbers for this period. Consumption levels increase in the first half of the 4th century and, remaining more or less stable until the end of the 2nd century BC, again register a small increase in the late Republican and early Imperial period. A subsequent minor decrease in the first half of the 2nd century AD is followed by a marked rise comprising the period between AD 150 and 250. This increase is almost entirely accounted for by the introduction of African cookware pottery. Simultaneous with the introduction of these African products the consumption of local coarse and cooking pottery appears to be reduced to a minimum. In the second half of the 3rd century overall consumption levels drop considerably and are reduced to minimal quantities from the early 4th century AD onwards. However, small quantities of coarse and cooking wares continue to arrive in our study area until the late 6th or possibly the 7th century AD.

Spatial differentiation in coarse and cooking ware consumption

The trend for the Astura area closely follows the overall trends described above, although three small differences can be noted (fig. 3.12a). Firstly, the consumption levels in the Archaic period are not much lower than those of the mid-Republican period. A second deviation from the overall pattern is that between AD 150 and 250 the increase in the consumption of coarse and cooking ware is less marked than for the study area as a whole. Thirdly, after the large-scale importation of African wares comes to a halt, there is only limited evidence for the consumption of coarse and cooking wares; no fragments date later than the 4th century AD.

In the Campana area, only few fragments of Archaic date were found (fig. 3.12b). For the Republican period and the early Imperial period, the trend for this area broadly follows that for the study area as a whole. Compared to the overall trend (figure 3.11), the wholesale introduction of African products in the second half of the 2nd century AD provokes an even stronger increase in overall consumption levels. Although outnumbered by the African products there is also some continuity in the consumption of local products. In the Campana area, the consumption of coarse and cooking pottery continues on a modest level until at least the late 6th and possibly the 7th century AD.

Other materials

Several other – ceramic and non-ceramic – materials were found in the course of our fieldwork. These materials will all be discussed under this heading, although they are not functionally and/or chronologically related. The small amount of fragments that each of these products comprises does not allow a more detailed chronological analysis of their consumption.

272 This could point to a cessation of large-scale local pottery production in and around our study area. An overall absence of locally produced coarse and cooking wares types is noted for the same period in the Abruzzo (Bispham, Swift & Wolff 2008, 58).

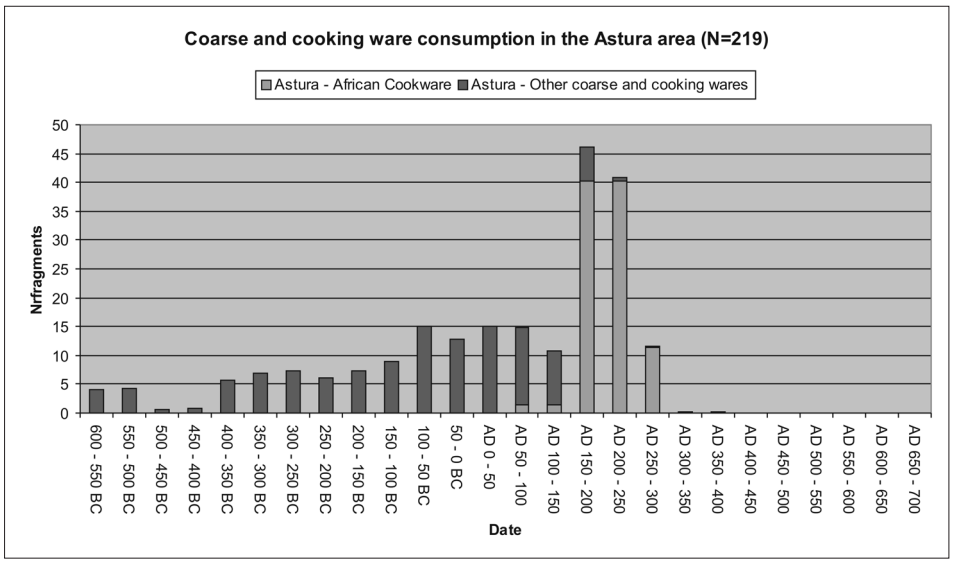


Figure 3.12a Cumulative trend of diagnostic coarse and cooking ware fragments for the Astura area.

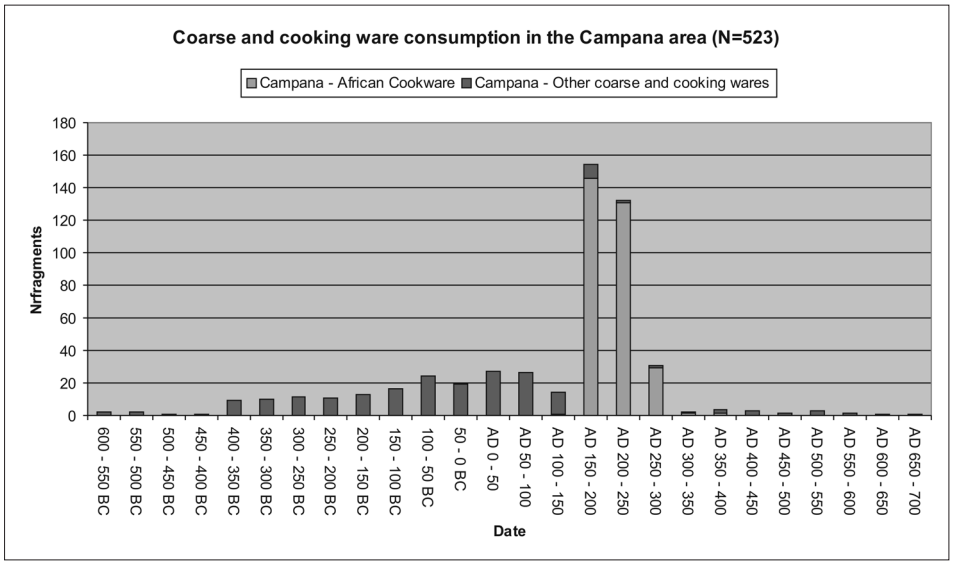


Figure 3.12b Cumulative trend of diagnostic coarse and cooking ware fragments for the Campana area.

Loomweights

The surveys yielded a total of twelve rectangular or semi-rectangular loomweights; eleven of these are in *impasto chiaro sabbioso* and are either plain or decorated with a horizontal groove on the topside. One fragment bears a stamped cross on top. The shape and fabric of these loomweights suggests a date in the post-Archaic or mid-Republican period. A single fragment is of the same shape but in a different fabric. It is of a dark red colour and possibly of an earlier date.

Site 15152, situated in the Astura area, yielded evidence for the production of loomweights in *impasto chiaro sabbioso*.[273] Loomweights in a similar fabric are found on eight other sites in the study area, of which seven are located along the Astura, suggesting a predominantly local distribution of these products.

Glazed fragments

A total of eleven (diagnostic) glazed fragments were collected, all on sites in the Campana area (sites 15014 (four frs.), 15019 (two frs.), 15036 (four frs.) and 15132 (one fr.). These were all classified as recent pottery based on their fabric and glaze.

Glass

On 15 sites fragments of vessel glass were found. Nine of these were located in the Campana area (15014, 15019, 15036, 15083, 15085-01, 15085-03, 15107, 15114, 15153), whereas fragments were also found on five sites in the Astura area (11281, 11312, 11323, 11326, 15116) and on one coastal site (11202).

The sample of glass fragments comprises 26, mostly very fragmented, diagnostics. The few datable fragments

273 From this site comes a fragment of a loomweight that was not perforated through and through.

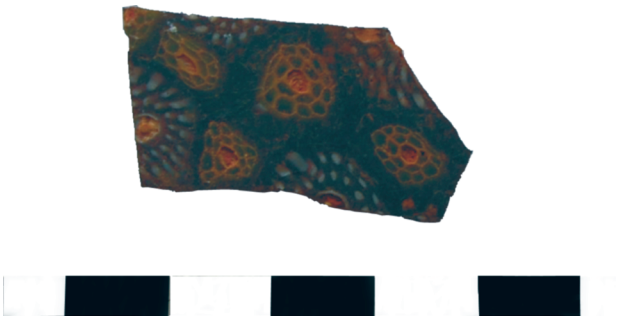


Figure 3.13 Fragment of millefiori glass from site 15036.

all date between the late Republican period and the 2nd century AD. A fragment of so-called *millefiori* glass from site 15036 constitutes a special find. Based on the decorative scheme it dates in the late 1st century BC or the early 1st century AD (fig. 3.13).[274]

Furthermore, fragments of window glass were found on three sites in the Campana area (15014, 15036, and 15153) and one site in the Astura area (11312).

Oil lamps

A total of five sites yielded fragments of oil lamps. They include two sites located in the Campana area (15004, 15014), two sites in the Astura area (11312, 11318) and one coastal site (11202). Two of these fragments could be dated with more precision. A fragment from site 11202 was identified as part of a *Bailey type C*, dating between the mid-1st and the early 2nd century AD, whereas on site 11318 a fragment of a *Firmalampe*, dating between the mid-1st and late 2nd century, was found. Furthermore, a single undiagnostic oil lamp fragment is in black glazed ware (site 11318), whereas site 15004 yielded four small oil lamp fragments, one of certain African origin.

Coins

Three sites yielded a single coin. On site 15014, a much worn Æ quadrant was collected. This type of coin was minted between the 3rd century BC and AD 161. On site 15085-02 an Æ 3 of the GLORIA EXERCITVS-type was found, depicting a banner between two soldiers on its reverse. This coin type was struck between AD 301 and AD 361. Finally, from site 15153 half of a Republican AE As was recovered, providing a date between 275 and 42 BC.

Other metal objects

On site 15004, part of a bronze ring was found, whereas site 15014 yielded a complete lead clamp.

Miscellaneous

A worked stone with one flat and one convex side was found on site 11297. An identical fragment was found in a context dated to the late 4th or early 3rd century in Artena, where it was identified as a 'stopper'. An almost complete ceramic object derives from site 11312. The function of this shape, frequently found in Central Italy, is unclear. It has been suggested that it was used as an (amphora) stopper, but identification as dice cup (*fritillus*) is perhaps more likely.[275] Part of a ceramic tube of unknown function was found on site 15002.

Furthermore, two objects for personal decoration were retrieved. From site 15004 comes a glass bead bearing a circular central perforation, whereas site 15019 yielded a plain white pendant, with part of the iron thread still contained in the small circular perforation.

Site 15106 yielded part of a leucite-basalt grinding stone. From site 15108 a ribbed ceramic fragment was found; a similar piece from a late 4th/early 3rd century BC context at *Artena* was tentatively identified as a stand. Furthermore, site 11373 yielded half of a stone axe, possibly of Neolithic date.

3.4 Overall consumption levels for the study area

Figure 3.14 displays the cumulative trend of all dated diagnostic fragments for the three principal pottery classes discussed above.

In all areas there is evidence for the consumption of coarse and cooking wares only until the 4th century BC (fig. 3.15a-c). The later 4th and 3rd century sees the introduction of amphorae as well as fine wares on the market, although their consumption commences somewhat later and comprises a smaller share of the total assemblage in the Astura area than in the Campana area. Simultaneously, the coastal area yielded evidence for the arrival of small numbers of coarse and cooking wares only.

During the 2nd century BC, several changes can be noted in all three areas. There is a decline in the overall consumption levels and almost no fine wares date in this period. On the other hand, there is a significant increase in the supply of amphorae to all areas (this phenomenon will be discussed in more detail in chapter 7). In the Astura area, amphora fragments take up a larger percentage of the total number of finds than in the Campana area.

Overall consumption levels increase throughout the study area during the second and the first half of the 1st century BC, although this increase occurs more gradually in the Campana area than in the Astura area. In the first half of the 1st century BC, there is again evidence

274 Grose 1989; Petrianni 1998.

275 Such fragments are for example identified as stoppers by Callender (1965, 317, fig.19.25-26).

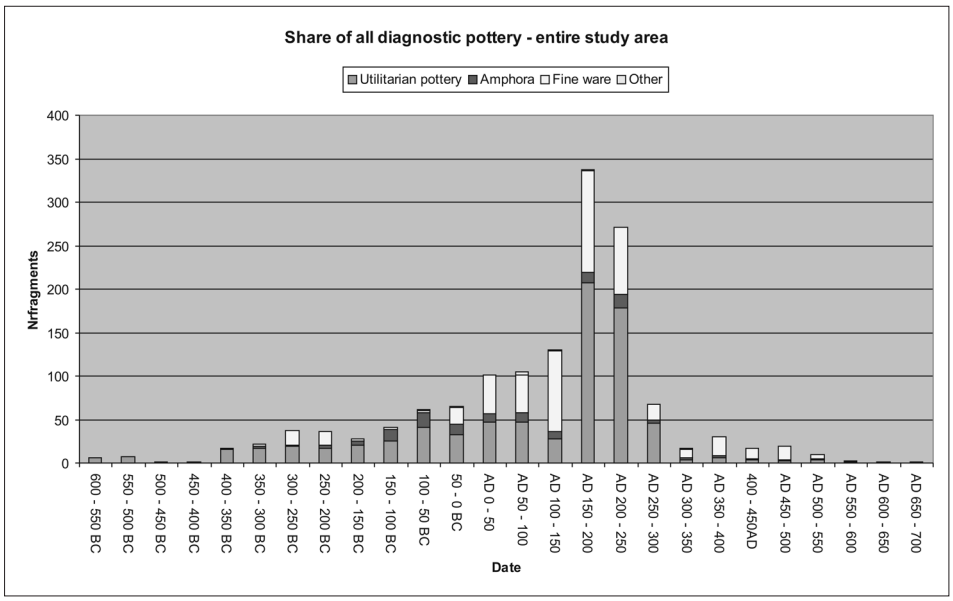


Figure 3.14 Cumulative trend of all diagnostic fragments for the study area.

for the consumption of pottery on sites in the coastal zone, and the material evidence points to a relatively varied repertoire of pottery shapes and wares distributed in this area.

Whereas the Campana area and the coastal area register a modest growth in consumption levels in the second half of the 1st century BC, the Astura area witnesses a small decline. In all areas, however, there is a renewed consumption of tablewares.

In the 1st century AD consumption levels remain stable in both the Astura and Campana area, with a balanced distribution of utilitarian pottery, amphorae and tablewares. In the coastal area consumption levels reach an overall high in this period.[276]

Between AD 100 and 250 the total volume of pottery consumed increases considerably in both the Astura and Campana area. This is almost exclusively brought about by a strong increase in the amount of coarse and cooking wares distributed in these areas. In the Campana area, the number of fine wares consumed in fact stays rather stable, as well as the number of distributed amphorae. In the Astura area, fine ware consumption is also stable and decreases somewhat in the first half of the 3rd century. The number of amphorae distributed here is, however, minimal in the first half of the 2nd century AD, although rising slightly in the first half of the 3rd century AD. In the coastal area, the total volume of pottery fluctuates during this period and only the consumption levels of amphorae appear to remain constant; these strong fluctuations possibly reflect the small sample of sites studied in this area.

In both the Campana and Astura area, the overall volume of pottery consumption declines considerably in the second half of the 3rd century AD, in line with the cessation of the main production (and thus distribution) of African coarse and cookwares. Despite this decline, a broad variety of wares, including coarse and cookwares, tablewares and amphorae continue to arrive in both areas; at the same time a minimal decrease is recorded in the coastal area.

In the 4th century AD overall levels drop considerably in all parts of the study area. In the Astura area, almost no pottery dates to this period and assemblages show limited variation, comprising no coarse and cookwares. Distribution of pottery to this area comes to an end in the second half of the 4th or the first half of the 5th century AD. In the Campana area, different wares are, however, still present and consumption levels even recover slightly in the second half of the 4th century AD. This rise is completely accounted for by the tablewares. After this small recovery, the overall volume of consumed pottery decreases gradually until the late 6th or possibly 7th century AD. By then, only few fine, coarse and cookware fragments are found, whereas evidence for the supply of amphorae is entirely absent. Consumption levels in the coastal area remain relatively high until at least the late 5th century AD, mainly caused by a large sample from the Torre Astura villa. From the early 6th century onwards, however, also in this area pottery supply becomes minimal and no amphorae are attested on sites. The latest ceramic evidence for occupation dates in the late 6th or early 7th century AD.

276 We must, of course, be cautious when interpreting the patterns for the coastal area, since they are based on considerably less sites than the other two areas. The smaller sample, as is visible in the graph, makes the patterns less consistent and susceptible to exaggerated breaks.

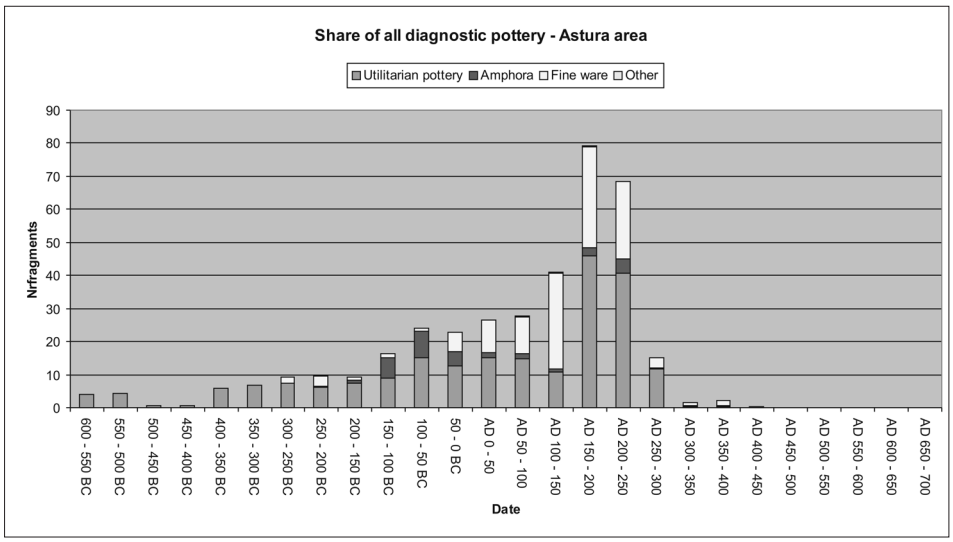


Figure 3.15a Cumulative trend of all diagnostic fragments for the Astura area.

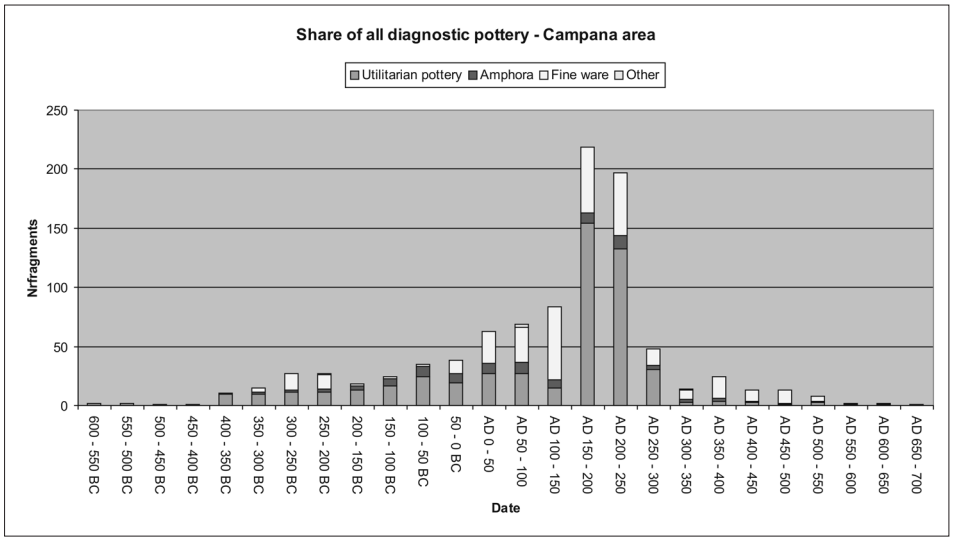


Figure 3.15b Cumulative trend of all diagnostic fragments for the Campana area.

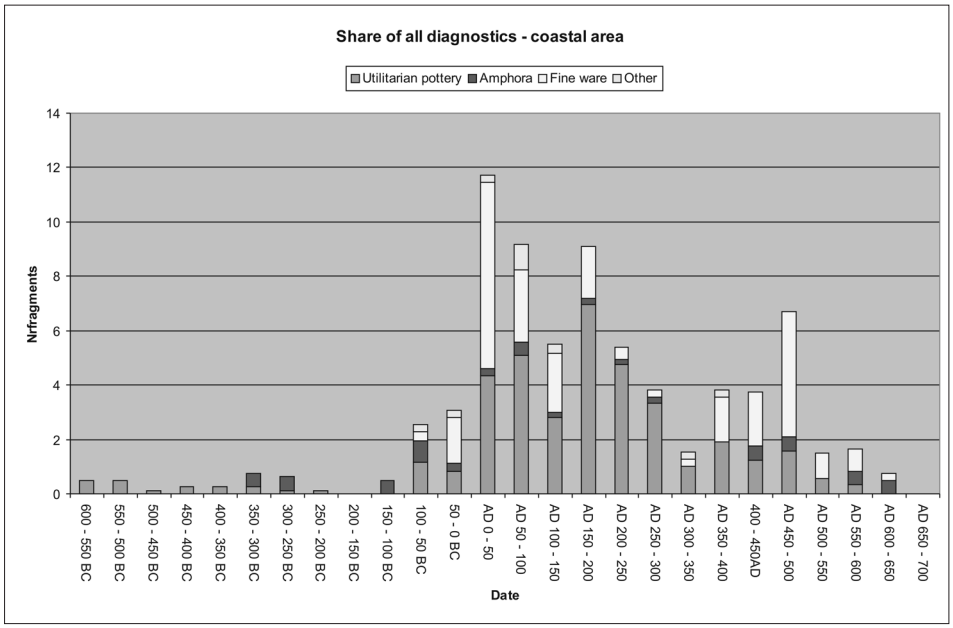


Figure 3.15c Cumulative trend of all diagnostic fragments for the coastal area.

Summary

To summarize, the most important conclusions that derive from the study of the materials collected during the Astura and Nettuno surveys and the subsequent systematic revisits are:

1) Fine ware pottery
   a) Is only common in our study area from the late 4th century BC (and possibly the early 3rd century BC onwards. In this early phase consumed products are mainly produced in a local or regional ambit. In the period between 200 and 50 BC, fine wares are almost entirely absent, indicating that after the cessation of Etrusco-Latial black glazed ware production, rural sites had only limited access to its Campanian successors.
   b) Consumption levels show a strong increase from the second half of the 1st century BC up to the first half of the 2nd century AD, after which there is a decline in fine ware supply, which is gradual at first, but more sudden after AD 250. The fine wares are mainly imported.
   c) Imported fine ware pottery continues to reach our study area until at least the early 6th century AD.
   d) Although there is a considerable difference in the quantity of recorded fine ware pottery between the Astura and Campana area, both conform to a more or less identical trend. The latter, however, registers a more pronounced peak in fine ware consumption during the 3rd century BC and the continued access to fine ware pottery after the mid-Imperial period.

2) Amphorae
   a) Only small numbers of amphorae arrive in our study area till the late 3rd century BC. Consumption levels reach a peak in the first half of the 1st century BC, are somewhat lower after that and reach a second peak in the first half of the 3rd century AD.
   b) Early amphorae are restricted to a handful of types, mainly wine containers produced along the Tyrrhenian seacoast. In the early and mid-Imperial periods, many different types, deriving from different parts of the Empire, are consumed. After AD 200, the bulk of the amphorae are olive oil containers from Northern Africa.
   c) There are considerable differences in the consumption of amphorae between the Astura and Campana area. The former exhibits a strong peak in the later 2nd and early 1st century BC and a smaller one for the period between AD 150 and 250. In the Campana area, the consumption of amphorae is much more continuous and variations in consumption levels are less sudden; an overall peak is noted for the period between AD 150 and 250.

3) Utilitarian pottery
   a) A gradual increase in the use of utilitarian pottery is noted between the Archaic and the early Imperial period, with a momentary decline during the post-Archaic period. Most fragments can be considered of local or regional production.
   b) A strong and abrupt increase in the volume of consumed utilitarian pottery is evident from AD 150 onwards, caused predominantly by the large-scale importation of North African cookwares. There is only limited evidence for contemporaneous local and regional production of utilitarian pottery.
   c) After the cessation of the large scale importation of these African products, there is a severe drop in the consumption levels of utilitarian pottery on sites in our study area. The few identified fragments are mostly of local or regional production.
   d) The trends for the Campana and the Astura area are quite similar, although the former witnesses higher overall consumption levels. There are, however, some small differences between the two areas. Diagnostic pottery of the Archaic period is mainly constricted to the Astura area. On the other hand, the relative rise of consumption levels due to the importation of North-African cookwares is much stronger in the Campana area. Although mainly due to the deviating settlement chronology of the two areas, utilitarian pottery is almost non-existent on sites along the Astura after AD 300.

3.5 Chronological developments

In this section, the material evidence for each individual site is used to construct a diachronic settlement history for the study area. Figure 3.16 summarizes the number of certain and possible sites for each period; figure 3.17 illustrates for each period the number of certain sites that is newly founded, that represent a possible new foundation or that show continuity from the previous period.

The settlement history is subdivided into nine periods of equal length: the Archaic period (650 – 500 BC), the

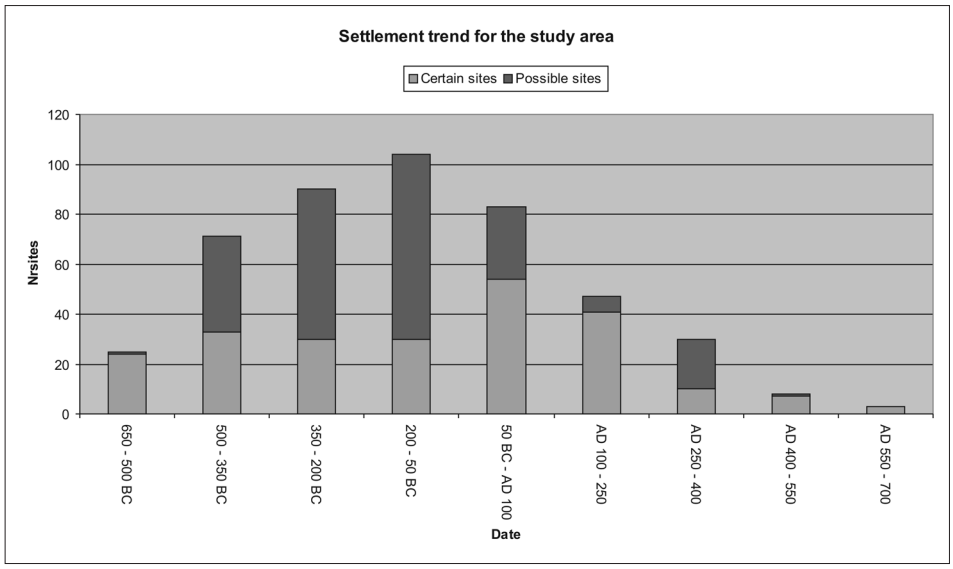
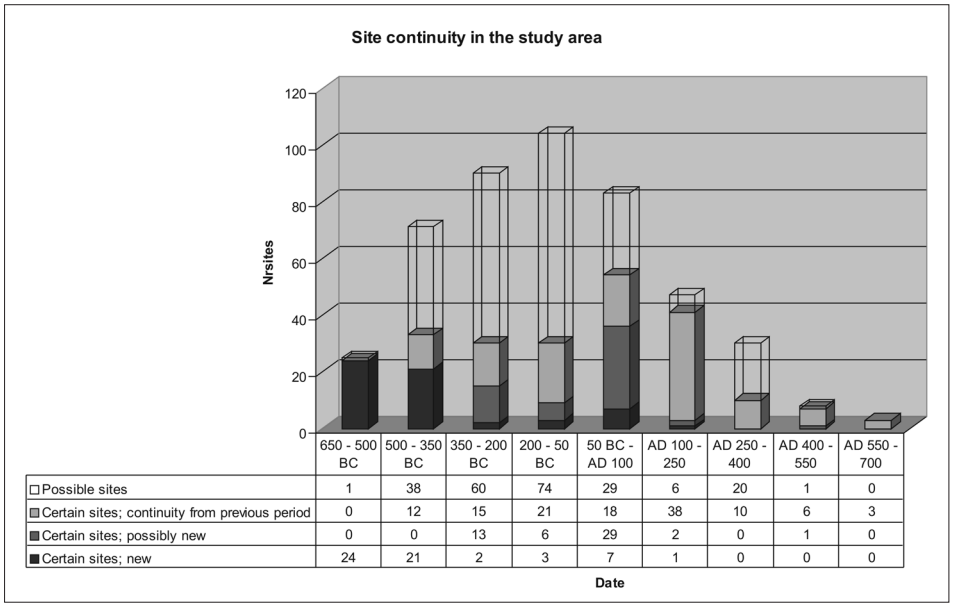


Figure 3.16 Settlement trend for the study area after the revisits.



	650 - 500 BC	500 - 350 BC	350 - 200 BC	200 - 50 BC	50 BC - AD 100	AD 100 - 250	AD 250 - 400	AD 400 - 550	AD 550 - 700
Possible sites	1	38	60	74	29	6	20	1	0
Certain sites; continuity from previous period	0	12	15	21	18	38	10	6	3
Certain sites; possibly new	0	0	13	6	29	2	0	1	0
Certain sites; new	24	21	2	3	7	1	0	0	0

Figure 3.17 Settlement continuity for the study area after the revisits.

post-Archaic period (500 – 350 BC), the mid-Republican period (350 – 200 BC), the late Republican period (200 – 50 BC), the early Imperial period (50 BC – AD 100), the mid-Imperial period (AD 100 – 250), the late Imperial period (AD 250 – 400), late Antiquity (AD 400 – 550) and the early Medieval period (AD 550 – 700).[277] After a discussion of the patterns for the study area as a whole (including the contribution of the revisits to this overall pattern), the results will be presented for the three earlier mentioned topographical areas separately: 1) sites along the Astura valley, more or less covering the area originally included in Piccarreta's work; 2) the western part of the Nettuno municipality, comprising the area of Campana, covering the bulk of the sites recorded in the topographical study of Liboni; 3) the coastal area.

277 The presented chronology is divided into periods of equal length to allow direct comparison between periods. Furthermore, in the proposed chronology the date ranges of certain products that occur frequently in our study area fall within a single period only. These products comprise for example almond-rimmed jars (Olcese 2003, Olla type 3a; 200 – 50 BC); black glazed ware of the *Gruppo dei Piccoli Stampigli* (350 – 200 BC) and non-diagnostic terra sigillata (50 BC – AD 100).

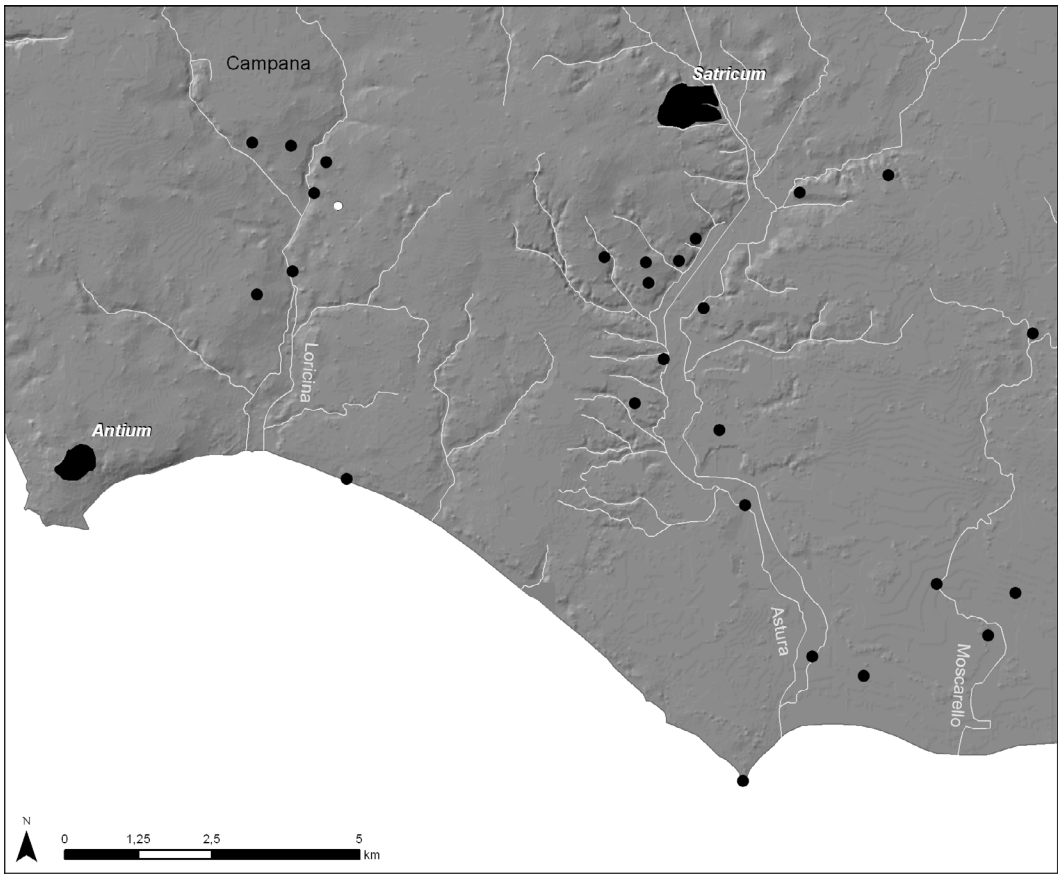


Figure 3.18 Distribution of Archaic (650 – 500 BC) sites (black dots: certain sites; white dots: possible sites).

The Archaic period (650 – 500 BC; figure 3.18)

For the Archaic period, we have 25 certainly and one possibly occupied site.[278] Activity on these sites is generally indicated by the find of Archaic tile fragments. On eight sites (11202, 11270, 11294, 11330, 11369, 15005, 15108 and 15153) undiagnostic fragments of *bucchero* were found, whereas sites 11202, 11330, 11367, 15108, 15149 and 15153 also yielded small amounts of coarse wares of Archaic date.

Most of the sites with Archaic occupation are located along the Astura river that connects the town of *Satricum* with the coast. One possible and six certain sites are located in the Campana area, while also the area of Torre Astura yielded Archaic materials. Based on the revisits on eight sites, a phase of Archaic occupation was identified that was not known previously.

The post-Archaic period (500 – 350 BC; figure 3.19)

The post-Archaic period sees a notable increase in both the number of certain and uncertain sites. On a total of 33 sites occupation was established with certainty. This was, however, in all cases based solely on the identification of distinct tile fabrics; yellow and white-firing tile containing abundant augite particles. Uncertain occupation in this period is attested on another 38 sites. This possible activity is mainly indicated by the presence of white tiles containing less augite inclusions, as well as loomweights in *impasto chiaro sabbioso* and 'high-collar' almond-rimmed jars. However, also small amounts of *teglie,* jugs, bowls and basins possibly date in this period. The problem with these shapes is that they were all produced over a long period, comprising the 5th to 3rd centuries BC. The overall lack of distinct post-Archaic pottery shapes and wares makes it therefore hard to assess the real extent of occupation in this period, and it is fair to assume that a large part of these possible sites were in fact not occupied in this period. It also remains to be seen whether, in the absence of

278 These numbers are significantly lower than the number of sites identified as 'Archaic' in earlier publications of the project (see Attema *et al.* 2008). Based on previous GIA work at *Satricum,* a specific type of fabric (red clay containing augite) was considered of Archaic date and constituted the main indicator of certain activity of this period on rural sites. However, pottery in this fabric appears to continue well into the Republican period. The association of this pottery on many of our sites with mid-Republican pottery such as black glazed ware of the *Gruppo dei Piccoli Stampigli* and Graeco-Italic amphorae, and the lack of association with wares and types of certain Archaic date, renders it likely that the bulk of these fragments are of (mid-)Republican date.

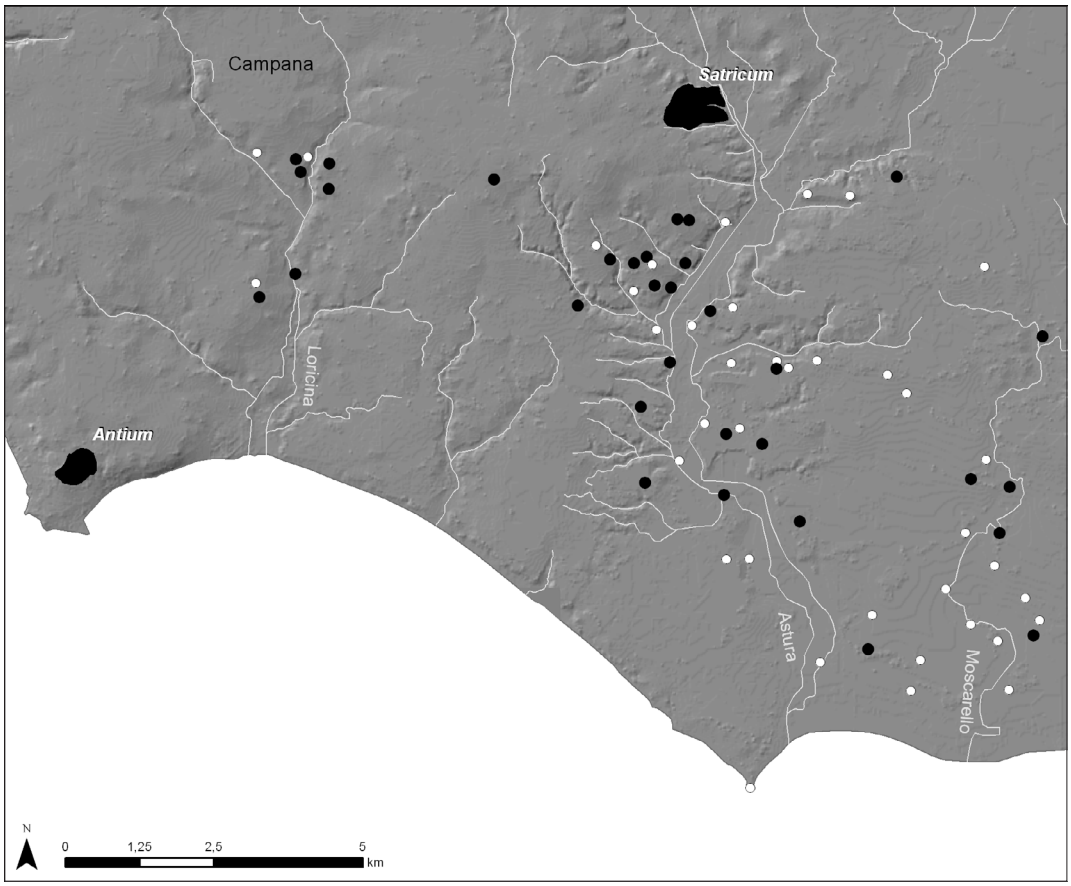


Figure 3.19 Distribution of post-Archaic (500 – 350 BC) sites (black dots: certain sites; white dots: possible sites).

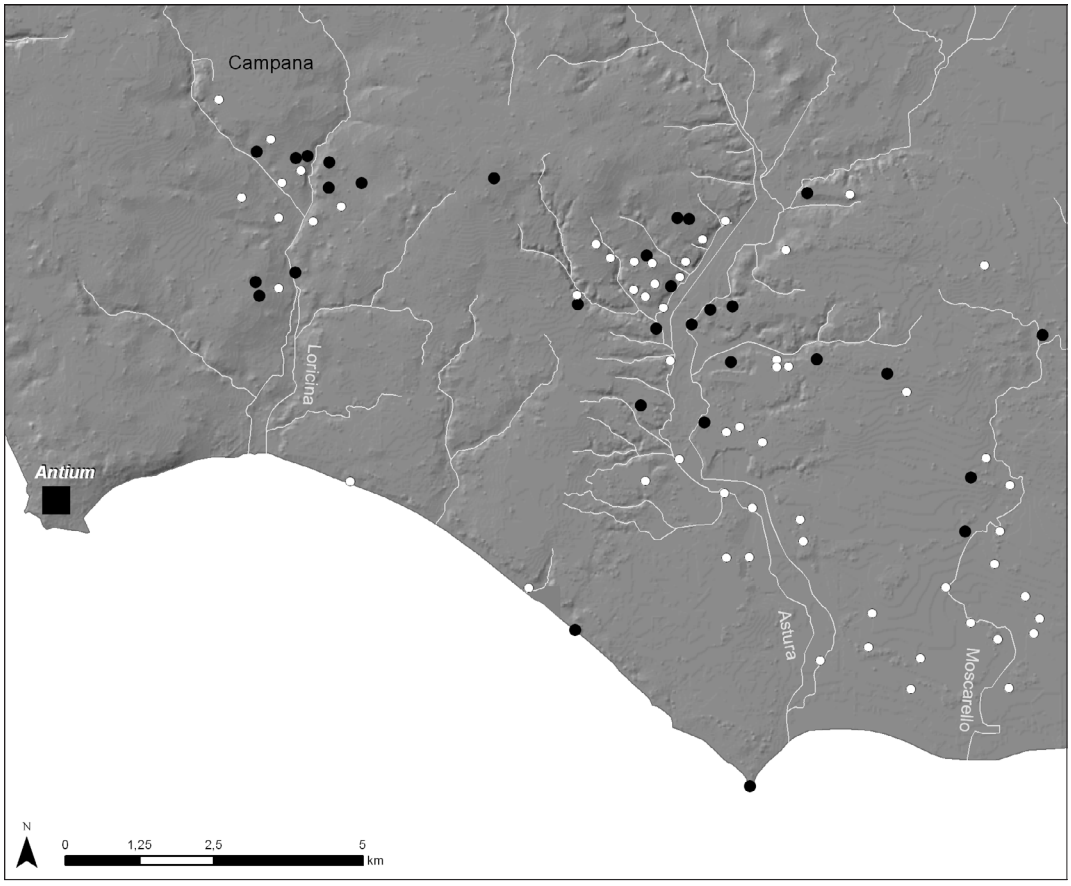


Figure 3.20 Distribution of mid-Republican (350 – 200 BC) sites (black dots: certain sites; white dots: possible sites).

accompanying pottery shapes, the yellow and white firing tile fragments are indicative of post-Archaic activity only, or continued to be used in later periods as well.

What is certain is that most of the sites yielding these tiles are new foundations, whereas twelve sites already knew occupation in the Archaic period.

The bulk of the sites with (certain or possible) post-Archaic activity is located in the Astura area (61 sites), whereas nine sites are located in the Campana area. Furthermore, one site is situated along the coast (11202). By means of the systematic revisits, the number of sites with (possible) post-Archaic occupation was substantially increased. Based on the collected materials an additional four certain and seven possible sites were recorded. Furthermore, on 13 sites occupation now is certain where it was uncertain based on previous research.

The mid-Republican period
(350 – 200 BC; figure 3.20)

In this period, the total number of sites rises slightly, although the number of certain sites is somewhat lower compared to the preceding period. In all, 30 certain sites are recorded, among which only two are certain new foundations; another 13 sites are possible new foundations. Furthermore, 15 sites were already established in the post-Archaic period. Certain activity in this period is mainly indicated by black glazed ware of the *Gruppo dei Piccoli Stampigli*. These products are noted on several sites in our study area and comprise a restricted set of forms with a distinct repertoire of stamps. On one of the sites studied, production of this type of pottery was ascertained by the execution of an intensive on-site survey (15106; see also chapter 5).

Furthermore, 61 sites were possibly occupied in this period. The high rate of uncertain occupation is mainly caused by the absence of - besides black glazed ware – other exclusively mid-Republican pottery. It is, however, very probable, in contrast with the many uncertain sites in the previous post-Archaic period, that also a large share of the uncertain sites recorded for this period was actually occupied. On many of these sites, undiagnostic black glazed ware fragments were found. The fact that the diagnostic fragments of this ware on sites in our study area date mainly in the 3rd century BC renders it likely that the largest part of the undiagnostic black glazed ware is of the same date. Furthermore, the few contexts with large samples show a correlation between the presence of Graeco-Italic amphorae, high collar almond-rimmed jars and mid-Republican black glazed ware. Fragments of these jars and amphorae occur frequently on other sites as well, but are in themselves not indicative of certain mid-Republican activity.

Most of the sites are again located along the Astura river (69 sites). However, also the number of sites located in the Campana area (18 sites) and along the coast (three sites) increases. The revisits have added to our knowledge of this period; two sites with certain and ten sites with possible activity were added, while on another 16 sites activity is now certain, where it was uncertain before.

The late Republican period
(200 – 50 BC; figure 3.21)

Figure 3.16 shows that the highest overall number of sites (104) is recorded to be of this period. However, on only 30 of these, activity is certain, based on the diagnostic materials collected. Three sites are certain and six are possible new foundations; as a consequence, the larger part of the certain sites was already occupied in the preceding mid-Republican period. Among the material indicators for certain activity are few fine ware fragments, as early terra sigillata is rarely found just as 2nd-or 1st-century black glazed ware. We do, however, dispose of both coarse ware types (especially almond-rimmed jars) and amphorae (Van der Werff 2/3, Dressel 1A) that date in this period.

The uncertain sites (74 in total) yielded predominantly Republican tiles (pale/pink/brown containing some augite), coarse ware shapes, undiagnostic black glazed ware fragments and fragments of Dressel 1B/C amphorae; all wares and shapes whose production is not confined to this period only.

The number of sites in the Astura valley remains almost stable (69 sites) compared to the previous period, whereas activity in the Campana area (30 sites) and the coastal zone (five sites) continues to increase. By means of the revisits, three certain and 15 possible sites were added to our dataset. Furthermore, activity on twelve sites, still uncertain in previous research, was now established with certainty.

The early Imperial period
(50 BC – AD 100; figure 3.22)

Compared to the previous period, the overall number of sites decreases (83 sites); on the other hand the number of certain sites increases (54 sites). Among these are seven certain and 29 possible new foundations, whereas 18 sites show continuity. This high share of certain occupation is to a large extent provoked by the presence on many sites of easily recognisable wares that date exclusively in this period. Indicative for certain activity in this period are (non-diagnostic) terra sigillata fragments, fragments of *ceramica a pareti sottili*, a wide range of coarse ware types and amphorae such as the Dressel 2-4 Italian and Haltern 70. The 29 uncertain sites yielded diagnostics that do not date exclusively in this period.

The lower overall number of sites in this period is mainly caused by a strong decrease in the number of sites noted in the Astura area (43 sites). On the other hand in the Campana area and along the coast

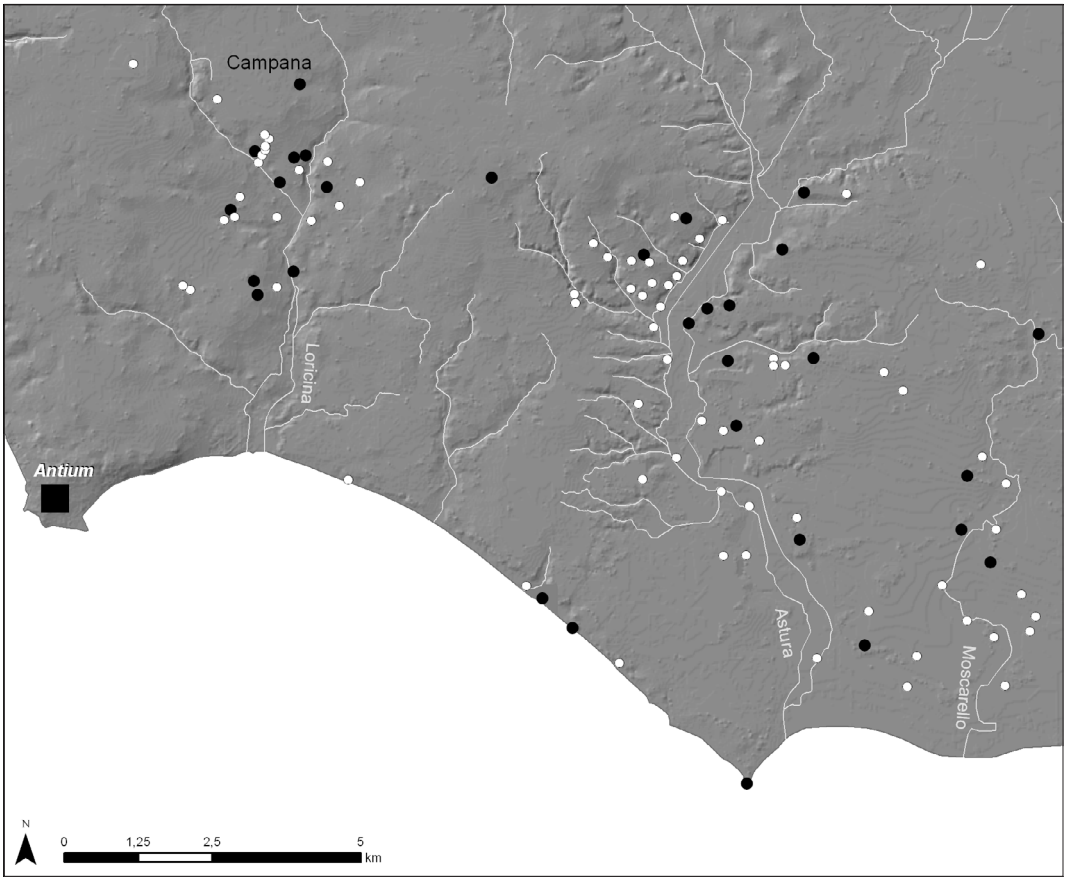


Figure 3.21 Distribution of late Republican (200 – 50 BC) sites (black dots: certain sites; white dots: possible sites).

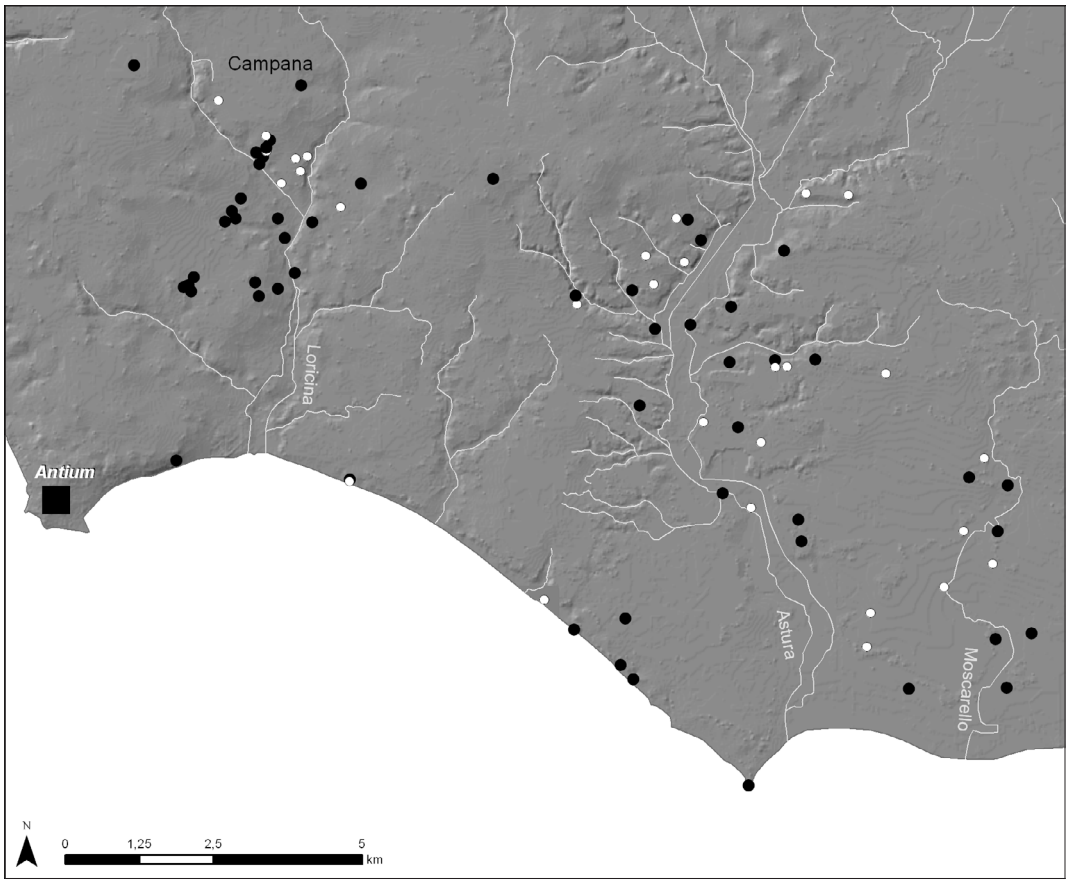


Figure 3.22 Distribution of early Imperial (50 BC – AD 100) sites (black dots: certain sites; white dots: possible sites).

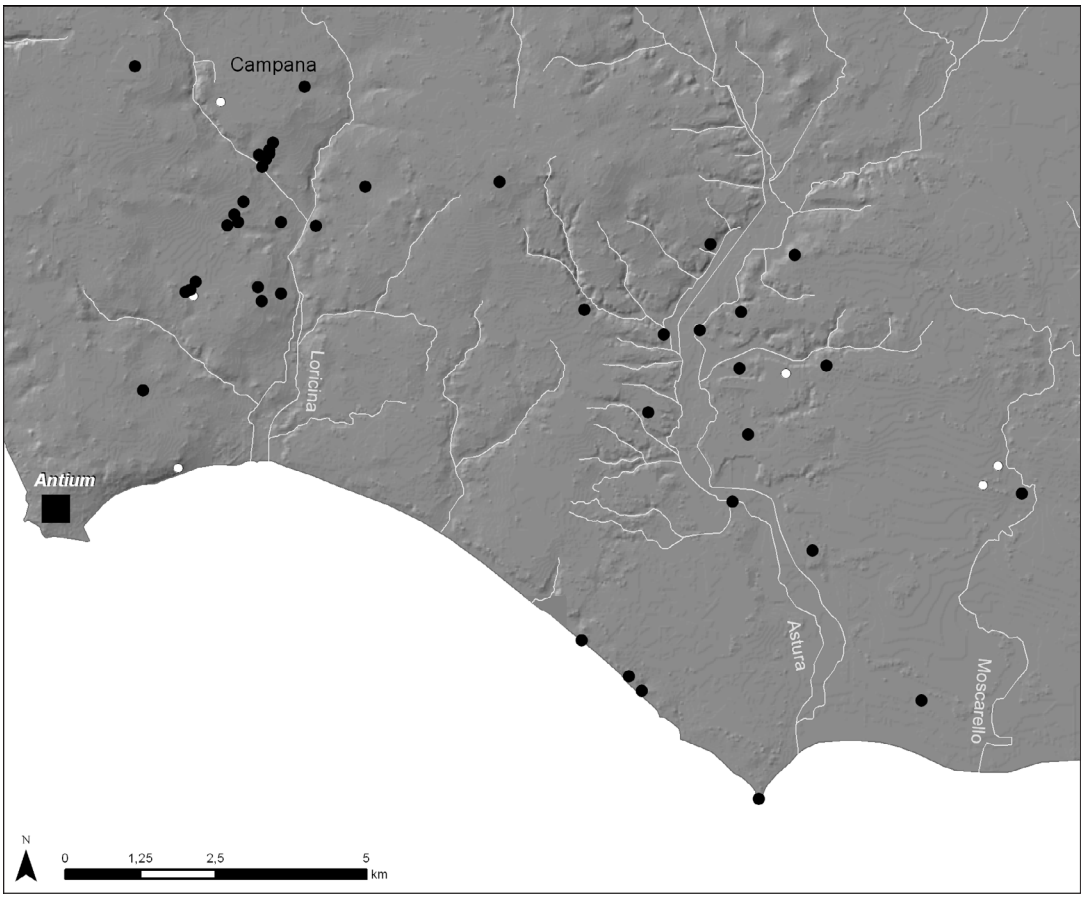


Figure 3.23 Distribution of mid-Imperial (AD 100 – 250) sites (black dots: certain sites; white dots: possible sites).

the number of sites continues to increase (31 in the Campana area and nine along the coast). By means of the revisits, 14 certain and 13 possible sites were added, whereas on three sites occupation was ascertained, where it was uncertain before.

The mid-Imperial period (AD 100 – 250; figure 3.23)

In this period, a considerably lower overall number of sites is recorded (48 sites). However, on the largest part of these sites occupation is certain (42 sites). Almost without exception sites show continuity from the early Imperial period (38 sites); only four sites are certain (two sites) or possible (two sites) new foundations. The relatively high share of certain sites in this period is mainly due to the mass consumption of African coarse and cooking ware shapes in our study area. The date ranges of several of the most widespread products fall within the mid-Imperial period. Furthermore, also several coarse ware shapes and common amphora types (Tripolitana II and Africana Ia/b) are indicative for activity in this period.

The number of sites attested decreases in all three areas. This decline is the most dramatic in the Astura valley, where almost half of the sites disappear. In the Campana area eight sites are abandoned, whereas five sites in the coastal area are certainly or possibly settled in this period. The systematic revisits have contributed considerably to the identification of settlement for this period, adding nine certain and five possible sites. On another three sites activity was ascertained, where it was uncertain before.

The late Imperial period (AD 250 – 400; figure 3.24)

The trend of an overall decline in site numbers persists in the late Imperial period. Overall, 30 sites are recorded, of which ten are certainly occupied. Figure 3.17 shows that for the first time, no new sites are founded; all occupied sites were already established in earlier periods. Certain activity on sites is mainly indicated by African red slip ware shapes that are consumed in much lower numbers by now. Other indicators for certain activity are Africana III amphorae and a handful of coarse ware shapes, which were mainly imported. The large share of uncertain sites is mainly caused by the long date range of the common African casserole type H.197. The lack of contemporaneous pottery shapes on possible sites is a strong indicator that the larger part of these was in fact already abandoned before AD 250.

In the Astura valley a total of seven sites is recorded, of which only one with certain activity. Activity in this

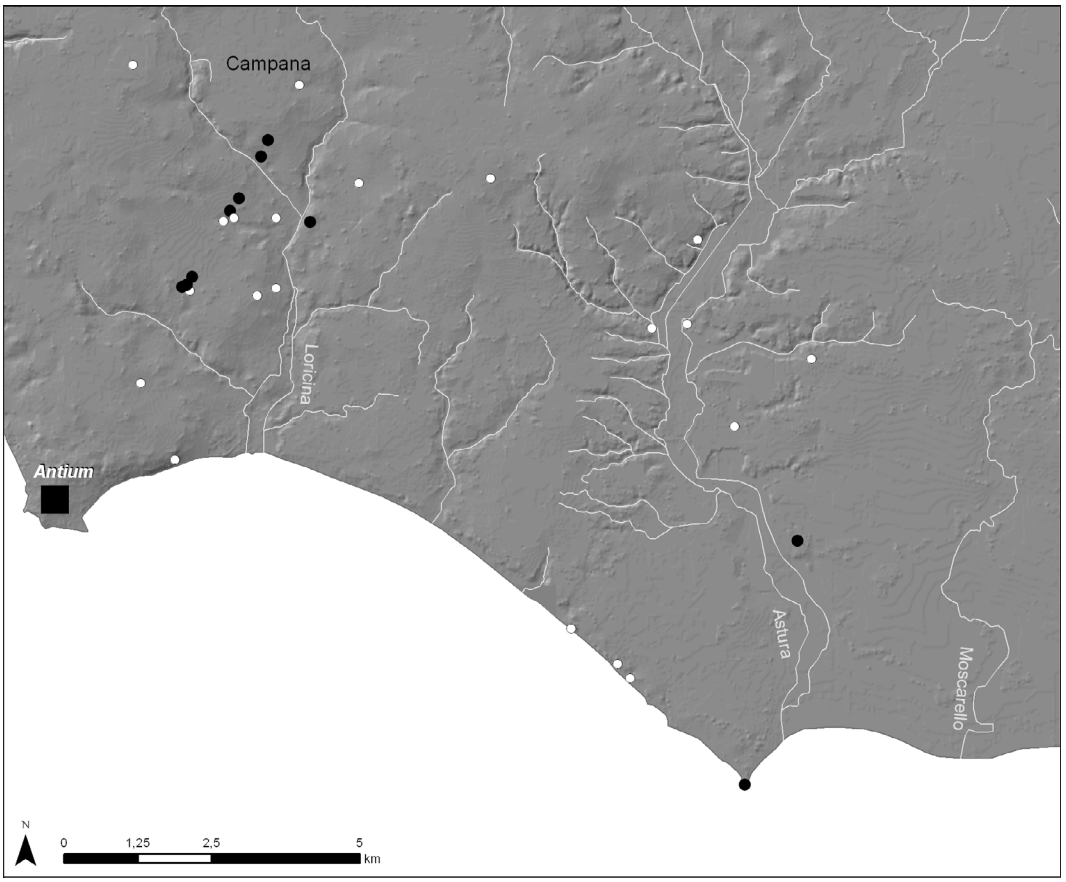


Figure 3.24 Distribution of late Imperial (AD 250 – 400) sites (black dots: certain sites; white dots: possible sites).

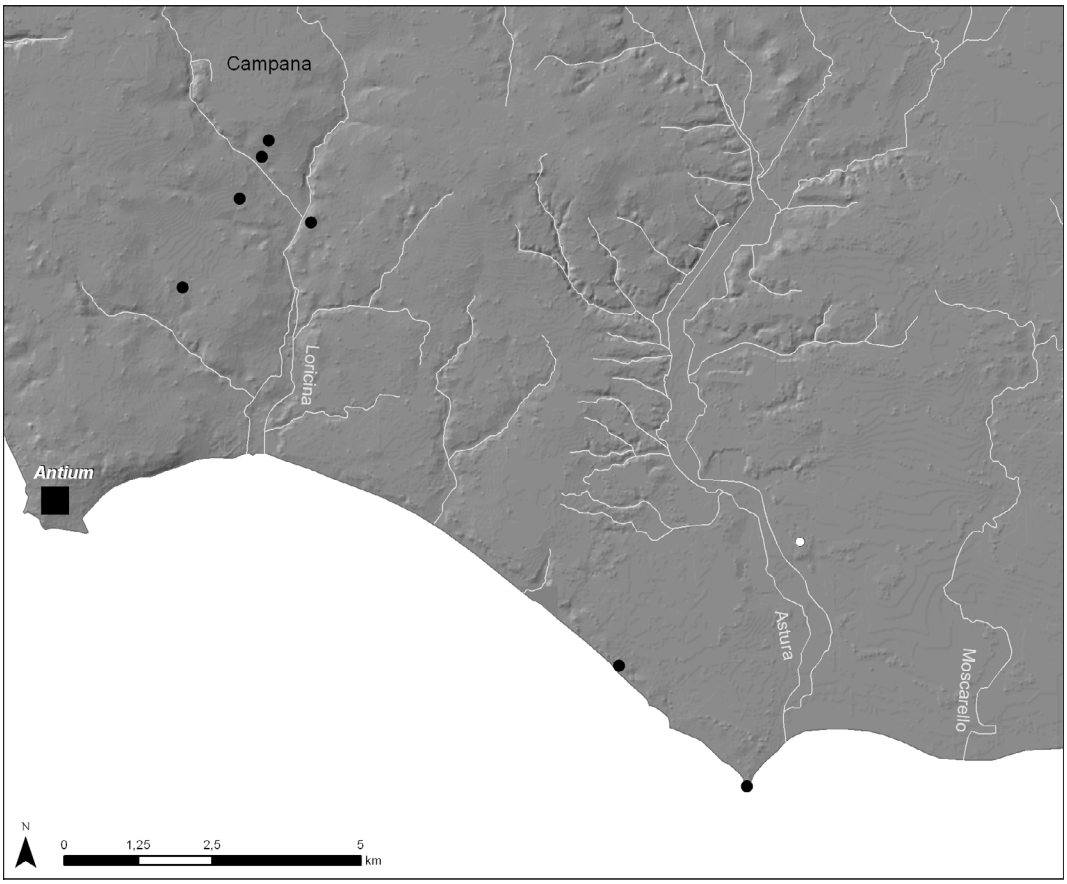


Figure 3.25 Distribution of late Antique (AD 400 – 550) sites (black dots: certain sites; white dots: possible sites).

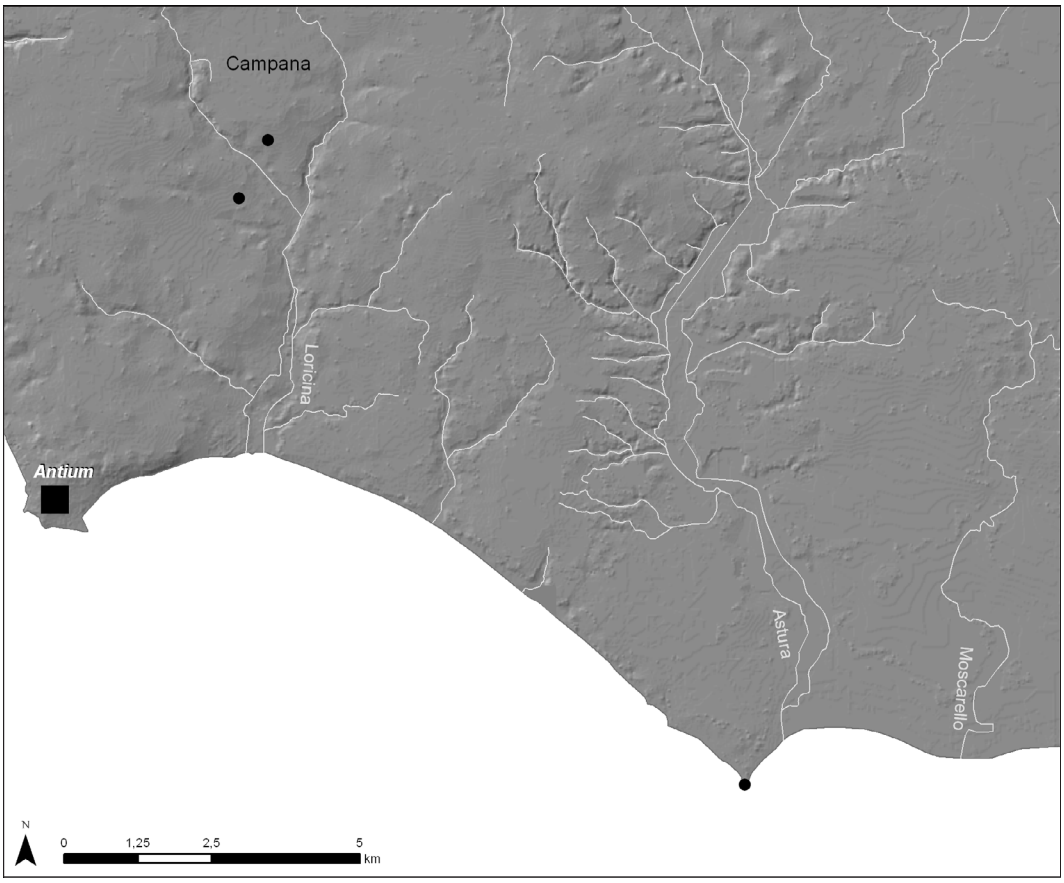


Figure 3.26 Distribution of early Medieval (AD 550 – 700) sites (black dots: certain sites; white dots: possible sites).

period centres mainly on the Campana area, where 18 sites are certainly or possibly occupied; most of these are located along the Roman road (see chapter 1). In the coastal area four possible and one certain site (11202) is recorded. By means of the revisits, four sites with certain and seven with possible late Imperial activity were added to our inventory. Furthermore, on one site activity was ascertained.

The late Antique period
(AD 400 – 550; figure 3.25)

On eight sites, (possible) late Antique activity is recorded. All of these were already settled in the preceding late Imperial period. Certain occupation is in most cases indicated by late African red slip ware fragments, complemented by a few late coarse wares and amphorae. The single uncertain site yielded a fragment of African red slip ware, whose date range spans both the 4th and the early 5th century AD.

This single uncertain site is the only site recorded in the Astura valley for this period. Certain occupation is attested on five sites in the Campana area and two along the coast. The revisits contributed significantly towards the identification of late Antique occupation; three certain sites could be added to our inventory.

The early Medieval period
(AD 550 – 700; figure 3.26)

This period sees a further decline in the number of occupied sites. Activity is restricted to three sites only, all already occupied in previous periods. This late phase is evidenced by both late African red slip wares and coarse ware pottery.

No sites remain in the Astura area; activity is restricted to the Campana area (two sites) and the coastal area (one site). By means of the revisits, no additional sites with early Medieval activity were recorded.

3.6 Spatial differentiation in settlement

Figures 3.27a-c show the number of certain and uncertain sites per period for each of the three topographical areas. These settlement trends show several clear differences between them and indicate that our study area is not characterized by a single, uniform settlement development. The Campana area has only few Archaic sites and settlement numbers gradually increase reaching a peak in the late Republican and early Imperial period. After this the area becomes – again gradually – abandoned, but occupation is still attested on a small number of sites till the early Medieval period. Furthermore, it must be noted that the rate of uncertain occupation is generally quite low, a direct result of the relatively

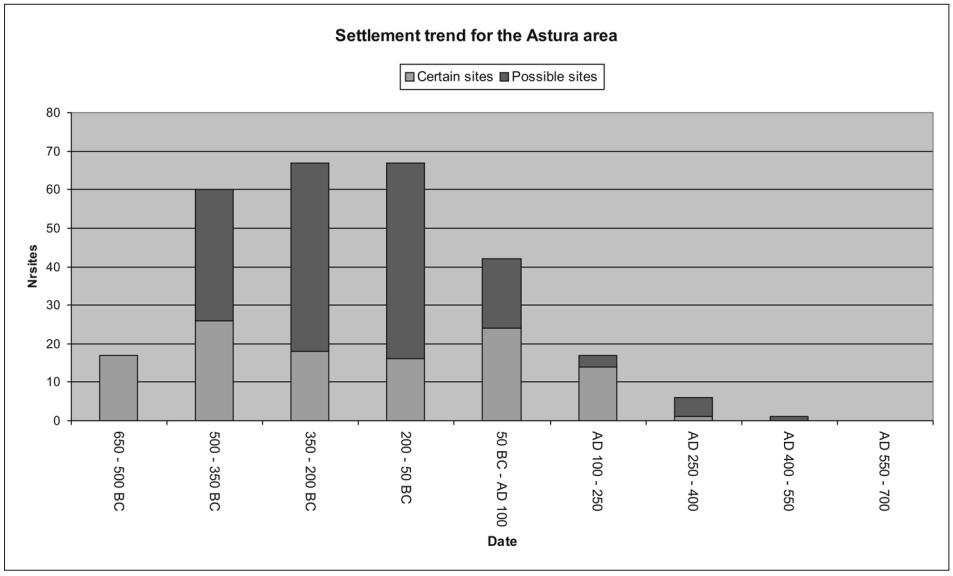


Figure 3.27a Settlement trend for the Astura area after the revisits.

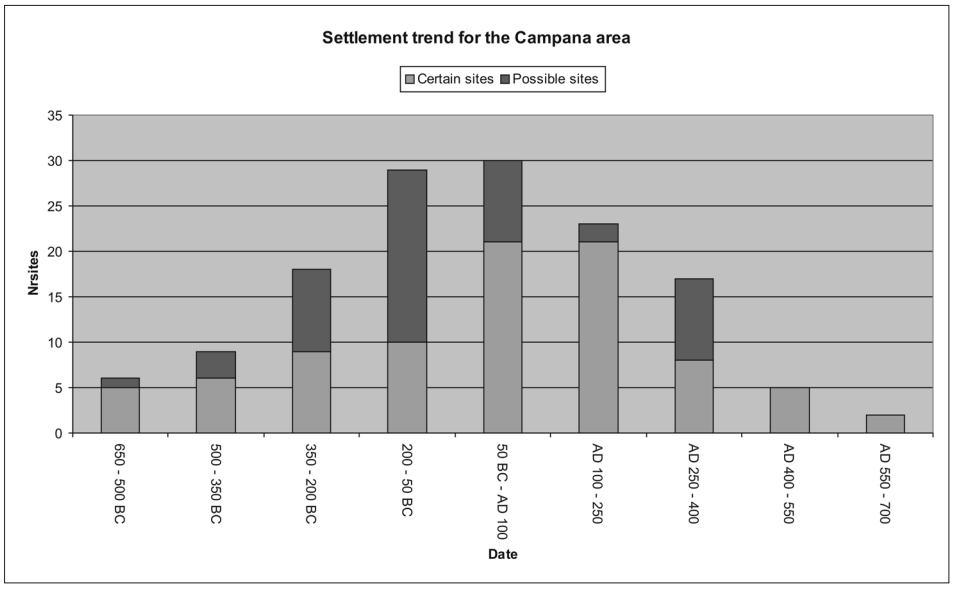


Figure 3.27b Settlement trend for the Campana area after the revisits.

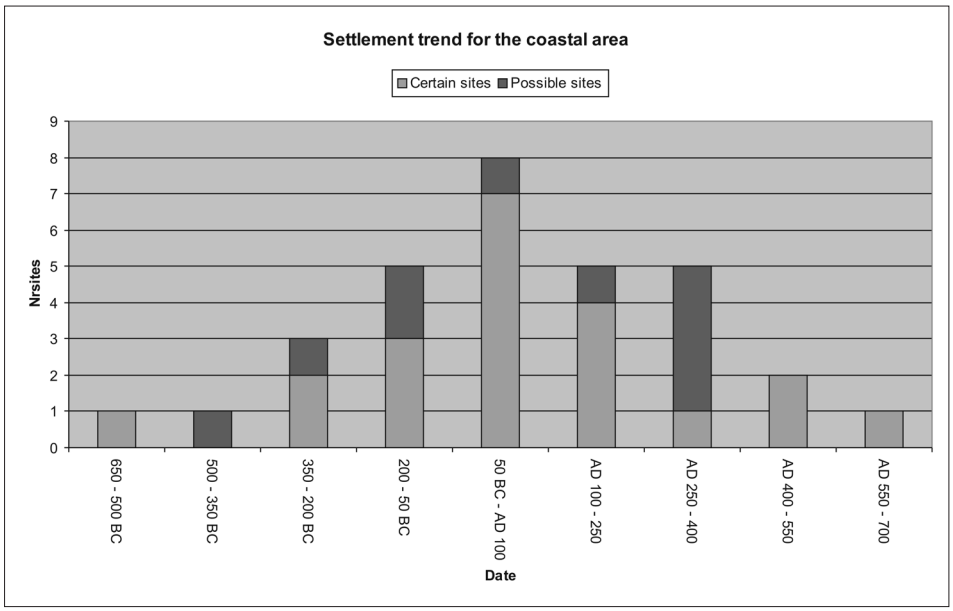


Figure 3.27c Settlement trend for the coastal area after the revisits.

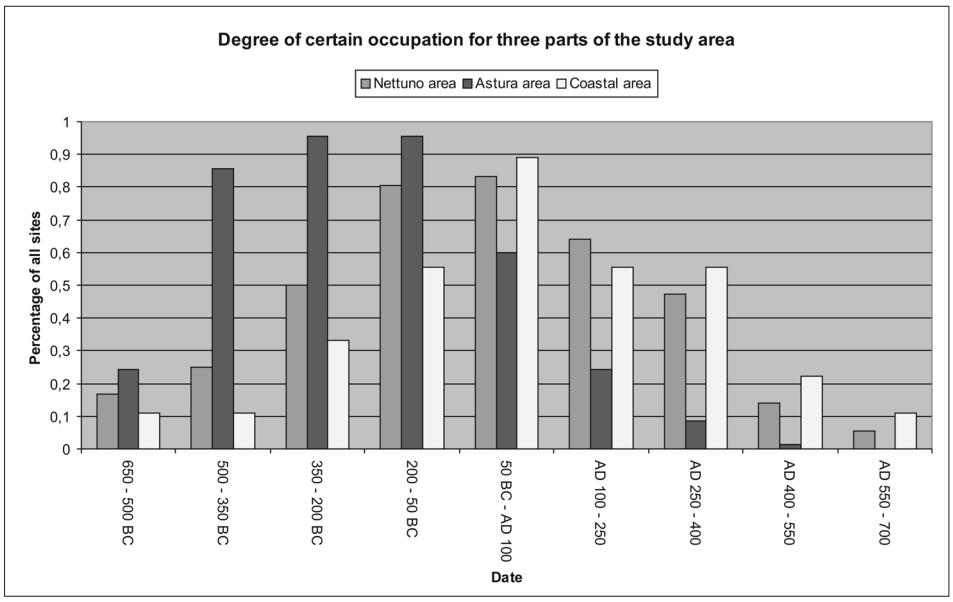


Figure 3.28 Degree of certain occupation for each topographical area.

large ceramic samples (and as a consequence, more diagnostic fragments providing chronological information) collected on sites in this area.

In the Astura area, there are more Archaic sites and settlement reaches a peak in the period between the post-Archaic and late Republican period, with site numbers remaining rather stable throughout this period. A sharp decrease in the overall number of recorded sites is visible from the early Imperial period onwards, and continues until the late 4th century, when only a single site is possibly occupied. Admittedly, the settlement trend for this area contains a far larger share of uncertain sites, possibly overrepresenting the share of post-Archaic and Republican sites. However, even when leaving out the uncertain sites, the number of post-Archaic and Republican sites (almost) equals that of the early Imperial period.

Because of the low number of sites sampled, it is difficult to interpret the trend for the coastal area. Here, only one (possibly) occupied site was recorded for the Archaic and post-Archaic period, after which site numbers increase during the Republican period. On all sites there is (possible) activity in the early Imperial period, after which site numbers decline again. Several of the sampled sites show continuity into the late Imperial, late Antique and even the early Medieval period.

As the number of sites sampled in each topographical area varies considerably, it is difficult to directly compare absolute site numbers. Therefore, in figure 3.28 the percentage of all sites that is occupied in each period is depicted for each of the three topographical areas. From this graph we can deduct that almost all sites in the Astura area attest to possible or certain post-Archaic (more than 80% of the sites) and Republican (more than 90% of the sites) occupation. On the other hand site-occupation in the Imperial period ranges between a mere 60% for the early Imperial period to less than 25% for the mid-Imperial period. For the Campana area, (certain or possible) post-Archaic and mid-Republican occupation is restricted to a quarter and half of the total number of sites respectively. On the other hand, little over 80% of all sites are occupied in the early Imperial period, whereas still little under 50% of them was (possibly) active in the late Imperial period. Activity is attested in all periods in the coastal area as well, and more than half of the total number of sites was (certainly or possibly) occupied between the late Republican and the late Imperial period.

3.7 Spatial differentiation in pottery consumption

Figure 3.29 represents the cumulative trend of all dated diagnostic fragments for the entire study area as an accumulation of the relative share that each of the three topographical areas account for.

Despite the fact that almost twice as many sites were sampled in the Astura area than in the Campana area, the latter takes in a much higher share of all identified materials from the 4th century BC onwards. This can be explained by a combination of factors. Firstly, sites in the Campana area generally yielded more diagnostic fragments per site (five times as much) and thus together account for a much higher total number of diagnostic fragments (almost 2.5 times as much; see table 3.1). Furthermore, this area in general flourishes in the late Republican to mid-Imperial periods, when apparently much more pottery is consumed per site compared to earlier and later periods. Post-depositional processes possibly constitute another contributing factor. In the Astura area, sites in general appear much more degraded by modern land use. This results not only in a rapid decline in the number of surviving sites

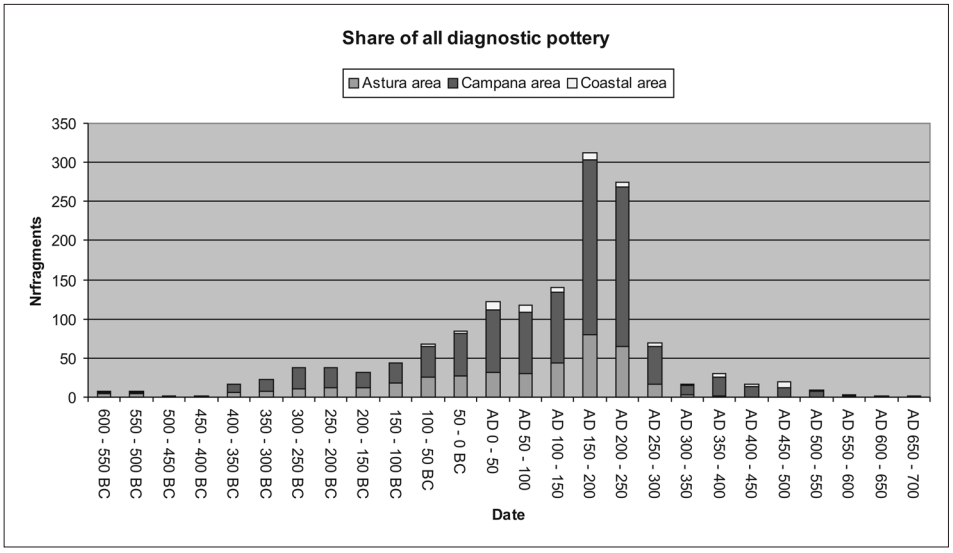


Figure 3.29 Relative share of all dated pottery for each topographical area.

in this area (for example 34% of all sites could not be located despite visiting their recorded location, compared to 22% for the Campana area), but also in the overall quality of the samples.

3.8 Establishing site function

As formulated in the introduction to this chapter, the principal aims of the discussed revisits were to obtain further insight into both the chronology and the function of individual sites. With regard to the latter, indeed several sites stand out based on the collected materials. The first of these is site 11330, located in the Astura area. Here, from two circular dark patches of soil, six rim fragments of a single type of Archaic (storage) jar were collected, characterized by four grooves on top of the rim.[279] Also collected were three types of Archaic tile, all present with more than one example. Associated with these materials are several curved non-ceramic fragments, possibly representing the sidewall lining of a structure. The combination of these elements points to a possible industrial function of the site, perhaps for the production of pottery (although no wasters were identified) or as a storage area.

The second site with a divergent assemblage is site 15107. Among the 130 diagnostic fragments that were collected from this site, more than half (73 fragments) belong to African cookwares (casseroles and their associated lids). Apart from these fragments, also smaller amounts of terra sigillata, African tablewares, amphorae and coarse ware fragments were collected. The assemblage suggests that this site constituted a cooking facility.

Generally, however, it remains difficult to approach the function of sampled sites. This especially holds for sites yielding only small and undiagnostic samples. Sites with larger samples that include a wide variety of different wares and shapes (tiles, fine wares, coarse and cookwares, amphorae etc.) are normally taken as being representative of habitation sites. The fieldwork discussed in chapter 5 aims to investigate whether such samples indeed represent a uniform class of sites.

3.9 Exploring site contemporaneity

In this section two groups of sites, one in the Astura and one in the Campana area, will be used to explore the potential of discerning spatial and chronological patterning in our dataset. The large size of the samples collected on all of these sites in my view allows a more accurate assessment of their chronology, using the criteria formulated in chapter 2.

The first group consists of five sites in the Astura area, located at short distance of each other. These (11312, 11316, 11318, 11319 and 11323) all yielded a substantial number of diagnostic fragments, ranging between 34 (site 11319) to 139 fragments (site 11318). Figure 3.30 shows the chronological trend for each of these sites, based on all dated diagnostic fragments.

Only one site (11319) has a possible post-Archaic phase, based on a single *teglia* fragment with a long date range; none of the sites, however, yielded the yellow-baking post-Archaic tiles. All but one site (11312) yielded evidence for activity in the 4th or 3rd century BC, consisting of black glazed ware, graeco-italic amphorae or high-collar rims. Combining this evidence, it is likely that activity on these four sites commenced somewhere during the 4th or 3rd century BC. Furthermore, these four sites show a largely similar development during the late Republican and early Imperial period. Site 11312 is likely to have been founded somewhere in the early

279 Based on the rim diameters of the different fragments it can be excluded that they originate from the same vessel.

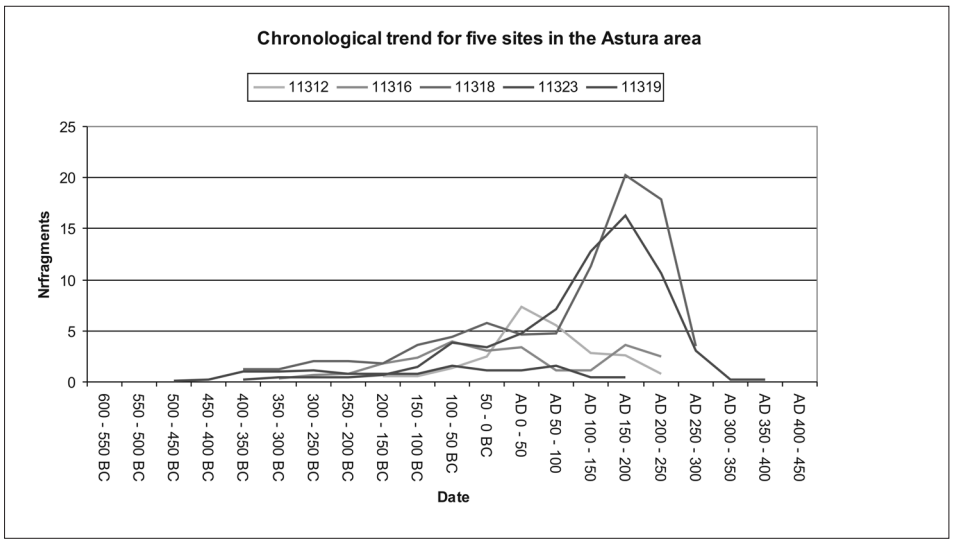


Figure 3.30 Chronological trend for five sites in the Astura area.

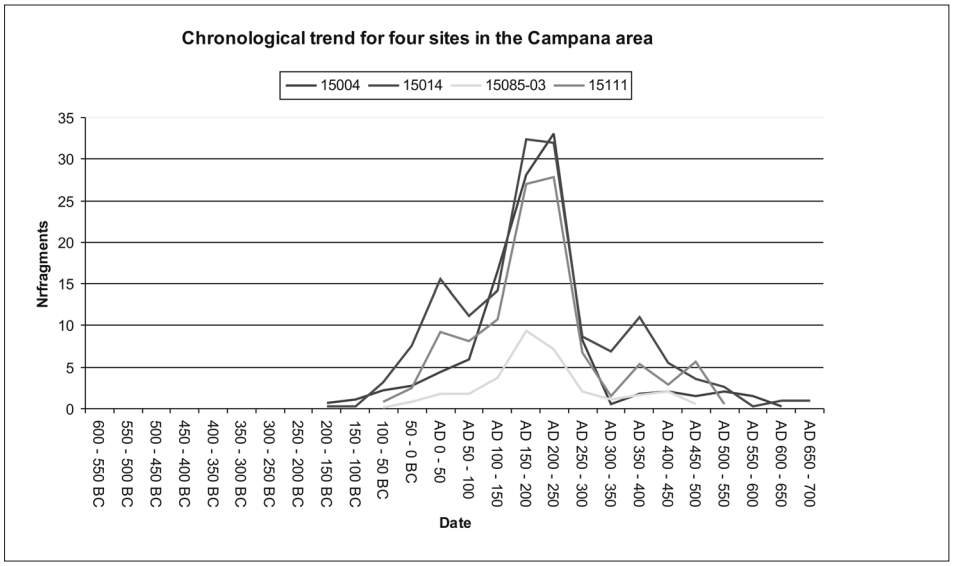


Figure 3.31 Chronological trend for four sites in the Campana area.

2nd century BC as earlier fragments lack altogether. The chronological trend for this site also diverges somewhat from the other four sites, with a stronger presence of early Imperial pottery.

Concerning their latest activity, the sites can be split into two groups. Three of the sites (11312, 11316 and 11319) yielded small numbers of pottery dating to the second half of the 2nd or the beginning of the 3rd century AD. The former end date appears more likely, considering that none of these sites have exclusively late 2nd- or 3rd-century ceramics. Two other sites (11318 and 11323) show an increase in the volume of consumed pottery in the 2nd and early 3rd centuries AD, predominantly provoked by African cookwares. It must, however, be noted that on these sites no pottery fragments with a date range that starts after the third quarter of the 2nd century were found, rendering it possible that they ceased to exist in the late 2nd century or early 3rd century AD as well.[280]

A second group comprises four sites in the Campana area, all located along the Roman road. These yielded samples ranging from 44 (15085-03) to 324 (15014) diagnostic fragments, whilst their respective assemblages show a similar composition, including utilitarian pottery, amphorae, tablewares and luxury architecture.

Figure 3.31 displays the chronological trend for these sites, based on the date ranges provided by their diagnostic fragments. All four sites appear to be founded between the mid-2nd century and the mid-1st century BC and essentially develop in the same manner. Two

280 On both sites the fragment with the latest start date is an Africana I amphora rim.

Table 3.3 No. of (un)certain sites per period before and after the revisits.

	650–500 BC	500–350 BC	350–200 BC	200–50 BC	50 BC–AD 100	AD 100–250	AD 250–400	AD 400–550	AD 550–700
Certain sites before	17	16	12	15	37	30	5	4	3
Uncertain sites before	1	44	67	72	20	4	14	1	0
Certain sites after	25	33	30	30	54	42	10	7	3
Uncertain sites after	1	38	60	74	29	6	20	1	0
All sites	26 (18)	71 (60)	90 (79)	104 (87)	83 (57)	48 (34)	30 (19)	8 (5)	3 (3)
Increase total sites	+8	+11	+11	+17	+26	+14	+11	+3	-
Increase certain sites	+8	+17	+18	+15	+17	+12	+5	+3	-
Increase total	44%	18%	14%	20%	46%	41%	58%	60%	0%
Increase certain sites	50%	106%	150%	100%	46%	40%	100%	75%	0%

sites show a similar, small dip in the volume of consumed pottery in the second half of the 1st century AD. Furthermore, all sites show a marked peak in the consumption of pottery comprising the period between AD 150 and 250, provoked by the influx of African cookwares. Also recorded on all four sites is a marked decrease in the volume of consumed pottery during the first half of the 4th century, followed by a recovery in the second half of that century. For two of the sites, their latest activity dates in the late 5th or early 6th century AD, based on the find of late African red slip ware fragments. Two other sites (15004 and 15014) continue into the 6th and 7th centuries AD, based on several coarse ware fragments. The in general longer date range of coarse ware fragments compared to for example tablewares, and the fact that these fragments are not supplemented by other, contemporaneous, types of pottery, makes it likely that also these sites ceased to exist in the course of the 6th century AD.

3.10 Conclusion: contribution to the settlement history

In this section, the added value of the revisits for our understanding of the diachronic settlement history of the study area is summarized. Based on the revisits, overall sites numbers increased for all periods, except for the early Medieval period (table 3.3). This increase ranges from 14% for the mid-Republican period up to 60% for the late Antique period. Comparatively few sites are added for the post-Archaic and Republican periods, whereas the effect on our knowledge of Imperial settlement has been considerable.

The revisits also helped to ascertain occupation where activity was previously uncertain. An increase in the number of certain sites is noted for almost all periods, ranging from 37% (mid-Imperial period) to 150% (mid-Republican period). Especially the post-Archaic and Republican periods record a strong increase (more than 100%) in the total number of certain sites.

The relatively low rise in the total number of sites for the post-Archaic and Republican period is caused by the fact that wares generically dating in these periods were previously recognized on many sites (augite tiles, undiagnostic black glazed ware). The enormous increase in the total number of certain sites for these periods is thus the result of the collection of supplementary diagnostic fragments, as well as the recording of new sites. Furthermore, it is clear that, in general, a high increase in the total number of sites is recorded for the more marginal periods (the Archaic period, as well as the late Imperial and late Antique periods). Identifying occupation of these periods depends heavily on the retrieval of fragments of a restricted number of wares (Archaic tile for the Archaic period and African red slip ware shapes for the later periods). These fragments generally occur in small quantities and are therefore more difficult to find when applying partial coverage of site areas, as is common in survey archaeology (see chapter 2). For the early Imperial period, the increase in the overall number of sites as well as the number of certain sites is the result of both the identification of new sites and the extension of the chronology of previously recorded sites.

Although the revisits yielded much additional evidence on the chronology of individual sites, the general settlement trend for the study area as a whole and the three topographical areas separately are not significantly altered, but rather confirmed.[281]

3.11 Conclusion: the quantitative value of integrating the revisits with previous (GIA) fieldwork

Based on the material evidence collected during the systematic revisits we can calculate the number of mutations these have caused in the chronology of individual sites. Based on the now available evidence, 151

281 See Attema, de Haas & Tol 2010.

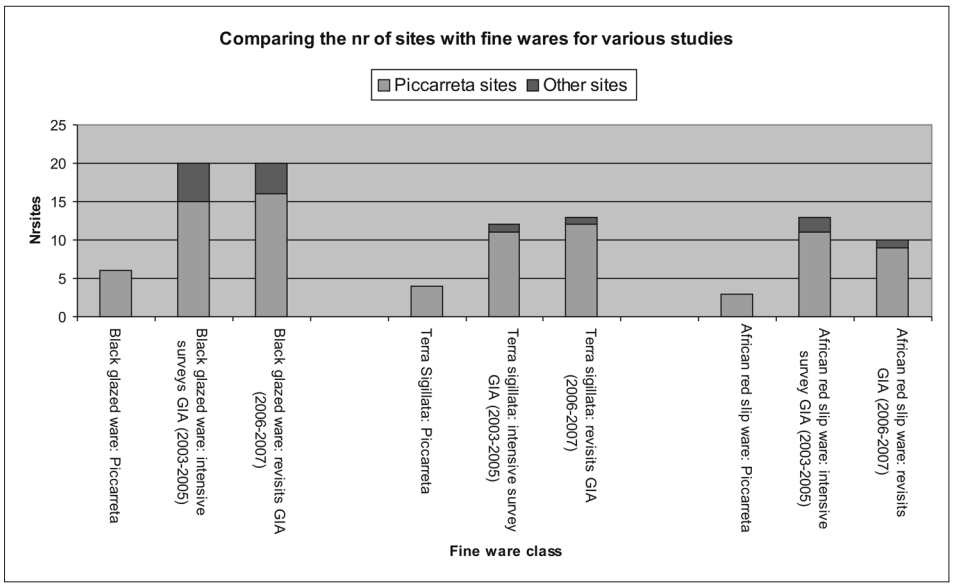


Figure 3.32 No. of sites with fine ware pottery recorded during subsequent studies.

of such mutations were made, comprising three types (tables 3.4 & 3.5):

1) A (possible) occupation phase was attested on a site that was not mapped before (62 times);
2) (Possible) activity in a certain period was established on a site that was already mapped before (39 times) and;
3) Activity in a period was confirmed where it was uncertain based on previous evidence (48 times).

The first type of mutation is limited to sites that were either newly discovered or sites that could not be accessed on earlier occasions, predominantly locations in the Campana area and along the coast. From a methodological standpoint, these sites are the least interesting, since the collected evidence cannot be compared to earlier samples.

The 87 (possible) attestations of new occupational phases on sites that were already mapped before provide better insight in the added value of the systematic revisits. The extension of site dates (on 39 occasions) and the confirmation of activity in a certain period (on 48 sites) are the direct result of the larger and more diagnostic material samples collected during the revisits. Such mutations are most frequent in the Astura area, where many sites yielded small and undiagnostic samples during previous visits. Figure 3.32, for example, shows that, compared to previous GIA fieldwork in the Astura area, fine ware pottery was collected from a more or less equal number of sites. However, the samples did include more diagnostic fragments of these wares.

Moreover, the larger samples collected during the revisits allowed a more accurate assessment of fluctuations in the consumption of a number of pottery classes, both for the study area as a whole and for two different topographical areas (the Campana and the Astura area) separately. Quantified data of this sort, in my view, constitute a valuable instrument for the study of local and regional differences (and similarities) in pottery supply (see also section 7.4).[282]

3.12 Concluding remarks

This chapter presented the results of revisits to sites that were known from earlier topographic inventories and intensive surveys. By means of these revisits the chronologies of many sites were confirmed or extended, whereas also several new sites were added to our inventory. This added knowledge corroborates trends that were already noted before. The collected materials, apart from aiding the establishment of site chronologies, also allowed a more accurate diachronic study of the overall consumption of pottery for our study area as well as the contribution of three material classes (fine ware pottery, utilitarian pottery and amphorae) to this overall trend. Furthermore, more insight was obtained in the rate of destruction of the archaeological record of the study area.

The sites studied are situated in three different topographical areas, between which differences in the nature and scale of settlement and pottery consumption were identified. Sites in the Campana area yielded the largest pottery samples and this area records a clear peak in settlement in the late Republican and early Imperial period, after which the area is gradually abandoned. On a small number of sites activity continues into the early Medieval period. On the other hand,

282 See Millett 1991 for a similar study within the framework of the Tarraconensis survey. For a comparison of pottery supply between different local datasets from the Pontine Region see De Haas & Tol forthcoming.

only sparse activity is recorded in this area between the Archaic to mid-Republican periods. In the Astura area, most sites have a post-Archaic and Republican phase and site numbers are much lower in the Imperial period. Furthermore, there is a much stronger presence of Archaic settlement compared to the Campana area, whereas on none of the sites activity is attested after the late Imperial period. The coastal area shows little activity before the mid-Republican period, and a clear peak in the early Imperial period. Activity in this area is also attested uninterruptedly into the early Medieval period.

All three area register a gradual rise in the volume of consumed pottery during the Republican period with assemblages becoming increasingly varied, comprising different wares and shapes. This increase is concurrent with a gradual increase in the number of sites. An opposing development occurs in the early and mid-Imperial period. In all parts of the study area the volume of consumed pottery increases, whereas there is a ubiquitous decline in the number of recorded settlements (although this phenomenon takes place somewhat earlier in the Astura area than in the other two areas). This shows that, in general, much more pottery was consumed per site in these periods. A special role is taken in by African cookwares that are found in large quantities in all three areas. In all parts of the study area, both the number of recorded sites and the volume of consumed pottery decline considerably after the mid-Imperial period, although the rate and speed of this decline varies. The latest activity on sites in our study area, confined to the Campana area and the coastal zone, must probably be dated in the full 6th century AD.

Table 3.4 Total number and type of mutations to the chronology of sites based on the revisits.

Type of mutation	**No. of mutations**
Attested possible or certain activity on sites not mapped before	62
Newly attested possible or certain activity on sites mapped before	39
Activity ascertained on sites with previous uncertain activity	48
Total	**149**

Table 3.5 Site table. Mutations to the chronology of a site based on materials collected during the revisits are highlighted in grey.

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
11202	X	P	X	X	X	X	X	X	X
11208					X (P)	X (P)	P		
11209				P	X (P)	X (P)	P	X	
11215			X	X	X	X	P		
11266		P	P	P					
11267		P	P	P					
11269	X		P	P	P				
11270		X (P)	P	P	X (P)	X			
11275		X (P)	P	P					
11276		P	P	P					
11277	X	X	X	P	X	X			
11280	X	X (P)	P	P					
11281		P	X (P)	P	X	X	P		
11283		X (P)	X (P)	P	P	X			
11284			P	P	X				
11287		P	P	P	X				
11288			P	P					
11290			P	P					
11291		X (P)	X	P					
11292			P	P					
11294	X		P	P	X	X	P		

Table 3.5 continued

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
11296		P	P	P					
11297		X	X (P)	X (P)	X				
11298		X	X (P)	P	P				
11303		P	P	P					
11304		X	P	P					
11305	X	P	P	P					
11308	X	P	X (P)	X	P				
11310		P	P	P	P				
11312			P	X (P)	X	X			
11316		P	X (P)	X (P)	X	X (P)			
11317	X	X (P)	X (P)	X (P)					
11318		P	X (P)	X (P)	X	X	P		
11319		P	X (P)	X (P)	X	X			
11321		P	P	P	X				
11322		P	P	P	P				
11323		P	X	X	X	X	P		
11326		P	X	P	P				
11327		P	P	P					
11329		P	X (P)	P	P				
11330	X	X (P)	P	P					
11331		P	P	X	X	X	P		
11345		X (P)	X (P)	X (P)	X	P			
11347		X	P	P	X				
11351		P	P	P	P				
11352		X (P)	P	X (P)	P				
11354		P	P	P					
11356	X								
11359		P	P	P	X	X			
11367	X	P	P	P	X				
11368		P	P	P					
11369	X	P	P	P	P				
11371		P	X (P)	X (P)	P				
11373		P	P	P	P	P			
11375	X	X (P)	X (P)	X (P)					
11378		P	P	P					
11384		X (P)	P	P	X	X			
11386		X (P)	P	P	X				
11387		P	P	X	P				
11389	X	P	P	P					
11390		P	P	P		X			
11391		X (P)	P	P	X				
11392		P	P	P	X				
15001					X				
15002			P	P	X	X	P		
15004			P	P	X	X	X	X	X
15005	X	X	X (P)	P					
15014			P	P	X	X	X	X	X
15019				X	X	X	X (P)		
15020				P	X	X	P		
15029				X	X	X	P		

Table 3.5 continued

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
15034		X	X	X	P				
15036		P	X	X	X	X			
15038		X	P	P	P				
15046		X	P	P					
15049						X	P		
15068		P	X	X	P				
15080			P	P	P	P			
15083			P	P	X	X	X	X	
15085-01					X	X	X		
15085-02					X	X	X		
15085-03				P	X	X	X	X	
15085-04				P	X	P	P		
15106		P	X	X	X	X			
15107			P	P	X	X	P		
15108	X	X	X	X	X				
15109				P	X	X	P		
15110				P	X	X			
15111				P	X	X	X	X	
15112			P	X	P				
15114				P	X	X	P		
15115	X	X							
15116			P	X (P)	X	X	X	P	
15117									
15118		X	P	P	P	P			
15119		X	P	P	P				
15125	X		P	P	P				
15126					X				
15127				P	P	X			
15128				P	P				
15130	X								
15132				P	X	X			
15134	X								
15135	X								
15136		X	X (P)	X (P)					
15137	P		P	P	P				
15138			X	P	X	X	P		
15146	X	X	P	P	P				
15148	X	X	P	P	P				
15149	X	X	P	P					
15150		X	X	X	X	X	P		
15151					X	P	P		
15152		X	X (P)	X	P				
15153	X	X	X	X	X	X	P		
15258		P	P	P					
15259				X	P				
15260			P	P					
15261					X				

Chapter 3 Typological table.

Building materials - Tile				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-I.1 – Not drawn	Stamped tile	2nd century AD?	Attema, De Haas & Tol 2011, 318	15110
III-I.2	Stamped tile	3rd century AD?	Steinby, Helen & Solin 1977, no.1140	11215, 15151
III-I.3	Stamped tile	1st century AD	CIL XV/1, no. 122; Attema *et al.* 2008, 509	11323
III-I.4a-4d	Tile fragment	Archaic		11330
Building materials - Other				
III-I.1	Antefix	1st century BC – 1st century AD	For similar, though not identical antefixes, see for example Frova & Bertino 1973, TAV.124-126	15259

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-I.1a-1b	Rim of an amphora	350 – 150 BC	Graeco-Italic	11345, 15034 (2x), 15036, 15106 (2x)
III-II.2	Rim of an amphora	350 – 25 BC	Graeco-Italic/Dressel 1A	11277, 11280, 11281, 11308 (2x), 11316, 11323, 15034, 15036, 15068, 15106, 15152, 15153
III-II.3	Rim of an amphora	225 – 175 BC	Van der Werff form 3	15106, 15153
III-II.4	Spike of an amphora	200 – 100 BC	Van der Werff form 1	11297
III-II.5a-5b	Rim and handle of an amphora	200 – 75 BC	De Haas, Attema & Pape 2008: Local type/Dressel 1A	15004, 15036 (3x), 15152
III-II.6	Rim of an amphora	150 – 0 BC	Van der Werff form 2	11318, 15034, 15158
III-II.7 – Not drawn	Rim and handle of an amphora	150 – 0 BC	Dressel 1	11352, 11378, 15106, 15153
III-II.8a-8c	Rim of an amphora	150 – 50 BC	Dressel 1A	11308, 11317, 11323, 11371, 15106, 15108, 15112 (2x), 15136, 15259
III-II.9	Rim of an amphora	125 – 0 BC	Dressel 1B	11287, 11326, 11386 (3x), 15036 (2x)
III-II.10	Rim of an amphora	125 – 75 BC	Dressel 1C	11308, 15036, 15106
III-III.11a-11c	Rim of an amphora	75 BC – AD 100	Dressel 2-4 Italian	11202, 11281, 11298, 11308, 11312, 11318 (4x), 11323 (3x), 11345, 11384, 15002, 15004 (3x), 15014 (2x), 15019, 15029, 15036 (12x), 15083, 15085-03, 15085-04, 15106 (12x), 15108, 15111 (3x), 15114, 15138, 15151, 15153 (3x)
III-III.12a-12d	Rim and handle of an amphora	25 BC – AD 175	Dressel 2-4 Catalan	15004, 15014, 15036 (13x), 15106 (5x), 15111 (2x), 15153 (2x)
III-IV.13a-13b	Rim and handle of an amphora	50 BC – AD 50	Haltern 70	11331, 11392, 15014 (2x), 15029, 15036 (2x), 15106, 15116
III-IV.14	Rim of an amphora	AD 0 – 200	Dressel 7-11	11373
III-IV.15	Rim of an amphora	AD 0 – 150	Tripolitana 1	15107
III-IV.16	Handle of an amphora	AD 25 – 225	Dressel 20	15014
III-IV.17	Base of an amphora	AD 0 – 200	Forlimpopoli	15014
III-IV.18	Handle of an amphora	AD 25 – 225	Cretoise 2	15004, 15085-01, 15111

Chapter 3 Typological table., continued

Amphorae				
III-IV.19a-19c	Rim, handle and base of an amphora	AD 50 – 300	Gauloise 4	11202, 11318 (2x), 15004, 15014 (2x), 15029, 15085-02, 15107, 15111
III-V.20	Rim of an amphora	AD 75 – 225	Leptiminus 1	15153
III-V.21	Rim of an amphora	AD 100 – 200	Probably Type Pupput T700.5 (Bonifay 2004, 100)	15107
III-V.22	Rim of an amphora	AD 100 – 250	Tripolitana 2	11318, 15114, 15150, 15153
III-V.23	Rim of an amphora	AD 175 - 250	Africana 1a/b	11318, 15004, 15114
III-V.24	Rim of an amphora	AD 175 - 225	Africana 1a	15014, 15153
III-V.25a-25c	Rim of an amphora	AD 175 - 250	Africana 1b	11318 (3x), 15014 (4x), 15085-02, 15153
III-V.26 – Not drawn	Rim of an amphora	AD 175 - 250	Africana 2	11331, 15111
III-V.27a-27b	Rim of an amphora	AD 175 – 250	Africana 2a con gradino	15004 (2x), 15014
III-VI.28	Rim of an amphora	AD 200 – 400	Tripolitana 3	15014, 15111, 15116
III-VI.29	Rim of an amphora	AD 300 – 400	Africana 3A	15014, 15085-01
III-VI.30	Rim of an amphora	AD 300 – 400	Africana 3B	15111
III-VI.31	Rim of an amphora	AD 400 - 500	Keay 35B	11209
III-VI.32	Rim of an amphora	AD 400 – 500	Keay 36	15111
III-VI.33	Rim of an amphora	AD 475 - 550	Keay 62	15014
III-VI.34	Rim of a small amphora?	Unknown	In Frova & Bertino 1973, TAV.76.3 similar fragment classed as small amphora	11209
III-VI.35	Rim of an amphora	Mid-Late Imperial	Aylwin Cotton 1979, 145, fig.42.23; the type is common at Ostia and is thought to be of Rhodian origin	11323
III-VI.36	Rim of a small amphora	-	-	15111
III-VI.37	Rim of an amphora	-	-	15014
III-VI.38	Rim of an amphora	-	-	11202
III-VI.39	Rim of an amphora	-	-	15036
III-VII.40	Rim of an amphora	-	-	11209
III-VI.41	Rim of an amphora	-	-	15019
III-VII.42	Rim of an amphora	-	-	15153
III-VII.43	Rim of an amphora	-	-	11209
III-VII.44	Rim of an amphora?	-	-	11319

Chapter 3 Typological table., continued

Fine ware - Bucchero Sites with bucchero (8 sites): 11202, 11277, 11294, 11330, 11369, 15005, 15108, 15153				
Fine ware – Black glazed ware Sites with black glazed ware fragments (49 sites): 11275, 11277, 11281, 11284, 11287, 11291, 11297, 11298, 11304, 11308, 11312, 11316, 11317, 11318, 11319, 11327, 11331, 11347, 11352, 11354, 11367, 11371, 11386, 11387, 11391, 15004, 15005, 15014, 15034, 15036, 15046, 15068, 15083, 15106, 15107, 15108, 15112, 15116, 15118, 15119, 15136, 15138, 15146, 15148, 15150, 15152, 15153, 15258, 15259				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-VII.1a-1b	Rim and base of a skyphos	400 – 250 BC	Possibly Morel 1981, pl.131, form 4373	15106 (4x), 15153
III-VII.2	Rim of a skyphos	-	-	15108
III-VII.3	Rim of a plate	180 – 120 BC	Morel 1981, pl.11, form 1311a1	15106
III-VII.4	Rim of a plate	150 – 125 BC	Morel 1981, pls.11-12, form 1312	15116
III-VII.5	Rim of a plate	280 – 260 BC	Morel 1981, pl.36, form 2233(g1)	15106
III-VII.6	Rim of a plate	200 – 100 BC	Morel 1981, pl.42, form 2265	11319
III-VII.7	Rim of a plate	-	-	15150
III-VII.8a-8b	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-73, form 2783-84	11318, 15153 (3x), 15005, 15034 (2x), 15106 (2x), 15108, 15138
III-VII.9	Rim of a bowl	200 – 100 BC	Morel 1981, pl. 59, form 2614	15034
III-VII.10	Rim of a bowl	300 – 200 BC	Morel 1981, pls.79-80, form 2913/14	15068, 15106 (2x), 15153
III-VII.11	Rim of a bowl	-	-	15153
III-VII.12	Rim of a bowl	-	-	11277
III-VII.13	Rim of a bowl	-	-	15106
III-VIII.14	Rim of a bowl	250 – 225 BC	Morel 1981, pls.35-38, Serie 2230	11277
III-VIII.15	Rim of a bowl	175 – 125 BC	Morel 1981, pl.56, form 2562a1	15108
III-VIII.16	Rim of a bowl	-	-	15034
III-VIII.17	Rim of a bowl	-	-	15153
III-VIII.18	Rim of a bowl	275 – 225 BC	Possibly Morel 1981, pl.31, form 2131	15106 (2x)
III-VIII.19	Rim of a jug	-	-	15106
III-VIII.20	Foot fragment	300 – 200 BC	Resembles foot in BG, see Moltesen & Rasmus Brandt 1994, 105, no.133 (= Morel 1981, pl.85, form 2987?)	11281
III-VIII.21	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 11	11371, 15153
III-VIII.22	Stamped base	300 – 200 BC	Resembles Bouma 1996, 416, stamp type 12 (although with less petals)	15153
III-VIII.23	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 10; Cederna 1951, 211; Bernardini 1986, TAV.LVI, stamp type 25	15034, 15106 (2x), 15150
III-VIII.24	Stamped base	300 – 200 BC	Resembles Di Mario 2005, TAV.XXVII, stamp type 11	11281
III-VIII.25	Stamped base	300 – 200 BC	-	15068
III-VIII.26	Stamped base	-	-	15106
III-VIII.27	Handle fragment	-	-	11319
III-VIII.28	Decorated body fragment	-	-	15068

Chapter 3 Typological table., continued

Fine ware – Terra sigillata Sites with terra sigillata fragments (43 sites): 11202, 11208, 11209, 11270, 11277, 11281, 11284, 11287, 11297, 11312, 11316, 11318, 11319, 11321, 11323, 11347, 11359, 11367, 11384, 11386, 11391, 15001, 15002, 15004, 15014, 15019, 15029, 15036, 15083, 15085-03, 15106, 15107, 15108, 15109, 15110, 15111, 15116, 15132, 15138, 15150, 15151, 15153, 15261				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-VIII.1	Rim of a dish	40 – 0 BC	Ettlinger *et al.* 1990, 53, form 1	11202
III-VIII.2	Rim of a plate/bowl	40 – 10 BC	Ettlinger *et al.* 1990, 55, form 2 (2.1)	11312
III-VIII.3	Rim of a plate/bowl	40 – 10 BC	Ettlinger *et al.* 1990, 55, form 2 (2.3.2)	15029
III-VIII.4	Rim of a plate	AD 50 – 100	Ettlinger *et al.* 1990, 57, form 3	11209, 11319, 11323, 11384, 15004 (2x), 15019 (3x), 15036, 15083, 15110, 15111, 15116, 15138 (2x)
III-VIII.5	Rim of a bowl	AD 15 – 50	Ettlinger *et al.* 1990, 59, form 4.6	11202
III-VIII.6	Rim of a bowl	10 BC – AD 15	Ettlinger *et al.* 1990, 65, form 7	11312, 15014, 15036 (2x), 15111, 15138
III-VIII.7a-7b	Rim of a plate	30 – 0 BC	Ettlinger *et al.* 1990, 67, form 8	11318, 15004, 15029, 15036
III-VIII.8	Rim of a plate	30 – 10 BC	Ettlinger *et al.* 1990, 69, form 10	15108
III-IX.9	Rim of a dish	10 BC – AD 15	Ettlinger *et al.* 1990, 73, form 12	11316, 15036 (2x)
III-IX.10	Rim of a plate	10 BC – AD 15	Ettlinger *et al.* 1990, 77, form 14	11319, 15036
III-IX.11	Rim of a bowl	10 BC – AD 15	Ettlinger *et al.* 1990, 79, form 15	11209
III-IX.12	Rim of a plate	10 BC – AD 30	Ettlinger *et al.* 1990, 83, form 18	11287, 11316, 15036
III-IX.13	Rim of a plate	AD 30 – 80	Ettlinger *et al.* 1990, 87, form 20.4	15014, 15036
III-IX.14	Rim of a plate	AD 0 – 75	Ettlinger *et al.* 1990, 89, form 21	11277, 15036
III-IX.15a-15b	Rim of a cup	20 BC – AD 30	Ettlinger *et al.* 1990, 91, form 22	11386, 15019, 15111
III-IX.16	Rim of a cup	AD 15 – 70	Ettlinger *et al.* 1990, 101, form 27	15036
III-IX.17	Rim of a dish	AD 15 – 100	Ettlinger *et al.* 1990, 105, form 29	15106
III-IX.18	Rim of a bowl	AD 15 – 30	Ettlinger *et al.* 1990, 107, form 31	15004, 15029
III-IX.19a-19b	Rim of a plate	AD 20 – 100	Ettlinger *et al.* 1990, 109, form 32	11312, 15019, 15036, 15116
III-IX.20	Rim of a cup	AD 30 – 50	Ettlinger *et al.* 1990, 113, form 34	15014 (3x), 15029 (3x), 15036 (2x)
III-IX.21	Rim of a bowl	AD 15 – 50	Ettlinger *et al.* 1990, 115, form 36 (36.3.2)	11202, 15036, 15106
III-IX.22	Rim of a cup	AD 15 – 100	Ettlinger *et al.* 1990, 115, form 36.4	11202, 15111
III-IX.23a-23b	Rim of a plate	AD 25 – 75	Ettlinger *et al.* 1990, 117, form 37	15014, 15036, 15116
III-IX.24	Rim of a bowl	25 BC – AD 25	Ettlinger *et al.* 1990, 119, form 38	15085-03
III-X.25a-25b	Rim of a bowl	AD 50 – 150	Ettlinger *et al.* 1990, 121, form 39 (39.1.1)	15111 (2x)
III-X.26	Rim of a cup	AD 70 – 150	Ettlinger *et al.* 1990, 133, form 45	15019
III-X.27	Rim of a bowl	-	-	15036
III-X.28	Rim of a bowl	-	-	11319
III-X.29	Base fragment	-	-	15036
III-X.30	Stamped base	AD 60 – 150	Oxé, Comfort & Kenrick 2000, 290, stamp type 1212	15036
III-X.31	Stamped base	AD 60 – 150	Oxé, Comfort & Kenrick 2000, 290-292, stamp type 1212/1213	15153
III-X.32	Stamped base	AD 50 – 120	Oxé, Comfort & Kenrick 2000, 363, stamp type 1690	11323
III-X.33	Stamped base		Oxé, Comfort & Kenrick 2000, 173, stamp type 514	15029

Chapter 3 Typological table., continued

		Fine ware – Terra sigillata		
III-X.34	Stamped base	-	-	15014
III-X.35	Stamped base	-	-	15036
III-X.36	Stamped base	Unknown	Oxé, Comfort & Kenrick 2000, 514, stamp 2549.5	15150
III-X.37	Decorated body fragment	-	-	15014
III-X.38	Decorated body fragment	-	-	11323
III-X.39	Decorated body fragment	-	-	15036
III-X.40	Decorated body fragment	-	-	15111
III-X.41	Decorated body fragment	-	-	11323
III-X.42	Decorated body fragment	-	-	15019
III-X.43	Decorated body fragment	-	-	15019
III-X.44	Decorated body fragment	-	-	15085-03
III-XI.45	Decorated body fragment	-	-	15014
III-XI.46	Decorated body fragment	-	-	15111
III-XI.47	Decorated body fragment	-	-	15111
III-XI.48	Decorated body fragment	-	-	15111
III-XI.49	Decorated body fragment	-	-	11316
III-XI.50	Decorated body fragment	-	-	15036
III-XI.51	Decorated body fragment	-	-	11316
III-XI.52	Decorated body fragment	-	-	15004
		Fine ware – Ceramica Narbonese		
III-XI.1	Rim of a bowl	AD 100 – 250	Atlante I 1981, TAV.IV & V (Lamboglia form 37)	15004

Chapter 3 Typological table., continued

Fine ware – African red slip ware Sites with African Red Slip Ware (35 sites): 11202, 11209, 11281, 11283, 11294, 11312, 11316, 11318, 11319, 11323, 11331, 11359, 11384, 11390, 15002, 15004, 15014, 15019, 15029, 15083, 15085-01, 15085-02, 15085-03, 15085-04, 15107, 15109, 15110, 15111, 15114, 15116, 15118, 15127, 15138, 15150, 15153				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-XI.1	Rim of a bowl	AD 60 – 80	Atlante I 1981, TAV.XIII.1; Hayes 1972, 20, form 1	15014
III-XI.2	Rim of a dish	AD 75 – 150	Hayes 1972, 20, form 3B	11202, 11316, 11318, 15014 (2x), 15029 (2x), 15083, 15111, 15138 (3x)
III-XI.3	Rim of a dish	AD 100 – 150	Hayes 1972, 20, form 3C	11281, 11318 (2x), 11323 (2x), 15004 (9x), 15014 (2x), 15085-03, 15111 (2x), 15114, 15116 (2x), 15138, 15153
III-XI.4	Rim of a dish	AD 125 – 175	Hayes 1972, 28, form 5C	15019
III-XI.5	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	11202, 11281 (4x), 11318, 11323, 15002, 15004 (4x), 15014 (2x), 15085-02 (3x), 15107 (2x), 15111, 15114 (3x), 15153
III-XI.6	Rim of a bowl	AD 100 – 150	Hayes 1972, 28, form 7B	11323, 15029, 15111, 15150
III-XI.7	Rim of a carenated bowl	AD 100 – 175	Hayes 1972, 32, form 8A	11209, 11281 (3x), 11312, 11318 (4x), 11323 (8x), 11331, 11384, 15014 (6x), 15019, 15083 (2x), 15111, 15150 (2x), 15153
III-XI.8	Rim of a carenated bowl	AD 100 – 200	Hayes 1972, 32, form 8B	15004, 15014 (2x), 15029, 15107 (2x), 15109, 15114, 15150
III-XII.9	Rim of a bowl	AD 100 – 200	Hayes 1972, 32, form 9A	11209, 11281 (6x), 11318 (3x), 11319, 11323, 15004 (5x), 15014 (2x), 15019, 15083 (3x), 15085-03 (2x), 15107, 15111 (2x), 15114, 15153
III-XII.10	Rim of a bowl	AD 150 – 200	Hayes 1972, 32, form 9B	11281 (4x), 11318 (2x), 11323 (2x), 11390, 15004 (5x), 15014 (3x), 15019 (3x), 15029 (2x), 15083 (3x), 15085-03, 15107 (7x), 15111 (3x), 15114 (2x), 15150 (4x), 15153 (2x)
III-XII.11	Rim of a bowl	AD 100 – 200	Hayes 1972, 36, form 10B	15014, 15085-01
III-XII.12	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	11281 (3x), 11294, 11318 (5x), 11323 (2x), 15004 (5x), 15014 (3x), 15029, 15083 (5x), 15085-02, 15085-03 (2x), 15111, 15116, 15150 (2x)
III-XII.13	Rim of a bowl	AD 200 - 250	Hayes 1972, 40, form 14B	11281 (3x), 11283, 11318 (3x), 11323, 15004 (2x), 15014 (3x), 15019, 15083, 15085-02, 15085-03, 15107 (4x), 15111, 15116, 15150, 15153
III-XII.14	Rim of a bowl	AD 200 – 300	Hayes 1972, 40, form 15	15004, 15083 (2x)
III-XII.15	Rim of a bowl	AD 150 – 225	Hayes 1972, 40, form 16	11202, 11318
III-XII.16	Rim of a bowl	AD 200 – 300	Hayes 1972, 40, form 17	15004 (2x)
III-XII.17a-17b	Rim of a lid	AD 75 – 125	Hayes 1972, 46, form 20	15083, 15085-03
III-XII.18	Rim of a dish	AD 200 – 250	Hayes 1972, 50, form 27	11384, 15004 (6x), 15014 (3x), 15111 (4x), 15114 (2x), 15116
III-XII.19	Rim of a bowl	AD 200 – 300	Hayes 1972, 54, form 31	15004, 15083, 15114, 15116
III-XII.20	Rim of a bowl	AD 200 – 250	Hayes 1972, 54, form 32	11281, 11323, 15127
III-XII.21	Rim of a bowl	AD 200 – 250	Atlante I 1981, TAV.LXXII.9 (=Hayes 1972, 54, form 36)	11281

Chapter 3 Typological table., continued

Fine ware – African red slip ware				
III-XII.22	Rim of a plate	AD 230/40 – 300	Hayes 1972, 68, form 49	15111
III-XII.23 – Not drawn	Rim of a bowl	AD 230/40 – 400+	Hayes 1972, 68, form 50	11202, 15004, 15014 (2x), 15019, 15083, 15085-03, 15111
III-XIII.24	Rim of a bowl	AD 230/40 – 325	Hayes 1972, 68, form 50A	15004 (2x), 15014 (2x), 15116 (3x)
III-XIII.25	Rim of a bowl	AD 350 – 400	Hayes 1972, 68, form 50B; Atlante I 1981 TAV.XXVIII.14	15004, 15014 (4x), 15019 (2x), 15111 (2x), 15116
III-XIII.26	Rim of a dish	AD 300 – 400	Hayes 1972, 92, form 58	15014 (4x), 15085-03, 15111
III-XIII.27	Rim of a dish	AD 320 – 420	Hayes 1972, 98, form 59	15014 (2x), 15116
III-XIII.28	Rim of a dish	AD 325 – 400	Hayes 1972, 102, form 61A; Bonifay 2004, 168	15085-03
III-XIII.29a-29b	Rim of a dish	AD 450 – 500	Hayes 1972, 102-104, form 61B; Bonifay 2004, 168-169	11202 (4x), 15014, 15111 (4x)
III-XIII.30	Rim of a dish	AD 450 – 500	Bonifay 2004, 169; Hayes 1972, 102-104, form 61B/C	15004
III-XIII.31	Rim of a bowl	AD 375 – 425	Atlante I 1981, TAV.XXXVII.5-7 (=Hayes 1972, 110, form 64)	11202, 15004, 15014, 15111
III-XIII.32a-32c	Rim of a large bowl	AD 360 – 470	Hayes 1972, 114, form 67	11202, 15014 (3x), 15083, 15111
III-XIII.33	Rim of a small bowl	AD 420 – 475	Hayes 1972, 122, form 73A	11202
III-XIII.34	Rim of a bowl	AD 400 – 500	Hayes 1972, 126, form 80A; Atlante I 1981, TAV.XLVIII	15085-03
III-XIV.35	Rim of a bowl	AD 450 – 475	Hayes 1972, 126, form 81B	15014
III-XIV.36	Rim of a bowl	AD 400 – 500	Probably Hayes 1972, 126, form 81A; Atlante I 1981, TAV. XLVIII	15014
III-XIV.37	Rim of a bowl	AD 400 – 500	Hayes 1972, 126, form 81B; Atlante I 1981, TAV.XLVIII	15014
III-XIV.38	Rim of a dish	AD 450 – 525	Hayes 1972, 130, form 84	15083
III-XIV.39	Rim of a bowl	AD 450 – 550	Arthur 1994, 128, fig.67.58 (= Hayes 1972, 134, form 87C)	15014
III-XIV.40	Rim of a flanged bowl	AD 400 – 500	Hayes 1972, 142, form 91A/B	15014, 15111
III-XIV.41	Rim of a dish	AD 475 – 525	Hayes 1972, 146, form 94; Arthur 1994, 130, fig.69.73-79	15111
III-XIV.42	Rim of a bowl	AD 525 – 625	Hayes 1972, 154, form 99B/C	11202
III-XIV.43	Rim of a large dish/ bowl	AD 475 – 530	Mackensen 1993, Tafel 88.13; Bonifay 2004, 182 (= Hayes 1972, 158-162, form 104A1	15083
III-XIV.44	Rim of a large dish/ bowl	AD 500 – 525	Resembles Atlante I 1981, TAV.XLI.8 (analogies with Hayes 1972, 164-168, form 105?)	15083
III-XIV.45	Rim of a bowl	-	-	15004
III-XIV.46	Rim of a lid/dish	-	Unknown; fragment bears *decorazione a rilievo*	15014
III-XIV.47	Rim of a cup?	-	-	15004
III-XIV.48a-48b	Rim and handle fragment of a jug	AD 200 – 300	This type of grooved handle occurs on different jug types, all in ARS style A; see for example Atlante I 1981, TAV.XIX	11281 (2x)
III-XIV.49	Rim of a bowl	AD 500 – 575	Resembles Fulford & Peacock 1984, 68, fig.19.59.2 (= variant of Hayes 1972, 154, form 80B/99)	11202

Chapter 3 Typological table., continued

		Fine ware – African red slip ware		
III-XV.50	Stamped base	AD 350 – 450	Hayes 1972, 234, stamp type 29	15014
III-XV.51	Stamped base	AD 350 – 450	Hayes 1972, 234, stamp type 32	11202
III-XV.52	Stamped base	AD 350 – 450	Hayes 1972, 241, stamp type 77	15004
III-XV.53	Handle fragment	-	-	15085-02
		Fine ware – Ceramica a pareti sottili		
		Sites with Ceramica a pareti sottili fragments (12 sites): 11202, 11208, 11209, 11281, 11312, 11316, 11318, 15014, 15036, 15111, 15116, 15261		
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-XV.1	Rim of a bowl	AD 10 – 40	Marabini Moevs 1973, form LXI (pl.39.355)	15111
III-XV.2	Rim of a cup	AD 25 – 75	Marabini Moevs 1973, form LXVIII (pl.46.431-32)	11209, 11281, 11312, 15111, 15116
III-XV.3	Rim of a cup	AD 15 – 50	Marabini Moevs 1973, form XLVII	11202, 11312, 15014
III-XV.4	Rim of a cup	30 BC – AD 15	Marabini Moevs 1973, form VIII	11318
III-XV.5	Rim of a cup	AD 0 – 30	Marabini Moevs 1973, pl.17.175; rim also bears similarities with pl.17.173	11208
III-XV.6	Decorated body fragment	AD 40 – 70	Decoration similar to Marabini Moevs 1973, pl.46.438; see also Zevi & Pohl 1970, 40, fig.31.1	11312
III-XV.7	Decorated body fragment	AD 15 – 50	Decoration as on Marabini Moevs 1973, pl.43.398 & pl.52.492	11318, 15261
III-XV.8	Decorated body fragment	100 BC – AD 50	Decoration similar to Marabini Moevs 1973, pl.26-27.249-255 & pl.7-8.79-85	11209, 11312, 11316, 15036 (2x), 15111
III-XV.9	Decorated body fragment	AD 15 – 50	Decoration similar as on Marabini Moevs 1973, pl.52.490; pl.41.384	15014
		Fine ware – Other		
III-XV.1	Rim of a bowl	-	-	15085-04
III-XV.2	Decorated body fragment	?	Marmorizzata	15019

		Utilitarian pottery – African cookware		
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
III-XV.1	Rim of a casserole	AD 75 - 125	Hayes 1972, 46, form 19	11281, 11318 (2x)
III-XV.2	Rim of a casserole	AD 75 - 200	Hayes 1972, 46, form 23A	15138
III-XV.3	Rim of a casserole	AD 150 – 225	Hayes 1972, 46, form 23B	11209, 11281 (6x), 11316, 11318, 11323 (5x), 15004 (6x), 15014 (5x), 15029 (3x), 15036, 15083 (6x), 15085-02, 15085-03 (3x), 15107 (5x), 15111 (13x), 15114 (8x), 15116 (2x), 15127, 15153 (2x)
III-XVI.4a-4d	Rim of a casserole	AD 150 – 300	Hayes 1972, 206, form 197; Atlante I 1981, TAV.CVII. 6/7 (Type Ostia III); Bonifay 2004, 224.2-3	11208 (3x), 11209 (3x), 11281 (13x), 11294, 11318 (8x), 11323 (7x), 11331, 11384, 15002, 15004 (11x), 15014 (9x), 15019 (2x), 15020, 15029 (4x), 15049 (2x), 15083 (7x), 15085-01, 15085-02, 15085-03 (3x), 15107 (19x), 15109, 15111 (10x), 15114 (6x), 15116 (3x), 15138 (3x), 15150, 15153 (3x)

Chapter 3 Typological table., continued

			Utilitarian pottery – African cookware	
III-XV.5	Rim of a casserole	AD 150 – 250	Hayes 1972, 202, form 181	15085-03
III-XVI.6	Rim of a casserole	AD 200 – 300	Bonifay 2004, 212; Hayes 1972, 206, form 193; Atlante I 1981, TAV.CVIII.11	15106, 15111 (2x)
III-XVI.7	Rim of a casserole	AD 200 - 300	Atlante I 1981, TAV.CVIII (Type Ostia I)	15004, 15114
III-XVI.8	Rim of a casserole	AD 250 – 400	Atlante I 1981, TAV.CV.3 (Type Ostia 1)	15014
III-XVI.9	Rim of a casserole	-	-	15111
III-XVI.10	Rim of a casserole	AD 100 – 250	Zevi & Pohl 1970, 176, fig.86.243 & 198, fig.101.453	15014 (2x), 15111 (2x)
III-XVI.11	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196	11202, 11208, 11209, 11270, 11281 (16x), 11312, 11316 (3x), 11318 (9x), 11323 (3x), 11331 (2x), 15002 (2x), 15004 (11x), 15014 (21x), 15019 (4x), 15029 (4x), 15036 (2x), 15083 (14x), 15085-02 (2x), 15085-03 (2x), 15106 (3x), 15107 (48x), 15111 (18x), 15114 (10x), 15116 (2x), 15132, 15138 (4x), 15150 (2x), 15153
III-XVI.12	Rim of a lid	AD 175 – 250	Hayes 1972, 202, form 185	11208, 11277, 11316, 11318 (2x), 11323 (2x), 15004 (7x), 15014, 15107, 15111 (2x), 15116, 15138
III-XVI.13 - Not drawn	Rim of a lid	AD 200 – 400	Atlante I 1981, TAV.CIV (Type Ostia 1)	15107
III-XVII.14	Rim of a lid	AD 300 – 450	Atlante I 1981, TAV.CIV/CV (Type Ostia IV)	15014
			Utilitarian pottery – Other cookware	
III-XVII.1	Rim of a dolium	600 – 500 BC	Attema *et al.* 2001/2002, 331, fig.4 (Class II-8)	11330 (6x), 15108
III-XVII.2	Base of a dolium	600 – 500 BC	-	11330
III-XVII.3	Rim of a dolium	Republican?	-	15106
III-XVII.4	Rim of a dolium	Republican?	-	15036
III-XVII.5	Rim of a dolium	Republican?	-	11318
III-XVII.6	Rim of a dolium	Republican?	-	11316
III-XVII.7	Rim of a large basin	Republican?	-	11318
III-XVIII.8	Rim of a basin/ mortarium	550 – 350 BC	Conforms to Olcese 2003, TAV.XXXV (Bacini/Mortaria Type 2); Pensabene & Falzone 2001, TAV.64.275-276; Bouma 1996, pl.CX.T28; Gori & Pierini 2001, TAV.3/4 (Type B, variant B1)	11330
III-XVIII.9	Rim of a large basin	500 – 300 BC	Castagnoli 1975, 435, no.117	15153
III-XVIII.10	Rim of a basin?	500 – 300 BC	Castagnoli 1975, 23, no.84; Bouma 1996, TAV.CXI.T41	11317
III-XVIII.11	Base of a basin	500 – 200 BC	Somewhat resembles Castagnoli 1975, 437, no.124	15106
III-XVIII.12	Base of a basin	500 – 200 BC	No exact parallel	15106
III-XVIII.13	Rim of a basin?	400 – 200 BC	Lambrechts 1989, 140, fig.33.386	11317
III-XVIII.14	Rim of a mortarium	400 – 200 BC	Olcese 2003, TAV.XXXVII (Bacini/Mortaria Type 5)	15036
III-XVIII.15	Rim of a mortarium	25 BC – AD 25	Olcese 2003, TAV.XXXVII (Bacini/Mortaria Type 6)	15107
III-XIX.16a-16c	Rim and handle of a mortarium	300 – 0 BC	Olcese 2003, TAV.XXXVIII (Bacini/Mortaria Type 8)	11316
III-XVIII.17	Rim of a mortarium	25 BC – AD 75	Olcese 2003, TAV.XXXIX (Bacini/Mortaria Type 11)	11391

Chapter 3 Typological table., continued

			Utilitarian pottery – Other cookware	
III-XVIII.18a-18b	Rim of a mortarium	AD 0 – 200	Olcese 2003, TAV.XL (Mortaria Type 14); Carandini & Panella 1977, TAV.LII.418	11318, 15004
III-XIX.19	Rim of a basin	Unknown	Similar type in Ricci 1985, 219, TAV.55.2	15083, 15111
III-XIX.20	Rim of a basin	Unknown	Fragment with similar rim-treatment and of similar size in Aylwin Cotton 1979, 150, fig.44.5	15014 (2x)
III-XIX.21	Rim of a basin?	AD 350 – 450	Aylwin Cotton 1979, 183, fig.59.6	15111
III-XIX.22	Rim of a basin?	-	-	11318
III-XIX.23	Rim of a basin	-	-	15107
III-XIX.24	Rim of a dish	-	-	11281
III-XIX.25	Rim of a teglia?	Archaic?	-	11202
III-XX.26	Rim of a teglia	475 – 275 BC	Similar examples in Bouma 1996, pl.CV-CVI (Teglia Type 1); Lambrechts 1989, 92, fig.22.249	11202, 11319
III-XX.27	Handle of a teglia	440/30 – 375 BC	Bouma 1996, pl.CVI.T11	15150
III-XX.28	Handle of a teglia	375 – 300 BC	Bouma 1996, pl.CXII.T13	15108
III-XX.29	Rim of a teglia	175 – 125 BC	Dyson 1976, fig.12, 16IV12-13	11345
III-XX.30	Rim of a dish	25 BC – AD 100	Pompeian Red Ware: Aylwin Cotton 1979, 152, fig.45.5; Ricci 1985, 114, TAV.31.1	15014
III-XX.31	Rim of a dish	AD 0 – 100	Pompeian Red Ware: Ricci 1985, 114, TAV.31.3	11202
III-XX.32a-32b	Rim of a pentola	AD 0 - 125	Olcese 2003, TAV.I (Pentola Type 1a)	11294, 11323, 15014, 15036 (2x)
III-XX.33a-33b	Rim of a pentola	AD 25 - 75	Olcese 2003, TAV.II (Pentola Type 2b)	15004, 15029, 15036, 15085-03, 15111
III-XX.34	Rim of a pentola	AD 0 – 125	Olcese 2003, TAV.III (Pentola Type 3a)	11312 (2x), 11331, 15029, 15036, 15106
III-XX.35	Rim of a pentola	AD 0 – 150	Olcese 2003, TAV.IV (Pentola Type 4)	11331, 11384, 15014, 15036 (5x), 15085-02, 15111, 15150, 15153
III-XXI.36	Rim of a pentola	AD 0 - 200	Olcese 2003, TAV.V (Pentola Type 5a)	11312 (2x), 11318, 15036
III-XXI.37	Rim of a pentola	AD 0 - 100	Olcese 2003, TAV.V (Pentola Type 5b)	15014
III-XXI.38	Rim of a pentola	AD 0 – 50	Similar fragment in Dyson 1976, fig.42.22II-1	11316
III-XXI.39	Rim of a pentola	AD 0 – 50	Olcese 2003, TAV.VI (Pentola Type 6)	15014
III-XXI.40	Rim of a casserole	150 – 50 BC	Variants of this type were found in Bolsena: Santrot & Santrot 1995, 220, fig.54.449-452	11318, 11323, 15153
III-XXI.41a-41b	Rim of a casserole	100 BC – AD 100	Olcese 2003, TAV.VI (Casserole Type 1)	11318, 11319, 11323 (2x), 15020, 15036 (2x), 15153, 15259
III-XXI.42	Rim of a casserole	AD 50 – 200	As Frova & Bertino 1973, TAV.74.4	11202, 15036, 15111
III-XXI.43	Rim of a casserole	AD 400 – 450	Whitehouse *et al.* 1982, 74, fig.8.99; Ciceroni, Martin & Munzi 2004, 144, TAV.II.10; Tommasi 2004, 319, TAV.I.12	15004, 15085-03
III-XXI.44	Rim of a casserole	AD 400 – 600	See *infra*, pl.VI-VII.1 (Other Cookware)	15004 (2x)
III-XXI.45	Rim of a casserole	-	-	15111
III-XXI.46	Rim of a casserole?	-	-	15036
III-XXI.47	Rim of a casserole	-	-	15004
III-XXI.48	Rim of a casserole?	AD 250 – 325	Comparable pans in Dyson 1976, fig.65.10-14	11202

Chapter 3 Typological table., continued

		Utilitarian pottery – Other cookware		
III-XXI.49	Rim of a casserole?	-	-	11202
III-XXII.50	Rim of a tegame	100 BC – AD 100	Olcese 2003, TAV.XV (Tegame Type 3)	11202, 11316
III-XXII.51	Rim of a tegame	30 BC – AD 100	Olcese 2003, TAV.XV (Tegame Type 5); Santrot & Santrot 1995, 213, fig.47	15106
III-XXII.52	Rim of a tegame	AD 0 – 100	In shape similar to Olcese 2003, TAV.XVI (Tegame Type 8)	11202
III-XXII.53	Rim of a tegame	AD 0 – 50	Resembles Dyson 1976, fig.45.24-25	11312, 15014, 15036
III-XXII.54	Rim of a pan	100 – 50 BC	Santrot & Santrot 1995, 215, fig.49.426	11319
III-XXII.55	Rim of a jar	600 – 500 BC	Same characteristics as Attema *et al.* 2002, 331, fig.4 (Class II-8); Carafa 1995, 230, figs.635-36; for smaller examples see Pensabene & Falzone 2001, TAV.53	11330
III-XXII.56a-56e	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2)	11283, 11297, 11316, 11318 (5x), 11319 (2x), 11323, 11326, 15034 (9x), 15036 (2x), 15068 (8x), 15106 (3x), 15108 (2x), 15136, 15153 (7x)
III-XXII.57	Rim of a jar	325 – 250 BC	Jar of similar shape and size in Moltesen & Rasmus Brandt 1994, 123, fig.79.237	15106
III-XXII.58	Rim of a jar	300 – 200 BC	Mercando 1964, TAV.1.12	15106 (2x)
III-XXIII.59a-59d	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	11297, 11308, 11312, 11316 (3x), 11318 (5x), 11319, 11323, 11331, 11345 (2x), 11352, 11375, 11387, 15014, 15034 (6x), 15036 (8x), 15068 (5x), 15108 (3x), 15112 (4x), 15150 (3x), 15152, 15153 (2x)
III-XXIII.60	Rim of a jar	125 – 75 BC	Similar small jars in Dyson 1976, fig.22.46-50.	11316
III-XXIII.61	Rim of a jar	100 – 25 BC	Dyson 1976, fig.39.130; Similar examples in Aylwin Cotton 1979, 189, fig.63.1-2	15153
III-XXIII.62	Rim of a jar	100 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3b)	11316, 11331, 11387
III-XXIII.63	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3c)	15029
III-XXIII.64	Rim of a jar	100 – 0 BC	Olcese 2003, TAV.IX (Olla Type 5)	11316, 11323 (2x), 15014
III-XXIII.65a-65b	Rim of a jar	100 BC – AD 100	Olcese 2003, TAV.X (Olla Type 7)	11312, 11323, 15002, 15014 (2x), 15036, 15106 (2x), 15107, 15138, 15150
III-XXIII.66	Rim of a jar	Unknown	Aylwin Cotton 1979, 169, fig.53.50	15014
III-XXIII.67	Rim of a jar	30 BC – AD 200	Aylwin Cotton & Métraux 1985, 236, no.32	15111
III-XXIV.68	Rim of a jar	30 BC – AD 15	Olcese 2003, TAV.XII (Olla Type 10)	11318
III-XXIV.69a-69b	Rim of a jar	AD 0 – 50	Dyson 1976, fig.53.129-132; Attema, De Haas & Tol 2011, 153, fig.C.37; Potter & King 1997, 333, fig.223.51	15004, 15111
III-XXIV.70	Rim of a jar	AD 0 – 100	Frova & Bertino 1973, TAV.213.8; Carandini & Panella 1970, TAV.XXIII.414	11202, 15106, 15151
III-XXIV.71	Rim of a jar	AD 0 – 100	Carandini & Panella 1970, TAV.XXII.399	11323, 15106
III-XXIV.72a-72c	Rim of a jar	AD 0 – 150	Olcese 2003, TAV.XI (Olla Type 8)	11209, 11312 (3x), 11318, 11323 (3x), 15014, 15111 (3x)
III-XXIV.73a-73b	Rim of a jar	AD 0 – 200	Olcese 2003, TAV.XII (Olla Type 9)	11209, 11323 (3x), 15106, 15107 (2x), 15153

Chapter 3 Typological table., continued

			Utilitarian pottery – Other cookware	
III-XXIV.74	Handle of a jar	AD 0 – 200	Resembles handle on Olcese 2003, TAV.XXII (Olla ansata Type 1)	15106
III-XXIV.75	Rim of a jar	AD 50 – 100	Close to Duncan 1964, 82, form 45	15083
III-XXIV.76	Rim of a jar	AD 50 – 100	Duncan 1964, 81, form 34	15083
III-XXIV.77	Rim of a jar	AD 50 – 100	Aylwin Cotton 1979, 136, no.18	15036
III-XXIV.78	Rim of a jar	AD 100 – 200	Olcese 2003, TAV.X (Olla Type 6)	11318
III-XXIV.79	Rim of a jar	AD 100 – 200	Dyson 1976, fig.62.99	15014
III-XXIV.80	Rim of a jar	AD 100 – 250	Carandini & Panella 1968, TAV.XIII.288-289	15106
III-XXIV.81	Rim of a jar	AD 500 – 550	Pacetti 2004, TAV.I-II	15004
III-XXV.82	Rim of a jar	AD 475 – 575	Fogagnolo 2004, TAV.VIII.64	15014
III-XXV.83	Rim of a jar	AD 625 – 675	Fontana *et al.* 2004, TAV.IV.38	15014
III-XXV.84a-84b	Rim of a jar	-	-	11281, 11283, 15004, 15083
III-XXV.85a-85b	Rim of a jar	-	-	11318, 11386 (3x)
III-XXV.86	Rim of a jar	-	-	11373
III-XXV.87	Rim of a jar	-	-	11312, 15111
III-XXV.88	Rim of a jar	-	-	11323
III-XXV.89	Rim of a jar	-	-	15153
III-XXV.90	Rim of a jar	-	-	15151
III-XXV.91	Rim of a jar	-	-	15085-03
III-XXV.92	Rim of a jar	-	-	15111
III-XXV.93	Rim of a jar	-	-	15114
III-XXV.94	Rim of a jar	-	-	11281,15014
III-XXV.95	Fragment of a clibane	350 – 200 BC	Olcese 2003, TAV.XVII (Clibane Type 1)	11316
III-XXV.96	Fragment of a clibane	300 – 100 BC	Olcese 2003, TAV.XVII (Clibane Type 2)	11215, 11316, 15106 (2x), 15153
III-XXV.97	Flange of a clibane	200 – 0 BC?	Olcese 2003, TAV.XVIII (Clibane Type 3?)	11318
III-XXVI.98	Knob of a lid	-	-	11275, 11308, 15068 (2x), 15153
III-XXVI.99	Knob of a lid	-	-	15083, 15111
III-XXVI.100	Knob of a lid	-	-	15019, 15111
III-XXVI.101	Knob of a lid	-	-	15004
III-XXVI.102	Knob of a lid	-	-	15085-03, 15106 (3x)
III-XXVI.103	Knob of a lid	-	-	11318
III-XXVI.104	Knob of a lid	-	-	11318
III-XXVI.105	Knob of a lid	-	-	15029
III-XXVI.106	Knob of a lid	-	-	11209, 15085-01
III-XXVI.107	Knob of a lid	-	-	15036
III-XXVI.108	Rim of a lid	-	-	15068
III-XXVI.109	Rim of a lid	400 – 200 BC	Di Mario 2005, TAV.V.33	15153

Chapter 3 Typological table., continued

			Utilitarian pottery – Other cookware	
III-XXVI.110a-110b	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 1)	11318 (2x), 11373, 15068, 15153
III-XXVI.111	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2)	11375, 15068
III-XXVI.112	Rim of a lid	200 – 0 BC	Santrot & Santrot 1995, 211, fig.45.390-391	11316
III-XXVI.113	Rim of a lid	200 – 50 BC	Santrot & Santrot 1995, 212, fig.46.393-395	11312, 15106
III-XXVI.114	Rim of a lid	200 – 0 BC	Dyson 1976, fig.23.70, Ricci 1985, 243, TAV.65.23; Carandini, D'Alessio & Di Giuseppe 2007, TAV.43.405; Vegas 1973, fig.17.6/18.4	11323, 15004, 15019, 15106 (2x), 15153 (4x)
III-XXVI.115	Rim of a lid	175 – 125 BC	Dyson 1976, fig.16.59	15036
III-XXVI.116	Rim of a lid	175 – 125 BC	Dyson 1976, fig.16.58	15153
III-XXVI.117	Rim of a lid	125 – 75 BC	Close to Dyson 1976, fig.23.72	15068
III-XXVI.118	Rim of a lid	100 – 30 BC	Dyson 1976, fig.35.89	15036
III-XXVI.119	Rim of a lid	100 BC – AD 100	Santrot & Santrot 1995, 212, fig.46.398; Vegas 1973, fig.17.8	11323, 15004, 15020, 15068, 15106 (2x)
III-XXVII.120a-120b	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	11202, 11281 (2x), 11316 (2x), 11318 (3x), 11323 (2x), 11345, 15004, 15014, 15019, 15036 (5x), 15106, 15116
III-XXVII.121a-121b	Rim of a lid	AD 50 - 250	Olcese 2003, TAV.XX (Coperchio Type 4)	11202
III-XXVII.122	Rim of a lid	100 BC – AD 100	Potter & King 1997, 335, no.60; Ricci 1985, 243, TAV 65.10	15036
III-XXVII.123	Rim of a lid	AD 0 - 50	Santrot & Santrot 1995, 212, fig.46.401-402	15111
III-XXVII.124	Rim of a lid	AD 75 – 225	Dyson 1976, fig.62.94	15106
III-XXVII.125	Rim of a lid	AD 50 - 150	Vegas 1973, fig.17.7	11318
III-XXVII.126	Rim of a lid	-	-	15116
III-XXVII.127	Rim of a lid	-	-	15106
III-XXVII.128	Rim of a lid	-	-	11318
III-XXVII.129	Rim of a lid	-	-	15116
III-XXVII.130	Rim of a lid	-	-	11215
III-XXVII.131	Lug fragment	-	-	15014
			Utilitarian pottery – African coarse ware	
III-XXVIII.1	Rim of a basin	AD 250 – 500	Fulford & Peacock 1984, 172, bowl type 22	11202, 15004
III-XXVIII.2	Rim of a basin	AD 250 – 400	Bonifay 2004, 262, fig.143; Arthur 1994, 198, fig.75.3; Frova & Bertino 1973, TAV.74.20	11202, 15014 (2x)
III-XXVIII.3	Rim of a basin	AD 250 – 400	Bonifay 2004, 264, ('Uzita 3')	15085-03

Chapter 3 Typological table., continued

			Utilitarian pottery – Pantellerian ware	
III-XXVIII.1	Rim of a casserole	AD 450 – 600	Arthur 1994, 253, fig.121.13/14; Carsana, D'Amico & Del Vecchio 2007, 437, fig.9.23	11202
III-XXVIII.2	Rim of a casserole	AD 350 – 550	Arthur 1994, 226-227, type 3	11202
III-XXVIII.3	Rim of a lid	AD 350 – 500	Arthur 1994, 244, fig.116.77	11202 (3x)
			Utilitarian pottery – Other coarse ware	
III-XXVIII.1	Rim of a bowl	830 – 600 BC	Maaskant-Kleibrink 1987, no.1073; Maaskant-Kleibrink 1992, nos. 1608 & 1802; van Loon 2009, no.CV 18647	15068
III-XXVIII.2	Decorated body fragment	Archaic?	-	15149
III-XXVIII.3	Decorated body fragment	Archaic?	-	15153
III-XXVIII.4	Lug fragment	Archaic	-	15153
III-XXVIII.5	Lug fragment	Archaic?	-	11367
III-XXIX.6	Rim of a bowl	AD 75 – 125	Carandini & Panella 1977, TAV.XV.105	15014, 15106
III-XXIX.7	Rim of a bowl	400 – 200 BC	Plain bowl as Bouma 1996, pl.XLVI, type III (plain variant of Morel 1981, pls.72-73, form 2783/84)	11308
III-XXIX.8	Rim of a bowl	-	-	11308
III-XXIX.9	Rim of a bowl	Unknown	No exact parallel can be provided for the type that is, however, frequently encountered during GIA surveys: see e.g. Attema 1997/1998, 437, fig.26.1; Attema 1993, 436, fig. LI.3	11319, 11386
III-XXIX.10	Rim of a bowl	-	-	11319
III-XXIX.11	Rim of a bowl	-	-	15036
III-XXIX.12	Rim of a bowl	-	-	15153
III-XXIX.13	Rim of a bowl	100 – 25 BC	Dyson 1976, fig.36.98	11345
III-XXIX.14	Rim of a bowl	-	-	15014
III-XXIX.15	Rim of a bowl?	-	-	15004, 15111
III-XXIX.16	Rim of a bowl	-	-	15085-03
III-XXIX.17	Rim of a bowl	-	-	11202, 11209
III-XXIX.18	Rim of a bowl	-	-	15004
III-XXIX.19	Rim of a bowl	-	-	15014
III-XXIX.20	Rim of a bowl	-	-	15014
III-XXX.21	Rim of a bowl	-	-	11319
III-XXX.22	Rim of a bowl	-	-	11202

Chapter 3 Typological table., continued

			Utilitarian pottery – Other coarse ware	
III-XXX.23	Rim of a carenated bowl	AD 100 – 200	Probably local imitation of Hayes 1972, 36, form 8B	15014
III-XXX.24	Rim of a bowl	AD 350 – 450	Aylwin Cotton 1979, 183, nos. 4, 10 & 12	15111
III-XXX.25	Rim of a bowl	AD 625 – 675	Fontana *et al.* 2004,TAV.IV.32	15014
III-XXX.26	Rim of a dish	AD 250 – 325	Resembles Dyson 1976, fig.64.1	15014, 15029
III-XXX.27	Rim of a bowl?	AD 175 – 225	Similar examples are dated by Dyson in the first century BC (1976, fig.28.8); however, similar fragment also derive from later contexts (fig.57.37). Another late fragment is published in Aylwin Cotton & Métraux 1985, 225, fig.56.19-22	15019
III-XXX.28	Rim of an *olpai*	AD 0 – 200	Variant of Olcese 2003, TAV.XXIX (Olpai Type 1)	15116
III-XXX.29	Rim of an *olpai*	AD 0 – 200	Olcese 2003, TAV.XXX (Olpai Type 3)	15151
III-XXX.30	Rim of an *olpai?*	-	-	15004
III-XXX.31	Carenated body fragment of an *incensiere*	AD 0 – 200	See for example Carandini & Panella 1973, TAV.LIX.518	15019
III-XXX.32	Rim of a small cup	-	-	11202
III-XXX.33	Rim of a small cup/jar	-	-	15014
III-XXX.34	Rim of a cup?	-	-	15107
III-XXX.35	Rim of a cup	-	See *infra*, pl.V-VI.63	15085-03
III-XXX.36	Body of a cup	-	-	15068
III-XXX.37	Rim of a cup	-	-	11298
III-XXX.38	Rim of a jug/flask?	Unknown	Resembles Frova & Bertino 1973, TAV.73.11	11209, 15036
III-XXX.39	Rim of a jug	400 – 200 BC	Olcese 2003, TAV.XXIV (Brocca Type 1)	15034
III-XXX.40	Rim of a jug	-	-	11323
III-XXX.41	Rim of a jug	100 – 25 BC	Resembles Dyson 1976, fig.41.167	15004, 15036, 15107
III-XXX.42	Rim of a jug	30 BC – AD 200	Aylwin Cotton & Métraux 1985, 230, no.12	15014
III-XXXI.43	Rim of a jug	25 BC – AD 75	Olcese 2003, TAV.XXVIII (Brocca Type 6)	15083
III-XXXI.44	Rim of a jug	AD 0 - 200	Similar fragments come from Ostia: Carandini & Panella 1970, TAV.XXI.367; Carandini & Panella 1973, TAV.XVII.66	15106
III-XXXI.45	Rim of a jug	AD 0 – 200	Olcese 2003, TAV.XXV (Brocca Type 2)	11209, 15014, 15085-03
III-XXXI.46a-46b	Rim of a jug	AD 0 – 200	Olcese 2003, TAV.XXVII (Brocca Type 4); Duncan 1964, 79, form 29	11202, 11209, 15014, 15116
III-XXXI.47	Rim of a jug	AD 75 – 200	Probably Olcese 2003, TAV.XXVI (Brocca Type 3)	11209, 11323
III-XXXI.48	Rim of a jug?	-	-	15034
III-XXXI.49	Rim of a jug	-	-	15107
III-XXXI.50	Rim of a jug	-	-	11202

Chapter 3 Typological table., continued

		Utilitarian pottery – Other coarse ware		
III-XXXI.51	Rim of a jug	-	-	11202
III-XXXI.52	Spout of a jug?	-	Possibly worn black glazed ware	15153
III-XXXI.53	Rim of a jug/ *unguentarium*?	-	-	15036
III-XXXI.54	Rim of an *unguentarium*	100 – 25 BC	Identification as *unguentarium* based on thin wall. No exact parallel, but similar fragments in Dyson 1976, fig.40.148-158	11202
III-XXXI.55	Base fragment	-	-	11202
III-XXXI.56	Base fragment (with graffito on underside base)	-	-	11277
III-XXXI.57	Base fragment	-	-	11323
III-XXXI.58	Decorated body fragment	-	-	11209
		Loomweights		
III-XXXI.1	Loomweight	Archaic	Gnade 2007a, 175, no.502	11330
III-XXXI.2a-2c	Loomweight	400 – 200 BC	Bouma 1996, 390-392; Di Mario 2005, TAV.XXXVII-XXXIX; Lambrechts 1989, 75, nos. 167-169 & 115, nos.300-303; Gnade 2007a, 175, nos. 499-502 & 183, nos.543-544	11281 (2x), 11291, 11297, 11298, 11319, 11329, 11375, 15034, 15152
III-XXXI.3	Loomweight (waster)	400 – 200 BC	Bouma 1996, 390-392; Di Mario 2005, TAV.XXXVII-XXXIX; Lambrechts 1989, 75, nos. 167-169 & 115, nos.300-303; Gnade 2007a, 175, nos. 499-502 & 183, nos.543-544	15152
		Oil lamps		
III-XXXII.1	Shoulder of an oil lamp	AD 50 – 200	Bailey 1980, Type N - Loeschke Types 9 & 10 (Firmalampen)	11318
III-XXXII.2	Shoulder of an oil lamp	AD 50 – 125	Bailey 1980, type C - Loeschke type V	11202
III-XXXII.3	Part of the discus of an oil lamp	Imperial?	-	15004
III-XXXII.4	Shoulder of an oil lamp	Imperial	African origin; no exact parallel	15014
		Glass		
III-XXXII.1	Rim of a flask	AD 0 – 100	Similar example in Ricci 1985, 204, TAV.51.11	15014
III-XXXII.2	Rim of a bowl	AD 175 – 225	Potter & King 1997, 274, fig.187.71	15019
III-XXXII.3a-3b	Rim of a bowl	AD 50 – 100	Ricci 1985, 185, TAV.48.5 (=Isings 1957, form 44)	15014, 15036
III-XXXII.4	Rim of a bowl	AD 0 – 100	Ricci 1985, 175, TAV.46.13-15	15014

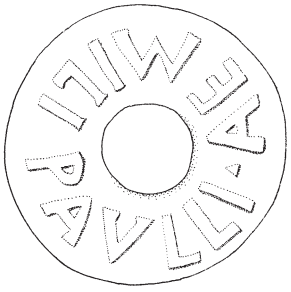
Chapter 3 Typological table., continued

Glass				
III-XXXII.5	Rim of a cup	AD 25 – 100	Ricci 1985, 193, TAV.49.18-19	11312
III-XXXII.6	Rim of a cup	-	-	15019
III-XXXII.7	Rim of a cup	-	-	11202
III-XXXII.8	Rim of a cup	-	-	15019
III-XXXII.9	Base fragment	-	-	15014
III-XXXII.10	Base fragment	-	-	15014
III-XXXII.11	Base fragment	-	-	15085-03
III-XXXII.12	Base fragment	-	-	15036
III-XXXII.13	Base fragment	-	-	11202
III-XXXII.14	Base fragment	-	-	15014
III-XXXII.15	Handle fragment	-	-	15036
III-XXXII.16 – Not drawn (see fig.3.13)	Decorated body fragment	50 BC – AD 50	Grose 1989; Petrianni 1998	15036
Metal artefacts				
III-XXXII.1 – Not drawn	Coin	3rd c. BC – AD 161	Æ quadrant	15014
III-XXXII.2 – Not drawn	Coin	AD 307 – 361	Kampmann 2004, 407-436, fig.Q	15085-02
III-XXXII.3 – Not drawn	Coin	275 – 42 BC	Republican Æ As	15153
III-XXXII.4	Bronze ring	-	-	15004
III-XXXII.5	Lead repair	-	-	15014
Miscellaneous				
III-XXXII.1	'Stopper'?	Artena example from context dated 325 – 275 BC	Identical fragment in Lambrechts 1989, 75, no.170 (interpreted as a stopper)	11297
III-XXXII.2	Fragment of a dice cup	Early Imperial	Potter & King 1997, 335, fig.224.55; Frova & Bertino 1973, TAV.76.14-15; Dyson 1976, fig.63.110	11312
III-XXXII.3	Glass bead	-	-	15004
III-XXXII.4 – Not drawn	Pendant	-	-	15019
III-XXXII.5	Part of a ceramic tube	-	-	15002
III-XXXIII.6	Grinding stone	-	-	15106
III-XXXIII.7	Fragment of a stand?	mid-Republican?	Lambrechts 1989, 154, fig.39.431	15108
III-XXXIII.8	Stone axe	-	-	11373

Revisits typology

Plate III-I

Building materials - Tile



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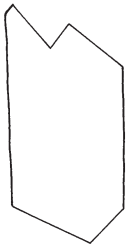
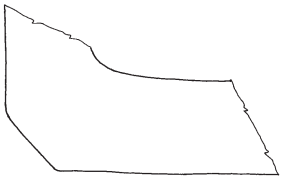


3

4a

4b



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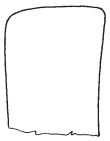
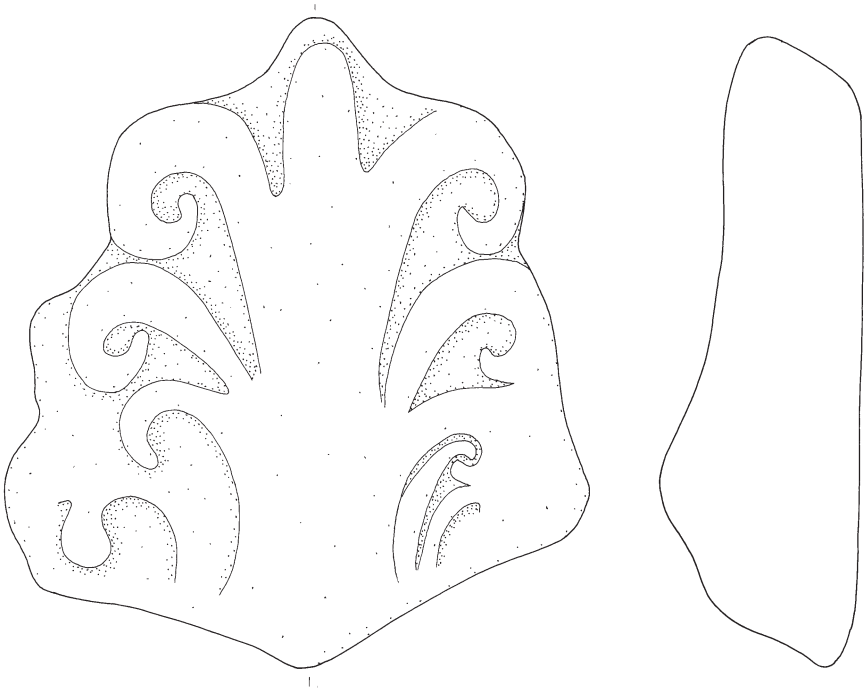


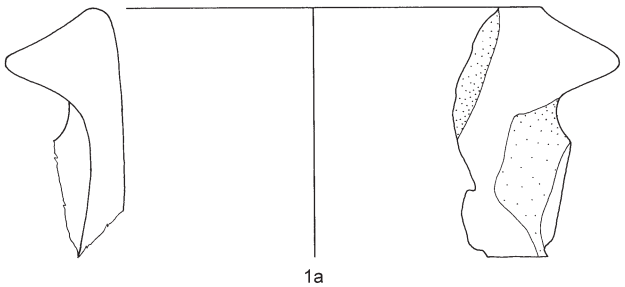
4d

Building materials - Other



1

Amphorae



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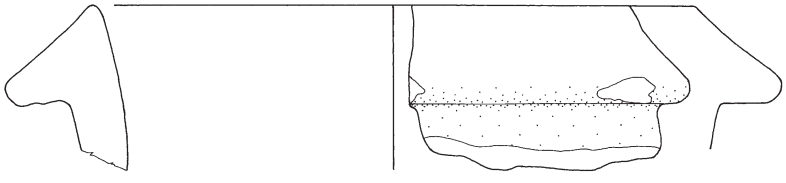
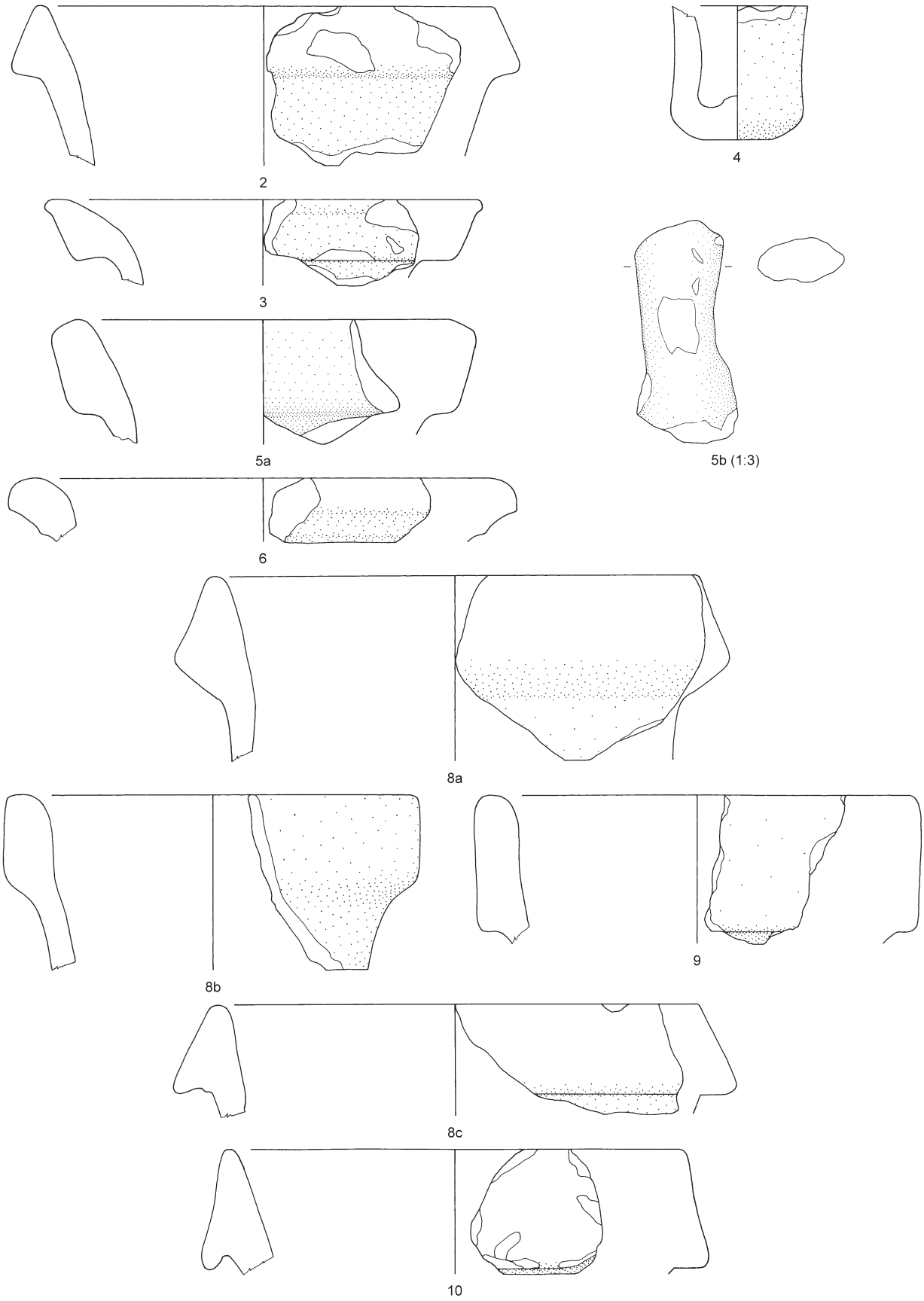


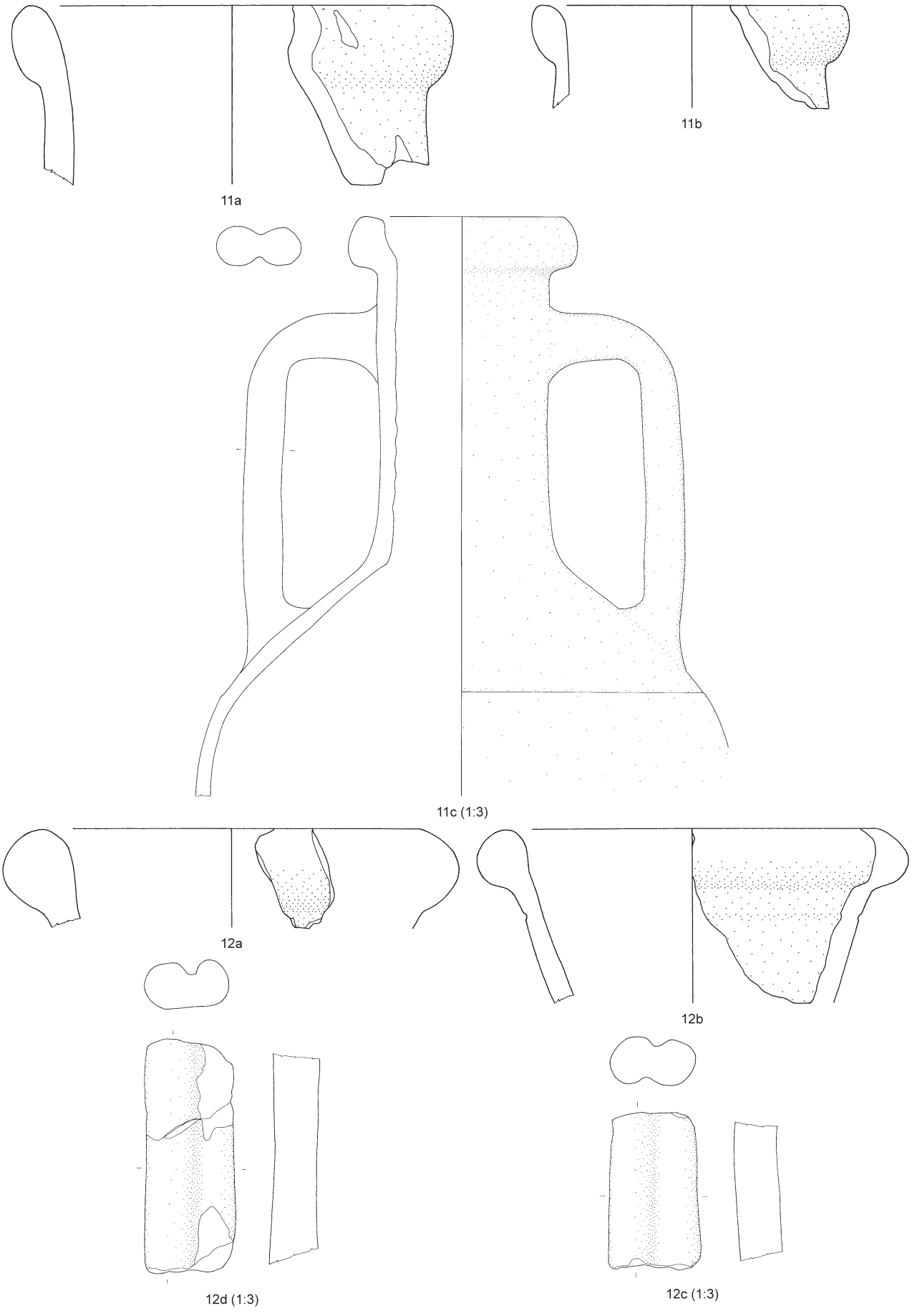
1b

Revisits typology cont.

Plate III-II

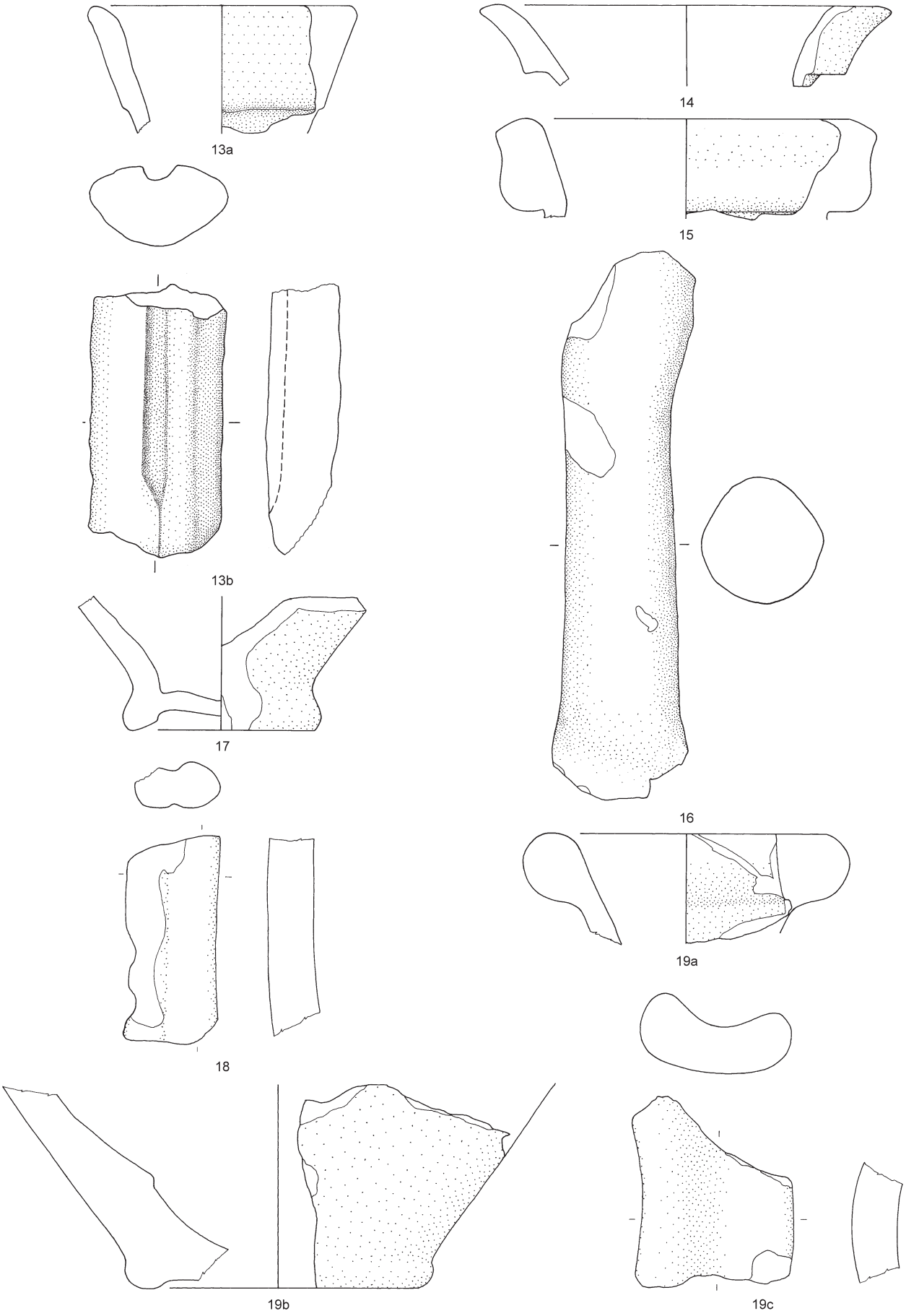


Revisits typology cont. Plate III-III

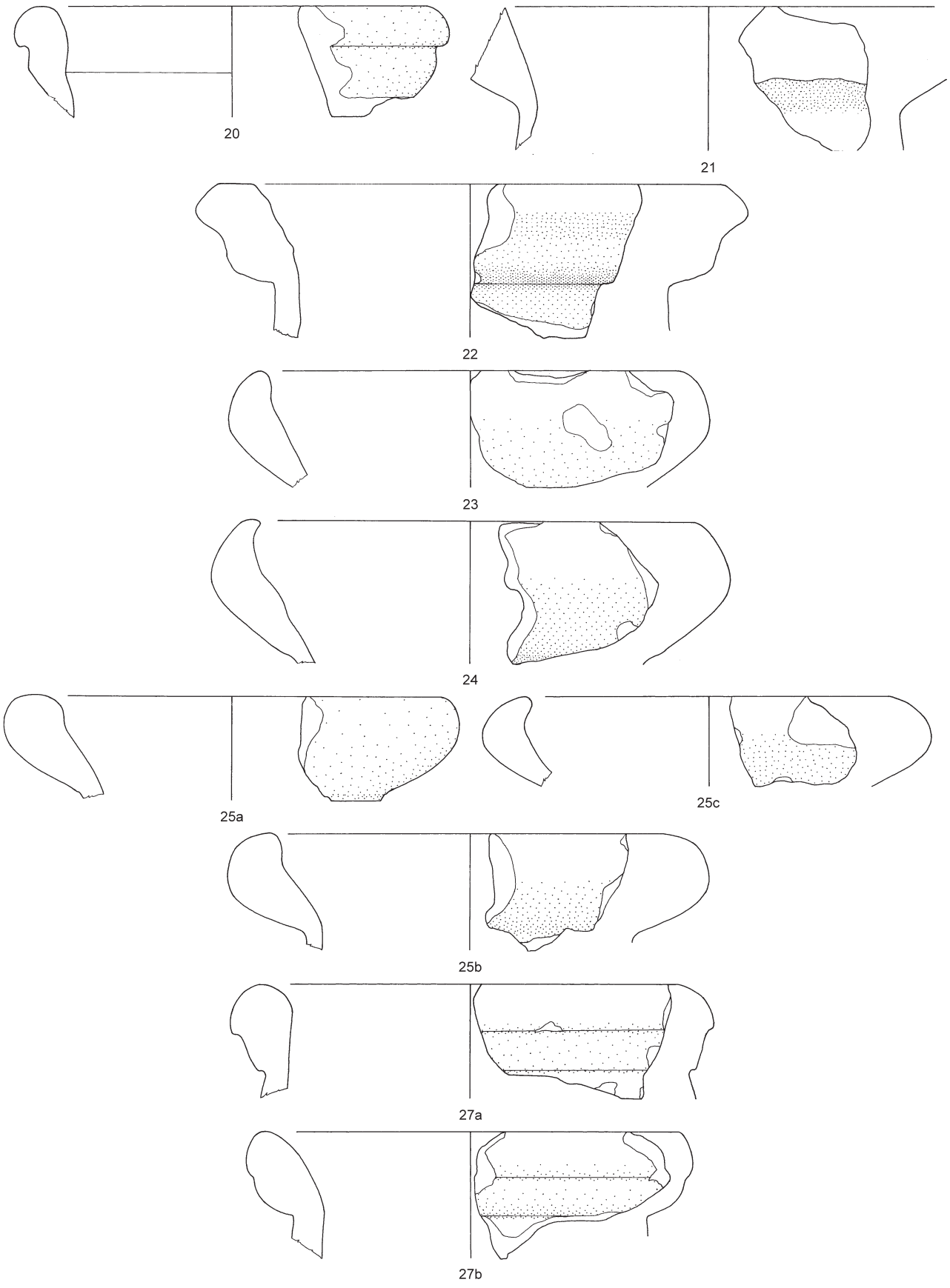


Revisits typology cont.

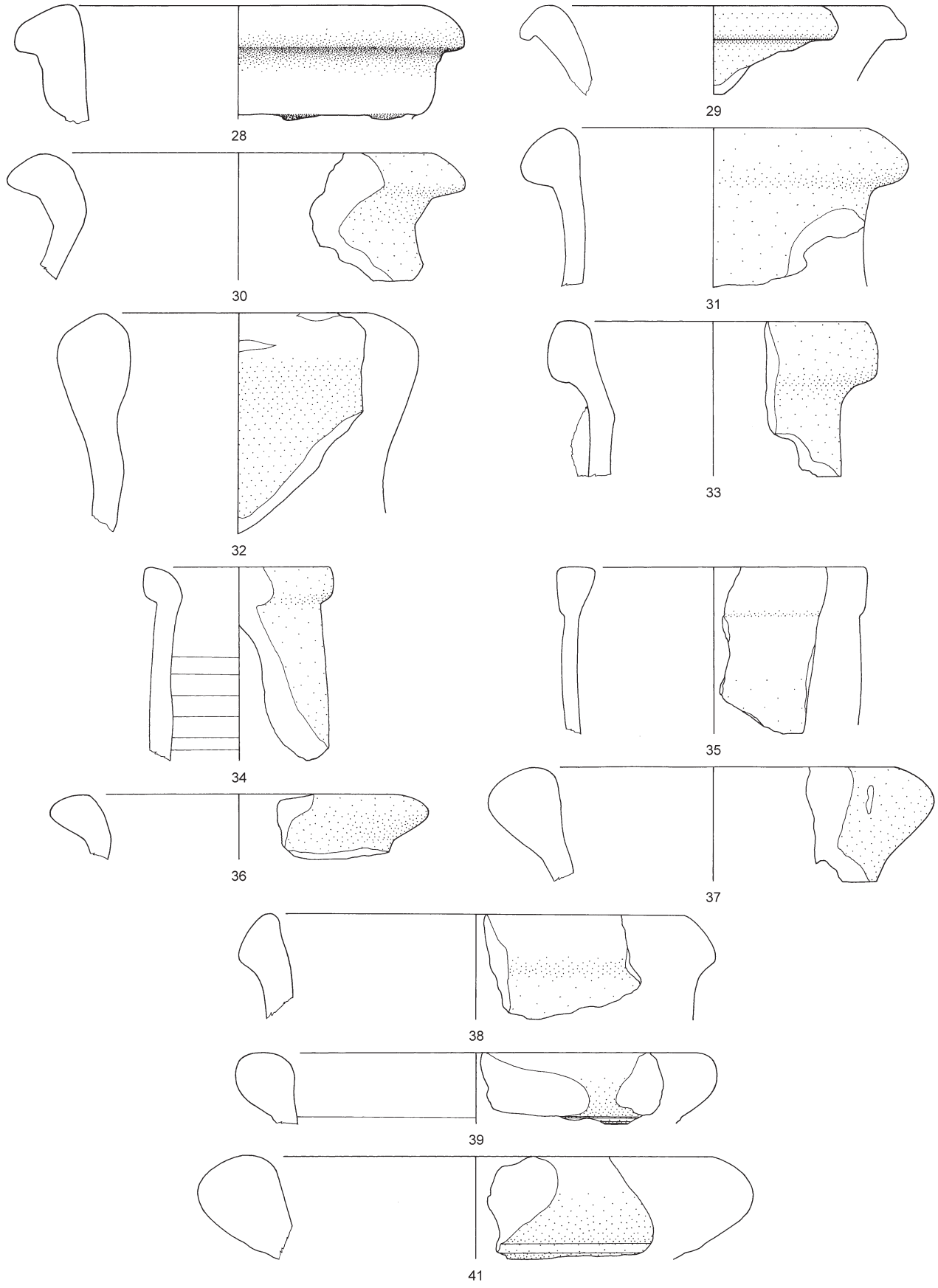
Plate III-IV



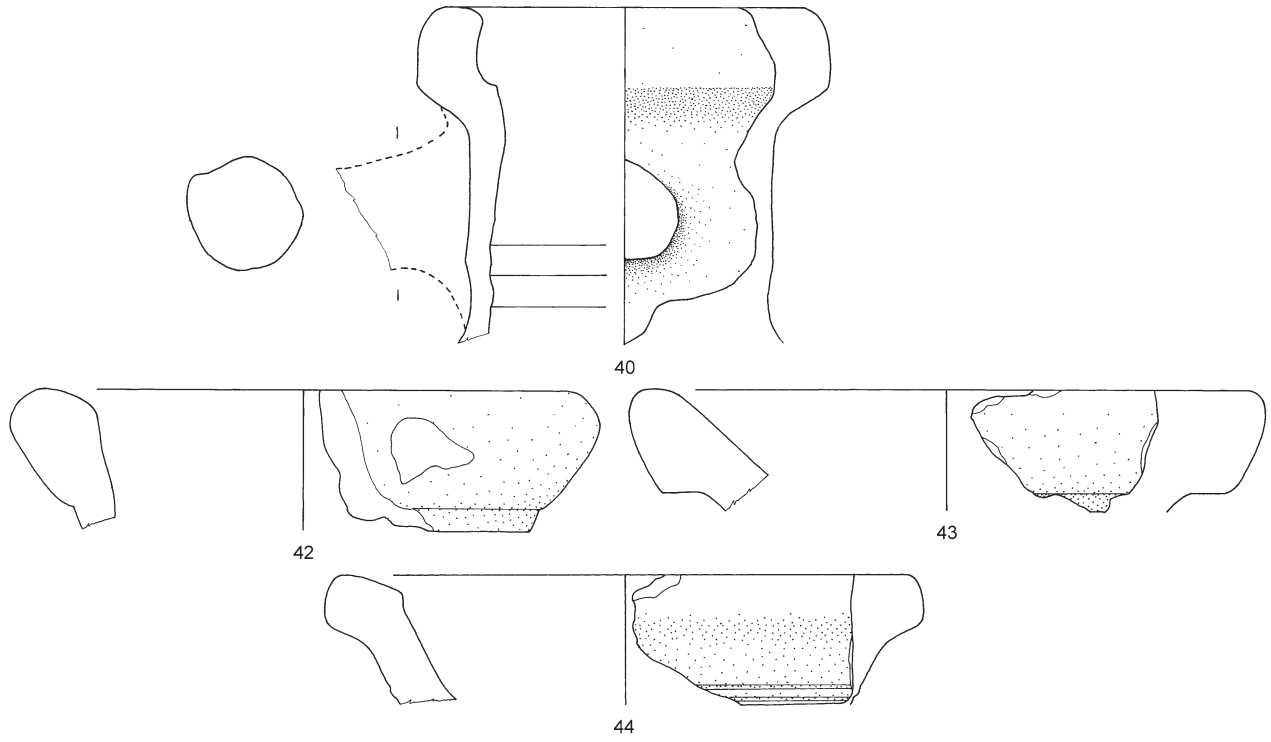
Revisits typology cont. Plate III-V



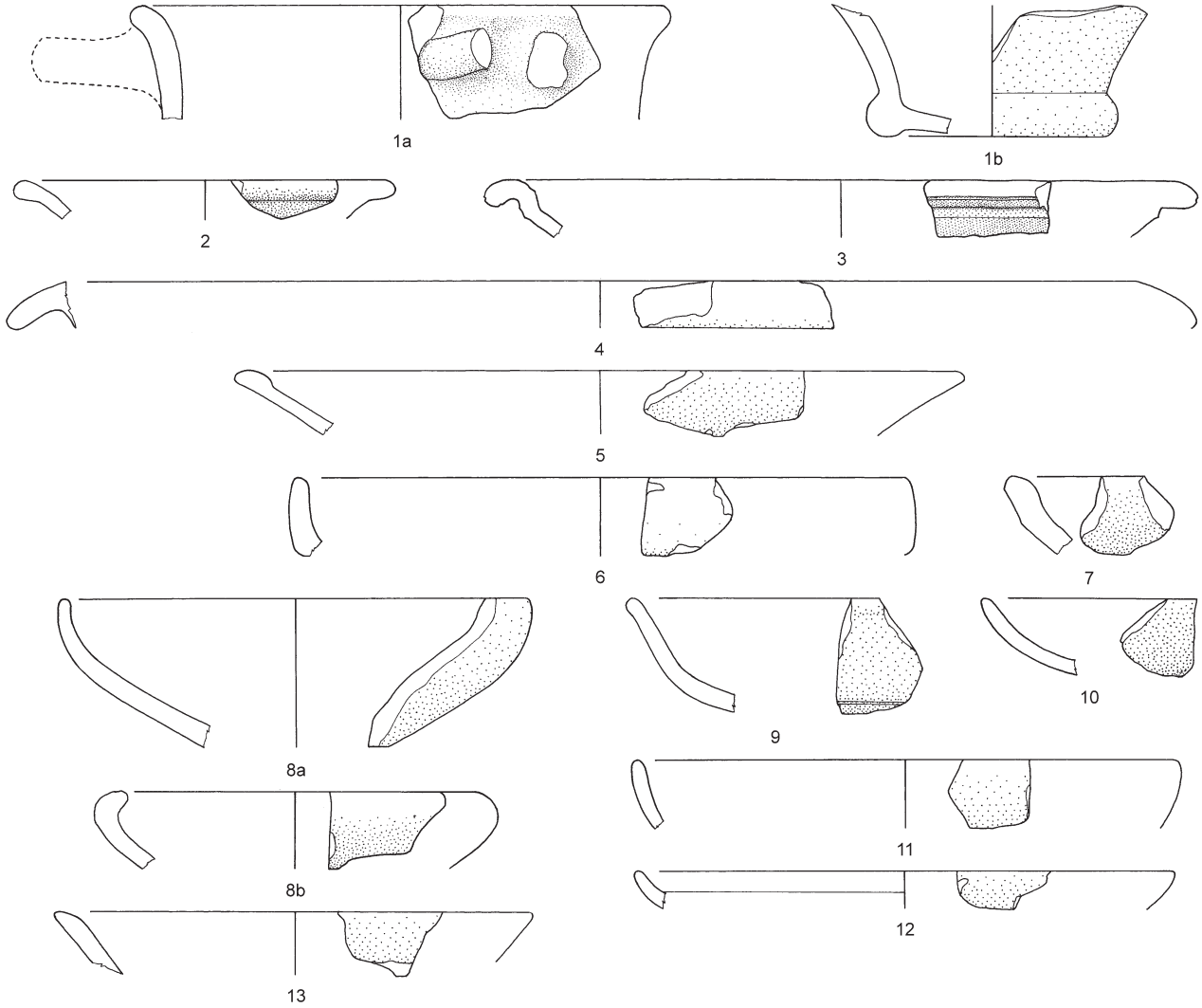
Revisits typology cont. Plate III-VI



Revisits typology cont. Plate III-VII

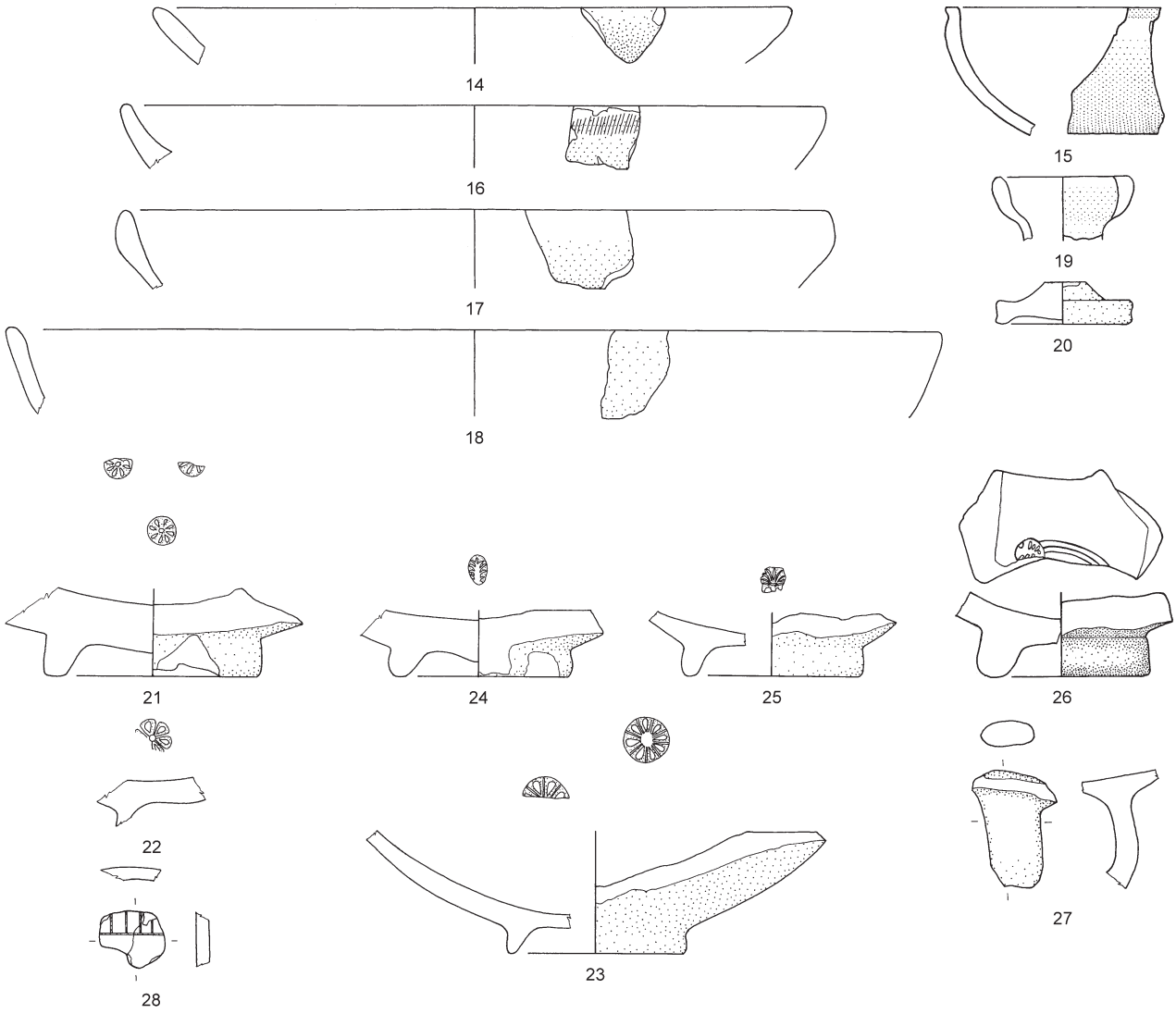


Fine ware - Black Glazed Ware

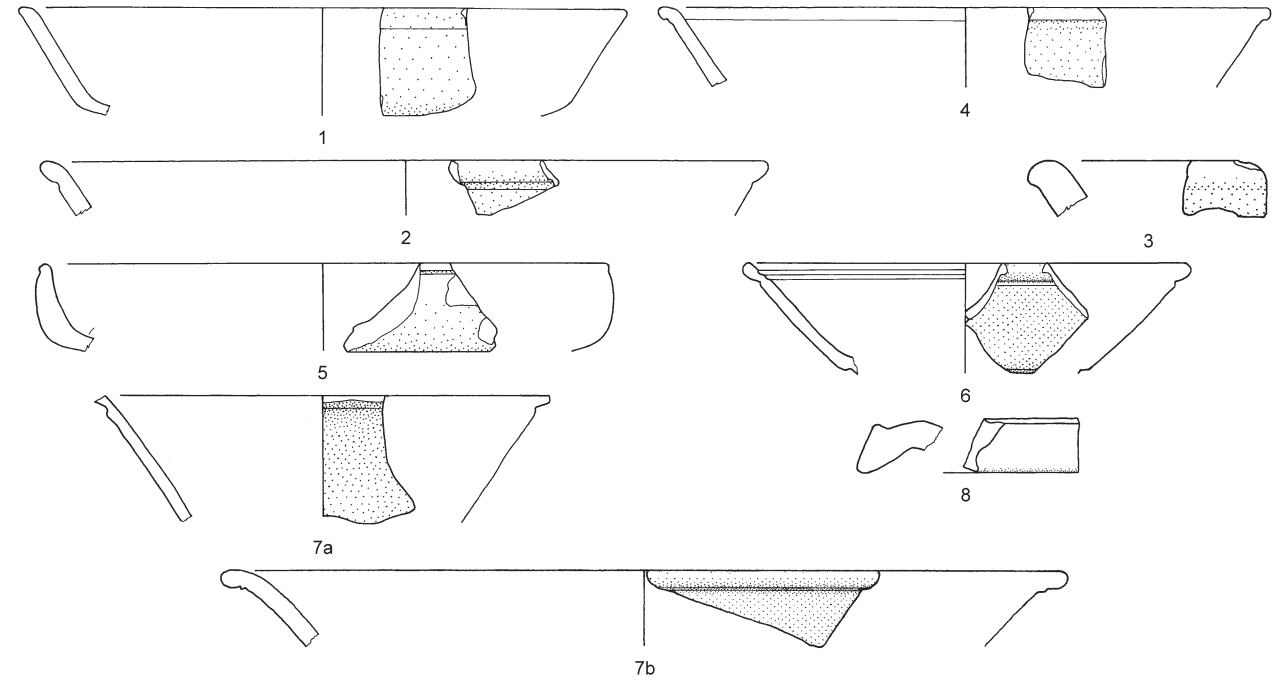


Revisits typology cont.

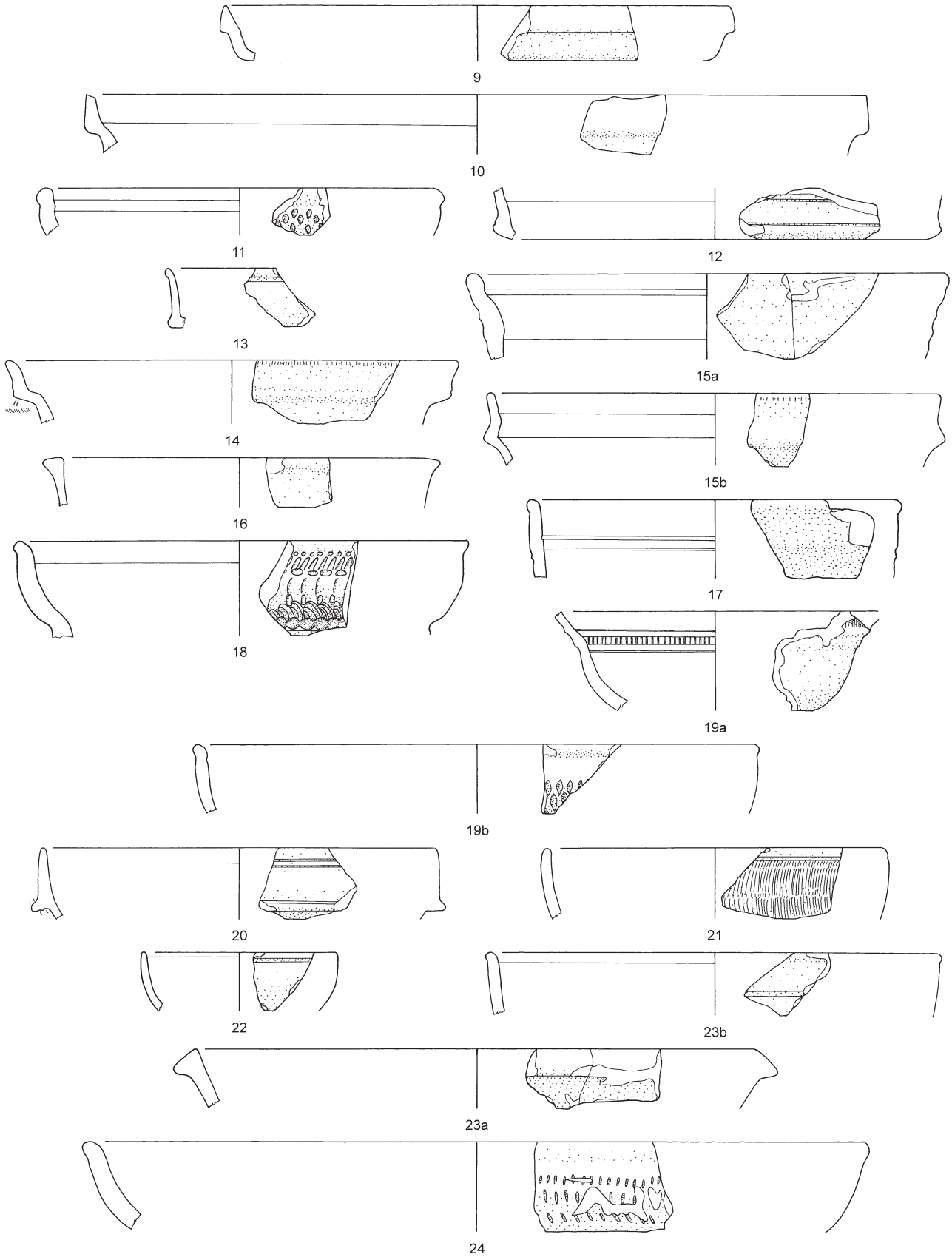
Plate III-VIII



Fine ware - Terra Sigillata

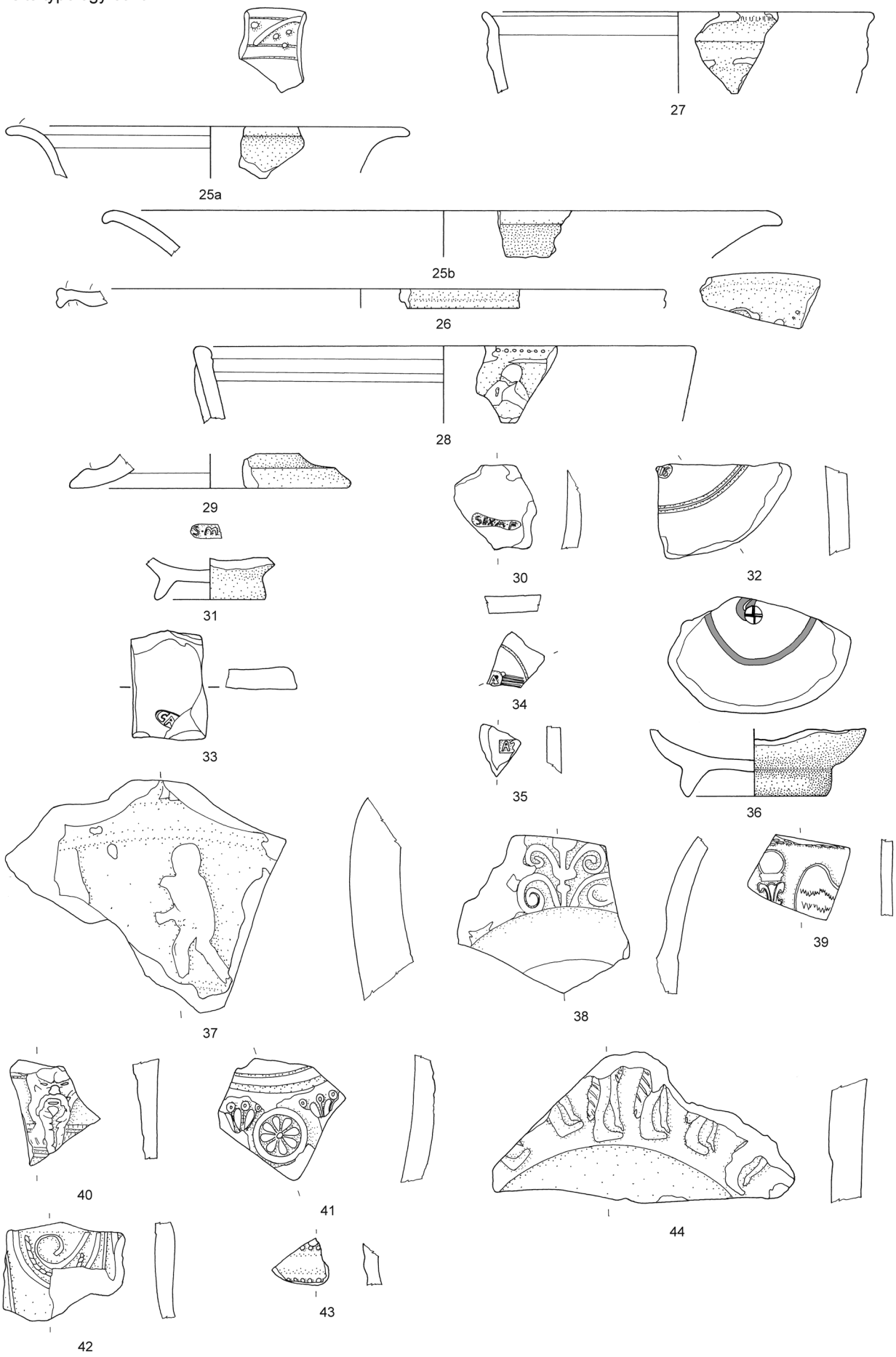


Revisits typology cont. Plate III-IX

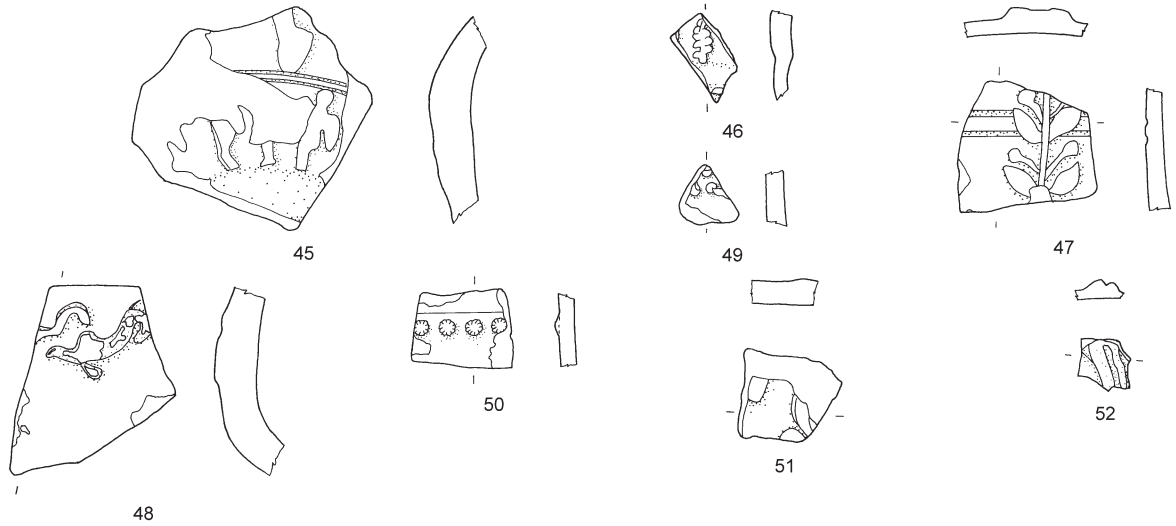


Revisits typology cont.

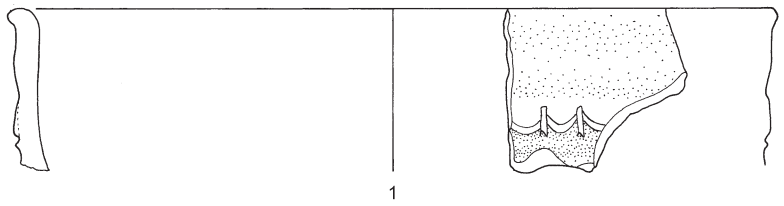
Plate III-X



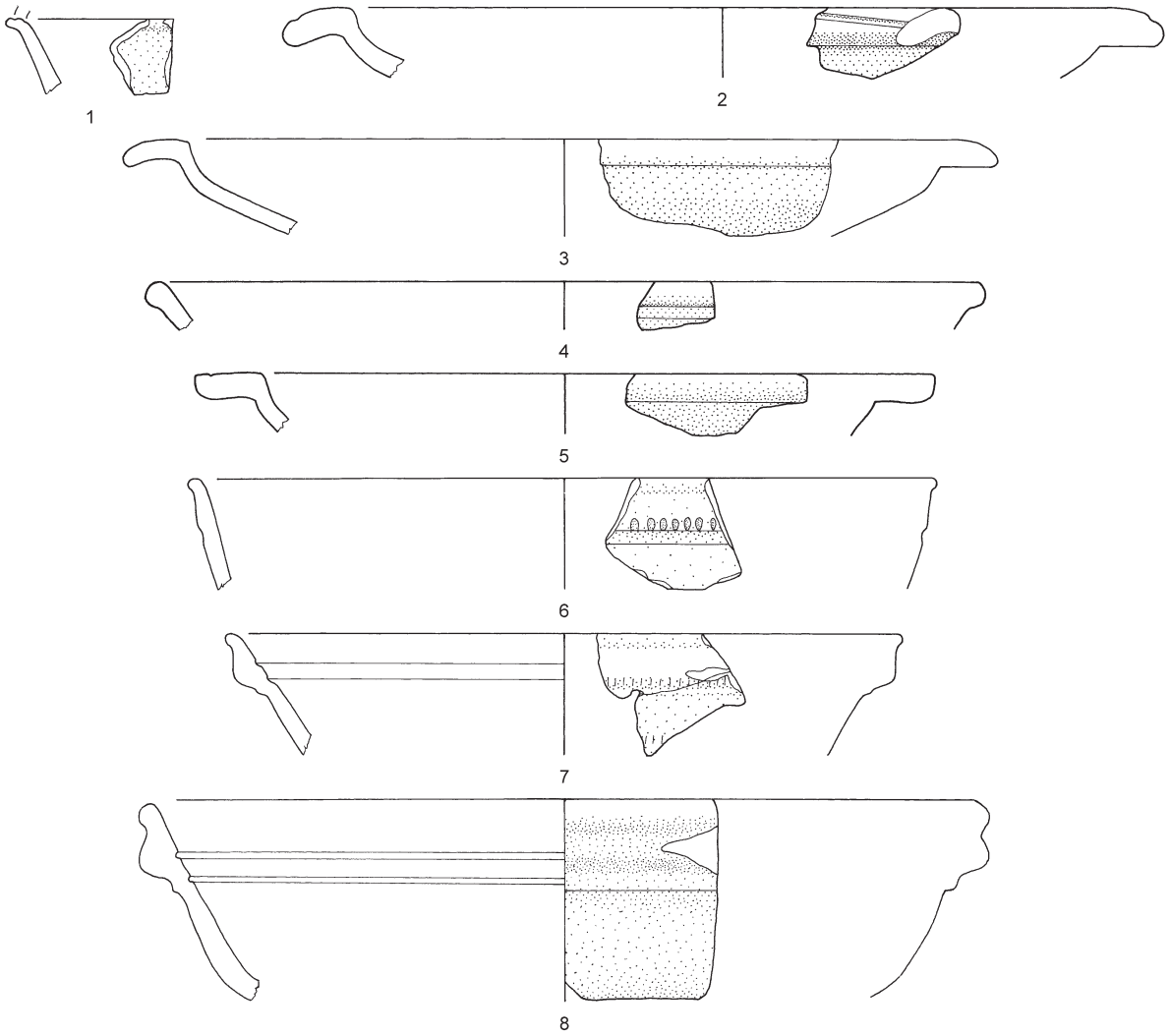
Revisits typology cont. Plate III-XI



Fine ware - Ceramica Narbonese

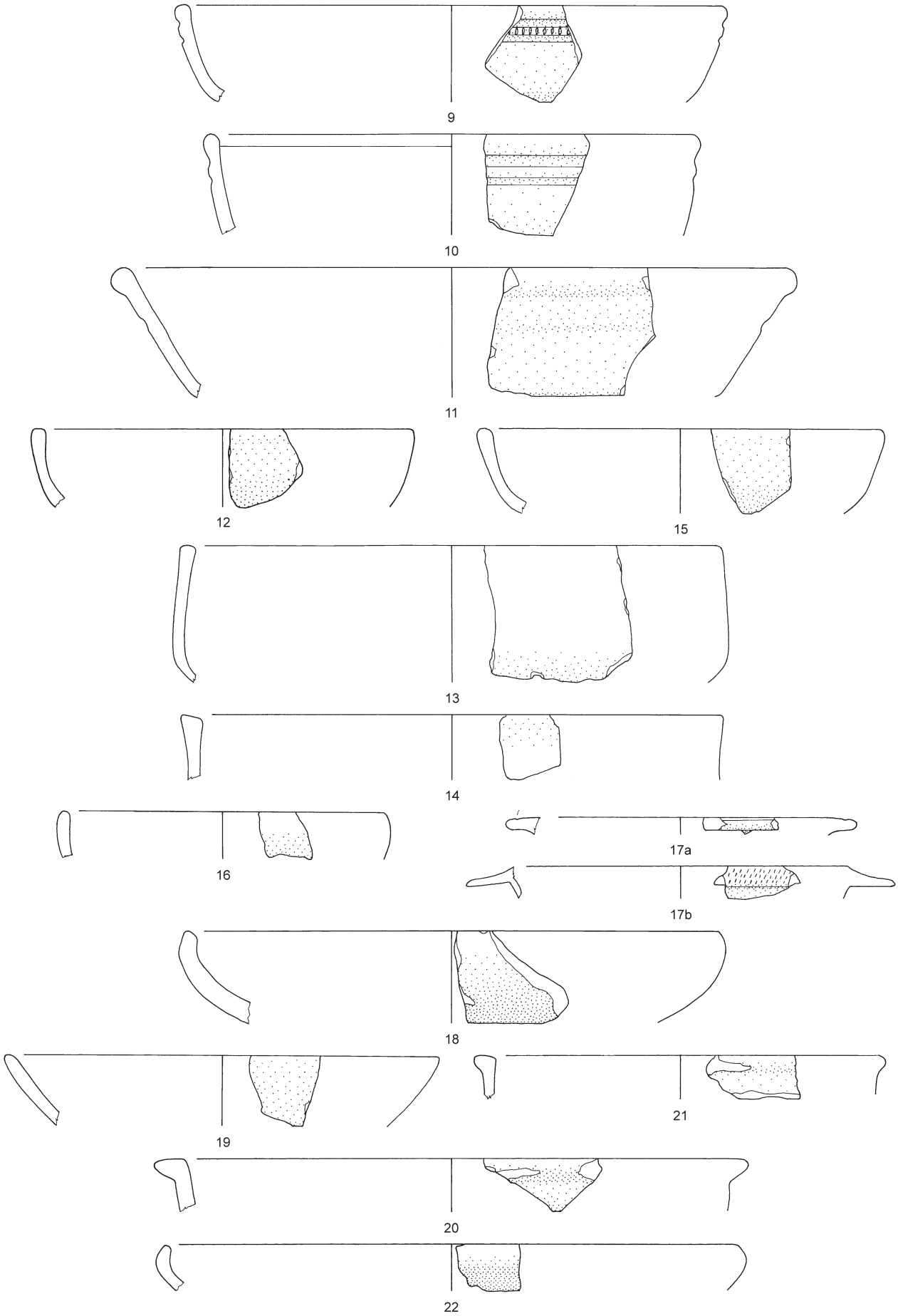


Fine ware - African Red Slip Ware

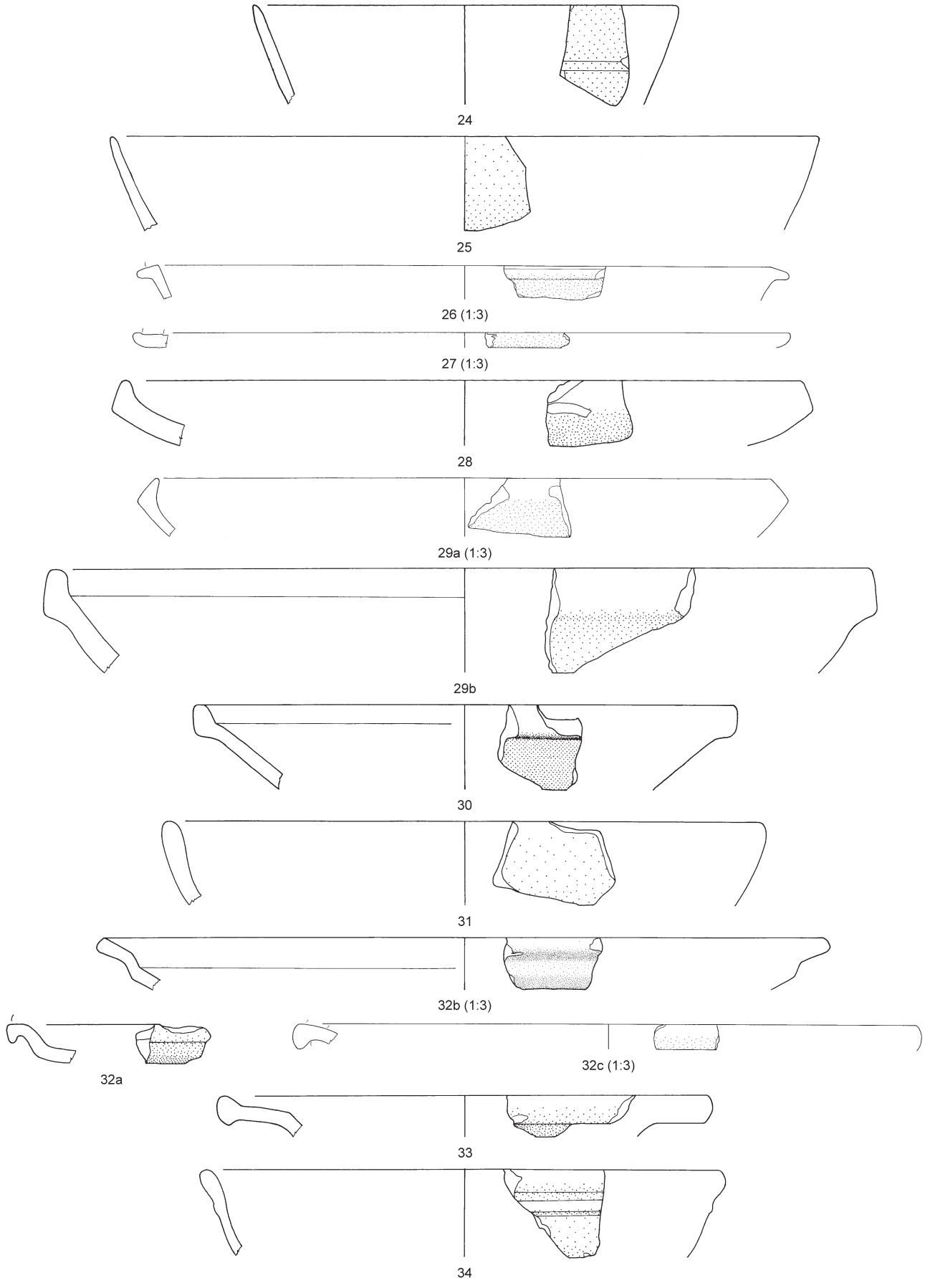


Revisits typology cont.

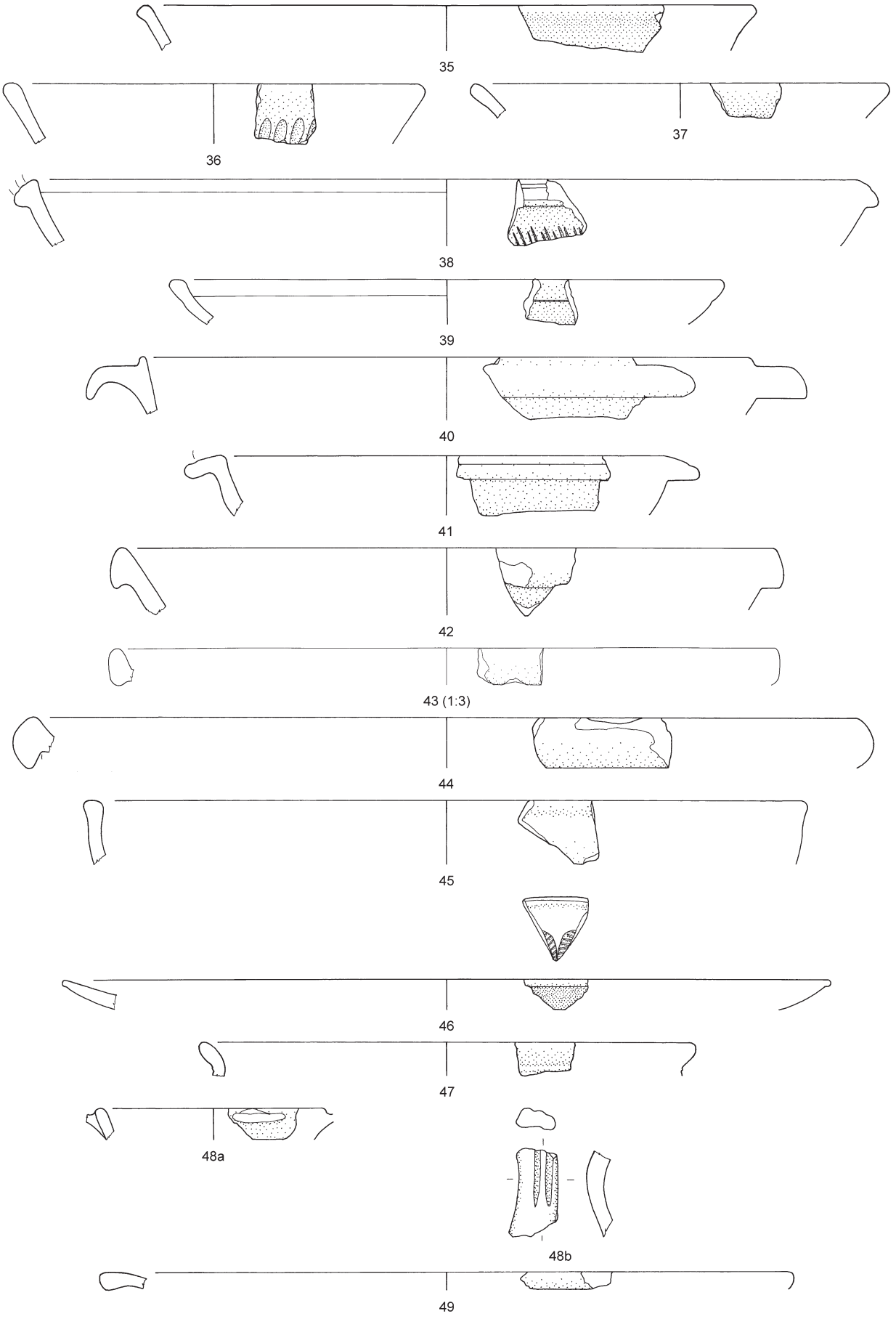
Plate III-XII



Revisits typology cont. Plate III-XIII

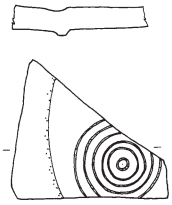


Revisits typology cc ' Plate III-XIV



Revisits typology cont.

Plate III-XV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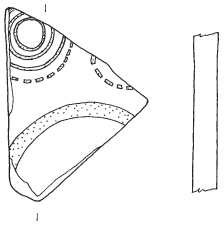
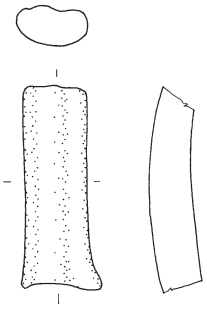
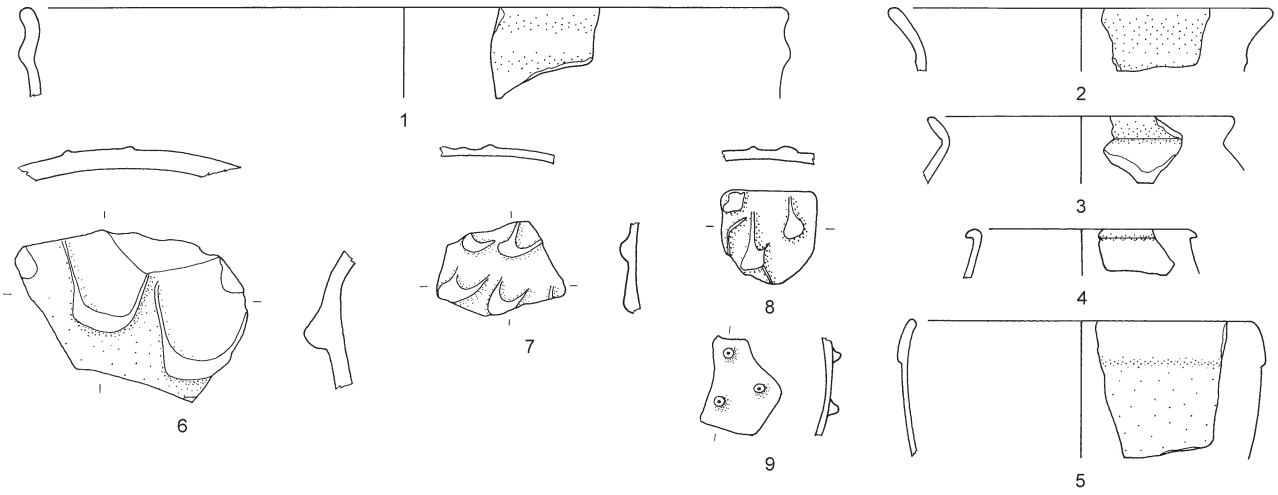

51

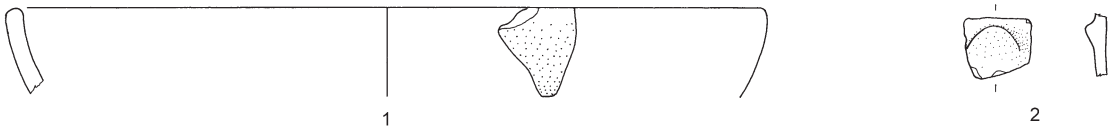

52


53

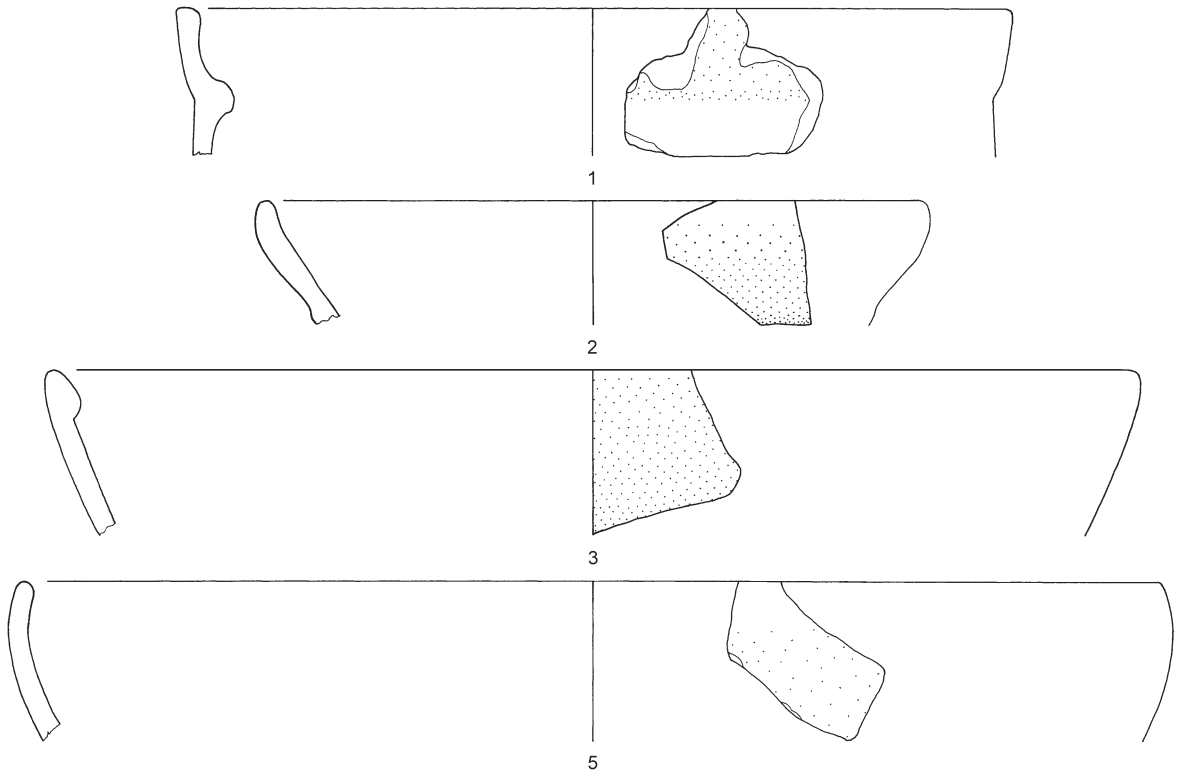
Fine ware - Ceramica a pareti sottili



Fine ware - Other

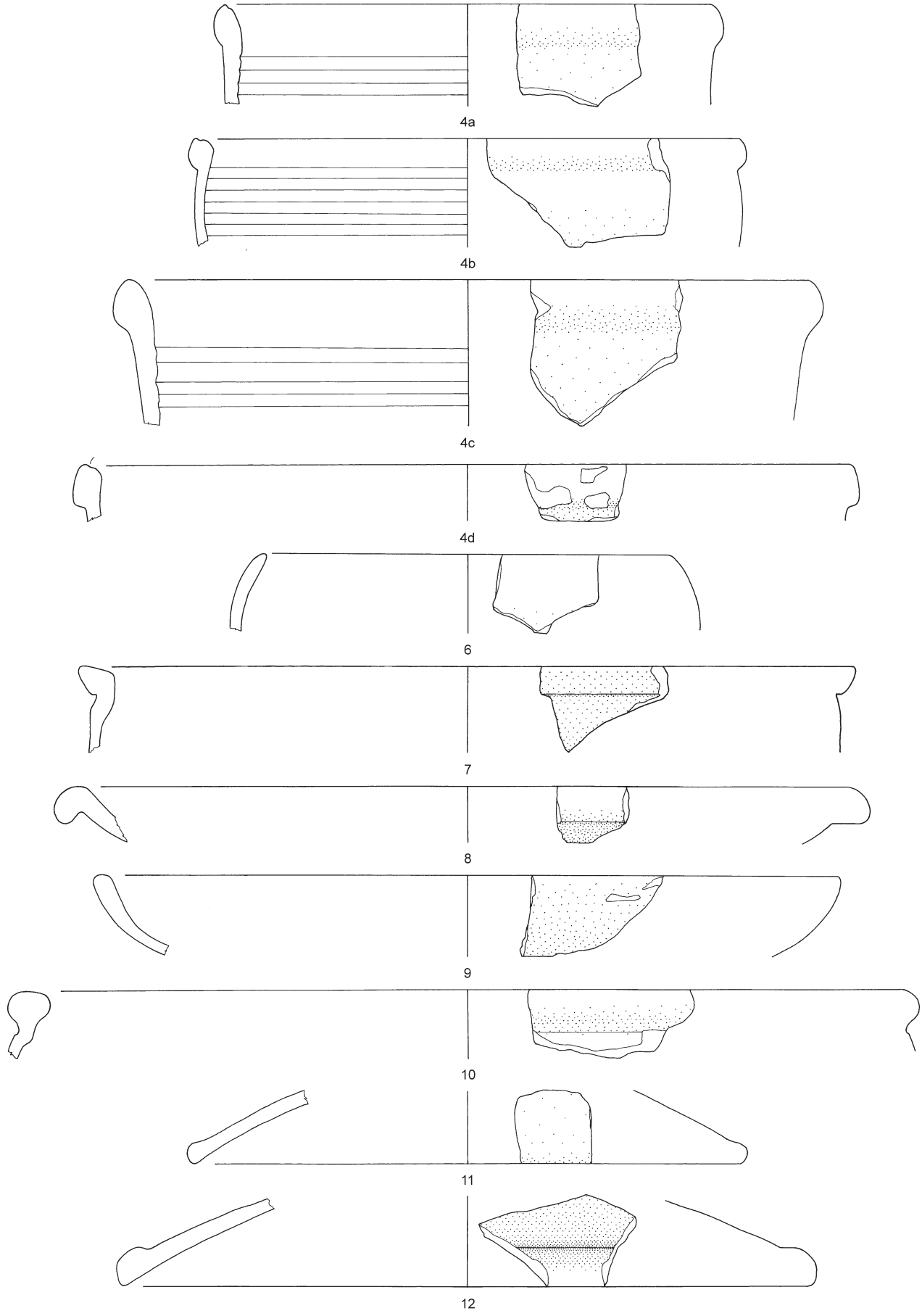


Utilitarian pottery - African cookware

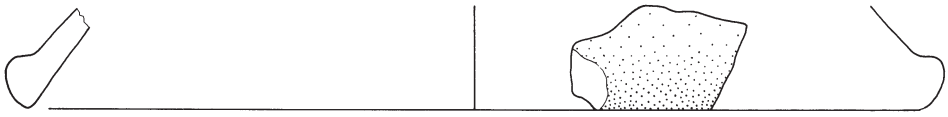


Revisits typology cont.

Plate III-XVI

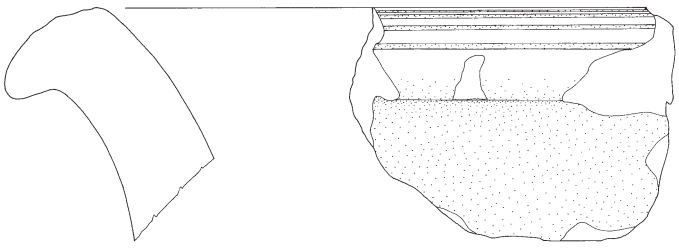


Revisits typology cont. Plate III-XVII



14

Utilitarian pottery



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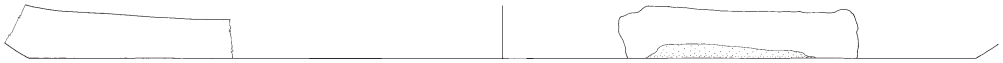

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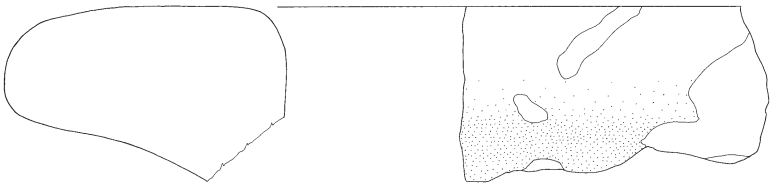

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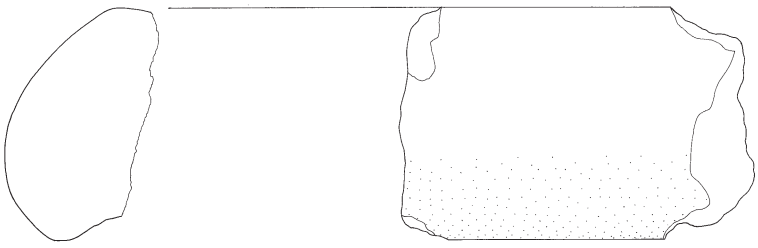

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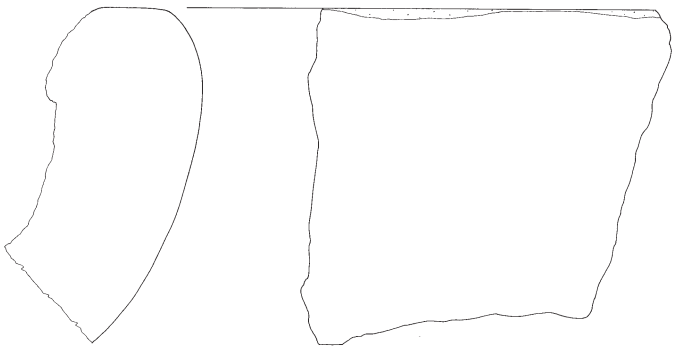

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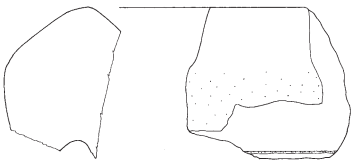
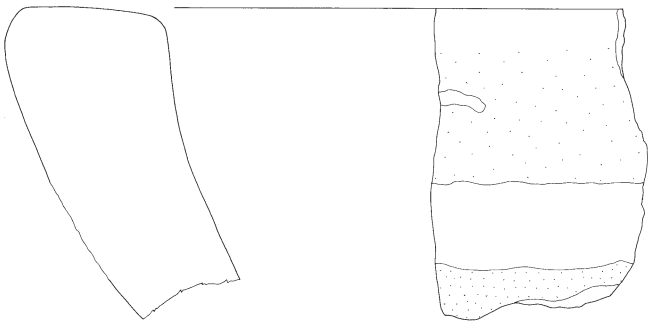


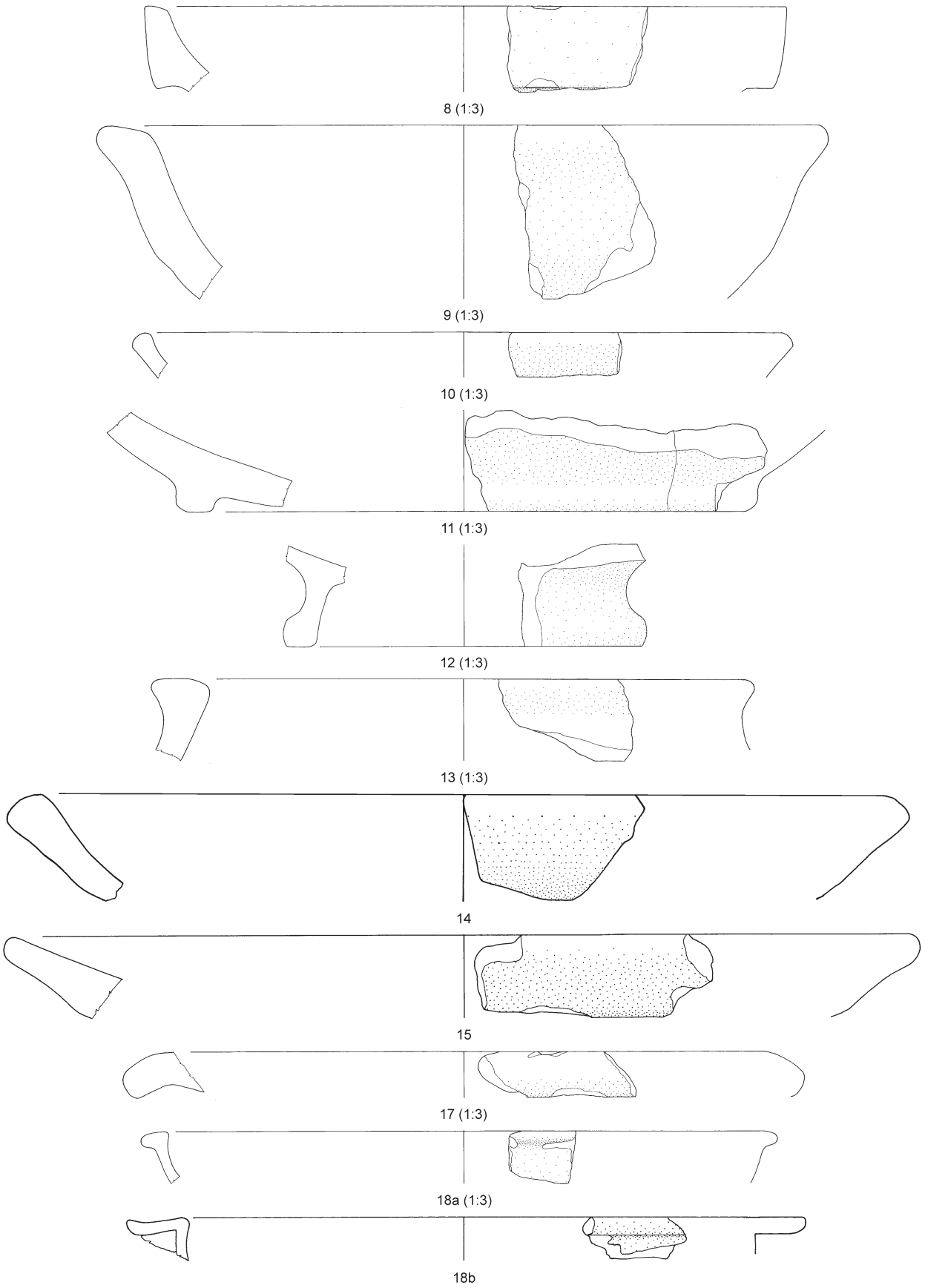
6 (1:3)



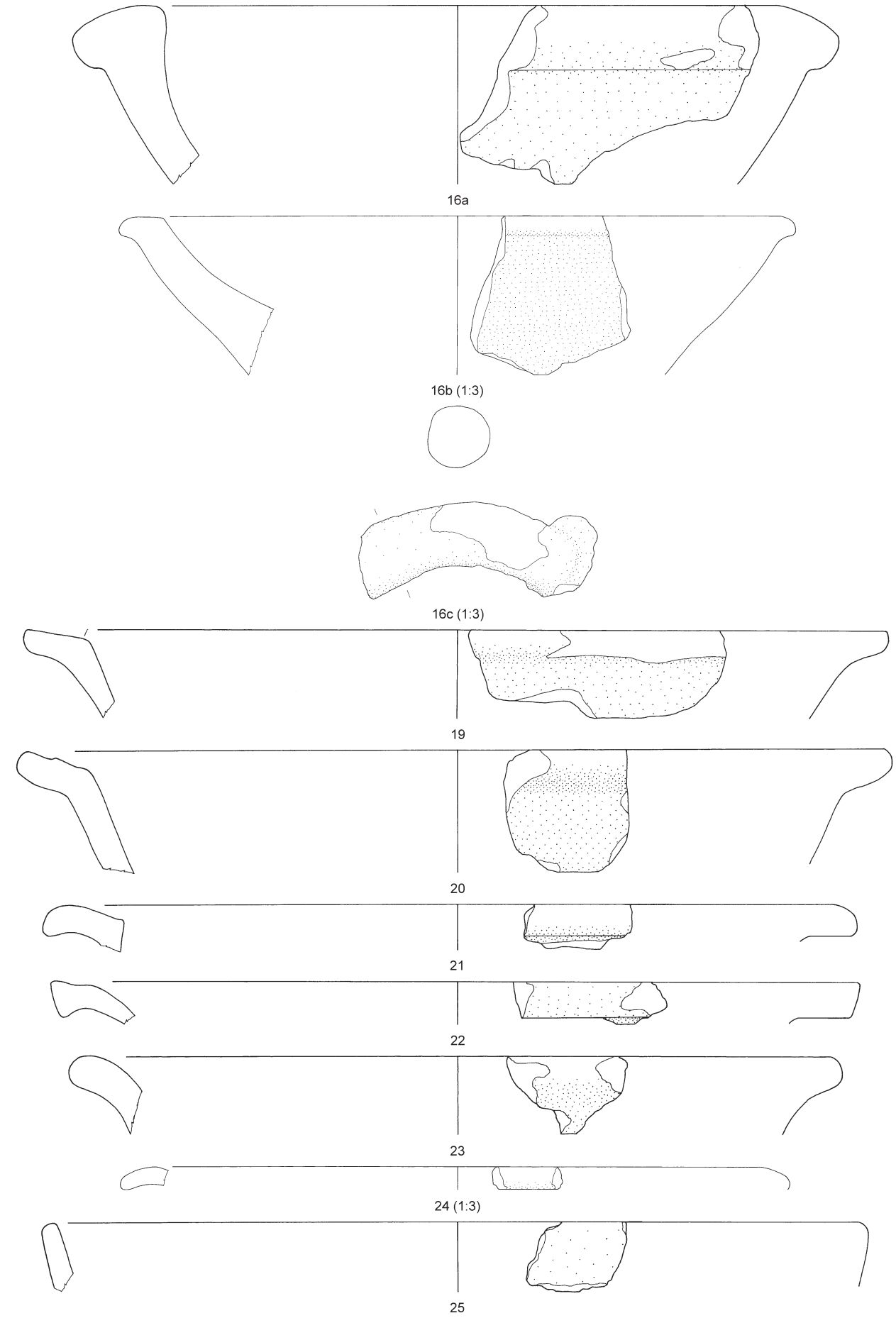
7 (1:3)

Revisits typology cont.

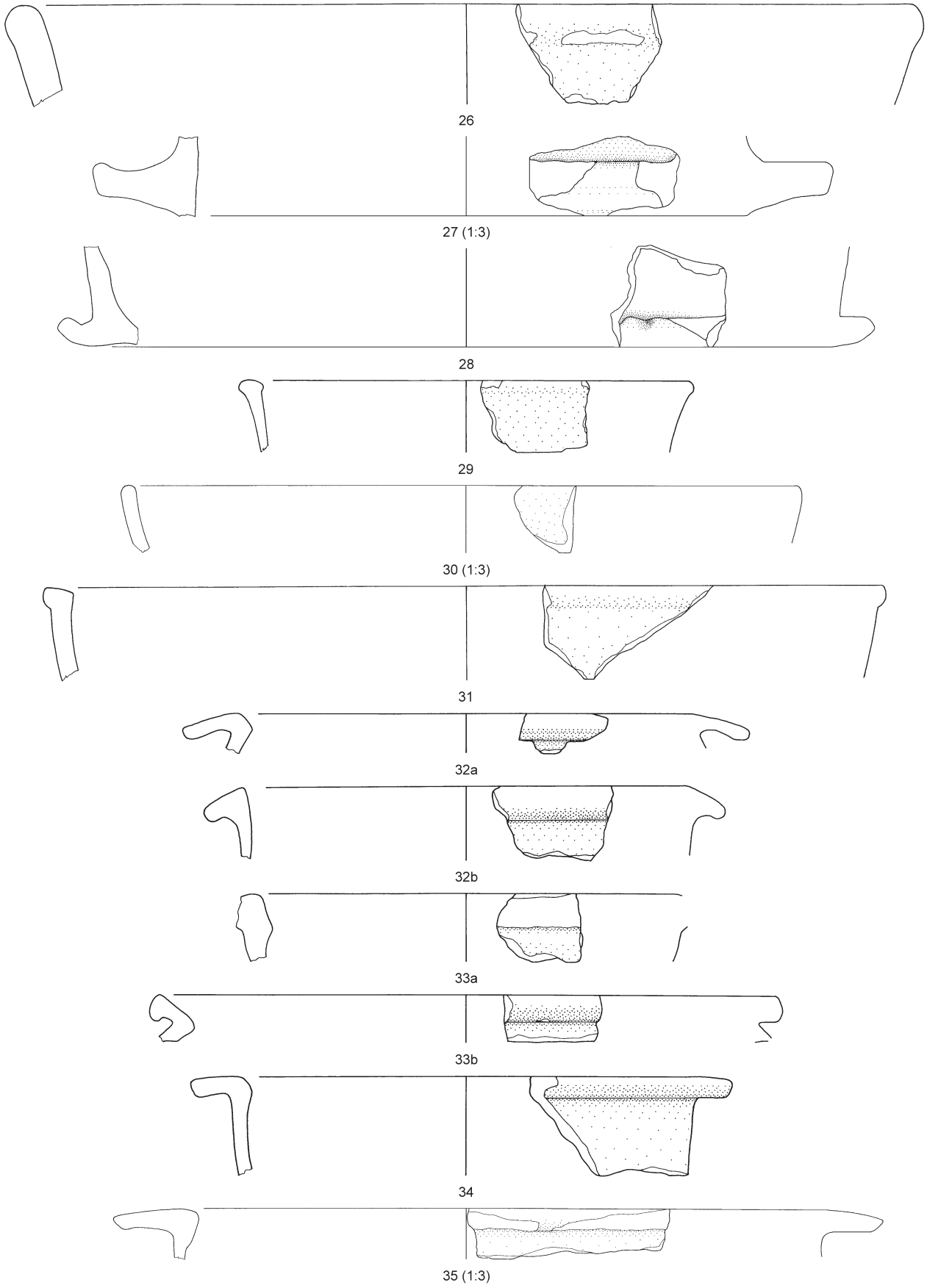
Plate III-XVIII



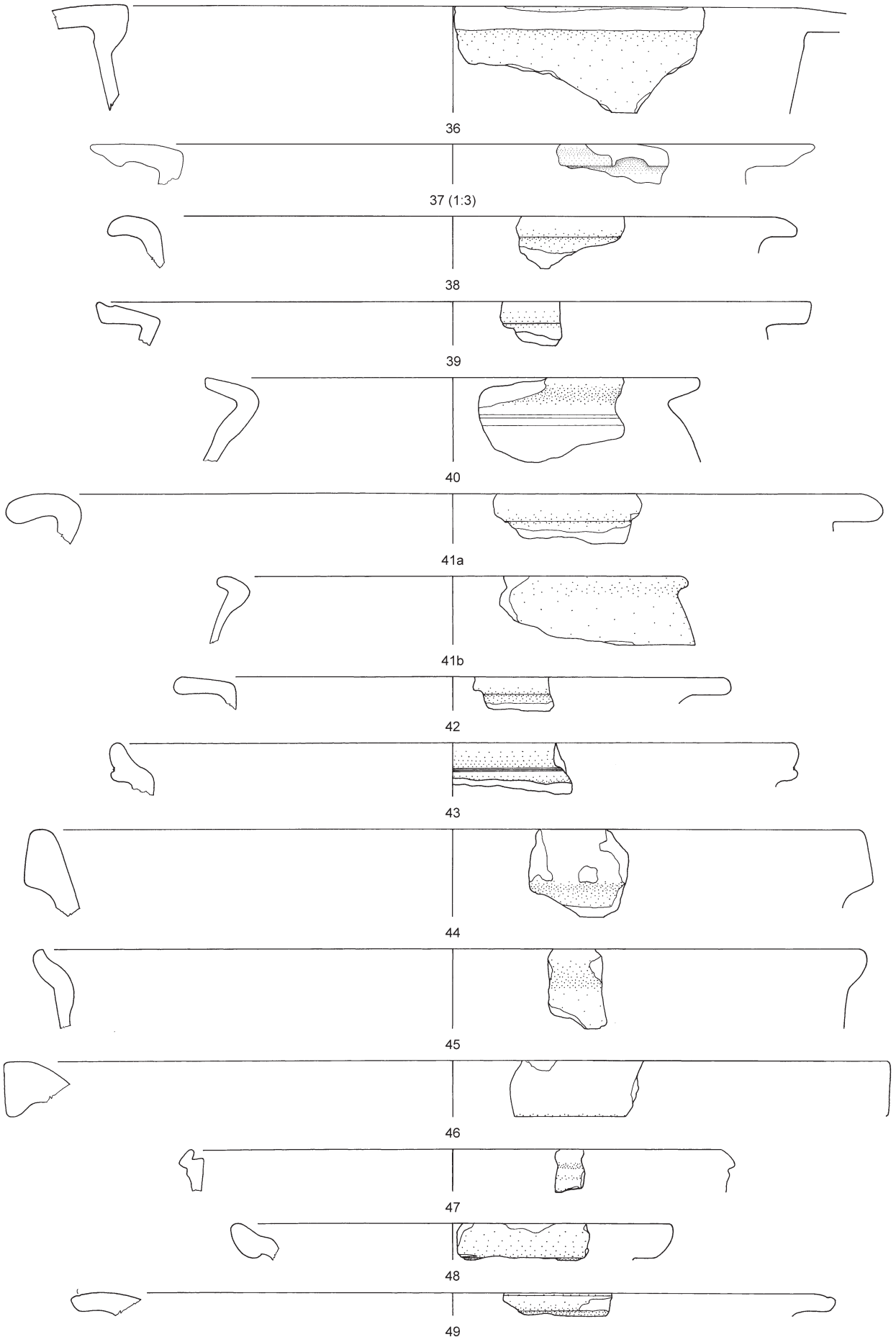
Revisits typology cont. Plate III-XIX



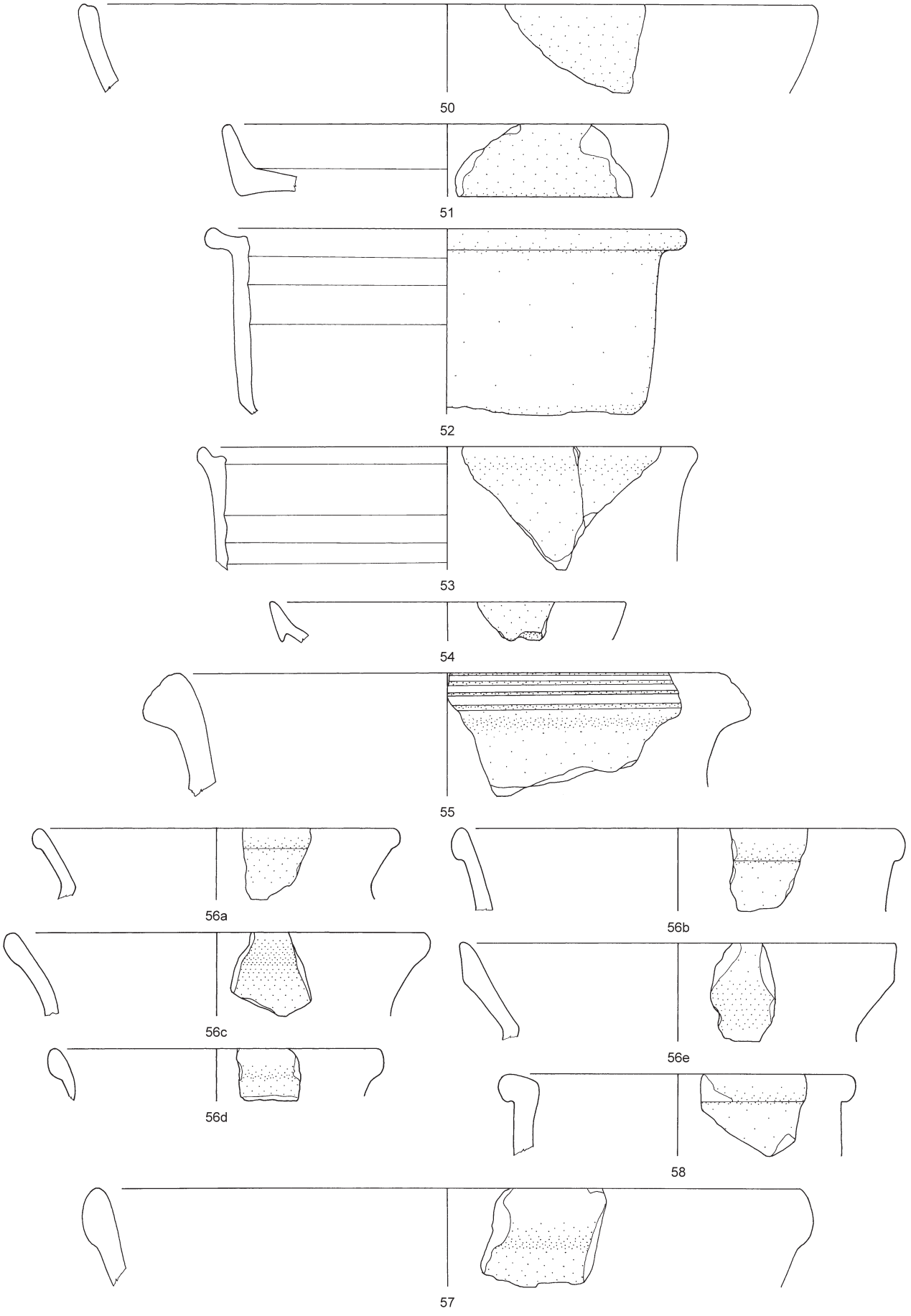
Revisits typology cont. Plate III-XX



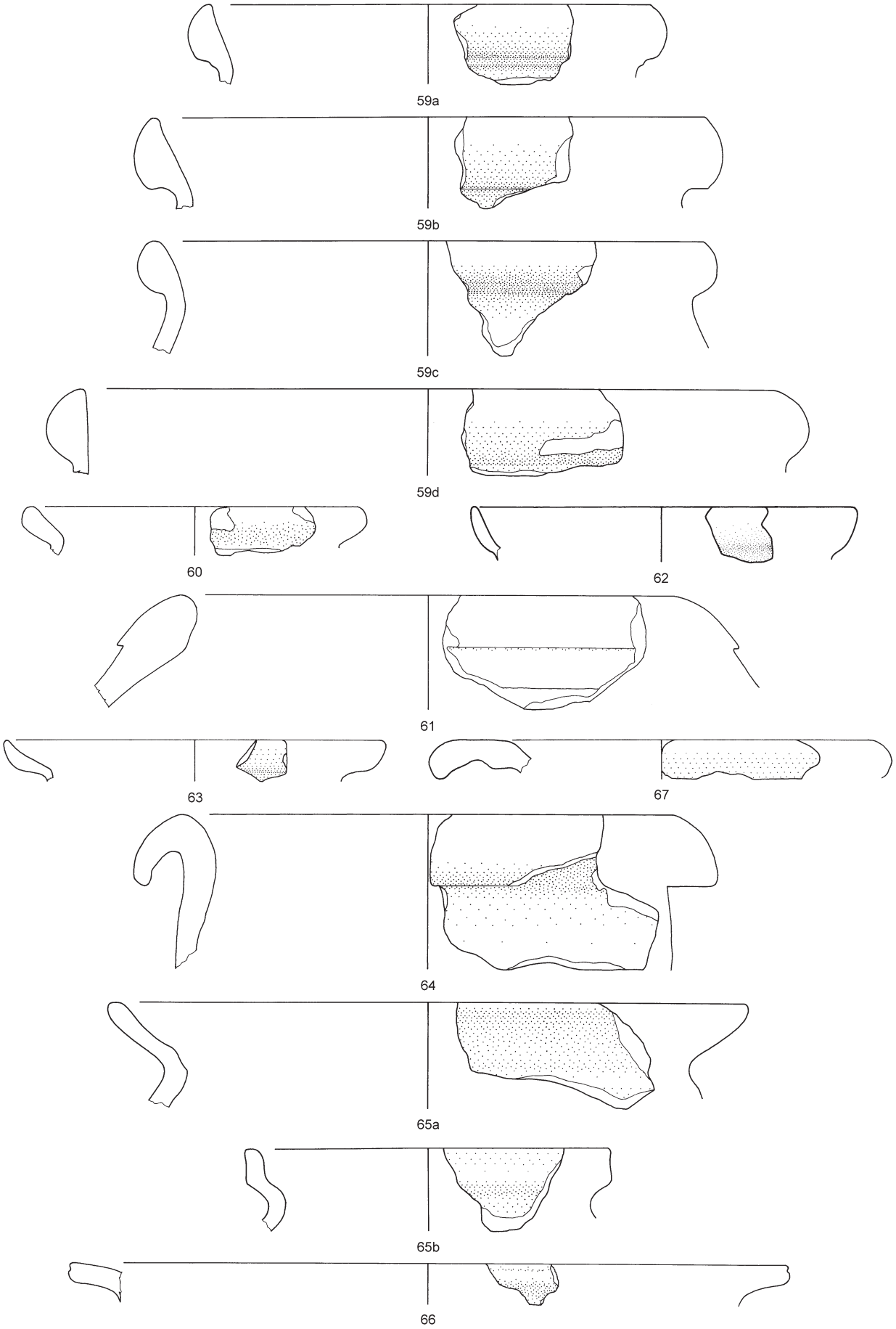
Revisits typology cont. Plate III-XXI



Revisits typology cont. Plate III-XXII

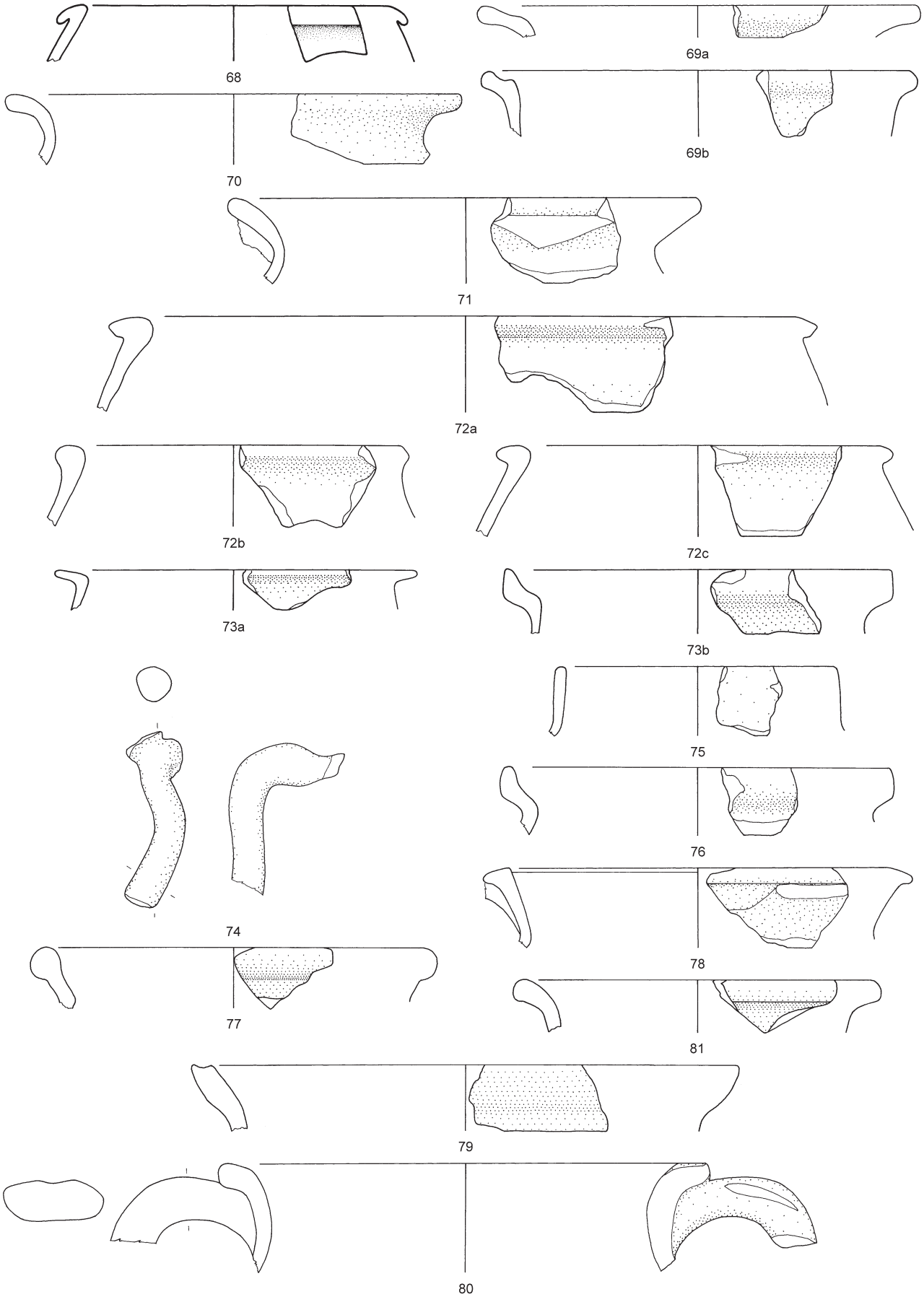


Revisits typology cont. Plate III-XXIII

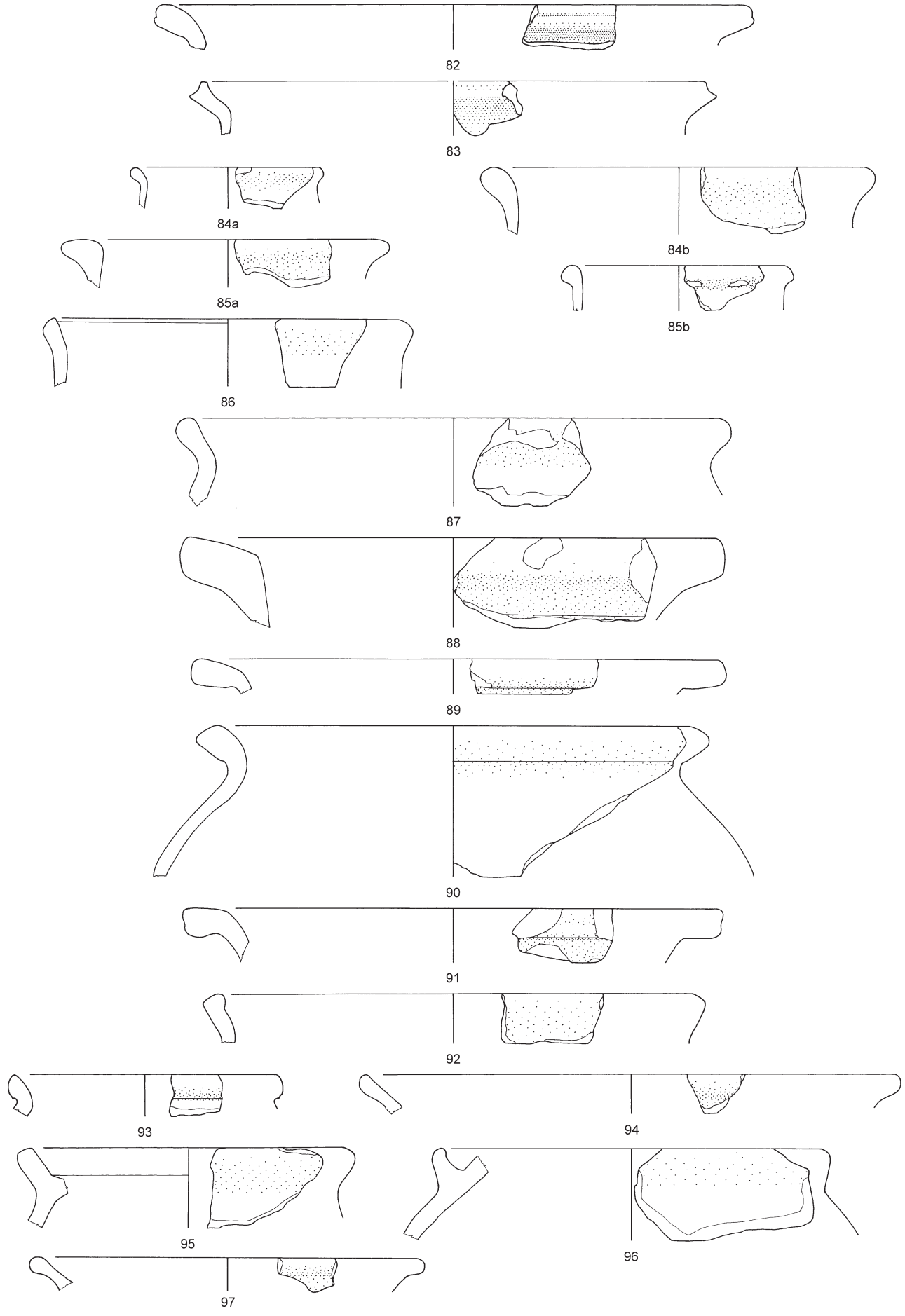


Revisits typology cont.

Plate III-XXIV

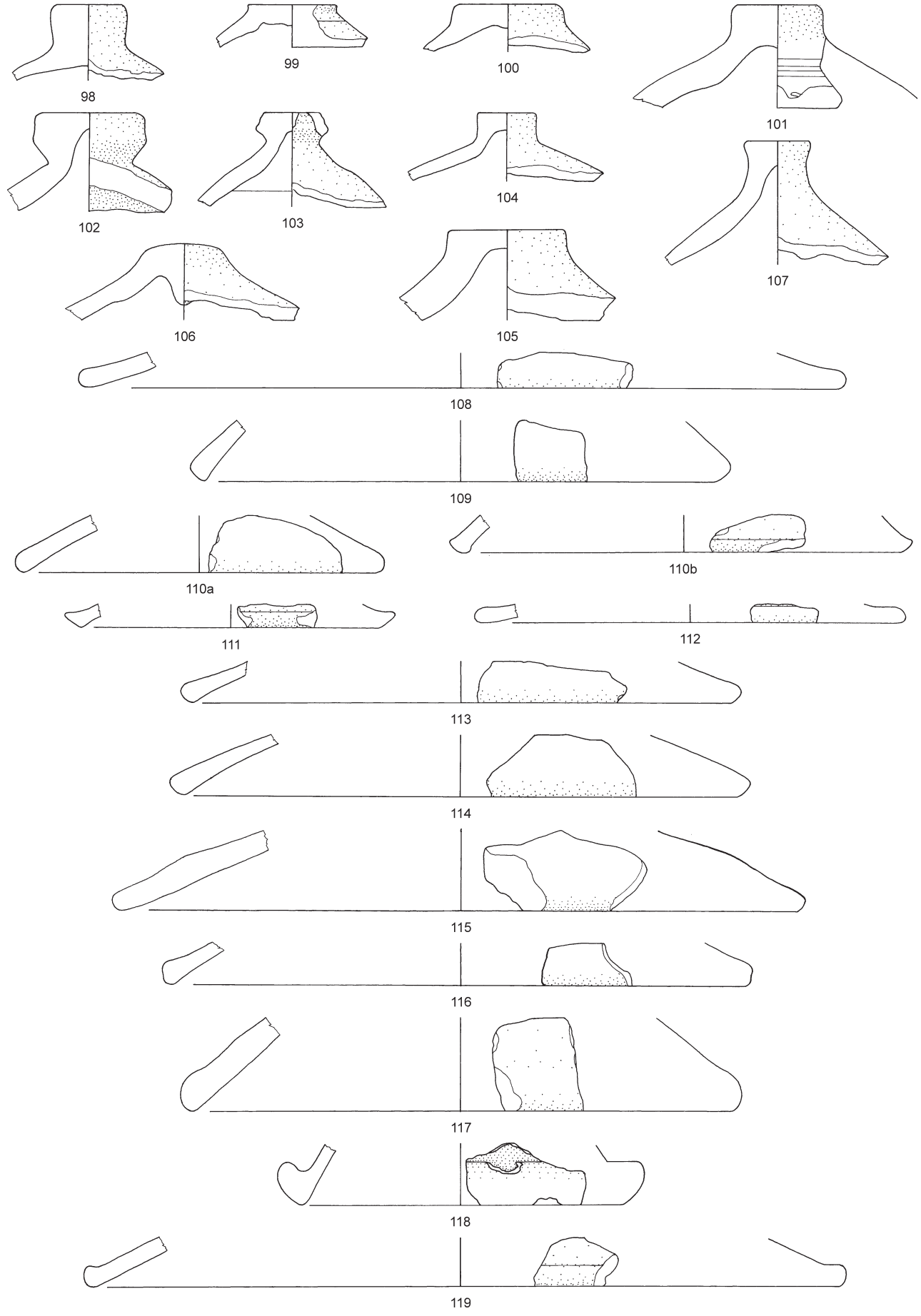


Revisits typology cont. Plate III-XXV

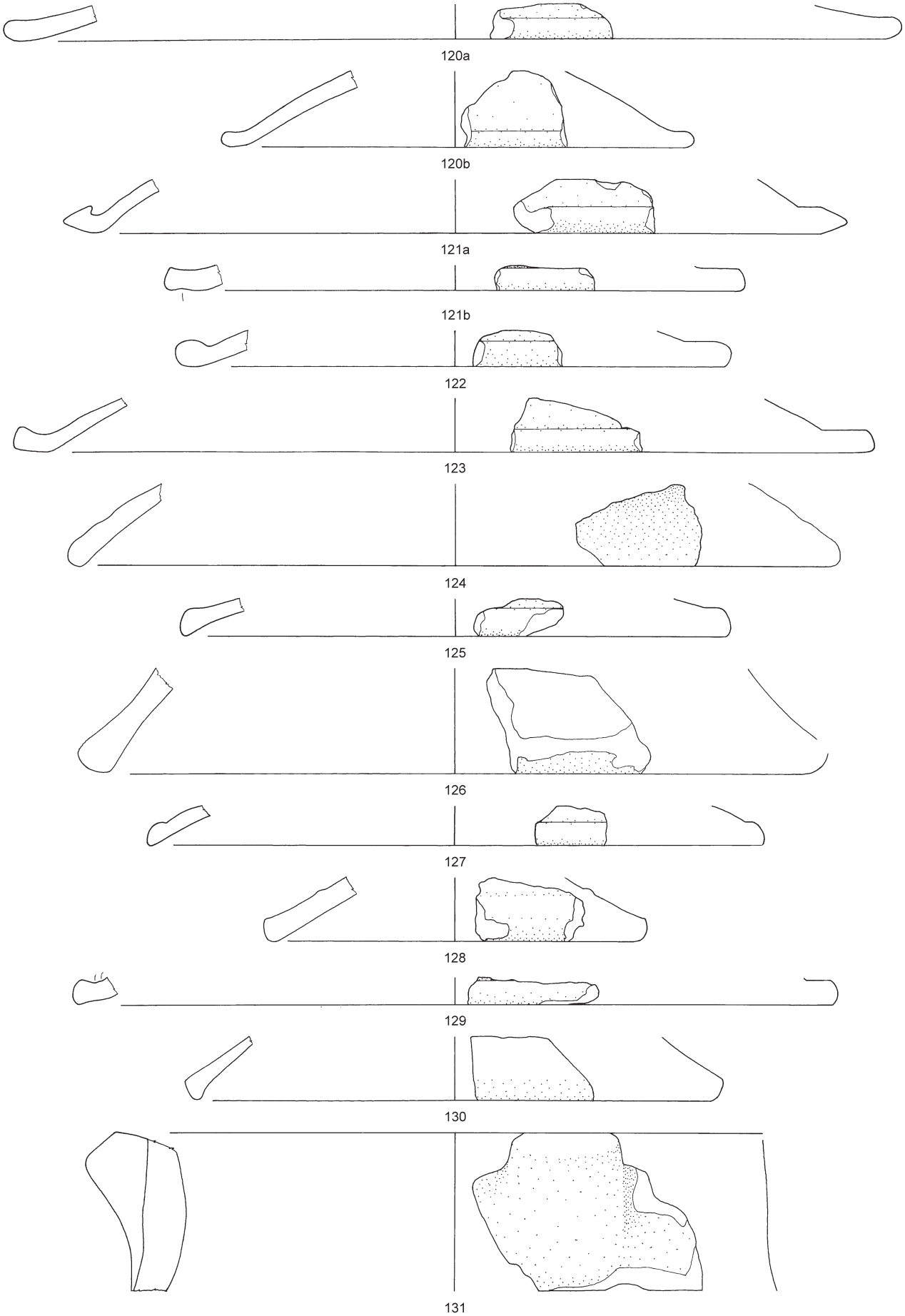


Revisits typology cont.

Plate III-XXVI

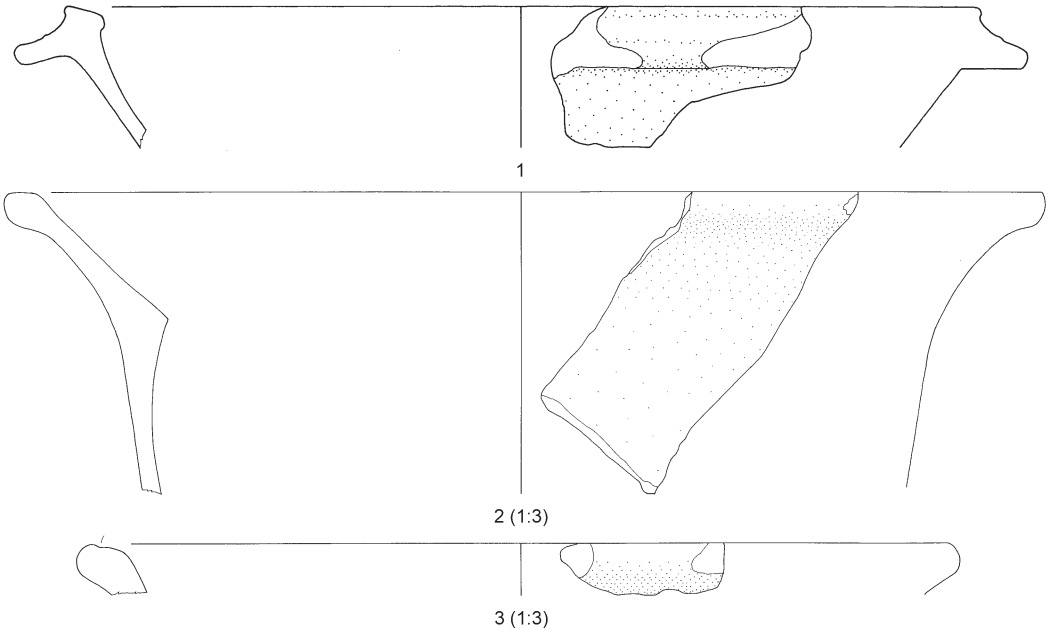


Revisits typology cont. Plate III-XXVII



Revisits typology cont. Plate III-XXVIII

Utilitarian pottery - African Coarse Ware

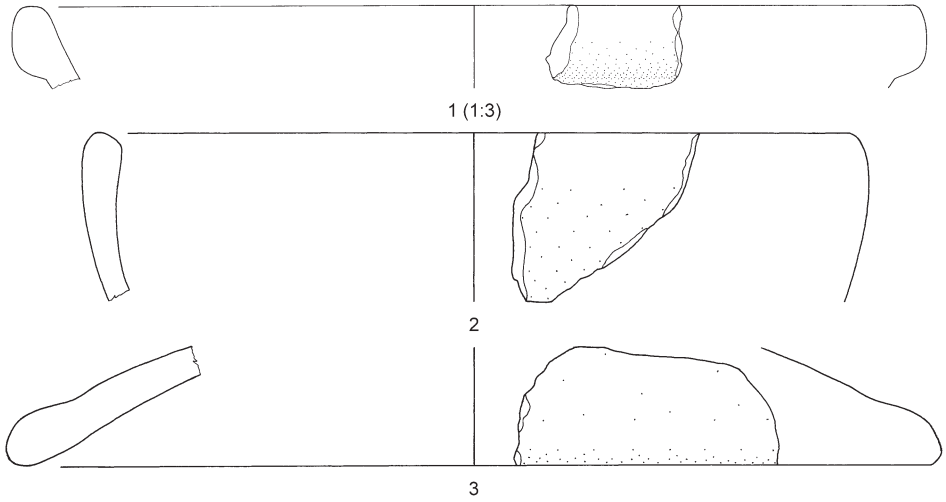


1

2 (1:3)

3 (1:3)

Utilitarian pottery - Pantellerian Ware

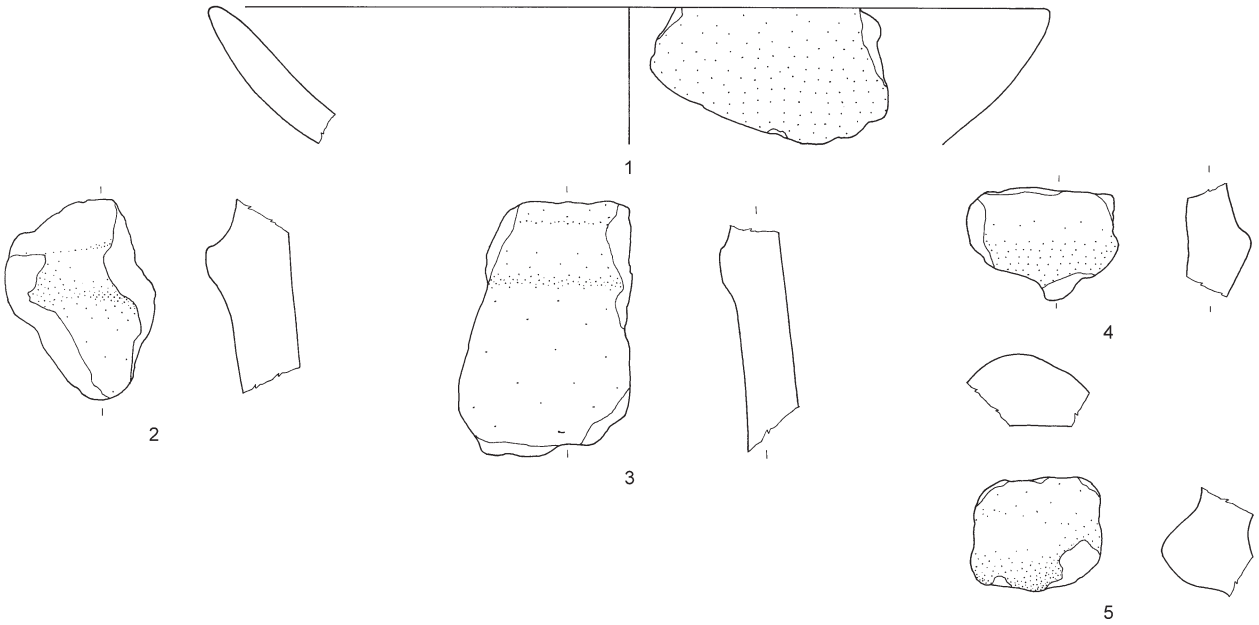


1 (1:3)

2

3

Utilitarian pottery - Other Coarse Ware



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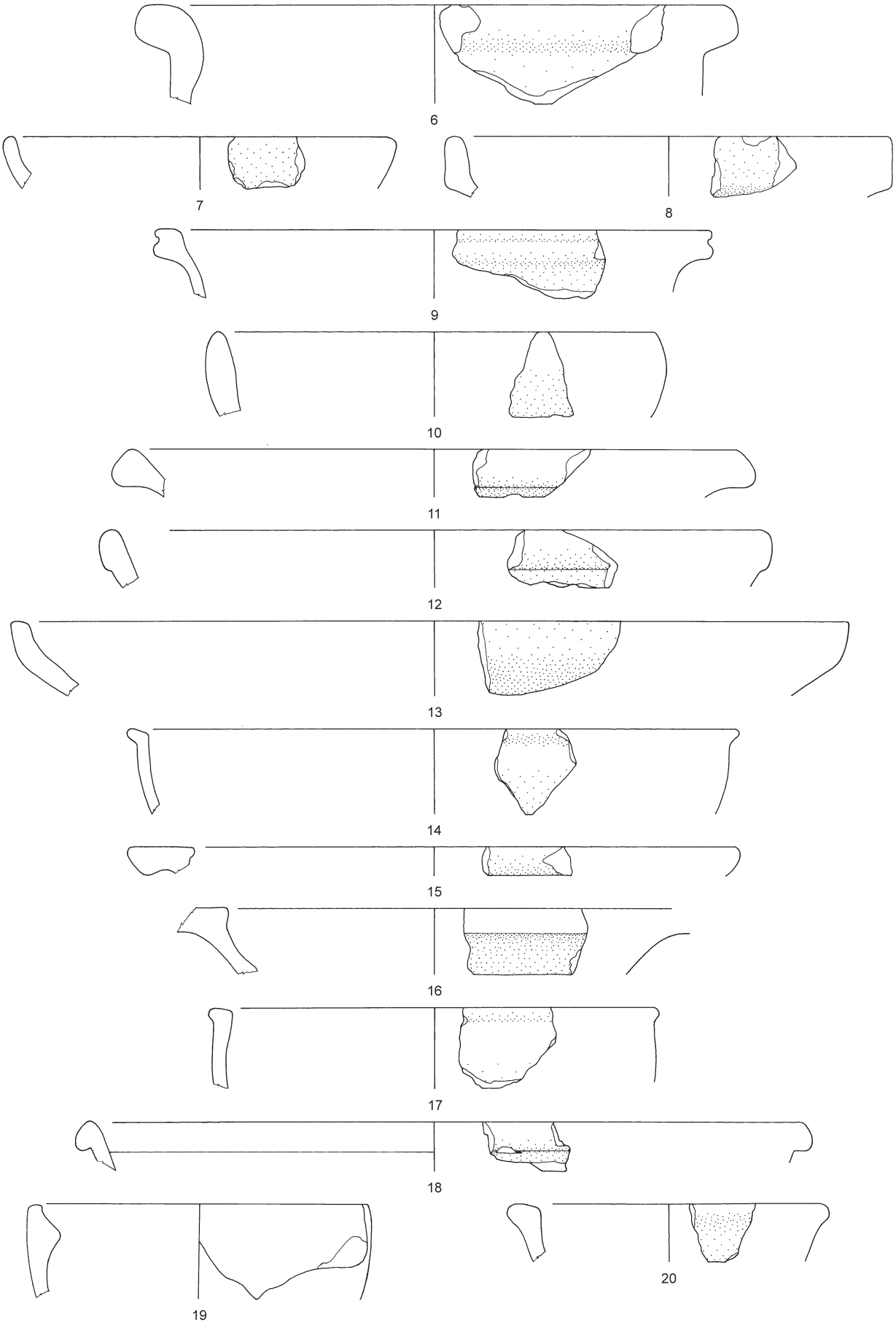
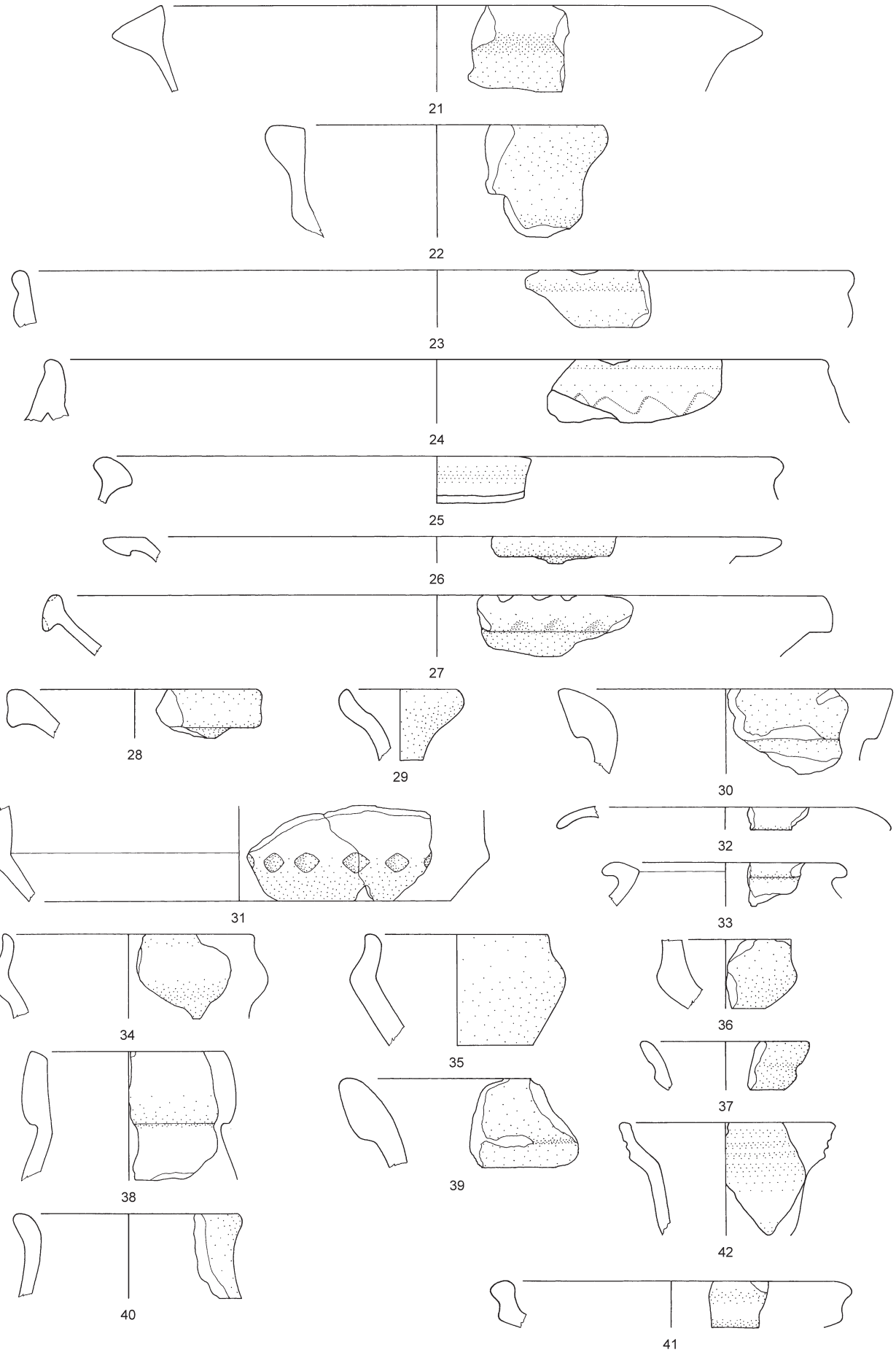
Revisits typology cont. Plate III-XXIX

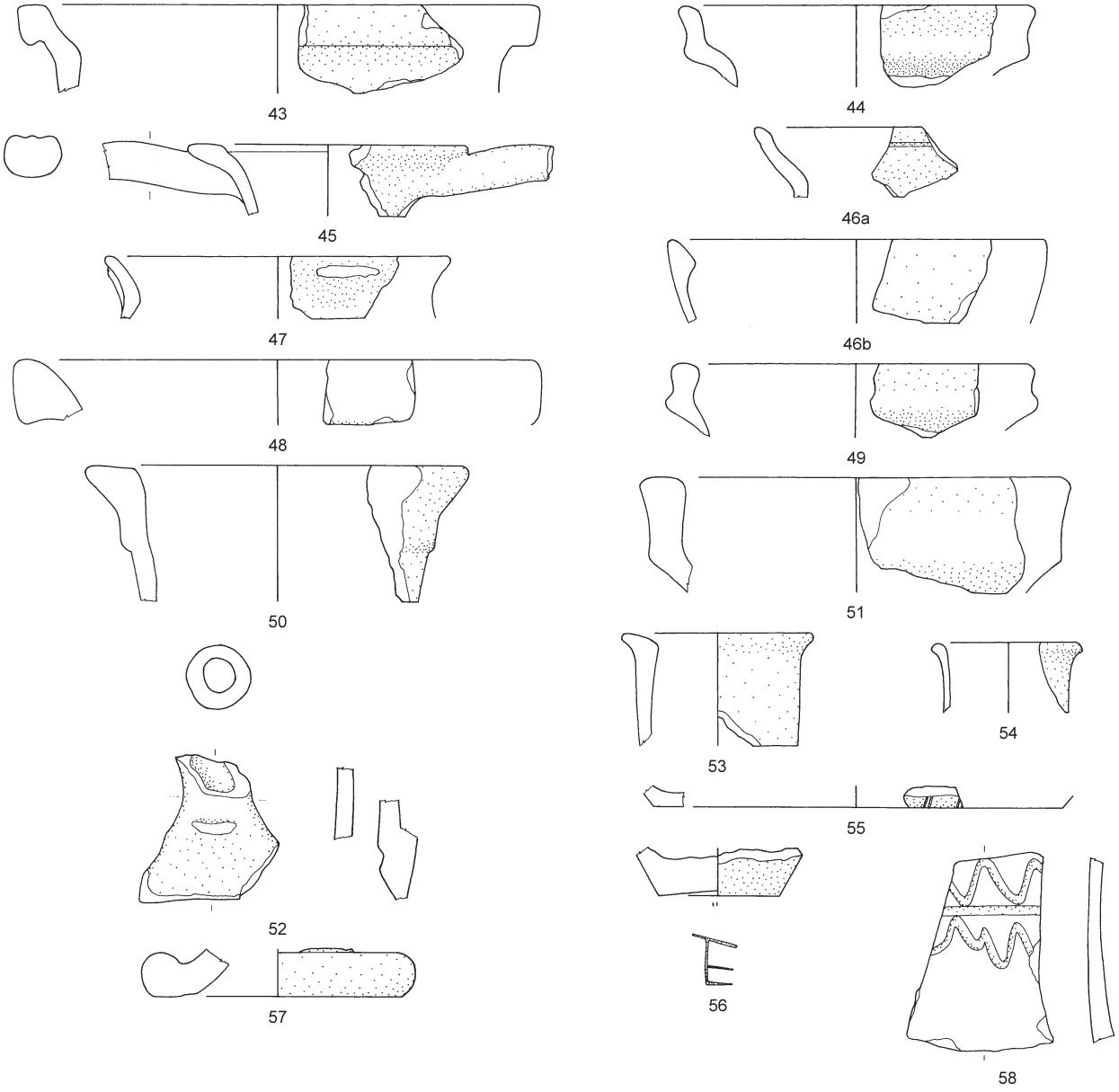


Revisits typology cont.

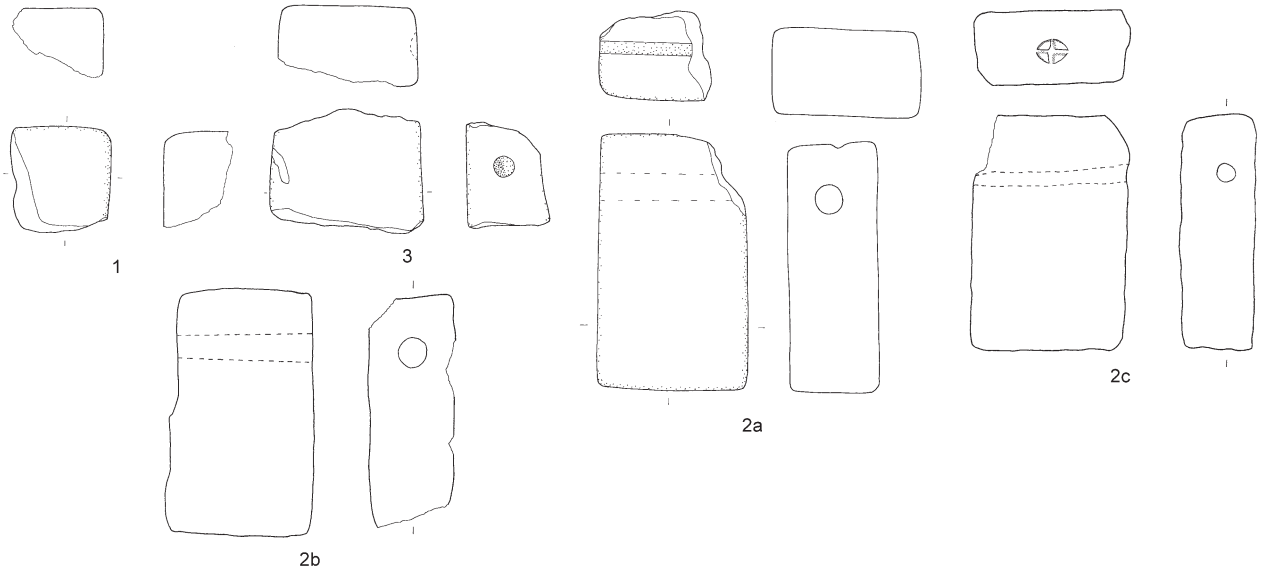
Plate III-XXX



Revisits typology cont. Plate III-XXXI

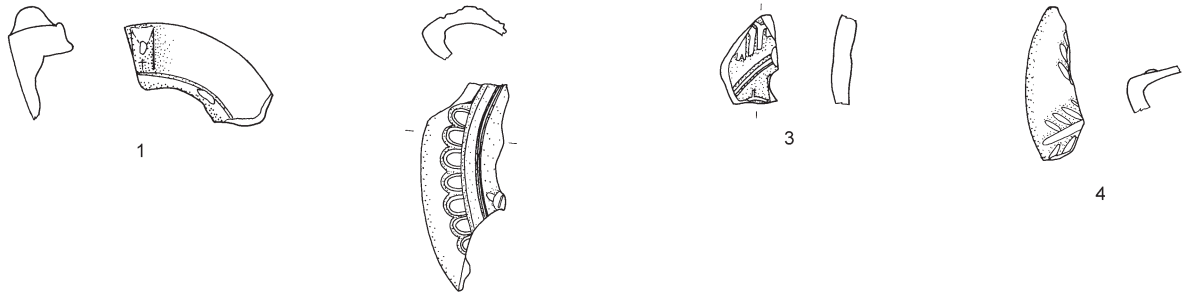


Loomweights (scale 1:3)

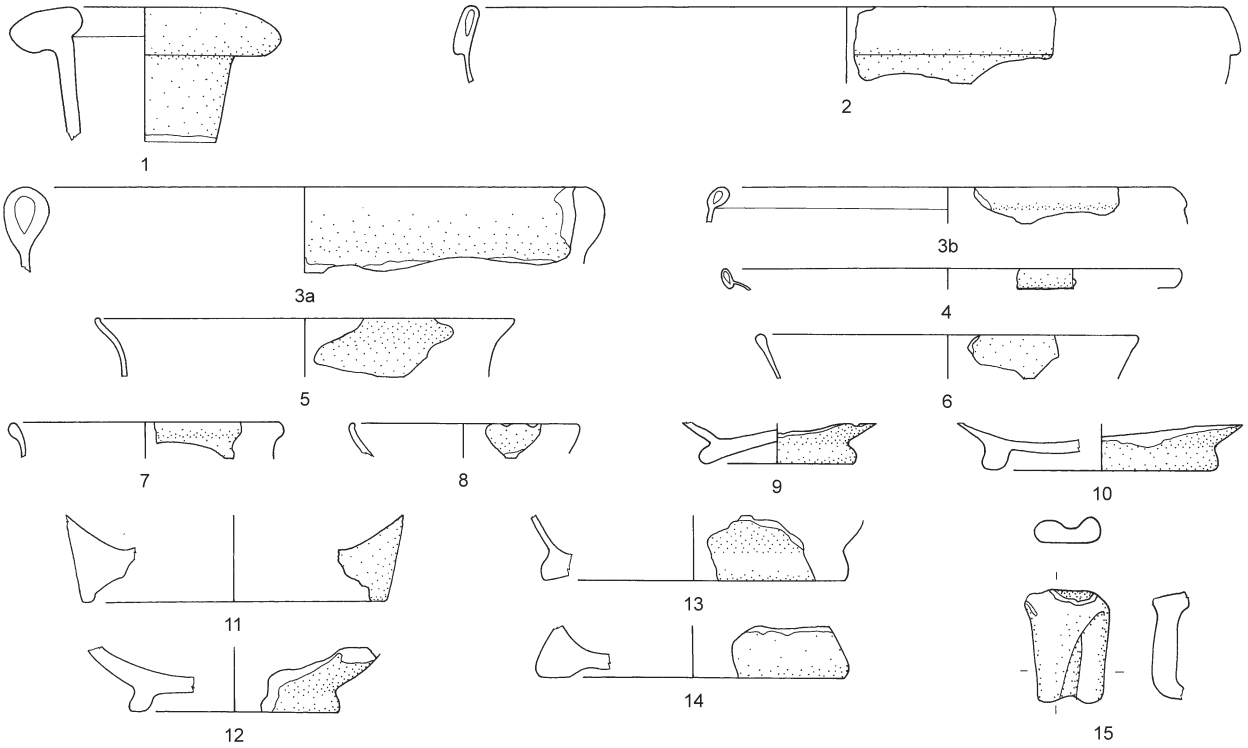


Revisits typology cont. Plate III-XXXII

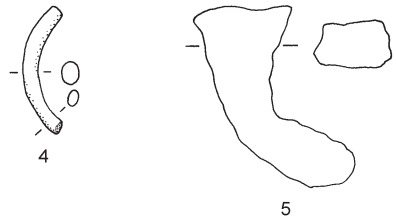
Oil lamps



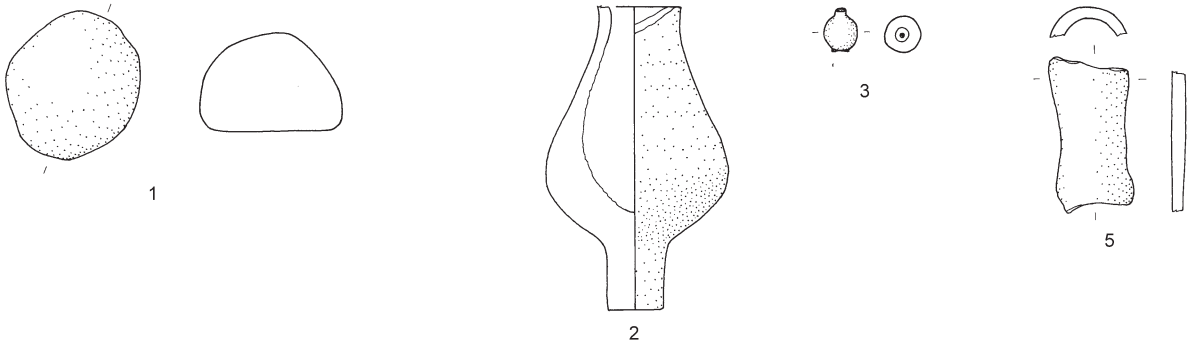
Glass



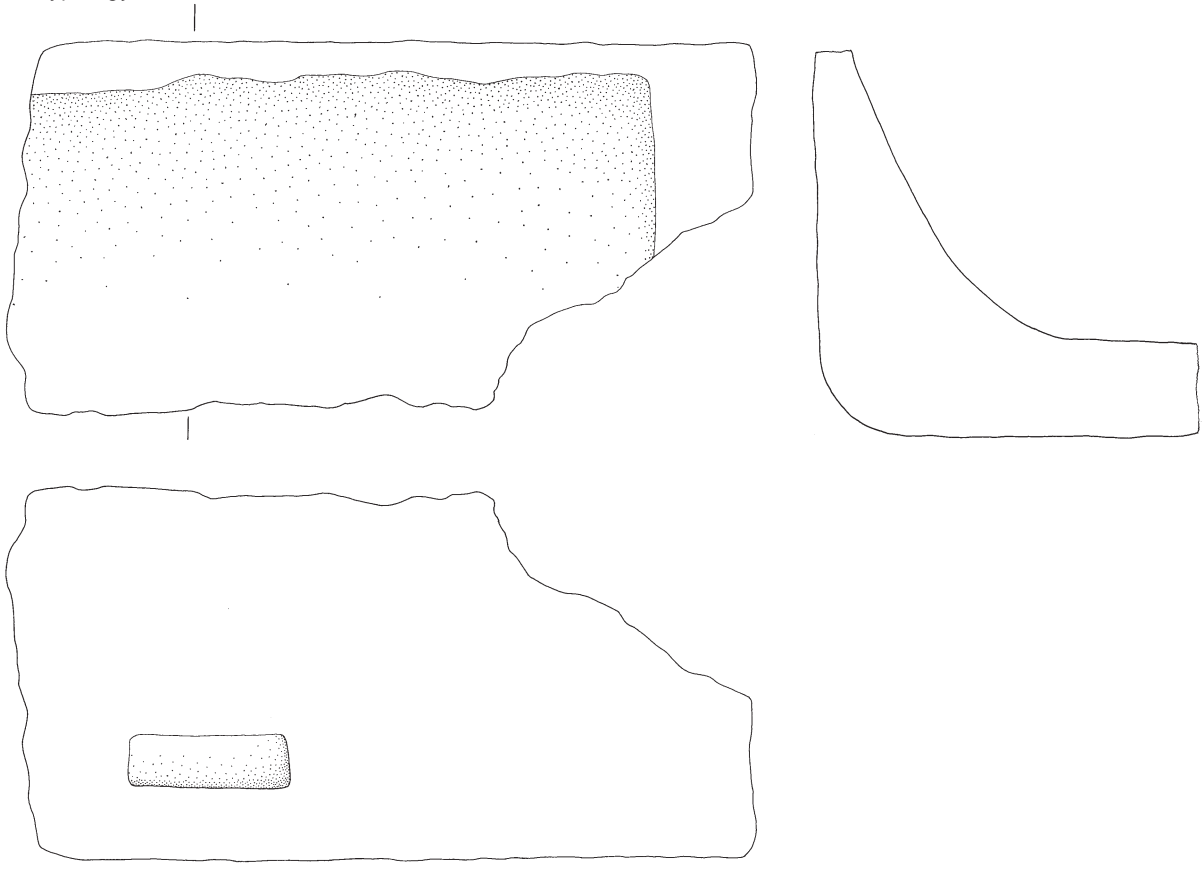
Metal artefacts



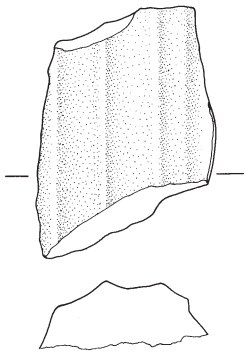
Miscellaneous



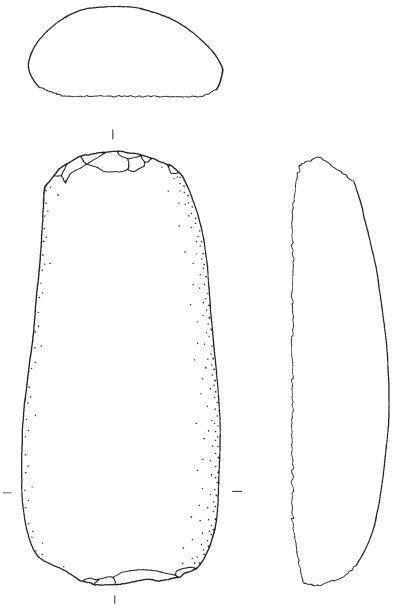
Revisits typology cont. Plate III-XXXIII



6 (1:3)



7



8

Chapter 4 – Case study 2:

Study of the archaeological collection of the *antiquarium di Nettuno*

In this chapter, the results of the study of a large collection of archaeological objects, presently located in the storerooms of the Forte Sangallo at Nettuno, will be presented. In the first section, the collection is introduced and its suitability as an additional source of topographical and artefactual data is assessed. This is followed by a discussion of objects from this collection that can be either assigned to individual sites or to more generic zones of our study area. In the final part, the contribution of the collection towards the archaeological knowledge of the study area is discussed, followed by an evaluation of the potential of integrating this dataset with data obtained by recent fieldwork.

4.1 The archaeological collection of the *antiquarium di Nettuno*

Since 2004, this collection – until recently largely unpublished – has been the subject of a detailed inventory and study by the GIA. It was mainly compiled in the 1970's and 1980's by Arnaldo Liboni, at the time director of the *antiquarium comunale di Nettuno.* [283] The collection comprises largely finds collected by him during reconnaissances and at building locations, supplemented by donations of local people and materials confiscated by the *carabinieri per la tutela del patrimonio archeologico.*[284]

Although a collection of archaeological materials stored in a local museum is in itself certainly not unique, specific aspects in its build-up render this collection of special interest. Most local collections present an aggregate of chance finds and individual donations; detailed information on find locations and finds circumstances are seldom recorded. The Nettuno collection was, however, for the largest part brought together and managed by a single person, whereas sample locations were recorded on a small-scale topographical map, allowing integration of the spatial and material data with data from recent GIA fieldwork. In our view, the collection could provide two important types of information:

1) The high quality of the objects in the collection (especially compared to survey samples) could potentially add information on both the chronological time span and the function of individual sites also mapped during GIA fieldwork.[285]
2) The collection could potentially provide information on sites now inaccessible (due to for example urban expansion) or removed, covered or reduced to small and insignificant scatters by modern-day agricultural practices. As such, its study could provide insight into the effect that large-scale urbanization and the development of modern agricultural techniques have had on the archaeological record during the last 30-40 years.[286]

The bulk of the objects originates from within the municipal area of Nettuno, with specific emphasis on the coastal area along the Poligono Militare, including the large Roman villa-complex at Torre Astura.[287] GIA's *Carta Archeologica del comune di Nettuno* project incorporated all objects from locations within the Nettuno municipality, 85 in total. However, the material evidence for each location varied considerably, from a handful of fragments to several crates of material. Also, several sites were indicated on Liboni's map, for which

283 Van Loon (2009) studied materials from the open-air sanctuary at Campoverde (Laghetto del Monsignore) for her MA-thesis. A selection of materials from the same location is included in Quilici-Gigli 2004. A small collection of Medieval and High Medieval ceramics, provenient from the *borgo* at Nettuno and the Medieval complex of Torre Astura is published in Bosi & Romoli 1995.

284 At the time Arnaldo Liboni was the director of the *antiquarium comunale di Nettuno* and the collection was housed in the Forte Sangallo. Since his retirement the collection, by law falling under the supervision of the *Soprintendenza per i Beni archeologici del Lazio,* has remained in the same location.

285 For the aims of the study see Attema & Tol 2005 and Attema, de Haas & Tol 2011, chapter 3.

286 The effect of human interventions in the landscape as early as the 1970's is well illustrated by Piccarreta's introduction to his *Forma Italiae*-volume Astura (Piccarreta 1977).

287 The collection, however, also contains samples from sites located outside the study area, such as *Antium*, *Satricum*, Cisterna di Latina, *Norba*, Campoverde and Circeo. These, however, almost without exception comprise materials provenient from well-known archaeological areas (urban centres, sanctuaries). The collection from the Nettuno municipality has obviously benefitted from the local knowledge (and local contacts) of Liboni, recording many rural sites as well.

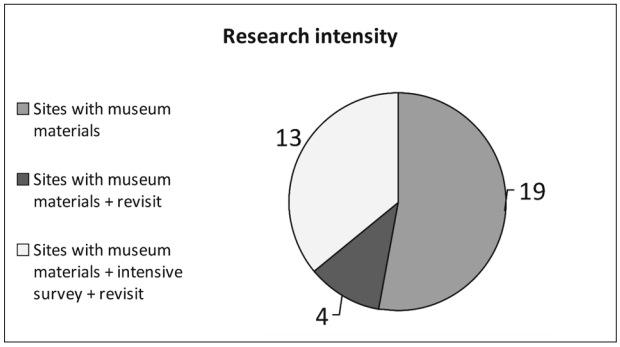


Figure 4.1 Research intensity for sites with materials in the museum collection.

no related objects were found in the collection. A portion of the sites mapped by Liboni were also sampled by the GIA, either during a revisit, during the intensive survey or during both. Other locations appeared to be (temporarily) removed from the archaeological record and could not be sampled on any occasion.[288]

The final publication of the *Carta* project contains a site and shard catalogue, combining evidence obtained during GIA fieldwork (revisits, intensive surveys) with that from the museum collection.[289] This chapter considers the material evidence from the collection separately, allowing a detailed assessment of the added value of this dataset.

In all, archaeological materials from 36 sites, relevant for this study, were found in the collection of the museum based on labels accompanying them. Compared to the publication of the *Carta,* evidence for an additional four sites is included in this chapter. These comprise one location (site 15262) that was not indicated on Liboni's map, but for which objects were found in the collection, whilst materials from three sites situated in the Astura area have been incorporated. These, located just outside the eastern margin of the Nettuno municipality, were not included in the publication of the *Carta,* but do fall within the topographical scope of this study. This chapter only considers sites of Roman origin; those of protohistoric date are published elsewhere.[290]

Location of the sampled sites

Most of the 36 sites considered are situated in the Campana area (25 sites). Furthermore, six sites are located in the Astura area and five along the coast.[291]

Of these 36 sites, just over a third (13 sites) was also sampled in the course of GIA's intensive surveys, as well as during a subsequent revisit, whereas four sites were sampled during a revisit only (fig. 4.1; see also chapter 3). For 19 sites, the objects in the museum collection are the only available evidence; these sites could not be retraced during GIA fieldwork. As the study of the museum collection was aimed at supplementing GIA's own fieldwork, the chronological evidence from the two sources combined will be discussed in the final part of this chapter. Together, these two sources contain evidence for 122 sites (70 in the Astura area, 43 in the Campana area and nine coastal sites).

Collection biases

For a number of sites, a statistical comparison can be made between the samples collected by Liboni and the GIA. Since during GIA fieldwork systematic sampling took place, aimed at collecting all artefacts visible on the surface, these samples can be used to identify biases in Liboni's collection strategy. The use of a chi-square test comparing the available data for sites 15014 and 15029 reveals a statistically relevant bias towards the collection of fine ware pottery over utilitarian pottery, amphorae and tile in the build-up of the museum collection.[292] Furthermore, compared to our survey samples, those contained in the museum collection include a relatively high number of 'special objects' (e.g. coins, metal objects etc.).

This biased way of collecting, predominantly motivated by aesthetic motives, is further accentuated by the following discussion of the material evidence from recorded sites, comprising significantly smaller numbers of tile, amphora and utilitarian pottery compared to the more systematic revisits and intensive on-site

288 This comprises sites that were sampled with low visibility, sites that are permanently destroyed (for example due to soil movement or soil cleaning) or temporarily inaccessible (overbuilt, no permission for site visit).

289 Attema, de Haas & Tol 2011.

290 Alessandri (2007 and 2009) discusses the material evidence for the Bronze Age and Early Iron Age. A publication of the materials pertaining to the later phases of the Iron Age, including the orientalising period, is in preparation (Tol *et al.* forthcoming).

291 A large collection of materials from the Cioccatti-area is included in the collection of the museum. This location was initially labelled site 15085. During subsequent GIA fieldwork, the area appeared to consist of four – largely contemporaneous – separate sites (labelled 15085-01 till 15085-04, see discussion in chapters 3 and 5). In this chapter, all evidence for the area is referred to as site 15085.

292 See Tol 2005, 46-47. The alpha level was set at 0.05. The comparison between the samples from the intensive survey and the museum collection led to a value between 0.01 and 0.02, clearly rejecting the test hypothesis that the composition of both samples was identical.

surveys (see chapters 3 and 5).[293] This renders the collected material evidence unsuited for the construction of consumption trends for the different wares as was attempted in the previous chapter. The date ranges of collected materials will therefore only be used to indicate site activity.

4.2 The material evidence

This section discusses the material evidence in the collection of the museum for the 36 sites relevant to this study. The following classes of material will be discussed: building materials (tile, brick, painted plaster, *tesserae* and marble fragments), amphorae, fine ware pottery (*bucchero*, black glazed ware, *ceramica a pareti sottili*, terra sigillata and African red slip wares), utilitarian pottery, glazed pottery and 'other' materials (loomweights, oil lamps, glass, metal artefacts, coins and 'miscellaneous' shapes).

Building material

Samples from four sites include fragments of Archaic tile (15005, 15068, 15076 and 15079). Roman tiles are absent, apart from two fragments bearing partially preserved stamps, both deriving from site 11312. One of these stamps probably belongs to a type (C·MALLE) that is known from other sites in our study area.[294] Two complete bricks derive from site 15014.

Several samples also contain fragments of luxury architecture. Fragments of painted wall plaster were collected from six sites (15001, 15014, 15019, 15059, 15066, and 15082); most of these comprise monochrome or polychrome fragments without figurative decoration. The fragment from site 15066 shows various floral motives. From four sites *tesserae* were collected; sites 11286 and 15001 yielded simple black and white (marble) examples, whereas the samples from sites 15014 and 15019 include many small glass *tesserae* in green, red and various shades of blue. Two sites yielded marble fragments (11286 and 15014). Among these are two worked fragments from site 15014; a sundial and a large plaque decorated with the depiction of a building (see Pl.IV-I.3-4).

Amphorae

The museum collection includes only a small number of amphorae that can be assigned to an individual site; these are, however, of considerable interest. A group of both rims and spikes derive from the coastal site 15059. They are identical in shape and fabric to local amphorae A and B produced at Le Grottacce, located approximately five kilometres to the south.[295] Unfortunately, the find circumstances of these fragments are unknown and the site is nowadays completely removed. Based on the nature of the sample, exclusively consisting of these 'local' amphora types, the possibility of the on-site production of these amphorae should not be ruled out. The existence of several nearby workshops producing similar amphorae is amply documented in other geographical settings.[296]

A total of 38 amphorae, including several intact specimens, were dredged up from the coastal waters between Nettuno and Torre Astura.[297] Together they span the period between the 1st century BC and the late 4th/early 5th century AD. Although we cannot be sure that these amphorae were destined for one of the harbours in or around our study area (apart from the five fragments from Torre Astura), most of the types included in the sample are common on inland sites (see for example chapters 3 and 5). Of special interest are five stamped amphorae; three of these stamps were (possibly) identified. The handle of a Dressel 20 amphora bears a stamp reading 'SAENICHE'; it probably originates from a workshop near present-day Las Huertas del Rio along the Guadalquivir river and dates between AD 80/90 and 130/40.[298] A second Dressel 20 handle is stamped 'AITA'.[299] On the shoulder of a Dressel 2-4 Catalan is the stamp 'CELS', dated between AD 80 and 120.[300] No parallels could be found for two other stamps, one on an African 2A con gradino type (possibly MIVP) and one on a Gauloise 4 amphora (reading M·NK). Furthermore, the spike of an unidentified amphora type bears part of

293 Although percentages vary from one site to the other, samples from the intensive survey in general contain more coarse wares, cookwares and amphorae than fine wares (see De Haas 2011, chapter 3). An even lower share of fine ware pottery was recorded during intensive on-site surveys (see chapter 5, table 2).

294 Three fragments of this stamp were found on the coast along the Poligono Militare (see De Haas, Tol & Attema 2011). Two other examples are known from ancient *Antium*, one from the theatre and one from a residential complex close to the coast (for both examples see De Meis 1986).

295 For a discussion of the site of Le Grottacce, including references, see chapter 1 of this thesis.

296 One of the best documented examples is the production of Graeco-Italic amphorae around the Bay of Naples (Olcese 2006).

297 As such, they add to a large collection of dredged up amphorae that was published before by the GIA (De Haas, Attema & Pape 2008; Pape 2011). Both the fragments included in these publications as well as the additional 38 amphorae here discussed were studied by Harry Pape as part of his master thesis (Pape 2008). This entire collection of amphorae is also known as the 'LAC' (Liboni Amphora Collection); see also the finds catalogue at the end of this chapter.

298 Callender 1965, 238-240, 310-311; Pape 2008, 97.

299 Possibly Callender 1965, 285.20.

300 Callender 1965, 242-243; see also Comas & Carreras 2006, 186-187.

a *dipinto*. Single amphora fragments also derive from sites 11313 and 15085.

Fine Wares

Bucchero

The collection contains *bucchero* fragments from four sites, three of which are situated in the Campana area. Rim fragments of two different bowl types, as well as a handle derive from site 15162. Site 15005, where *bucchero* fragments were collected during GIA fieldwork as well, yielded a rim fragment of a bowl and the handle of a large closed vessel, either an amphora or an *oinochoe*. Around site 15019 two handles, identical in shape but of different proportions, were collected; this type of handle occurs on various *oinochoe* types. On site 15072, located along the coast, non-diagnostic *bucchero* fragments were collected.

Black glazed ware

Samples from 17 sites contain fragments of black glazed ware, including many diagnostic fragments.[301] Although these fragments cannot be used to discuss diachronic changes in consumption volumes, because of the earlier mentioned collection biases, they further highlight several observations made in the previous chapter. The collection shows a rather heterogeneous set of forms, of which only three (two different bowl shapes and one stamp type) occur more than once; these three shapes were also commonly found during GIA fieldwork.[302]

The fragments from the museum collection confirm the absence of distinct 4th century types, providing additional support for consumption of black glazed ware in our study area only from the late 4th or early 3rd century BC onwards. The bulk of the objects again dates in the 3rd century BC, with a clear dominance of products of the *Gruppo dei Piccoli Stampigli*. At least five of the six recorded stamps belong to this tradition (comprising both *palmette* and *rosette* motives), as well as the only vessel shape present in large numbers. This bowl (Morels' shape 2783-84) is the most prolific shape of the GPS production.

Black glazed ware fragments in the museum collection provide insight into the consumption of the ware after the 3rd century BC. Although generally occurring in small numbers, 2nd-century fragments are recorded on at least nine sites, situated both in the Campana and the Astura area, whereas at least three sites yielded fragments of 1st century black glazed ware. This continuation of the consumption of black glazed ware was not yet attested, based on GIA's fieldwork.

Ceramica a pareti sottili

Fragments of *ceramica a pareti sottili* derive from six sites. They belong to different forms, dating between the early 1st century BC and the late 1st century AD. The only type attested more than once is the common cup type Marabini Moevs VIII.

Four of the six sites yielding fragments of this ware are located in the Campana area. Furthermore, fragments were collected on one site in the coastal area and one site in the Astura area.

Terra sigillata

The museum collection includes terra sigillata fragments from 15 sites in our study area. Ten of these yielded a large amount of diagnostic fragments, whereas the other five sites produced body fragments only.

Relatively few fragments belong to the early phase of sigillata production; most fragments date in the 1st century AD. This is corroborated by the repertoire of identified stamps and vessel shapes. Two forms stand out, both in the number of fragments collected and in the number of sites on which they are found. These are Conspectus forms 3 (a plate) and 34 (a cup). Both shapes date in the advanced 1st century and were also the most common terra sigillata shapes found during GIA fieldwork.[303] The stamps are all *a planta pedis* and mostly belong to well-attested Pisan potters like *Lucius Rasinus Pisanus, Sextus Murrius Festus and Sextus Murrius Priscus*; these stamps were also frequently found during GIA-fieldwork.[304] Three stamps belong to Arezzo-based potters *Camurius* (two specimens) and *Philogenes* (one specimen). The collection includes no shapes that date later than the 1st century AD, possibly indicating that by then terra sigillata had lost its position as dominant table ware to African red slip ware.

Terra sigillata fragments are collected on three sites in the Astura area and on one coastal site; the other eleven sites are situated in the Campana area. The (undiagnostic) fragment collected from site 15008 must probably be considered an off-site find, as all other fragments collected on this location are of protohistoric date.

Furthermore, a single fragment can possibly be identified as *Sigillata Orientale*. The shape of the rim,

301 This is in contrast with samples from GIA-fieldwork, comprising mainly undiagnostic fragments. The two diagnostic fragments from site 15010 must be considered off-site finds, since all other material from this location, both in the museum collection as from our own intensive surveys, is of protohistoric date.

302 See Attema, de Haas & Tol 2011, as well as chapters 3 and 5 of this thesis.

303 See Attema, de Haas & Tol 2011 and chapter 3 of this thesis.

304 See Attema, de Haas & Tol 2011 and chapters 3 and 5 of this thesis.

unknown from Italian sigillata products, is common in this ware.[305]

African red slip ware

As during the revisits, also in the museum collection African red slip ware is the most common tableware encountered. Fragments derive from 21 different sites in our study area and almost all samples include diagnostic fragments. Several sites do, however, stand out as to the quantity of African red slip ware fragments collected. Especially in the sample from site 15085 African red slip ware is abundantly present, probably influenced by the fact that this sample constitutes an aggregate of several nearby locations (see note 291).

Among the collected materials there is a dominance of 2nd- and early 3rd-century shapes, with several forms occurring in large numbers. These include Hayes types 3(B/C), 6, 8(A/B), 9(A/B), 14(A/B) and 27; the same shapes are extremely common in GIA samples as well.[306] In line with observations elsewhere, there are only few types dating in the advanced 3rd or early 4th century AD.[307] A varied repertoire of fragments dating from the mid-4th century AD onwards is, however, attested on a number of sites among which Hayes types 61A and 67 are the most common shapes. There are no fragments in the museum collection that date later than the 6th century AD, confirming that African red slip ware supply to our study area had by then come to a halt (see also chapters 3 and 5).

Based on the samples in the museum collection we can conclude that African red slip ware reached all parts of our study area. Fragments of the ware were collected on one coastal site, four sites in the Astura valley and 17 sites in the Campana area. Late African red slip ware fragments were mainly consumed in the Campana area, although sites 11268 and 11286 yielded evidence for the consumption of African red slip ware on sites in the Astura area as well until at least the second half of the 4th or perhaps even the beginning of the 5th century AD.[308]

Utilitarian pottery

Fragments of utilitarian pottery, as explained earlier, appear not to have been collected systematically. Among the collected materials especially fragments of African cookware are numerous. The fact that these were often collected (and stored) together with fine ware fragments (mainly African red slip ware and terra sigillata) indicates that these were considered by Liboni as 'fine ware' pottery, despite the fact that they are, in general, unslipped.[309] A second factor that must have contributed towards their collection is that these products were imported *en masse* to our study area (see chapter 3). The most common types of African cookware are Hayes forms 23B, 196 and 197, whilst other types and their possibly associated lids are attested in lower numbers. Together, these fragments cover a date between the beginning of the 2nd and the late 4th century, with most fragments of late 2nd or 3rd century date. The fragments derive from twelve sites in our study area; seven of these are located in the Campana area, four in the Astura area and one in the coastal zone.

The rest of the utilitarian pottery in the collection covers a period between the Archaic period (6th century BC) and the late 6th or early 7th century AD. Only two sites yielded diagnostic pottery that can be dated with certainty to the Archaic period. From site 15076 derive three different bowl shapes and the rim of a jar, whereas site 15084 yielded a large part of an Archaic dolium, deprived of its rim. Among the samples in the museum collection is an almost complete lack of distinct post-Archaic pottery types. Types that possibly date in this period include the base of a *ciotola*, providing a date between the orientalising period and the late 3rd century BC, fragments of high collar almond-rimmed jars, two *teglia* fragments and single fragments of a bowl/lid and a *thymaterion*. However, the fact that these shapes are in general associated with late 4th- or 3rd-century pottery shapes, both in the museum collection and in samples from GIA fieldwork, favours a mid-Republican date for these pieces.

A large variety of utilitarian pottery shapes dates between the mid-Republican and early Imperial period. The largest part of these belong to cooking wares comprising various types of jars, casseroles, pans (*pentole, tegami*), as well as different lid types (including *clibani*). These shapes are supplemented by a small and fairly heterogeneous collection of jugs, *olpai,* bowls, *unguentarii* and cups. Most of the identified products fit in the repertoire of shapes that circulated in the western part of Central-Italy in these periods and are commonly found in all parts of our study area.

In line with observations made during GIA fieldwork, the samples in the museum collection lack fragments of distinct 3rd century AD utilitarian pottery.[310] On the other hand, a few fragments attest to the consumption of coarse and cookwares between the 4th and the late 6th century AD. These fragments, consisting of several jar

305 Hayes 2008, Figure 6.141-143; Johnson 2008, chapter 2.12-14.

306 See Attema, de Haas & Tol 2011 and chapters 3 and 5 of this thesis.

307 For the supply of African red slip ware see e.g. Fentress *et al.* 2004

308 During GIA's intensive surveys 4th-, and possibly 5th-century AD African red slip ware was identified on one site only (Attema *et al.* 2008).

309 In fact most of these African cookware types were included in the original classification of African red slip ware (Hayes 1972).

310 See chapter 3 of this thesis.

and casserole types, are restricted to three sites in the Campana area (15019, 15035, and 15085).

Glazed pottery

A single fragment of *green-glazed ware* derives from site 15072, situated in the coastal area. It dates in the first half of the 2nd century AD.

Other materials

Loomweights

The collection includes five (fragments of) loomweights, all of rectangular or semi-rectangular shape. Four of these are in *impasto chiaro sabbioso* and either plain or decorated with a horizontal groove on top. The topside of the fifth fragment is decorated with two parallel rows of impressed circles. Both shapes are common in nearby contexts of the post-Archaic or mid-Republican period.[311]

Four of these fragments derive from sites in the Astura area, and as such add to the already considerable collection of similarly shaped fragments collected in this area during GIA fieldwork (see chapter 3). The fifth fragment was found on one of the coastal sites (site 15059).

Oillamps

Six sites together yielded a total of nine oil lamp fragments. Two fragments from site 11268, as well as single fragments from sites 15019, 15059 and 15082, could not be dated; they constitute only small parts of either the nozzle or the shoulder. From site 15014 comes part of a small oil lamp, dating in the 1st century AD. From site 15085 comes half of a plain oil lamp dating in the 1st century AD, as well as the discus of an African oil lamp, depicting a *chi-rho* sign, dating in the 4th or 5th century AD.[312] Site 15059 yielded part of a black glazed ware oil lamp of Republican date.

Glass

Glass fragments were collected on nine sites in our study area. However, only six of these yielded diagnostic fragments. These diagnostic fragments are, in general, small and comprise mainly bases that are difficult to assign to a specific vessel type.

A total of eight fragments could be dated with more precision. Four of these are base fragments of *unguentarii*, dating in the 1st or 2nd century AD. Furthermore, two fragments of flasks, the rim of a bowl and the base of a cup date between the second half of the 1st century BC and the mid-2nd century AD.

Most of the sites (seven) yielding glass fragments are located in the Campana area, whereas the other two sites are located in the Astura area. All but one of the dated fragments come from sites 15014 and 15019, where diagnostic early Imperial glass fragments were collected by the GIA as well (see chapter 3).

Furthermore, site 15019 yielded a single fragment of window glass.

Metal artefacts

The museum collection contains a large number of metal artefacts (mainly in silver, bronze, iron and lead); the find location of the majority of these fragments is, however, not recorded.[313] Site 15014, situated in the Campana area, yielded a wide variety of objects of generic Imperial date. They include different types of keys, bronze rings, two bronze bells, two types of *pinacoli* and fragments of bindings. Several other fragments from the same site could not be identified. From site 15038 derive five lead miniature-amphorae. They are all pierced, suggesting their use as a weight. These fragments find parallels at, for example, *Gravisca* and probably date in the early Imperial period.

Furthermore, iron and bronze nails come from sites 15014, 15019 and 15072. These fragments are, however, impossible to date due to their conservative shape.

Sites 15068 and 15262 yielded fragments of iron and bronze. These are, however, small and corroded and could not be identified and dated.

Coins

The numismatic collection from the antiquarium was already published elsewhere; therefore, only a brief overview will be provided here.[314] The find location of many of these coins is unknown, as they were either donated by collectors or confiscated by the *carabinieri*. A total of 67 coins could be assigned to five different sites: 11202 (34 coins; these are not considered here, but will be commented upon later in this chapter), 11281 (one coin), 15014 (20 coins), 15019 (eight coins) and 15085 (four coins). The collection contains only three Republican coins, all found around site 15014.[315] They date between the late 4th/early 3rd century BC and the first half of the 1st century BC. The majority of the coins, 21 specimens, is of Imperial date, covering the period between the reign of Emperor Nero and the second half

311 See for example Bouma 1996, pls.CXXI-CXXIII and Di Mario 2005, TAV.XXXVII-XXXIX for fragments from *Satricum* and *Antium* respectively.

312 The fragments from sites 15014, 15019 and 15085 are published in Willemsen 2011.

313 Most of these objects are donated to the museum by local people.

314 Derks 2011.

315 Around this area, another stray Republican coin, dating in the late 3rd or early 2nd century BC, was found during GIA's intensive survey (De Haas & Tol 2005, 81).

of the 4th century AD. Finally, nine coins were too worn to allow identification.

Miscellaneous shapes
The museum collection contains several miscellaneous shapes. From site 15085 derives part of a ceramic shape often interpreted as an amphora stopper, although identification as a dice cup *(fritillus)* is more likely. Site 15017 yielded part of a clay tobacco pipe, common in the 18th century AD.

4.3 The museum collection – generic toponyms

Of a number of objects in the museum collection only a generic provenance is recorded. Although these fragments can therefore not be assigned to a specific site, they do contribute to our understanding of the chronological developments of specific parts of our study area as well as suggest the presence of specific functional areas. This section discusses the material evidence for four of such (site) areas, comprising:

1) A group of materials collected within the municipality of Nettuno, without the recording of a more precise find location;
2) A large collection of ceramics and other materials collected on the Poligono Militare;
3) A large collection of materials originating from the area of and around the villa at Torre Astura (site 11202);
4) A small collection of fragments originating from the area of Campana.

In the following, each of these collections will be discussed in detail.[316]

Nettuno
The group of objects discussed under this heading comprises a number of well-preserved vessels of different periods that have been donated to the museum in past decades.[317] All objects were reportedly found in the Nettuno municipality, without knowledge of their exact provenance.

The group contains two small jugs in depurated ware. The first has an ovoid body, a flat base and a handle that rises slightly above the lip of the vessel. The second is smaller, has its widest diameter lower down the body, a flat base, and of the handle only the lower attachment is preserved. Both jugs are commonly found in both grave and votive contexts in *Latium Vetus* and present in various contexts around the Nettuno municipality as well. Their production date is quite long, spanning a period between 500 until at least the 3rd century BC.[318]

The sample also contains eight black glazed ware vessels; it is, however, unclear whether they derive from the same location. A complete *skyphos* is of the *Ferrara T 585 Meridionale* type. The shape is well-known from various contexts in and around Rome and is considered to be of local or regional production.[319] Three bowls are typical Etrusco-Roman products of the 3rd century BC (Pl.IV-XXIII.4-6). A complete miniature crater with two non-functional handles attached to the exterior of the wall has a strong votive connotation and can be dated in the late 4th or early 3rd century BC.[320] An almost complete black glazed ware oil lamp, only missing part of the handle, provides a generic Republican date. A base fragment bears a single stamp depicting two opposing dolphins. Although no exact parallel for this stamp was found, depictions of dolphins are not uncommon on Etrusco-Roman black glazed ware, roughly providing a date in the first half of the 3rd century for our fragment.[321] Finally, the body fragment of an unidentified vessel is decorated with the face of a woman.

Also included is a small number of terra sigillata vessels. The first is a base fragment bearing a rectangular stamp on the interior. It identifies the potter as *Chrestio, slave of L Titius,* and dates in the last decade BC or the first decade AD. The second is a wall fragment

316 The inventory numbers for these vessels, as well as those for the Poligono, Torre Astura and La Campana areas were assigned by the *Soprintendenza per I Beni Archeologici del Lazio.*

317 The collection also contains several prehistoric and protohistoric artefacts that are, however, not discussed here.

318 Examples of these small jugs are for example known from *Satricum* and *Antium.* At the former site, they frequently occur in the southwest necropolis (Gnade 1992, 76-8, pl.19) and constitute a common donation in Votive Deposit II (Bouma 1996). In *Antium,* a total of 39 miniature jugs was contained in the votive deposit at the *viale delle Roselle* (Manfrè 2007, 22-30). Our examples are morphologically close to this latter group of vessels; whereas in *Satricum* most jugs have a raised flat base, the examples from *Antium* are flat-based. The various contexts provide a rather long chronology for these vessels. The *Satricum* examples are dated in the early 5th century (The southwest necropolis) and between the mid-5th and mid-4th century BC (Votive Deposit II) respectively. In association with black glazed ware fragments from the same votive deposit, the fragments from *Antium* are dated between the late 4th and the late 3rd century BC.

319 Rossi 2009, 220. The shape is also attested at Segni (Stanco 1988). For examples from *Satricum* see Bouma 1996, pls. CXLIX-CLI. For a large collection of similar vases see also Jehasse & Jehasse 1973.

320 Two miniature craters were found in Votive Deposit II at *Satricum* (Bouma 1996, pl.CLIV). However, these lack the rudimentary handles. These handles are present on an example from the same site in the Villa Giulia museum (*Satricum* section).

321 Depictions of single dolphins are for example listed in Stanco 2009, figs.5.34 & 5.39 (see also Bernardini 1986, stamp type 218); as on our specimen, his fig.5.33 depicts two dolphins. This fragment however also bears a central theme, whereas on our fragment the two dolphins are separated only by a raised dot.

Figure 4.2 Fragment of green terra sigillata (see also pl.IV-XXV.18).

covered by a greenish/yellowish slip, decorated with a figurative scene reminiscent of motives regularly used on terra sigillata (fig. 4.2). Furthermore, six complete vessels are known to derive from the same, although not specified, location within the communal area of Nettuno. They contain two small cups of *Conspectus* form 34, three small cups of *Conspectus* form 29, and a large plate of *Conspectus* form 20. Remarkably all six vessels bear a stamp identifying them as a product of the workshop of *Lucius Rasinus Pisanus*. Five of the stamps are *a planta pedis*, whereas one is clover-shaped.[322] All of these vessels date in the second half of the 1st century AD.[323] Finally, the group contains five 'miscellaneous' fragments. The first is a near complete *agho crinalo*, for which no precise date can be given. The second is a ceramic statue, deprived of its head. The figure stands on a pedestal and is dressed in a *toga*. His right arm is raised holding a cylindrical object in front of his chest. No parallel was found for this fragment. The third fragment is part of a large cooking pot of late Imperial date (in Pantellerian Ware). A trapezoidal shaped loomweight bears a small stamp on the front side, depicting a knot; it can generically be dated in the Republican period. The fifth fragment is a bronze lance point of unknown date.[324]

Poligono

The museum collection contains a large sample from the Poligono Militare. These materials are all collected in the coastal area of this military base, the only part where (limited) access is authorized to outsiders. The sample contains many fragmentary and common pottery shapes and is therefore not discussed in full. This section discusses only those fragments that provide insight into the overall chronology of frequentation of this area. Previous research in this area has, above all, focused on the remains of several *villae maritimae* and associated structures (including fish ponds and productive areas).[325] These studies have heavily influenced the general view of this area as mainly representing a late Republican/early Imperial landscape.[326]

Based on a large collection of ceramics, including black glazed wares, utilitarian pottery and loomweights, it is clear that the area also knew substantial Republican activity. The objects associated with this activity are hard to date with precision, but are mostly of mid-Republican date. Although their exact find locations are not recorded, it is certain that they belong to at least a number of different sites, providing some clue about the scale of activity in this period. The collection contains two post-Archaic/mid-Republican loomweights. The first is a large and rectangular specimen bearing a horizontal groove on top, whereas the shape of the second is *troncopiramidale*. These fragments have a long chronology, comprising the 4th and 3rd century BC. The area yielded a number of circular – terracotta and stone – loomweights as well. Among the black glazed ware fragments is a large collection of stamped bases. The repertoire of stamps includes both *palmette* and *rosette* as well as part of a motive consisting of three concentric grooves. These stamps can all be attributed to the *Gruppo dei Piccoli Stampigli* (Pl.IV-XXVII.15 till IV-XXVIII.27).[327] Furthermore, a wide variety of black glazed ware vessel shapes is recorded from the area.

322 Identification of the forms derives from Ettlinger *et al.* 1990. Stamps of *Lucius Rasinus Pisanus* are among the most common in our study area (see Attema, de Haas & Tol 2011 and chapters 3 & 5 of this thesis).

323 This homogeneous group of vessels suggests that they are the result of a single commercial transaction (for mechanisms of trade see Pena & McCallum 2009a and b).

324 The loomweight and the lance point were published earlier in Tol 2011 (fragments Misc_08 & Misc_23).

325 For an overview of these studies see chapter 1.

326 The prehistoric and protohistoric remains are not within the scope of this study and are therefore excluded from this discussion. For prehistoric settlement in this area see La Rosa 2011. Protohistoric sites are both listed by Piccarreta (1977) and Alessandri (2007 and 2009). The GIA studied several of these sites in more detail (see Attema, de Haas & Nijboer 2003). For an inventory of Roman sites I refer once again to Piccarreta 1977 and Attema, de Haas & Tol 2011.

327 For a recent article discussing the Gruppo dei Piccoli Stampigli see Stanco 2009. For earlier publications see Morel 1969 and Perez Ballester 1987. For nearby contexts yielding many stamped fragments see Bouma 1996; Di Mario 2005 and Bernardini 1986.

Apart from two 2nd-century cups these are all of 3rd-century BC date.

Also among the utilitarian pottery are several fragments of mid- or late Republican date. They include different types of *ollae* (among which are common high-collar rims and almond-rimmed jars) and different types of pans (Pl.IV-XXIX.33-34 and 37-38). Early Imperial utilitarian pottery includes another example of a pan as well as an almost complete jug, missing part of the rim (Pl.IV-XXIX.35-36).

The Poligono-collection contains a wide variety of early and mid-Imperial tablewares, comprising both terra sigillata and early African red slip ware shapes. The sample of African red slip ware shapes provides further evidence for the continued consumption of this ware into the late Imperial period, possibly until the 5th century AD.[328]

Furthermore, the collection of pottery from the Poligono contains two fragments of a distinct ware that was not encountered on any other site in our study area. It is characterized by a hard dark grey fabric and an exterior surface exhibiting incidental irregularities identical to those common on *ceramica a pareti sottili*. Two diagnostic fragments belonging to this ware were identified; a thin-walled knob of a lid and the rim of a bowl bearing two grooves on the exterior of the rim, close to the lip (Pl.IV-XXIX.31-32). A complete ceramic shape, of small dimensions, can possibly be identified as a 'stopper' (Pl.IV-XXIX.39).

A large group of 'miscellaneous' shapes from the Poligono Militare forms part of the collection of the museum. It includes a number of tile stamps, covering the period between the 1st and possibly the 4th century AD.[329] Especially numerous are late Roman examples, characterized by their closed circular shapes with raised centre. One of the types, identifying the workshop owner as AEMILI•PAVLLI•, was with certainty produced in the Poligono area, as is attested by a terracotta die in the museum collection (Pl.IV-XXIX.40). Three stamps belonging to the workshop of POMPEI•MAGINI• were also found. The scarce attestations of this stamp type outside our study area suggest a local production for these tiles as well.[330]

Furthermore, the Poligono area yielded ten antefixes, adding to the single fragment collected in the same area during GIA fieldwork (see chapter 3). Seven fragments depict *palmette* motives that were especially popular in the late Republican and early Imperial period.[331] It is not possible to relate any of these fragments to a specific site, but it is likely that they originally adorned one or more of the coastal villas recorded along this coastal stretch. Of three identical antefixes, all representing the comic mask of a female actor, the provenance is known. They derive from the coastal villa of Le Grottacce and add to a single fragment of probably the same roof system that was found on the beach in the 1980's.[332] A date in the early Imperial period seems probable for these pieces.

The collection of fragments from the Poligono area also comprises a single fragment of a terracotta statue. It preserves part of a human body, wearing a cloth. An almost complete *agho crinalo* cannot be dated with any precision.[333] A large collection of metal fragments was also collected from the area. However, these comprise mostly extremely corroded and therefore unrecognizable shapes; one bronze artefact can possibly be identified as a piece of horse garment (Pl.IV-XXXII.57).

Torre Astura

The archaeological remains on the natural promontory of Torre Astura have been the subject of several studies focusing on the remains of the Torre Astura villa, of late Republican or early Imperial origin, and its associated structures as well as the still standing remains dating in the Middle Ages.[334] However, the study of the museum collection as well as investigations by GIA teams show that this favourable location was already frequented in

328 This is in accordance with observations made during revisits to a number of coastal sites (see chapter 3 of this thesis).

329 This collection of stamps, supplemented by stamps retrieved during GIA fieldwork, was published in De Haas, Tol & Attema 2011, table 1).

330 Of both the ·AEMILI·PAVLLI and the ·POMPEI·MAGINI stamp an example was found at the villa of Le Grottacce. The presence of tile wasters as well as the identification of an *essicatoio* on this site makes it a likely candidate for the production of both types of tiles. For the ·AEMILI·PAVLLI fragment from Le Grottacce see De Haas, Attema & Pape 2008, 552.47. For the ·POMPEI·MAGINI fragment from the same site see Blokzijl 2005, 141. For an evaluation of the evidence for late Imperial building activity in the Poligono area see Tol 2010. For earlier publications of the die see Attema, Derks & Tol 2010; De Haas, Tol & Attema 2011 and Tol 2010.

331 Five of these antefixes were published before in Tol 2011 (fragments Misc_24-29). For similar, though not identical antefixes, see for example Frova & Bertino 1973, TAV.124.6.

332 Knoop 1991. He suggests a date in the early 2nd century AD for the fragment.

333 Both these fragments were published before in Tol 2011 (fragments Misc_21 and Misc_31).

334 Out of the extensive bibliography see for example Castagnoli 1963; Piccarreta 1977 and 1980; Higginbotham 1997.

pre- and protohistoric times, although the nature and extent of this activity is still unclear.[335]

Archaic pottery from this location is included in the collection of the museum, comprising several small fragments of *bucchero*. The area also yielded fragments of black glazed ware of various periods. An almost complete profile of a bowl and two *palmette* stamps can be identified as Etrusco-Roman products of the 3rd century BC (Pl.IV-XXXIII.5-7).[336] A small cup and a complete plate date in the 2nd or 1st century BC (Pl.IV-XXXII.3-4), whereas for a base fragment, decorated on the interior with a painted six-petalled *rosette,* no parallel was found (Pl.IV-XXXIII.8).

The museum collection contains a large sample of terra sigillata fragments from this location. Among these are several fragments bearing elaborate (figurative) decoration, as well as the rim and base of an extremely delicate shape with a wall thickness of less than 0.2cm. Also well attested are vessels in *ceramica a pareti sottili*, mainly comprising cups and bowls. African red slip ware fragments are again present in large numbers, covering the period between at least the 2nd and the later 6th century AD. The find of a complete inkpot (Hayes form 124) deserves special mentioning, as well as a thin-walled and nicely slipped example of Hayes form 19 (Pl.IV-XXIV.23).[337]

Utilitarian pottery from the site again puts its long chronology of frequentation in evidence. The sample includes Republican jar types, both high-collar rimmed and almond-rimmed jars (dating in the mid- and late Republican period respectively), as well as fragments dating in the late Imperial and early Medieval period. An intact mortar can be dated in the second half of the 2nd or the 3rd century AD (Pl.IV-XXXVIII.45).[338]

The area also yielded a large collection of tile stamps, coins (including a mid-4th century coin hoard), oil lamps, glass and metal objects. All coins, stamped tiles and oil lamps from this location were already published elsewhere.[339] Glass objects are plentiful, but generally in fragmentary state. The identifiable shapes include fragments of a flask, a bowl and an *unguentarium*, all of early or possibly mid-Imperial date. Among the metal artefacts are objects in bronze, iron and lead. Apart from many unrecognizable shapes, the collection of bronzes includes mainly nails, several utilities, and objects for personal decoration. These objects are, because of their in general slow-evolving shapes, hard to date with more precision than labelling them 'Roman' or 'Imperial'. Most of the iron and lead objects are worn; whereas many of the iron objects (for the largest part nails) are heavily corroded, lead fragments are frequently folded into unrecognizable shapes. The collection of lead fragments does, however, contain several large rings, a shell and a complete oil lamp that can be dated in the 6th or 7th century AD.[340]

The area of Torre Astura also yielded a variety of 'miscellaneous' shapes. These comprise various terracotta egg-shaped projectiles, four statues (one in marble, three in clay) and a fragment of coarse ware pottery with, on the exterior, plastic decoration in the shape of a human figure.[341]

Campana

Three fragments are known to originate from the Campana area, without being attributed to a specific site. The first fragment is the rim of a black glazed ware *situla* dating in the late 4th century BC (Pl.IV-XXXIX.1). The second fragment is an almost complete glass *unguentarium*, dating in the 1st or 2nd century AD. The third fragment is a complete bronze item of unknown date.[342]

Recapitulating: the material evidence from the collection of the museum

In the previous sections, archaeological objects contained in the collection of the *antiquarium di Nettuno* were discussed that could be related to specific sites in and distinct topographical parts of our study area. This collection comprises a wide variety of objects, clearly

335 For prehistoric activity around the villa see Attema, de Haas & Tol 2011, site 15239. Alessandri (2007, 106-108) discusses (Middle) Bronze Age materials from the area. The museum collection also contains materials of Iron Age date; these will, however, be published elsewhere (Tol *et al.* in preparation).

336 The stamps were published before in Attema, de Haas & Tol 2011, fragments E31 and E32.

337 For the inkpot see Attema, de Haas & Tol 2011, 177, no.11. Hayes form 19 is associated with cooking and generally part of the rim is blackened from exposure to fire (see for example Attema, de Haas & Tol 2011, 178, G15 & chapter 3 of this thesis). The here published thin-walled fragment is covered in a bright slip and bears no traces of exposure to fire, suggesting a different use. A similar delicate fragment is on display in the *Museo Archeologico Nazionale Sanna* in Sassari.

338 This type of mortarium is well-known from other contexts, for example Settefinestre (Ricci 1985, 221, TAV.56.2) and Luni (Frova & Bertino 1973, TAV.74.19). Although the type has a relatively long life-span (AD 0 – 300 approximately), Steinby notes that the later examples (from AD 150 onwards) are not stamped, as is our example (Steinby 1981).

339 See Derks 2011 for the coins; Willemsen 2011 for the oil lamps and Tol 2011 for the tile stamps (fragments Misc_1-4). From the area around Torre Astura, three inscriptions in Greek are known: one is in marble, two are in terracotta (Solin 2003, 109-111).

340 A similar shell, also in lead, was found during the Luni excavations (Frova & Bertino 1973, TAV.138.30) and at Ostia (Carandini & Panella 1970, 256, TAV.XLVI..658a-c). The here discussed fragment was published earlier in Tol 2011 (fragment Misc_33). The oil lamp finds a parallel at the Crypta Balbi (Arena *et al.* 2001, 424, figs. II.4.1026-27).

341 These miscellaneous fragments were published earlier in Tol 2011 (fragments Misc_17-20; Misc_32 & Misc_30).

342 The bronze fragment was published in Tol 2011 (Misc_22).

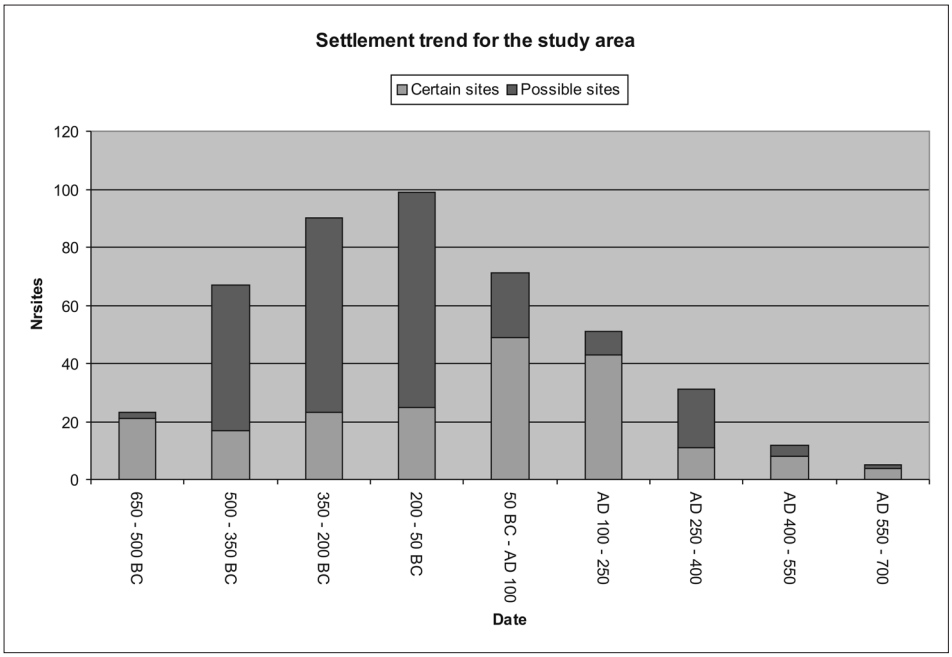
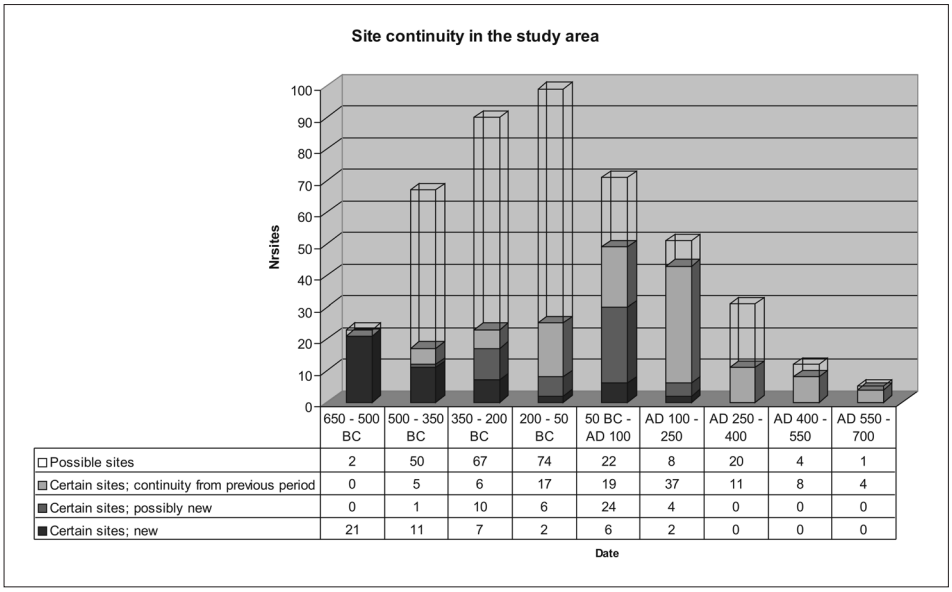


Figure 4.3 Settlement trend for the study area after the study of the museum collection.



	650 - 500 BC	500 - 350 BC	350 - 200 BC	200 - 50 BC	50 BC - AD 100	AD 100 - 250	AD 250 - 400	AD 400 - 550	AD 550 - 700
Possible sites	2	50	67	74	22	8	20	4	1
Certain sites; continuity from previous period	0	5	6	17	19	37	11	8	4
Certain sites; possibly new	0	1	10	6	24	4	0	0	0
Certain sites; new	21	11	7	2	6	2	0	0	0

Figure 4.4 Settlement continuity for the study area after the study of the museum collection.

biased towards fine ware pottery. It also includes a large collection of objects that are normally scarcely present (or entirely absent) in survey assemblages (coins, metal artefacts etc.).

The discussion of these generic contexts provides additional data on the chronology of distinct topographical areas that have been subject to rather haphazard study until now. Material evidence from the Poligono area as well as from Torre Astura indicates that substantial activity pre- and postdates the construction of the large *villae maritimae that* have dominated both areas visually (and academically). A collection of stray materials provenient from within the communal area of Nettuno sheds some light on the presence of ritual and/or funerary areas.

4.4 Chronological developments

In the second part of this chapter, the material evidence from the museum collection is used - together with the data provided by the intensive surveys – for the construction of a diachronic settlement trend for the study area (figs.4.3 & 4.4). After a discussion of developments for the area as a whole (with mentioning of the specific contribution of the study of the museum collection to this overall pattern), the contribution of the study of the museum collection towards our knowledge of settlement will be assessed separately for the Astura, Campana and coastal area.

As in the previous chapter, the settlement history comprises nine consecutive periods: the Archaic period (650 – 500 BC), the post-Archaic period (500 – 350 BC),

the mid-Republican period (350 – 200 BC), the late Republican period (200 – 50 BC), the early Imperial period (50 BC – AD 100), the mid-Imperial period (AD 100 – 250), the late Imperial period (AD 250 – 400), late Antiquity (AD 400 – 550) and the early Medieval period (AD 550 – 700).

The Archaic period
(650 – 500 BC; figure 4.5)

For the archaic period, there is evidence for certain occupation on 21 sites, whilst another two sites were possibly occupied. Based on materials in the museum collection, five certain sites and one possible site were added. Certain occupation was attested on two sites by the presence of diagnostic bucchero fragments (15019, 15162). Two additional sites yielded fragments of archaic tile (15076 and 15079), whereas the sample from site 15076 included coarse ware types that date in the archaic period. Furthermore, on one site (15084) an almost complete archaic dolium, deprived of its rim, was found.

The post-Archaic period
(500 – 350 BC; figure 4.6)

The post-Archaic period notes an increase in the total number of sites; however, on most of these, activity is uncertain. The number of certain sites is even somewhat lower than in the preceding Archaic period. Most sites with certain occupation are new foundations and (possible) continuity from the Archaic period is attested on only six locations. The study of the museum collection has added only one certain site (15068) to our inventory, as well as seven uncertain sites. The scarce evidence for (certain) occupation is easily explained when considering the overall composition of the samples in the museum collection. Identification of activity in this period depends on the presence of several distinct tile fabrics (see chapter 3), a category of materials unfortunately absent in the collection. Remarkable is the fact that the collection does not contain distinct coarse ware shapes of this period. The only site with certain activity yielded the base fragment of a bowl that is common between the orientalising period and the late 3rd century BC. However, in our study area it is extremely common in post-Archaic contexts, for example at *Satricum*.

The Mid-Republican period
(350 – 200 BC; figure 4.7)

In this period, the total number of sites continues to rise, although this increase is less marked when considering the certain sites only. Among these certain sites is an almost even number of new foundations and locations that show continuity from the preceding post-Archaic period. The study of the museum collection has added considerably to our knowledge of settlement in this period; the number of certain sites has almost doubled (23 compared to twelve sites) and five locations with uncertain activity are added. Certain occupation is mainly attested by the presence of black glazed ware fragments. Similar to observations made during other case studies (see chapters 3 and 5) these comprise mostly fragments of late 4th or early 3rd century date, belonging to the Etrusco-Latial production of the *Gruppo dei Piccoli Stampigli*. A variety of utilitarian pottery shapes, loomweights and coins also date in this period.

The Late Republican period
(200 – 50 BC; figure 4.8)

Compared to the previous period, the total number of sites again rises, whereas the number of certain sites remains low and almost stable. Almost all certain sites show continuity from the mid-Republican period and there are only a few new foundations. By studying the museum collection, ten certain sites and seven sites with uncertain occupation could be added. Certain occupation was on most sites identified based on fragments of coarse ware pottery. Although numerically inferior to 3rd-century fragments the museum collection also contains fragments of 2nd- and 1st-century black glazed ware. Furthermore, it includes a small collection of coins of late Republican date.

The Early Imperial period
(50 BC – AD 100; figure 4.9)

Although in this period the total number of sites decreases for the first time, the number of certain sites is almost doubled (49 compared to 25 sites). There is a small number of new foundations, although most sites show (possible) continuity from the previous period. The study of the museum collection added twelve sites with certain occupation as well as three possibly occupied sites. Certain occupation was mainly attested by the presence of fragments of terra sigillata and *ceramica a pareti sottili*. However, also several coarse ware shapes and coins date in this period.

The mid-Imperial period
(AD 100 – 250; figure 4.10)

In this period, the total number of sites decreases, although this decline is less marked when considering the certainly occupied sites alone. The bulk of the certain sites was already occupied in the Early Imperial period and there is evidence for only two certain and four possible new foundations. Based on the materials in the museum collection, another 13 sites with certain occupation as well as four possibly occupied locations were added to our inventory. Certain activity was attested by a wide variety of artefacts, including African red slip ware shapes, utilitarian pottery, glass fragments and coins.

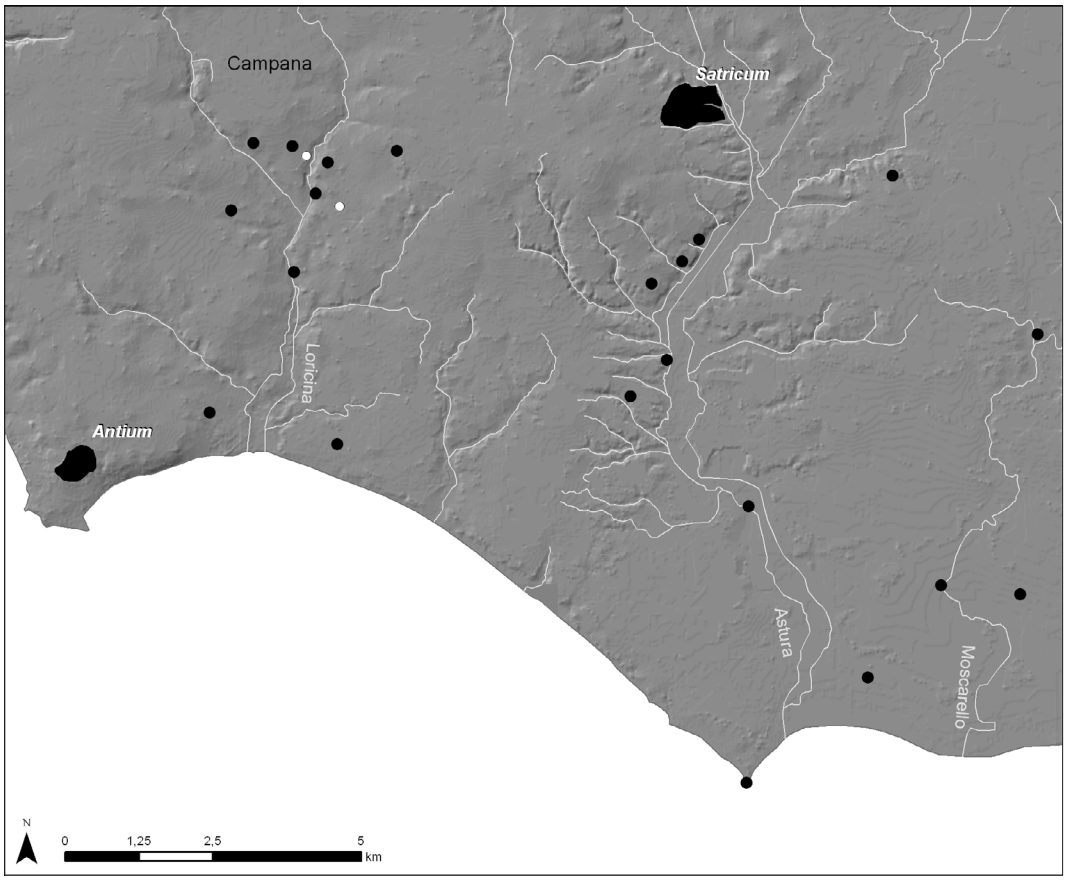


Figure 4.5 Distribution of Archaic (650 – 500 BC) sites (black dots: certain sites; white dots: possible sites).

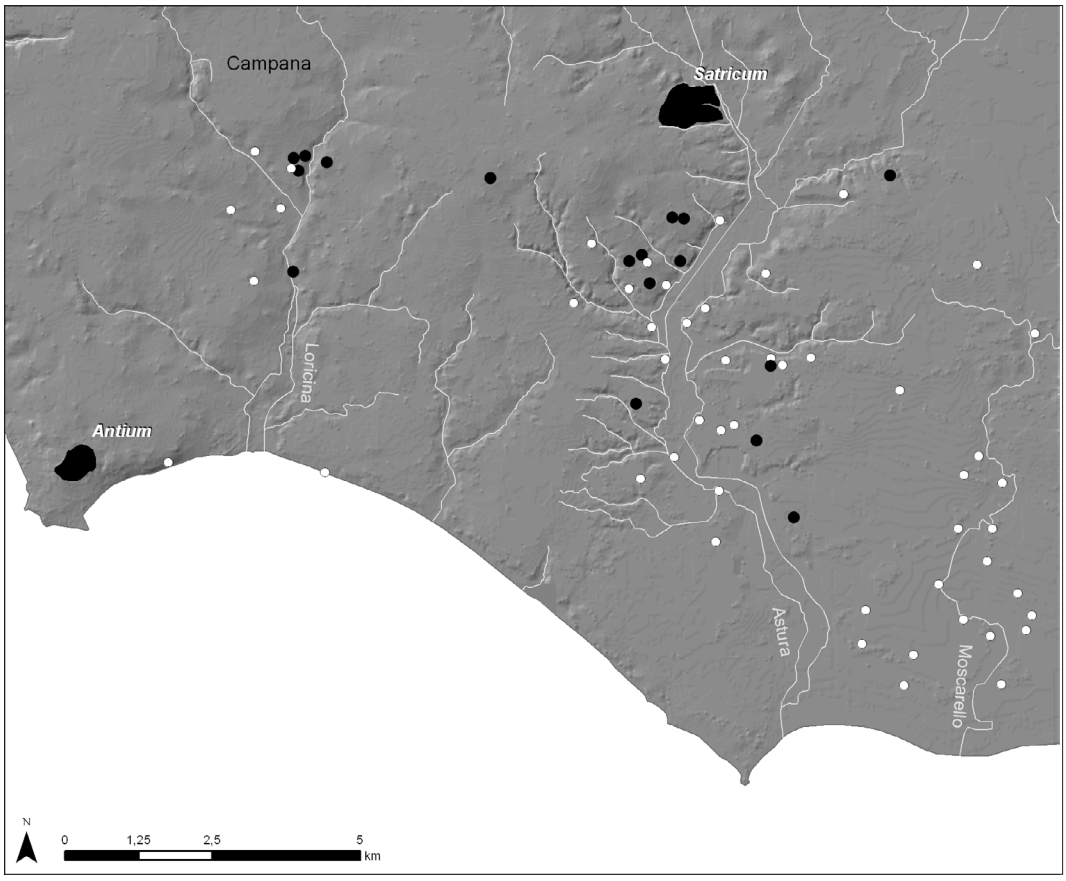


Figure 4.6 Distribution of post-Archaic (500 – 350 BC) sites (black dots: certain sites; white dots: possible sites).

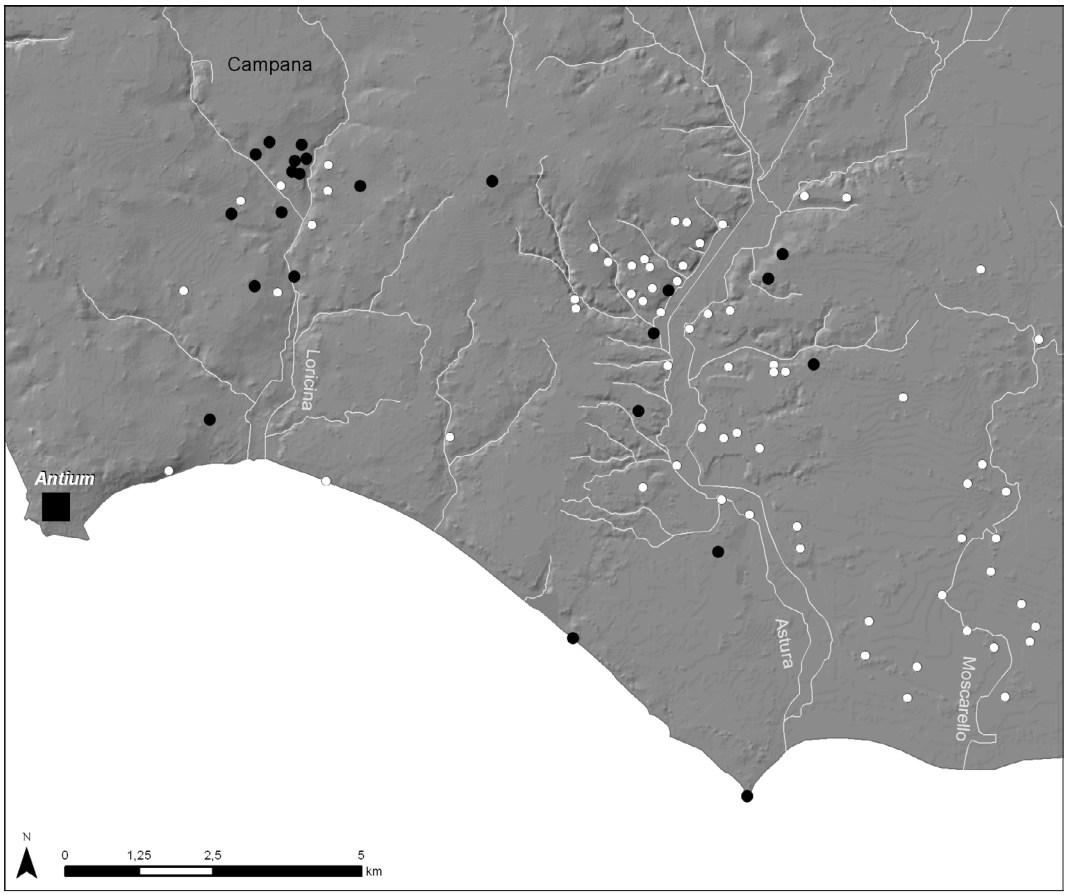


Figure 4.7 Distribution of mid-Republican (350 – 200 BC) sites (black dots: certain sites; white dots: possible sites).

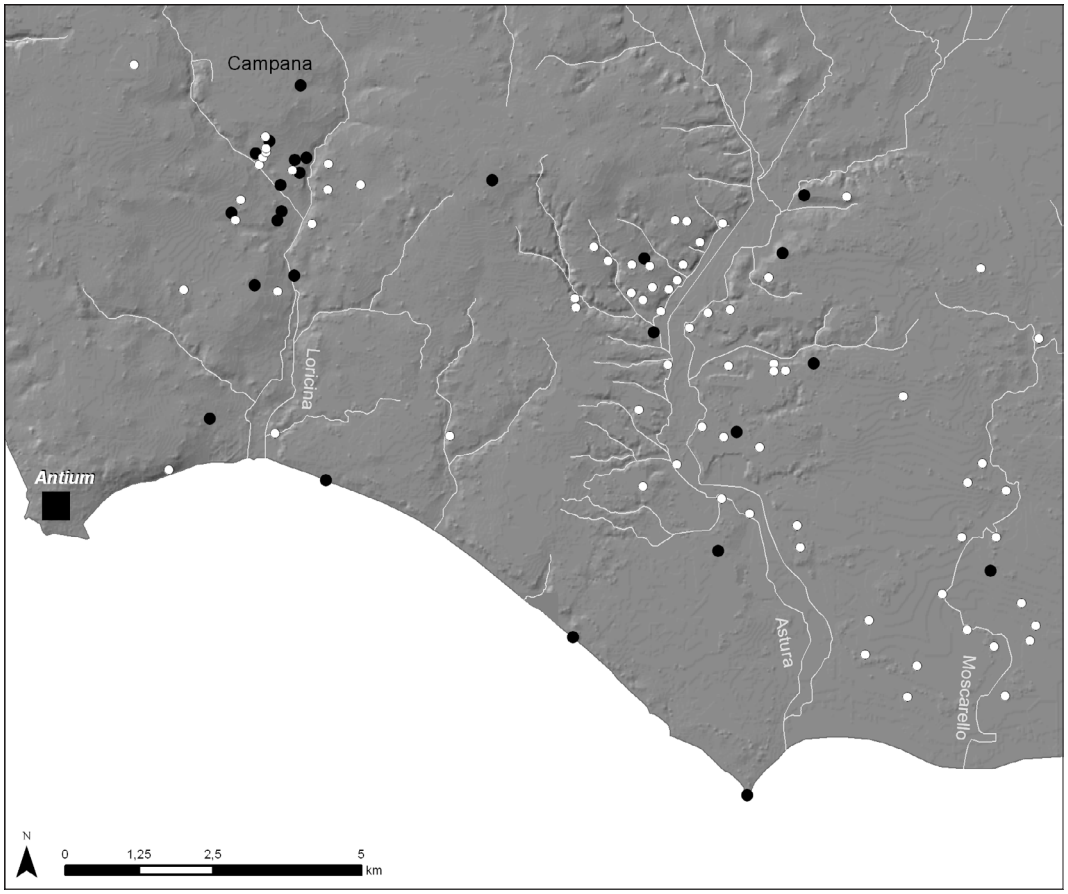


Figure 4.8 Distribution of late Republican (200 – 50 BC) sites (black dots: certain sites; white dots: possible sites).

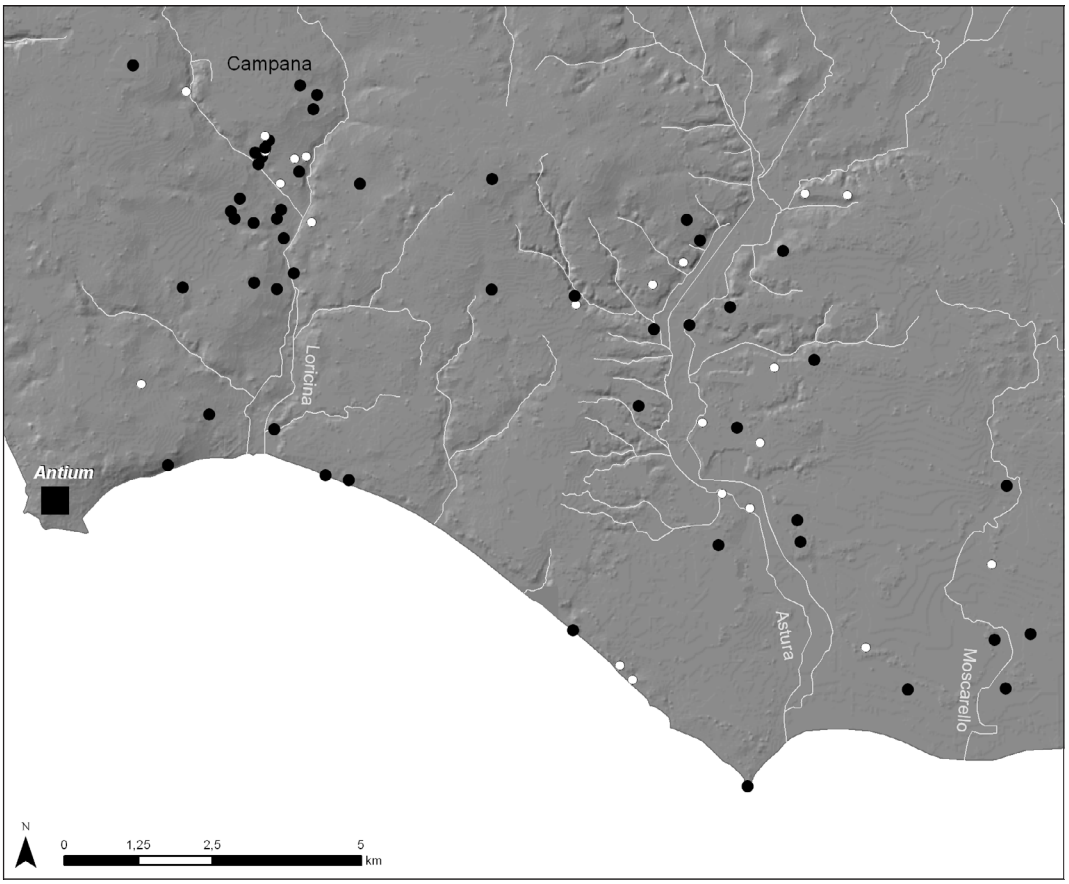


Figure 4.9 Distribution of early Imperial (50 BC – AD 100) sites (black dots: certain sites; white dots: possible sites).

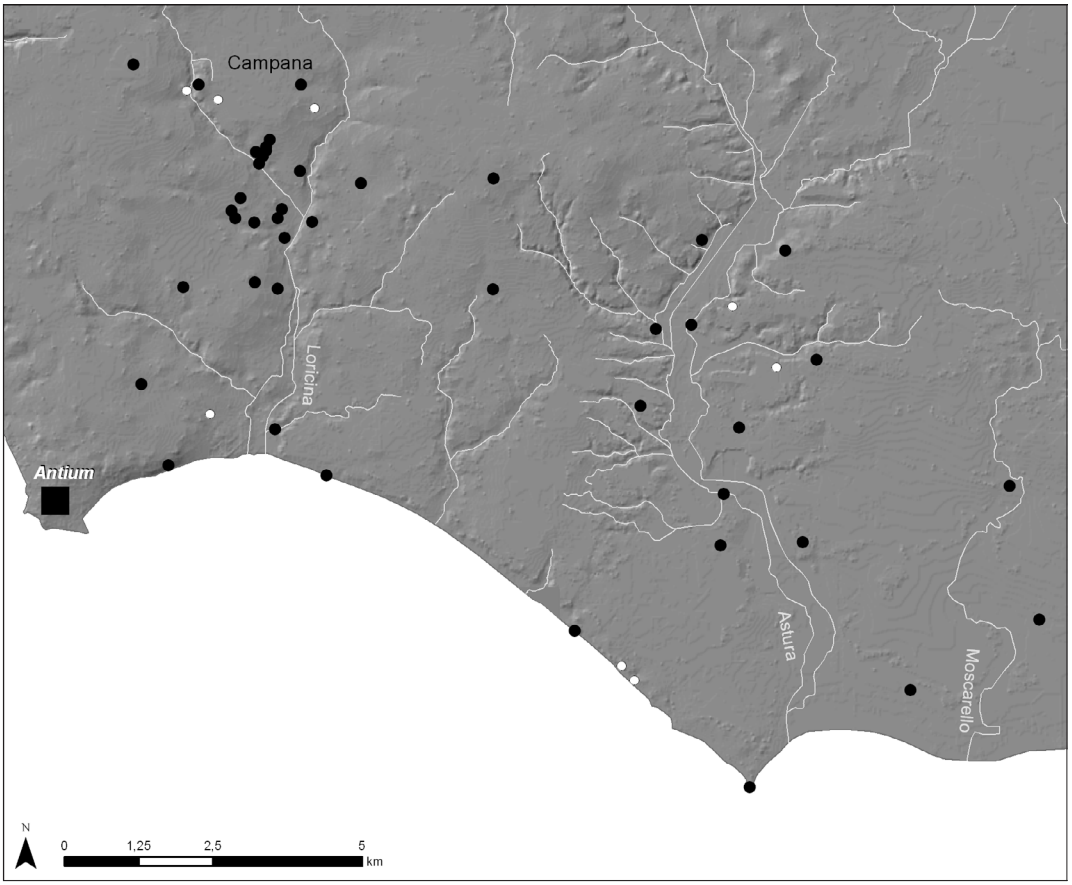


Figure 4.10 Distribution of mid-Imperial (AD 100 – 250) sites (black dots: certain sites; white dots: possible sites).

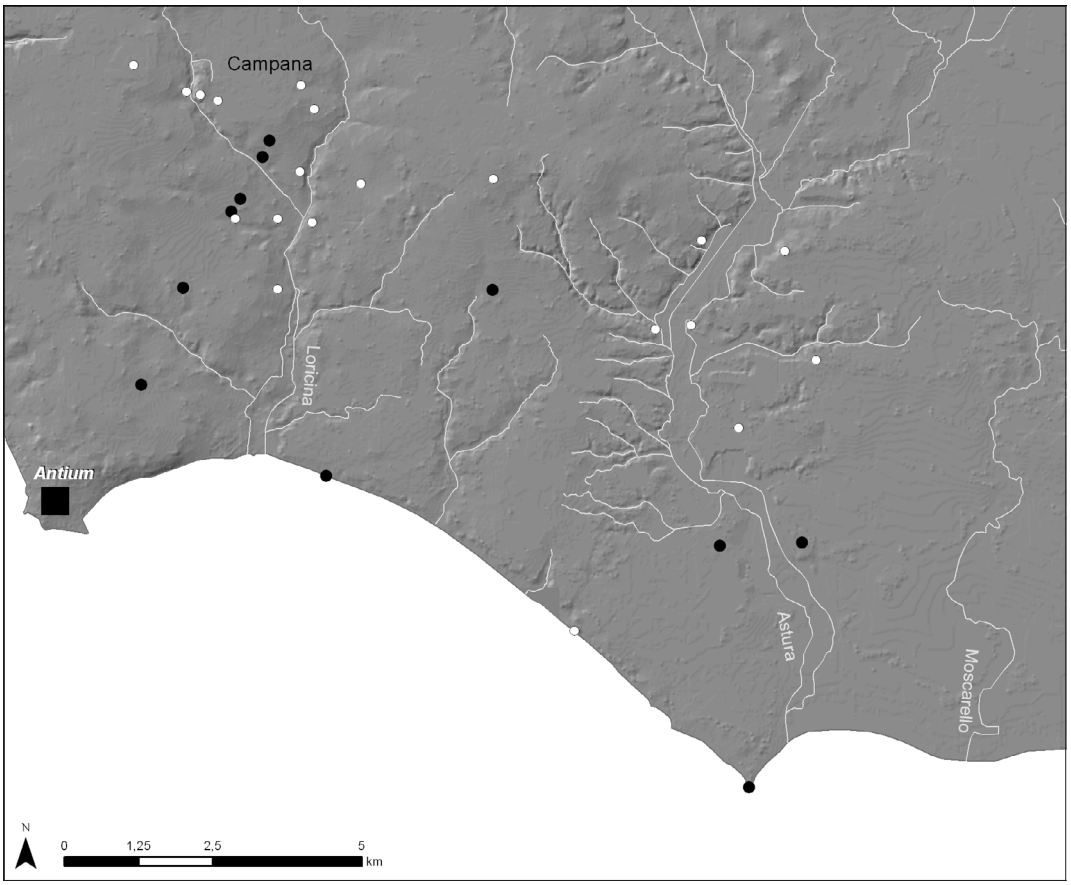


Figure 4.11 Distribution of late Imperial (AD 250 – 400) sites (black dots: certain sites; white dots: possible sites).

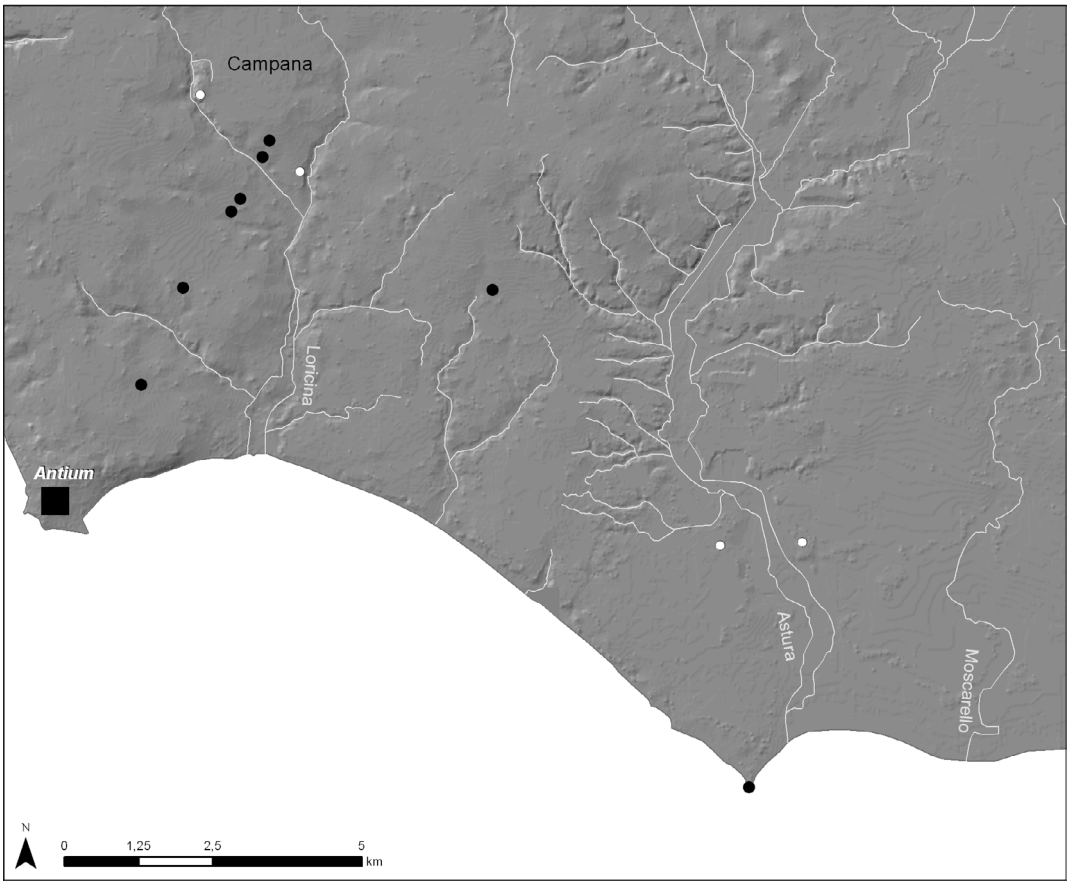


Figure 4.12 Distribution of late Antique (AD 400 – 550) sites (black dots: certain sites; white dots: possible sites).

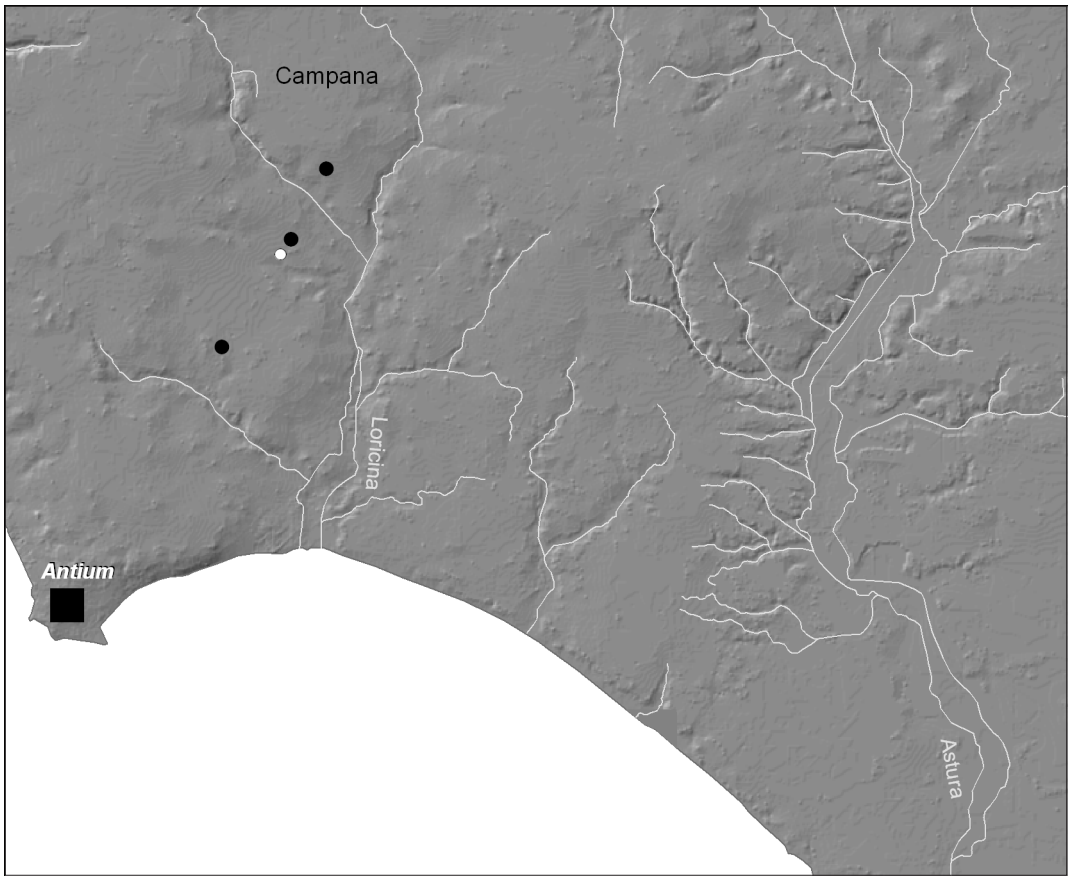


Figure 4.13 Distribution of early Medieval (AD 550 – 700) sites (black dots: certain sites; white dots: possible sites).

The late Imperial period
(AD 250 – 400; figure 4.11)

Compared to the previous period, there is a marked decline in the number of occupied sites and for the first time, no new sites are founded. In contrast with preceding periods, activity cannot be established with certainty on most locations. The study of the museum collection has, however, contributed considerably towards the identification of activity in this period: the number of certainly occupied sites has more than doubled (eleven compared to five) and another 20 locations (compared to 14 before) were possibly occupied. For the identification of Late Imperial activity we depended almost solely on the identification of African red slip ware shapes, although increased knowledge of the pottery of this period has led to the identification of a small number of shapes of utilitarian pottery as well. Furthermore, the museum collection comprises a large number of coins of this period.

The late Antique period
(AD 400 – 550; figure 4.12)

Although the total number of sites for this period shows a marked decline compared to the late Imperial period, the number of certain sites remains rather stable (eight compared to eleven). All occupied locations show continuity from the late (and thus mid-) Imperial period; no new sites are founded. The study of the museum collection doubled the number of sites with late Antique activity (eight compared to four) and led to a significant increase in the number of possible sites as well (four compared to one). Evidence for occupation in this period consists of a number of African red slip ware shapes and shapes of utilitarian pottery, occurring in small numbers per site. Uncertain sites in general yielded fragments with production dates that extend beyond the here discussed period.

The early Medieval period
(AD 550 – 700; figure 4.13)

Both the total number of sites and the number of certain sites decline considerably in this period. On only five locations a (possible) early Medieval phase is attested; all of these were already occupied in preceding periods. Based on the materials in the museum collection, one certain and one possible site was added to our inventory. Early Medieval occupation was in all cases established by the identification of distinct African red slip ware and utilitarian pottery shapes, in general occurring in very low numbers.

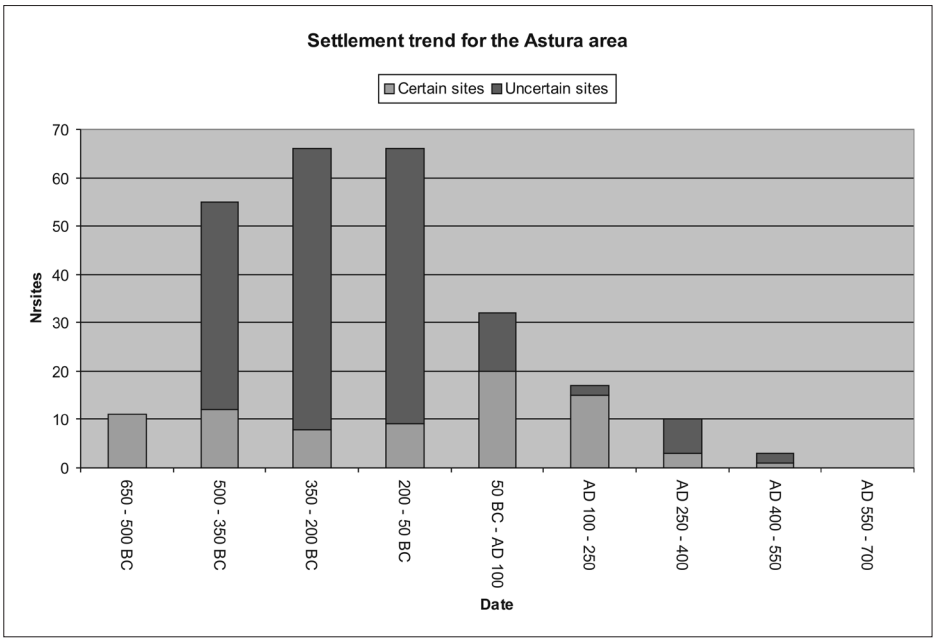


Figure 4.14a Settlement trend for the Astura area after the study of the museum collection.

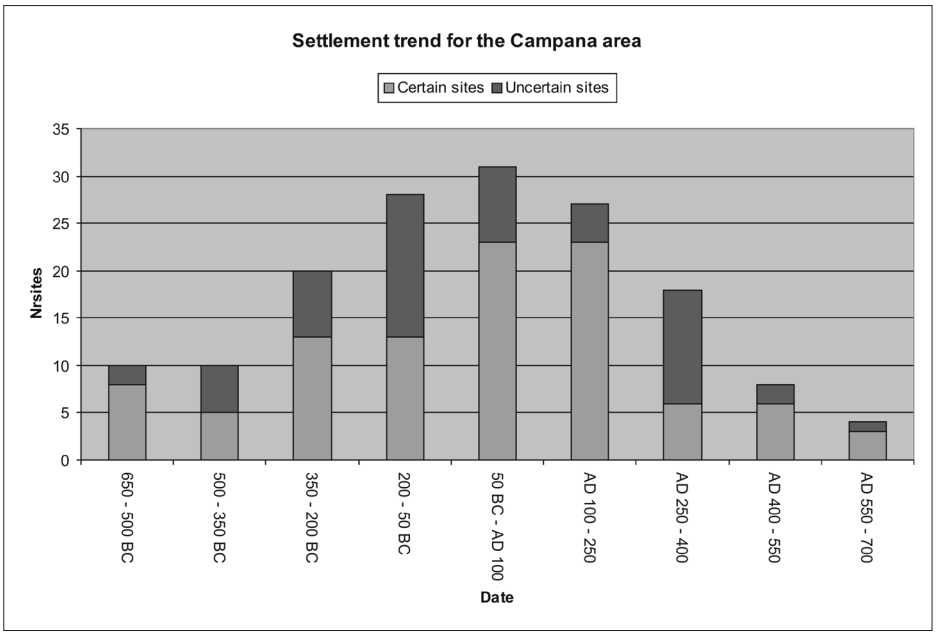


Figure 4.14b Settlement trend for the Campana area after the study of the museum collection.

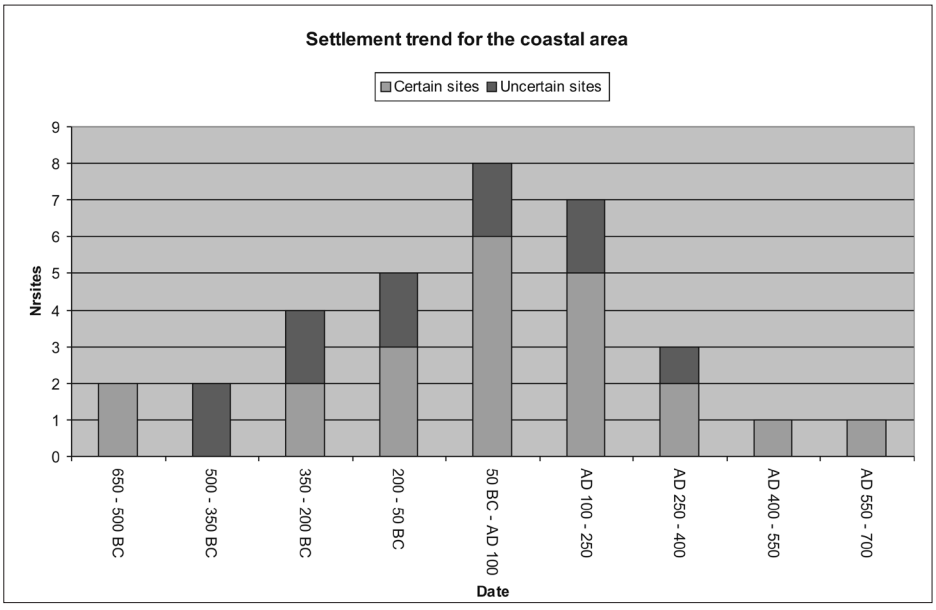


Figure 4.14c Settlement trend for the coastal area after the study of the museum collection.

4.5 Spatial differentiation in settlement

In this section, the settlement trends for three topographical areas (Campana, Astura and coastal area) are discussed separately. These trends are based on the chronological information provided by combining data from GIA's intensive surveys and the study of the museum collection discussed in this chapter. The resulting graphs can be compared to similar ones presented in the previous chapter, which were based on a combination of evidence from the intensive surveys and subsequent revisits.

As noted earlier most materials in the museum collection derive from sites in the Campana area (fig.4.14b). The generally large samples from sites in this area, from the museum collection as well as our own surveys, result in a trend with a fairly low number of uncertain sites, especially compared to the Astura area. The trend shows a gradual increase of the total number of sites from the Archaic period until the early Imperial period, when activity in the area appears to reach a climax. However, within this time-span, there is a relatively large share of uncertain sites in both the post-Archaic and late Republican periods. Based on the material remains, it is very well possible that in both periods settlement actually stagnated or even somewhat declined.[343] From the early Imperial period onwards, there is a step by step decrease of the number of sites until only a handful remains occupied in the late Antique and early Medieval periods. This trend for the Campana area shows only minor differences with that based on the revisits. The most conspicuous differences are somewhat higher site numbers for each period, an increase in the evidence for Archaic occupation and a relatively higher number of mid-Republican sites based on the study of the museum collection.

The museum collection contains only few materials attributable to sites in the Astura area. The settlement trend displayed is therefore mainly based on the often ill-defined dates provided by Piccarreta and the generally small and undiagnostic samples collected during GIA's surveys in this area (fig. 4.14a). This results in a relatively high percentage of uncertain sites, mainly for the post-Archaic and Republican periods, for which we lack diagnostic pottery shapes. The total number of sites is much lower in the subsequent early and mid-Imperial period, but for these phases we have a much higher share of certain sites. Site numbers further decline in the late Imperial and late Antique periods, when only three sites are (possibly) occupied. When comparing this graph with that based on the systematic revisits, we observe some very clear differences. Overall fewer sites are mapped, and the number of certain sites for the time-span between the Archaic and late Republican period is much lower. For the early Imperial period, we also have fewer sites, but an almost equal amount of locations with certain occupation. The picture is different for the mid-Imperial to late Antique periods. Compared to the graph based on the revisits, site numbers are identical for the mid-Imperial period and are even slightly higher for the late Imperial and late Antique periods.

The graph for the coastal area is based on nine sites (fig.4.14c); the museum collection contained materials for only three of them. Based on this small sample size, it would be unwise to discuss the patterns in much detail. The fact that only a small number of sites can be included in this discussion is mainly due to the fact that in the museum collection, materials from the coastal zone are grouped under the term Poligono, instead of being assigned to individual locations. The area shows activity from the Archaic period onwards until at least the early Medieval period. Furthermore, almost all sites yielded evidence for early and mid-Imperial occupation.

4.6 Identifying special sites

The generally high quality of the materials in the collection provides supplementary evidence for the status and function of several sites. The location of site 15262 is nowadays completely overbuilt. The sample from the site covers a wide chronology and includes *bucchero* and black glazed ware shapes. Reportedly, the fragments derive from graves situated in this area, although they could also originate from a religious context.

Although objects from only a small number of sites in the Astura area are present in the museum collection, available samples are generally large and of a good quality. The most interesting of these derives from site 11268. It contains a large number of Republican and Imperial fine ware pottery, including some fragments of late Imperial and possibly late Antique date. Furthermore, based on the site description made by Liboni, this area holds the remains of an aqueduct. A site was already mentioned in this location by De la Blanchère and remains are noted as well by Piccarreta.[344] Furthermore, the area appears located on a junction of several ancient roads.[345] The evidence points to a substantial settlement in a favourable

343 See chapters 2 and 3 for a more extensive discussion of the material evidence for these periods. For the post-Archaic period, no distinct pottery shapes are known and uncertain activity is mainly based on the date range of pottery shapes that are generally associated with other types of mid-Republican pottery (Graeco-Italic amphorae, 3rd century BC black glazed ware). 'Uncertain' sites for the late Republican period are mostly based on non-diagnostic black glazed ware fragments. However, the fact that most diagnostic BG fragments are of mid-Republican date makes it likely that most undiagnostic fragments also date in this period.

344 De la Blanchère 1885, 88; Piccarreta 1977, sites 67, 68 and 71.

345 Brandizzi Vittucci 1998, 958.

Table 4.1 Number of (un)certain sites per period before and after the study of the museum collection.

	650-500 BC	500-350 BC	350-200 BC	200-50 BC	50 BC–AD 100	AD 100-250	AD 250-400	AD 400-550	AD 550-700
Certain sites before	16	16	12	15	37	30	5	4	3
Uncertain sites before	1	44	66	71	19	4	14	1	0
Certain sites after	21	17	23	25	49	43	11	8	4
Uncertain sites after	2	50	67	74	22	8	20	4	1
Total sites after (before)	23 (17)	67 (60)	90 (78)	99 (86)	71 (56)	51 (34)	31 (19)	12 (5)	5 (3)
Increase total sites	+6	+7	+12	+13	+15	+17	+12	+7	+2
Increase certain sites	+5	+1	+11	+10	+12	+13	+6	+4	+1
Increase total sites	35%	12%	18%	15%	27%	50%	63%	140%	67%
Increase certain sites	31%	6%	92%	67%	32%	43%	120%	100%	33%

Table 4.2 Total number and type of mutations to the chronology of sites based on the study of the museum collection.

Type of mutation	No. of mutations
Attested possible or certain activity on sites not mapped before	77
Newly attested possible or certain activity on sites mapped before	13
Certain activity ascertained on sites with previous uncertain activity	8
Total	98

location. Unfortunately, the area is not accessible anymore and this hypothesis can therefore not be substantiated any further.

4.7 Conclusion: contribution to the settlement history

The final part of this chapter reviews the added value of integrating site data provided by the study of the extensive archaeological collection of the *antiquarium di Nettuno* with data produced by GIA's intensive survey (table 4.1). By combining these sets of data, an increase in both the total number of sites and the number of certain sites is recorded for all periods. The lowest increase in the total number of sites is recorded for the Republican period. This is predominantly caused by the fact that the number of (possible) sites recorded for these periods was already relatively high based on the intensive surveys. It is therefore not surprising that the largest increases in the total number of sites are recorded for the periods that were relatively less documented, i.e. the late Imperial, late Antique and early Medieval periods.

The picture is somewhat different when considering the evidence for certain occupation. A substantial increase in the number of certain sites is noted both for the mid- and late Republican period as well as for the late Imperial and late Antique period. These increases are both almost exclusively based on diagnostic fine ware pottery, respectively black glazed wares for the Republican periods and late African red slip ware shapes for the late Imperial and late Antique periods. The smaller increase of the number of certain sites noted in other periods (particularly the post-Archaic period and the early Medieval period) is mainly due to the absence of diagnostic fine wares for these periods. The identification of certain occupation is therefore largely influenced by the biased collection by which the museum collection was built up. The relatively low increase in the number of certain sites for the early and mid-Imperial periods is in turn influenced by the fact that the number of certain sites for these periods was already fairly high, based on the high diagnosticity of several common and widely distributed pottery wares (such as terra sigillata).

Although the museum collection contains materials from sites located in all three topographical areas, it centres predominantly on sites in the Campana area. Its study above all corroborates earlier observed trends of settlement in this area. Additional insight was obtained in the scale and chronology of Republican occupation, whereas the persistence of late Imperial and subsequent settlement was further highlighted.

4.8 Conclusion: the quantitative value of integrating the museum collection and fieldwork

Table 4.3 lists mutations in the chronology for each site brought about by integrating data from the museum collection with that from GIA fieldwork. These changes comprise both increased knowledge on the chronology of already known sites and information on 'new' sites. Table 4.2 lists on how many occasions possible and

certain activity was attested on both previously known and unknown sites as well as on how many occasions activity is ascertained on sites, where it was uncertain before. This table can be directly compared with table 3.4 in chapter 3, shedding light on the respective contribution of the revisits and the integration of the museum collection towards our understanding of ancient settlement in the study area.

The samples in the museum collection provide additional information on a total of 98 periods, distributed over the 36 sites studied. The largest part of these (almost 80%) concerns the establishment of possible or certain activity on sites that were not mapped before. Although these attestations are methodologically the least relevant (since obtained data cannot be compared to previous studies of the same sites), it highlights the importance of the applied integrative approach in mapping sites that are no longer available for study. In another 13 cases, the chronology of already mapped sites was extended, whereas in eight cases occupation was ascertained on a site where it was uncertain, based on previous research. These changes in the chronology of individual sites are definitely the results of the relatively high qualities of the artefacts in the collection of the museum, facilitating their identification and dating. The fact that these changes are relatively few in number, compared to the contribution of the revisits, appears to be caused by a combination of factors. Firstly because of the fact that many of the sites discussed in this chapter were not studied before and secondly because the collection centres on the Campana area, extensively covered in the course of GIA's intensive surveys as well. That the study of the museum collection resulted in the adjustment of the chronology of only a few sites can be taken as additional support for the validity of integrating the two datasets.

4.9 Concluding remarks

In this chapter the potential for integrating data from a local museum collection with fieldwork by the GIA was explored. This collection was predominantly compiled in the '70 of the previous century, before the accelerated deterioration of (rural) archaeological sites by urbanization and mechanized farming. The collection provides us with high quality materials not only from locations that were mapped during GIA's own fieldwork, but also from sites that are, temporarily or permanently, removed from the archaeological record. The added value of this museum collection appears to lie predominantly in providing information on these, nowadays sometimes inaccessible, locations.

Although important information was obtained for settlements in the Astura area (for example site 11268) and in the coastal zone, the study of the museum collection above all contributed to our understanding of ancient settlement in the Campana area. The relatively low contribution of the museum collection to the adjustment of the chronology of sites that were also studied by the GIA is actually quite comforting, demonstrating its usefulness as a topographical source. At the same time, it shows that representative samples can still be obtained from sites that have uninterruptedly been exposed to agricultural practices for the past 30 years.

Several cautionary remarks are in order, though. The composition of the collection revealed a strong bias towards the collection of fine ware pottery and other 'aesthetic' materials over the collection of less 'desirable' wares (amphorae, building materials, utilitarian pottery). Although the abundance of fine ware pottery (as well as glass and metal objects) on the larger (Roman) sites in our area ensures that representative samples can still be obtained, the removal of these important temporal and functional diagnostic objects can have a strong influence on smaller and/or poorer sites.[346] Furthermore, when more intensive surface investigations are carried out, the systematic removal of certain objects from site surfaces can have an effect on the identification and interpretation of intra-site patterning. The bias towards the collection of fine ware pottery also renders it likely that, in this 'topographical source', smaller, less distinctive sites (or occupational phases on sites with a dominant Roman phase of occupation) are underrepresented. Finally, the biased composition makes the collected materials unsuited to study changing consumption volumes of pottery.

The collection contains pottery that is in a less fragmentary state than surface pottery collected during the recent GIA surveys; furthermore, it includes objects that are normally not found during intensive surveys, including metal artefacts and coins. The contribution of these fragments towards an improved understanding of the chronology and function of individual sites must, however, not be exaggerated. The materials from site 15262 pointed at a possible religious or funerary function of the site. However, this assumption is based rather on the wares identified (*bucchero*) than on the preservation rate of the fragments (that are actually quite small). The large collection of metal artefacts comprises mostly items that, although uncommon in survey assemblages, can be considered commonly used objects, whereas they have a low chronological value due to their generally conservative shapes.[347]

346 The effect of the systematic removal of certain types of artefacts is discussed by Boismier 1991.

347 The intensive site surveys discussed in chapter 5 suggest that fine ware pottery, as well as 'luxury items' such as metal objects and glass fragments are common on most sites in the Campana area. The commonness of metal items and coins on even small sites is also evident from the excavation of small rural sites (e.g. Camin & Mc Call 2002).

Summarizing, the integration of the two sources must be considered successful. Information was obtained on sites that are partly not accessible anymore, providing more insight in the scale of occupation for several periods. Large collections from a number of general contexts provide us with supplementary evidence for site status (for example the large sample from Torre Astura), for the presence of areas of funerary and/or religious activities (for example the miniature jugs) and provided further insight in the chronological development of several distinct parts of our study area (the Poligono). The present study shows that the incorporation of local collections, present in almost all Italian towns, is possible on the condition that samples are accompanied by – at least general, but preferably precise – spatial data. Implementing these collections in project designs will put these objects back into the landscape.

Table 4.3 Site table. Mutations to the chronology of a site based on materials from the museum collection are highlighted in grey.

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50 BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
11202	X		X	X	X	X	X	X	X
11208					P	P			
11209					P	P			
11215			X	X	X	X	P		
11268		P	X	X	X	X	X	P	
11269	X		P	P	P				
11270		P	P	P	P	X			
11275		P	P	P					
11276		P	P	P					
11277		X	X	P	X	X			
11280	X	P	P	P					
11281		P	X (P)	X (P)	X	X	P		
11283		P	P	P	P				
11284			P	P	X				
11286					X	X	X	X	
11287		P	P	P					
11288			P	P					
11290			P	P					
11291		P	X	P					
11292			P	P					
11294	X		P	P	X	X	P		
11296		P	P	P					
11297		X	P	P	X				
11298		X	P	P					
11303		P	P	P					
11304		X	P	P					
11305		P	P	P					
11308			P	X	P				
11310		P	P	P	P				
11312			X	X	X	X	P		
11313		P	X	P					
11316			P	P	X	P			
11317		P	P	P					
11318		P	P	P	X	X	P		
11319		P	P	P					
11321		P	P	P					
11322		P	P	P					
11323		P	X	X	X	X	P		
11327		P	P	P					

Table 4.3 continued

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50 BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
11329		P	P	P	P				
11330		P	P	P					
11331		P	P	X	X	X	P		
11345		P	P	P					
11347		X	P	P	X				
11351		P	P	P					
11352		P	P	P	P				
11354		P	P	P					
11356	X								
11359		P	P	P	X	X			
11367		P	P	P	X				
11368		P	P	P					
11369	X	P	P	P					
11371		P	P	P					
11373		P	P	P					
11375	X	P	P	P					
11378		P	P	P					
11384		P	P	P	X	X			
11386		P	P	P					
11387		P	P	X	P				
11389	X	P	P	P					
11390		P	P	P		X			
11391		P	P	P	X				
11392		P	P	P	X				
15001					X	X			
15002				X	X	X	P		
15003					X	X			
15004			P	P	X	X	X	X	X
15005	X	X	P	P					
15008					X	P	P		
15010			X						
15014			X (P)	X (P)	X	X	X	X	X
15017						X			
15019	X	P	X	X	X	X	X (P)	X	P
15029				X	X	X	P		
15034		X	X	X	P				
15035							P	P	
15036		P	X	X	X	X			
15038		X	X (P)	X (P)	X	X	P	P	
15049					P	X	X	X	
15051			P	P					
15059		P	P	X	X	X	X		
15066					P	P	P		
15068	P	X (P)	X	X	P				
15070				P	X	X			
15072		P	P	P	X	X			
15076	X								
15078					X				
15079	X								
15080						P	P		

Table 4.3 continued

SiteID	650 – 500 BC	500 – 350 BC	350 – 200 BC	200 – 50 BC	50 BC – AD 100	AD 100 – 250	AD 250 – 400	AD 400 – 550	AD 550 – 700
15081		P	X	P					
15082		P	X	X	X	X			
15083			P	P	P	X	P		
15084	X								
15085			P	P	X	X	X	X	X
15106		P	X	X	X	X			
15107			P	P	X	X	P		
15108	X	X	X	X	X				
15109				P	X	X	P		
15110				P	X	X			
15111				P	X	X	X	X	
15112			P	X	P				
15114				P	X	X	P		
15115	X	X							
15116			P	P	X	X	X	P	
15118		X	P	P	P	P			
15119		X	P	P	P				
15126					X				
15127				P	P	X			
15128				P	P				
15130	X								
15132				P	X	X			
15134	X								
15135	X								
15136			P	P					
15137	P								
15138			X	P	X	X	P		
15146	X	X	P	P	P				
15148	X	X	P	P	P				
15149			P	P					
15150		X	X	X	X	X	P		
15152		X	P	X					
15262	X		X	X	X	P			

Chapter 4 Typological table

Building materials				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-I.1	Stamped tile	-	-	11312
IV-I.2	Stamped tile	1st century AD	CIL XV/1, no. 2255	11312
IV-I.3	Decorated marble plaque	-	-	15014
IV-I.4	Marble sundial	-	-	15014
Amphorae				
IV-II.1	Rim of an amphora	-	-	11313
IV-II.2a-2b	Rim and spike of an amphora	200 – 75 BC	De Haas, Attema & Pape 2008: Local type B	15059 (8x), Poligono, LAC (4x)
IV-II.3	Rim of an amphora	200 – 75 BC	De Haas, Attema & Pape 2008: Local type A	15059
IV-II.4	Rim of an amphora	75 BC – AD 100	Dressel 2-4 Italian	LAC
IV-II.5	Rim of an amphora	AD 0 – 200	Forlimpopoli amphora	LAC
IV-II.6	Rim of an amphora	200 – 0 BC	Pompeii 38 type	11202
IV-II.7	Rim of an amphora	AD 75 – 225	Leptiminus 1	LAC
IV-III.8	Rim of an amphora	AD 0 – 100	Tripolitanian 1	LAC
IV-III.9	Rim of an amphora	AD 75 – 275	Dressel 20. For stamp see Callender 1965, 238-240 & 310-311.	LAC
IV-III.10a & 10c; IV-IV.10b	Rim of an amphora	AD 50 – 300	Gauloise 4	11202, LAC (4x)
IV-IV.11	Rim of an amphora	AD 100 – 300	Campanian Almond Rim	11202
IV-IV.12	Rim of an amphora	-	-	LAC
IV-IV.13	Rim of an amphora	AD 150 – 300	Africana 2A Grande	LAC (6x)
IV-V.14	Rim of an amphora	AD 175 – 250	Africana 2A con gradino	15085, LAC
IV-IV.15	Rim of an amphora	AD 100 – 250	Tripolitana 2	LAC (2x)
IV-V.16	Rim of an amphora	AD 200 – 300	Keay 1A/Dressel 30	Poligono
IV-V.17	Rim of an amphora	AD 150 – 300	Possibly Africana 2A	11202
IV-VI.18	Rim of an amphora	-	-	LAC
IV-V.19	Rim of an amphora		-	LAC
IV-VI.20	Rim of an amphora	AD 375 – 450	Africana 3C	11202
IV-VI.21	Rim of an amphora	AD 300 – 400	Africana 3B	11202
IV-VI.22	Rim of an amphora	-	-	LAC
IV-VI.23	Rim of an amphora	-	-	LAC
IV-VI.24	Amphora fragment with stamp	25 BC – AD 175	Dressel 2-4 Catalan. For stamp see Callender 1965, 242-243.	LAC
IV-VI.25	Amphora fragment with stamp	-	-	LAC
IV-VI.26	Amphora spike with *dipinto*	-	-	LAC

Chapter 4 Typological table, continued

Fine ware – Bucchero				
Sites with bucchero fragments (4 sites): 15005, 15019, 15072, 15262				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-VI.1	Rim of a bowl	600 – 550 BC	Rasmussen 1979, pl.41.249 (Bowl Type 1)	15262
IV-VI.2	Rim of a bowl	550 – 500 BC	Rasmussen 1979, pl.41.250-252 (Bowl Type 2)	15262
IV-VI.3	Rim of a bowl	600 – 400 BC	Either Rasmussen 1979, pl.41.256 (Bowl Type 4) or pl.41.257-259 (Miniature bowl Type 1)	15005
IV-VI.4	Handle of an ampora/ oinochoe	650 – 500 BC	Rasmussen 1979, pls.4-8	15005
IV-VI.5	Handle of an oinochoe	600 – 500 BC	Rasmussen 1979, pls.16-18 (Type 7a/8a); Bonamici, Stopponi & Tamburini 1994, 104, fig.40a; Lundgren & Wendt 1982, 63, pl.33.348b	15019
IV-VI.6	Handle fragment	600 – 500 BC?	-	15262
Fine ware – Black glazed ware				
Sites with black glazed fragments (17 sites): 11268, 11280, 11281, 11312, 11313, 15005, 15010, 15019, 15038, 15051, 15059, 15068, 15072, 15081, 15082, 15085, 15262				
IV-VII.1	Rim of a bowl	250 – 200 BC	Morel 1981, pl.51, form 2523	15262
IV-VII.2	Rim of a bowl	150 – 125 BC	Morel 1981, pl.56, form 2553	15038
IV-VII.3a-3e	Rim of a bowl	300 – 200 BC	Morel 1981, pls.73-74, form 2783-84	11268 (10x), 15010, 15019 (2x), 15068 (2x), 15081 (3x), 15082 (2x)
IV-VII.4	Rim of a bowl	300 – 200 BC	Morel 1981, pl.54, form 2538	15010
IV-VII.5	Rim of a bowl	250 – 175 BC	Morel 1981, pl.75, form 2812(c1)	15081
IV-VII.6	Rim of a bowl	350 – 200 BC?	Morel 1981, pls.86-90, serie 3100; Bouma 1996, pl.CXLVII.B80-81; Lambrechts 1989, 45, fig.8.104	15081
IV-VII.7	Rim of a bowl	200 – 50 BC	Morel 1981, pl.7, form 1222(c1)	11268
IV-VII.8	Rim of a bowl	350 – 275 BC	Morel 1981, pl.71, form 2771	15019, 15081
IV-VII.9	Rim of a bowl	275 – 225 BC	Morel 1981, pl.77, form 2831(b1)	15038
IV-VII.10	Rim of a bowl	200 – 100 BC	Morel 1981, pl.79, form 2911-13	11281, 15019
IV-VII.11	Rim of a *kylix*/bowl?	175 – 150 BC	Morel 1981, pl.116, form 4113(a1)?	15038
IV-VII.12	Rim of a bowl	100 – 0 BC	Morel 1981, pl.64, form 2654	15262
IV-VII.13	Rim of a bowl	300 – 250 BC	Morel 1981, pl.60, form 2621	15262
IV-VII.14	Rim of a bowl	300 – 270 BC	Morel 1981, pl.55, form 2539b1	15081
IV-VII.15	Rim of a bowl	150 – 125 BC	Morel 1981, pl.36, form 2233a1	11281
IV-VII.16	Rim of a plate	200 – 50 BC	Morel 1981, pl.46, form 2286	15262
IV-VII.17	Rim of a plate	150 – 100 BC	Morel 1981, pl.41, form 2257	15262
IV-VIII.18	Rim of a plate	150 – 50 BC	Morel 1981, pl.40, form 2254	11268
IV-VIII.19	Rim of a plate	200 – 100 BC	Morel 1981, pl.44, form 2283	11268
IV-VIII.20	Rim of a plate	150 – 125 BC	Morel 1981, pl.76, form 2825(e1)	11312, 15082
IV-VIII.21	Rim of a plate	100 – 50 BC	Morel 1981, pl.78, form 2851(a1)	15082
IV-VIII.22	Rim of a plate	150 – 50 BC	Morel 1981, pl.75, form 2822(b1)	15082

Chapter 4 Typological table, continued

Fine ware – Black glazed ware				
Sites with black glazed fragments (17 sites): 11268, 11280, 11281, 11312, 11313, 15005, 15010, 15019, 15038, 15051, 15059, 15068, 15072, 15081, 15082, 15085, 15262				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-VIII.23	Rim of a plate	100 – 0 BC	Morel 1981, pl.75, form 2821(a1)	11281
IV-VIII.24	Rim of a dish	250 – 200 BC	Morel 1981, pl.26, form 1642	15081
IV-VIII.25	Rim of a dish	150 – 50 BC	Morel 1981, pl.17, form 1441	15082
IV-VIII.26	Rim of a dish	150 – 125 BC	Morel 1981, pl.11, form 1312(e1)	15082
IV-VIII.27	Rim of a dish	250 – 150 BC	Morel 1981, pl.13; form 1315	11313
IV-VIII.28	Rim of a dish	300 – 100 BC	Morel 1981, pl. 13; form 1314/15	11268
IV-VIII.29	Rim of a dish	300 – 250 BC	Schippa 1980, TAV.XXXVII.352	15068
IV-VIII.30	Rim of a skyphos	325 – 275 BC	Comella 1982, TAV.115.53; Bouma 1996, pl.CLI.S50; Morel 1981, pl.133, form 4383/84 (sovradipinta)	15072
IV-VIII.31	Rim of a jug	325 – 275 BC	Morel 1981, pl.157, form 5222(d1)	15038
IV-VIII.32	Rim of a jug	400 – 200 BC	Morel 1981, pls.155-156, form 5212/13	15082
IV-VIII.33	Base of an unguentarium	225 – 150 BC	Morel 1981, pl.200, form 7111	11268
IV-VIII.34	Base fragment	330 – 250 BC	Occurs on Morel 1981, forms 1111, 1172 & 2672(h1)	11268
IV-VIII.35	Base of a skyphos	300 – 250 BC	Morel 1981, pl.127, form 4333(a1)	15068
IV-VIII.36	Base of a skyphos	400 – 200 BC	No exact parallel	11268
IV-VIII.37	Decorated wall	300 – 100 BC	Pedroni 1986, TAV.91/92, types 481-485	15082
IV-IX.38a-38b	Stamped base	300 – 200 BC	Stanco 2009, 187, fig.14.125	15068 (2x)
IV-IX.39	Stamped base	300 – 200 BC	-	15081
IV-IX.40	Stamped base	300 – 200 BC	Jehasse & Jehasse 1973, pl.180, Groupe E, no.A36D	15082
IV-IX.41	Stamped base	300 – 200 BC	Examples with eight petals: Bouma 1996, 416, stamp type 10; Bernardini 1986, TAV.LVI, type 25	15262
IV-IX.42	Stamped base	200 – 100 BC	Pedroni 1986, TAV. 38, no. 1001	15038
IV-IX.43	Stamped base	-	-	11312
Fine ware - Terra sigillata				
Sites with terra sigillata fragments (15 sites): 11268, 11286, 11312, 15001, 15002, 15003, 15008, 15014, 15019, 15029, 15059, 15072, 15078, 15082, 15085				
IV-IX.1	Rim of a dish	40 – 15 BC	Ettlinger *et al.* 1990, 53, form 1	15082
IV-IX.2a-2b	Rim of a bowl	AD 50 – 100	Ettlinger *et al.* 1990, 57, form 3	11268 (4x), 11312, 15003, 15014 (2x), 15019 (2x), 15082 (9x), 15085 (3x)
IV-IX.3	Rim of a dish	40 BC – AD 40	Ettlinger *et al.* 1990, 59, form 4	11268
IV-IX.4	Rim of a dish	25 – 10 BC	Probably Ettlinger *et al.* 1990, 61, form 5	11312
IV-IX.5	Rim of a dish	10 BC – AD 15	Ettlinger *et al.* 1990, 65, form 7	11268, 15085 (2x)
IV-IX.6	Rim of a dish	25 – 10 BC	Ettlinger *et al.* 1990, 67, form 8 (8.3)	15029
IV-IX.7	Rim of a dish	10 BC – AD 15	Ettlinger *et al.* 1990, 73, form 12	11268
IV-IX.8a-8b	Rim of a dish	10 BC – AD 15	Ettlinger *et al.* 1990, 77, form 14	11268, 15085
IV-IX.9a-9b	Rim of a plate	10 BC – AD 30	Ettlinger *et al.* 1990, 83, form 18	11268, 15001

Chapter 4 Typological table, continued

Fine ware - Terra sigillata				
Sites with terra sigillata fragments (15 sites): 11268, 11286, 11312, 15001, 15002, 15003, 15008, 15014, 15019, 15029, 15059, 15072, 15078, 15082, 15085				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-IX.10	Rim of a plate	25 BC – AD 40	Ettlinger *et al.* 1990, 87, form 20	15001 (2x), 15019 (2x), 15082
IV-IX.11	Rim of a plate	25 BC – AD 40	Ettlinger *et al.* 1990, 89, form 21	11268, 15082
IV-X.12	Rim of a dish	20 BC – AD 15	Ettlinger *et al.* 1990, 91, form 22	15082
IV-X.13	Rim of a bowl	AD 15 – 70	Ettlinger *et al.* 1990, 101, form 27	15019
IV-X.14	Rim of a cup	AD 15 – 50	Ettlinger *et al.* 1990, 109, form 32	11268, 15029 (3x), 15082
IV-X.15	Rim of a cup	AD 0 – 40	Ettlinger *et al.* 1990, 111, form 33	11312
IV-X.16	Rim of a cup	AD 30 – 50	Ettlinger *et al.* 1990, 113, form 34	11268 (2x), 15001, 15014 (3x), 15019, 15029 (2x), 15082, 15085 (2x)
IV-X.17	Rim of a bowl	25 BC – AD 40	Ettlinger *et al.* 1990, 115, form 36	15082, 15085
IV-X.18a-18c	Rim of a dish	AD 25 – 75	Ettlinger *et al.* 1990, 117, form 37	11268, 11312, 15014, 15072, 15085 (2x)
IV-X.19	Rim of a bowl	25 BC – AD 25	Ettlinger *et al.* 1990, 119, form 38	15072
IV-X.20a-20b	Stamped base	AD 30 – 70	Oxé, Comfort & Kenrick 2000, 173, stamp type 514	11268, 15085
IV-X.21a-21b	Stamped base	AD 60 – 150	Oxé, Comfort & Kenrick 2000, 290, stamp type 1212	15014, 15019, 15082, 15085
IV-X.22	Stamped base	AD 50 – 120	Oxé, Comfort & Kenrick 2000, 292, stamp type 1213	15014
IV-X.23	Stamped base	10 BC – AD 10	Oxé, Comfort & Kenrick 2000, 329, stamp type 1456	11268
IV-X.24a-24b	Stamped base	AD 50 – 120	Oxé, Comfort & Kenrick 2000, 363, stamp type 1690	15014, 15029 (2x)
Fine ware - African red slip ware				
Sites with African red slip ware fragments (21 sites): 11268, 11281, 11286, 11312, 15001, 15002, 15003, 15008, 15014, 15017, 15019, 15029, 15038, 15049, 15059, 15070, 15072, 15080, 15082, 15083, 15085				
IV-X.1	Rim of a dish	AD 75 – 150	Hayes 1972, 20, form 3B	11268, 15014, 15072, 15085 (3x)
IV-X.2	Rim of a dish	AD 100 – 150	Hayes 1972, 20, form 3C	11268, 11281, 15019, 15082, 15085 (4x)
IV-XI.3	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	11281, 15019, 15029, 15049, 15082, 15083, 15085 (4x)
IV-XI.4	Rim of a bowl	AD 100 – 150	Hayes 1972, 28, form 7B	11281
IV-XI.5	Rim of a bowl	AD 100 – 175	Hayes 1972, 32, form 8A	11268 (16x), 11286 (3x), 11312 (4x), 15001, 15003, 15014 (4x), 15017, 15019, 15070, 15072, 15085 (9x)
IV-XI.6	Rim of a bowl	AD 100 – 200	Hayes 1972, 32, form 8B	11268 (2x), 15014, 15029, 15070, 15082, 15085 (4x)
IV-XI.7	Rim of a bowl	AD 100 – 200	Hayes 1972, 32, form 9A	11268 (2x), 11281 (2x), 11286, 15001, 15003, 15014 (4x), 15019 (2x), 15082, 15083, 15085 (3x)
IV-XI.8	Rim of a bowl	AD 150 – 200	Hayes 1972, 32, form 9B	11268, 11281, 11286, 15019, 15083, 15085 (3x)
IV-XI.9	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	11281 (2x), 11286, 15014, 15019, 15029 (2x), 15085 (8x)
IV-XI.10	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B	11268, 15049, 15085
IV-XI.11	Rim of a bowl	AD 250 – 400	Hayes 1972, 40, form 15	11286, 15085 (2x)
IV-XI.12	Rim of a bowl	AD 150 – 225	Hayes 1972, 40, form 16	11286, 15083
IV-XII.13	Rim of a bowl	AD 200 – 300	Hayes 1972, 40, form 17	15085

Chapter 4 Typological table, continued

Fine ware - African red slip ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-XII.14	Rim of a dish	AD 200 – 250	Hayes 1972, 50, form 27	15014 (2x), 15019 (2x), 15085 (10x)
IV-XII.15	Rim of a dish	AD 200 – 300	Hayes 1972, 54, form 31	15049, 15085 (2x)
IV-XII.16	Rim of a bowl	AD 200 – 250	Hayes 1972, 54, form 32	15029, 15085 (2x)
IV-XII.17	Rim of a dish	AD 220 – 270	Atlante I 1981, TAV.XXVI.5-9 (=Hayes 1972, 64, form 48)	15085 (2x)
IV-XII.18	Rim of a bowl	AD 230 – 360	Hayes 1972, 68, form 50A	15019 (2x), 15049, 15085 (4x)
IV-XII.19	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981 TAV.XXVIII.14	15014, 15019, 15049, 15085
IV-XII.20	Rim of a dish	AD 300 – 400	Hayes 1972, 92, form 58	11268, 15019 (2x)
IV-XII.21	Rim of a dish	AD 320 – 420	Hayes 1972, 98, form 59	15085
IV-XII.22	Rim of a dish	AD 325 – 400	Hayes 1972, 102, form 61A; Bonifay 2004, 168	15014, 15019 (2x), 15085 (4x)
IV-XII.23	Rim of a bowl	AD 375 – 425	Atlante I 1981, TAV.XXXVII.5-7 (=Hayes 1972, 110, form 64)	15038
IV-XII.24	Rim of a dish	AD 360 - 470	Hayes 1972, 114, form 67	15019 (2x), 15085 (4x)
IV-XII.25	Rim of a dish	AD 375 – 450	Atlante I 1981, TAV.LV.3-6 (=Hayes 1972, 118, form 68)	15019
IV-XIII.26	Rim of a dish	AD 420 – 475	Hayes 1972, 122, form 73A	15019
IV-XIII.27	Rim of a bowl	AD 400 – 500	Atlante I 1981, TAV.XLVIII.3 (=Hayes 1972, 126, form 80B)	11286
IV-XIII.28	Rim of a bowl	AD 400 – 500	Hayes 1972, 142, form 91A/B	15014, 15085
IV-XIII.29	Rim of a dish	AD 450 – 550	Atlante I 1981, TAV.XLVII.2-3 (=Hayes 1972, 146, form 93B)	15014
IV-XIII.30	Rim of a bowl	AD 475 – 550	Hayes 1972, 154, form 99A/B	15014, 15049
IV-XIII.31	Rim of a dish	AD 525 – 600	Bonifay 2004, 182, fig.97 (=Hayes 1972, 158-164, form 104B)	15019
IV-XIII.32	Rim of a flanged bowl	-	Resembles Hayes 1972, 146, form 96	15085
IV-XIII.33	Stamped base	AD 350 – 400	Hayes 1972, 230, stamp type 4k & 244, stamp type 78b	15085
IV-XIII.34	Stamped base	AD 350 – 450	Hayes 1972, 230, stamp type 4k & 242, stamp type 69c	11268
IV-XIII.35	Stamped base	AD 410 – 470	Hayes 1972, 242, stamp type 69c & 244, stamp type 77s	15019
IV-XIII.36	Rim of a cup	-	Perhaps Sigillata Orientale?	11268
Fine ware - Ceramica a pareti sottili				
Sites with ceramica a pareti sottili fragments (6 sites): 11268, 15019, 15059, 15072, 15085, 15262				
IV-XIII.1	Rim of a cup	AD 40 – 70	No exact parallel, similarities with Marabini Moevs 1973, form LXXI; Also resembles Frova & Bertino 1973, TAV.59.11	15085
IV-XIII.2	Rim of a cup	100 BC – AD 50	Marabini Moevs 1973, form VIII	15019, 15072
IV-XIII.3	Rim of a cup	25 BC – AD 75	Marabini Moevs 1973, form XLVII	15059
IV-XIII.4	Rim of a cup	25 BC – AD 35	Marabini Moevs 1973, form VI	11268
IV-XIII.5	Rim of a cup	AD 15 – 40	Marabini Moevs 1973, form LI	15262
IV-XIII.6	Rim of a beaker/bowl	100 BC – AD 100	Bowl/beaker in *ceramica a pareti sottili*, no exact parallel	15059
IV-XIII.7	Rim of a cup		Marabini Moevs 1973, form IV	15059
IV-XIII.8	Rim of a bowl	150 – 75 BC	Marabini Moevs 1973, form XX	15262

Chapter 4 Typological table, continued

Utilitarian pottery - African cookware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-XIV.1	Rim of a casserole	AD 100 – 200	Atlante I 1981, TAV.CVI.12-13 (=Hayes 1972, 46, form 23A)	15085
IV-XIV.2	Rim of a casserole	AD 150 – 225	Hayes 1972, 46, form 23B	11268 (3x), 11281 (2x), 15002, 15014 (2x), 15019, 15059, 15083, 15085 (8x)
IV-XIV.3a-3d	Rim of a casserole	AD 150 – 300	Hayes 1972, 206, form 197; Atlante I 1981, TAV.CVII, form 6/7 (Type Ostia III); Bonifay 2004, 224.2-3	11268, 11286, 11312, 15014 (2x), 15019 (3x), 15038 (2x), 15049, 15059 (2x), 15083 (3x), 15085 (16x)
IV-XIV.4a-4b	Rim of a casserole	AD 275 – 325?	Bonifay 2004, 224, fig.120.5 (variant of Hayes 1972, 206, form 197); see also Aylwin Cotton 1979, 157, fig.47.1	15059, 15085
IV-XIV.5	Rim of a casserole	AD 250 – 400	Hayes 1972, 202, form 183	11286
IV-XV.6a-6b	Rim of a casserole	AD 200 – 250	Hayes 1972, 206, form 193; Atlante I 1981, TAV.XVII.16	15019, 15085
IV-XIV.7	Rim of a casserole	AD 150 – 250	Hayes 1972, 202, form 181	15085
IV-XV.8a-8b	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196; Bonifay 2004, 226; Atlante I 1981, TAV.CIV.3	11268, 11281, 11312, 15014 (4x), 15019, 15038, 15049 (2x), 15059, 15085 (6x)
IV-XV.9	Rim of a lid	AD 175 – 250	Hayes 1972, 202, form 185; Bonifay 2004, 222	15085 (2x)
Utilitarian pottery – Other coarse ware				
IV-XV.1	Rim of a bowl	Ca. 600 BC	Carafa 1995, 110, nos.244-45	15076 (2x)
IV-XV.2	Rim of a jar	Long chronology, considering fabric Archaic	Attema *et al.* 2001/2002, 333, fig.5 (Class II-3)	15076
IV-XV.3	Rim of a bowl	Ca. 600 BC	Maaskant-Kleibrink 1992, 275, no.1488	15076
IV-XV.4	Base of a bowl	This type has a long chronology. In *Satricum* especially 440 - 375 BC; Artena fragments 325 - 275 BC.	See Carafa 1995, 177.450; Lambrechts 1989, 67, fig.11.142, 79, fig.18.177 & 145, fig.36.406; Bouma 1996, pls.CXIV & CXV (Bowl/Lid Type 1); Olcese 2003, TAV.XXXII (Ciotola Type 1)	15068
IV-XV.5a; IV-XVI.5b-5c	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2)	11268, 11313 (2x), 15019, 15068 (6x)
IV-XVI.6a-6b	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	11268 (3x), 11312, 15059, 15068 (2x), 15082, 15262 (8x)
IV-XVI.7	Rim of a jar	100 – 0 BC	Olcese 2003, TAV.IX (Olla Type 4b)	11268
IV-XVI.8a-8b	Rim of a jar	100 BC – AD 100	Olcese 2003, TAV.X (Olla Type 7)	11268, 15059 (7x)
IV-XVI.9	Rim of a jar	AD 0 – 200	Olcese 2003, TAV.XI (Olla Type 8)	15019, 15262
IV-XVI.10	Rim of a jar	AD 0 – 200	Olcese 2003, TAV.XII (Olla Type 9)	15085
IV-XVII.11	Rim of a jar	AD 0 – 100	Olcese 2003, TAV.XI (Olla Type 10)	15085
IV-XVII.12	Rim of a jar	100 – 30 BC	Aylwin Cotton 1979, 136, fig.39.23	15070

Chapter 4 Typological table, continued

Utilitarian pottery – Other coarse ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-XVII.13	Rim of a jar	AD 100 - 225	Dyson 1976, fig.55.11-12	15085
IV-XVII.14	Rim of a jar	AD 100 – 150	Potter & King 1997, 342, fig.227.98a	11268, 15029
IV-XVII.15	Rim of a jar	Early 1st century AD	Dyson 1976, fig.48.68-72; Aylwin Cotton 1979, 157, fig.47.18	15059
IV-XVII.16	Rim of a jar	AD 250 – 350	Dyson 1976, fig.68.32	15085
IV-XVII.17	Rim of a jar?	AD 350 – 450	Aylwin Cotton 1979, 176, fig.56.16-18	15035
IV-XVII.18	Rim of a jar	AD 350 – 450	Aylwin Cotton 1979, 169, fig.53.39	15085
IV-XVII.19	Rim of a jar	AD 300 – 600	Calabria & Patilli 2005, 302, fig.8.5; Munzi *et al.* 2004, 109, TAV.V.40; Patilli 2007, 404, fig.7.4-5	15085
IV-XVII.20	Rim of a pentola	25 BC – AD 125	Olcese 2003, TAV.I (Pentola Type 1a)	15019
IV-XVII.21	Rim of a pentola	Early-mid 1st century AD	Olcese 2003, TAV.II (Pentola Type 2b)	15029
IV-XVII.22	Rim of a pentola	AD 0 – 125	Olcese 2003, TAV.III (Pentola Type 3a)	15085 (2x)
IV-XVIII.23	Rim of a pentola	AD 0 – 150	Olcese 2003, TAV.IV (Pentola Type 4)	15019, 15085 (2x)
IV-XVIII.24	Rim of a pentola	AD 0 – 200	Olcese 2003, TAV.V (Pentola Type 5a)	15059
IV-XVIII.25	Rim of a pentola	150 – 50 BC?	Santrot & Santrot 1995, 220, fig.54.450	15002
IV-XVIII.26	Rim of a pentola	Early 1st century AD	Dyson 1976, 43, Pentola type 8	15085
IV-XVIII.27	Rim of a pentola	AD 0 – 100	Duncan 1964, 77, form 24; Dyson 1976, figs.42.1-12	15085
IV-XVIII.28	Rim of a casserole	100 BC – AD 100	Olcese 2003, TAV.VI (Casserole Type 1)	15019
IV-XVIII.29	Rim of a casserole	AD 500 – 600	Rizzo *et al.* 2004, 86, TAV.IV.28; Sagui & Coletti 2004, 251, TAV.VI.30; Vatta & Bertoldi 2004, 466, TAV.VI.48	15019
IV-XVIII.30	Rim of a teglia	475 – 275 BC	Bouma 1996, Pl.CIV (Teglia Type 1); Lambrechts 1989, 92, fig.22.249 & 112, fig.26.289	11313, 15068
IV-XVIII.31	Rim of a tegame	300 – 100 BC	Di Mario 2005, TAV.X.387; Dyson 1976, fig.11.8; Cristofani 2003, 162, fig.83.1796	15262
IV-XVIII.32	Rim of a tegame	100 BC – AD 100	Olcese 2003, TAV.XV (Tegame Type 3)	15059
IV-XIX.33	Rim of a pan	Early 1st century AD	Dyson 1976, fig.46.36	15085
IV-XIX.34	Rim of a bowl/lid?	400 – 200 BC	Resembles ordinary ware fragments in Bouma 1996, Pl.CXVI.L48-68	15081
IV-XIX.35	Rim of a tegame	400 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1); Di Mario 2005, TAV.XI.398; Bouma 1996, Type IX (Wide conical bowl)	15068
IV-XIX.36	Rim of a bowl	100 BC – AD 100	Dyson 1976, fig.36.96-100; Duncan 1964, form 12	15059
IV-XIX.37	Rim of a bowl	AD 50 – 100	Aylwin Cotton & Métraux 1985, 225, fig.56.24; Duncan 1964, forms 18&20	15019

Chapter 4 Typological table, continued

Utilitarian pottery – Other coarse ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-XIX.38	Rim of a bowl	mid-Republican	No exact parallel. Working of the rim is, however, known from mid-Republican bacini (see e.g. Olcese 2003, TAV.XXXIV, Bacino Type 1) and jars (see Di Mario 2005, TAV.III.131)	11312
IV-XIX.39	Rim of a bowl	AD 600 – 625	Munzi *et al.* 2004, 105, TAV.IV.29	15085
IV-XIX.40	Rim of a cup	AD 100 – 200?	Aylwin Cotton 1979, 177, fig.57.5	15072
IV-XIX.41a-41b	Part of an incense burner	AD 0 – 200	Olcese 2003, TAV.XXI (Incensiere Type 1)	15019, 15262
IV-XIX.42	Base of an unguentarium	225 – 150 BC	Similar shapes known in Black Glazed Ware: Morel 1981, Pl.200, form 7111	15262
IV-XIX.43	Rim of an unguentarium	100 – 30 BC	See for example Dyson 1972, fig.26.97 & fig.40.148-158	15059
IV-XIX.44	Neck of a thymaterion	400 – 200 BC	Di Mario 2005, TAV.IV & TAV.XXXVI; also Black Glazed Ware shape, see Lambrechts 1989, 192, fig.50.510	11268
IV-XIX.45	Rim of an olpai	AD 0 – 200	Olcese 2003, TAV. XXIX (Olpai Type 1)	15019
IV-XIX.46	Rim of an olpai	AD 0 – 200	Olcese 2003, TAV.XXX (Olpai Type 4)	15019
IV-XX.47	Rim of a jug	30 BC – AD 50	Similar piece in Aylwin Cotton 1979, 154, fig.46.1	15059
IV-XX.48	Rim of a jug	AD 0 – 200	Olcese 2003, TAV.XXV (Brocca Type 2)	11268, 15029, 15085
IV-XX.49	Rim of a jug	AD 0 – 150	Olcese 2003, TAV.XXVII (Brocca Type 4); Duncan 1964, form 29; Dyson 1976, fig.51.109-111	15085
IV-XX.50	Rim of a jug with trefoil mouth	AD 50 – 150	Ricci 1985, 126, TAV.34.8 with refs.	15070
IV-XX.51	Part of a clibane	300 – 0 BC	Olcese 2003, TAV.XVII (Clibane Type 2)	15068
IV-XX.52	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 1)	15068
IV-XX.53a-53b	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2)	11268 (2x), 15068, 15083, 15085 (2x)
IV-XX.54	Rim of a lid	200 – 100 BC	Santrot & Santrot 1995, 211, fig.45.389	15059
IV-XX.55	Rim of a lid	125 – 75 BC	Dyson 1976, fig.23.69	11312
IV-XX.56	Rim of a lid	100 BC – AD 150	Aylwin Cotton 1979, 171, fig.54.7; Santrot & Santrot 1995, 212, fig.46.400	15059
IV-XX.57	Rim of a lid	25 BC – AD 15	Olcese 2003, TAV.XXXIII (Coperchio Type 1)	15070
IV-XX.58a-58c	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	15019, 15059 (4x), 15070, 15082, 15262
IV-XX.59	Rim of a lid	AD 100 – 225	Dyson 1976, fig.62.94	15019
IV-XXI.60	Handle fragment	AD 0 – 100	Aylwin Cotton 1979, 154, fig.46.29	15072
IV-XXI.61	Decorated wall fragment	AD 100 – 200	As on Aylwin Cotton 1979, 177, fig.57.5	15085
IV-XXI.62	Decorated wall fragment	AD 50 – 200	Aylwin Cotton & Métraux 1985, 204, fig.47.8	15085
Glazed ware				
IV-XXI.1	Rim of a bowl	AD 100 – 150	Potter & King 1997, 326, fig.218.5 with refs.	15072

Chapter 4 Typological table, continued

Loomweights				
Plate	**Shape**	**Date**	**Parallel/literature**	**Site**
IV-XXI.1	Loomweight	400 – 200 BC	Lambrechts 1989, 39, fig.6.84, 75, fig.16.168, 115, fig.28.300-302, 133, fig.32.381, 186, fig.48.487 & 224, fig.64.642-643; Gnade 2007a, 183, no.544 & 175, no.501; Bouma 1996, pls. CXXI-CXXIII; Di Mario 2005, TAV.XXXVII-XXXIX	11281 (2x), 11313, 15059
IV-XXI.2	Loomweight	400 – 200 BC	Fragments with similar decoration (no exact parallel) in Di Mario 2005, TAV. XXXVII.1, TAV.XXXIX.23&34	15068
Oil lamps				
IV-XXI.1	Fragment of an oil lamp	30 BC – AD 40	Goethert-Polaschek 1985, 181-183	15014
IV-XXI.2	Fragment of an oil lamp	AD 50 – 100	Rizzo 2003, 128-131 & 137, TAV. XXIX.126	15085
IV-XXI.3	Fragment of an oil lamp	AD 300 – 500	Bailey 1975, 33, 383-385, Q1431 MLA; Bonifay 2004, 360-361 and 365-366, no. 2	15085
IV-XXI.4	Fragment of an oil lamp	Republican	Oil lamp in black glazed ware	15059
Glass				
IV-XXII.1	Rim of a flask	AD 75 – 150	Potter & King 1997, 272, fig.186.38	15014
IV-XXII.2	Rim of a flask	AD 100 - 150	Ricci 1985, TAV.51.5; Frova & Bertino 1973, TAV.217.5	15014
IV-XXII.3	Rim of a bowl	50 BC – AD 50	Santrot & Santrot 1995, 60, fig.16.107	15082
IV-XXII.4	Rim fragment	AD 75 – 150	Potter & King 1997, 272, fig.186.39; Frova & Bertino 1973, TAV.82.8	15019
IV-XXII.5	Base of a cup	AD 75 – 125	Potter & King 1997, 267, fig.184.15; Ricci 1985, 193, TAV.49.20	15014
IV-XXII.6	Base of an unguentarium	AD 0 – 200	Frova & Bertino 1973, TAV.215.23&28	15019
IV-XXII.7	Base of an unguentarium	AD 0 – 200	Frova & Bertino 1973, TAV.215.29	15014
IV-XXII.8	Base of an unguentarium	AD 75 – 150	Potter & King 1997, 272, fig.186.34	15019
Metal artefacts				
IV-XXII.1	Bronze ring	-	Colivicchi 2004, 46, TAV.3.90-91; Galliazzo 1979, 215, nos.1-5 & 216, nos.6-11	15014 (3x)
IV-XXII.2a-2b	Bronze bell	Imperial	Galliazzo 1979, 157, nos.2-5	15014 (2x)
IV-XXII.3	Bronze pinnacolo	Imperial	Galliazzo 1979, 213, nos.1-2	15014
IV-XXII.4	Bronze pinnacolo	Imperial	Galliazzo 1979, 214, no.10 & 215, no.11	15014
IV-XXII.5a-5g	Bronze binding	Imperial	See for example Potter & King 1997, 245, fig.171.24	15014
IV-XXII.6a-6d	Bronze key	Imperial	Examples in Galliazzo 1979, 153, nos.25-27; Potter & King 1997, 243, fig.169.13; Ricci 1985, 55, TAV.7.3-11	15014 (3x)
IV-XXII.7	Bronze key	Imperial	Examples in Galliazzo 1979, 151, nos.11-16	15014
IV-XXII.8a-8c; IV-XXIII.8d-8e	Lead amphora	-	Colivicchi 2004, 65, no.205	15038 (5x)
IV-XXIII.9	-	-	-	15014
IV-XXIII.10	-	-	-	15014
IV-XXIII.11	-	-	-	15014
IV-XXIII.12	-	-	-	15014

Chapter 4 Typological table, continued

Metal artefacts				
Plate	Shape	Date	Parallel/literature	Site
IV-XXIII.13	-	-	-	15014
IV-XXIII.14	-	-	-	15014
IV-XXIII.15	-	-	-	15014
IV-XXIII.16	-	-	-	15014
IV-XXIII.17	-	-	-	15014

Miscellaneous				
Plate	Shape	Date	Parallel/literature	Site
IV-XXIII.1	Rim of a dice cup	early Imperial	Potter & King 1997, 335, fig.224.55; Frova & Bertino 1973, TAV.76.14-5; Dyson 1976, fig.63.110	15085
IV-XXIII.2	Tobacco pipe	18th century	For examples see Aylwin Cotton & Métraux 1985, 160-61, figs.28.1-4 & 29.5-6	15017

Nettuno				
Plate	Ware	Shape	Date	Parallel/literature
IV-XXIII.1	Utilitarian pottery	Miniature jug	500 – 300 BC	Bouma 1996, Pl.CXLI (Jug Type 4); Gnade 1992, fig.XIX (Small jug Type 1); Manfre 2007
IV-XXIII.2	Utilitarian pottery	Miniature jug	500 – 300 BC	Bouma 1996, pl.CXL (Jug Type 3); Gnade 1992, fig.XIX (Small jug Type 2); Manfre 2007
IV-XXIV.3	Black glazed ware	Complete skyphos	350 – 250 BC?	(Ferrara T 585 group): Stanco 1988; Bouma 1996, pls. CXLIX-CLI; Rossi 2009, 220; Jehasse & Jehasse 1973, pl.107.771
IV-XXIII.4	Black glazed ware	Complete bowl	300 – 250 BC	Morel 1981, pl.60, form 2621
IV-XXIII.5	Black glazed ware	Complete bowl	300 – 200 BC	Morel 1981, pl.54, form 2538
IV-XXIII.6	Black glazed ware	Complete bowl	300 – 200 BC	Morel 1981, pls.72-73, form 2783-84
IV-XXIII.7	Black glazed ware	Miniature crater	325 – 275 BC	Bouma 1996, pl.CLIV
IV-XXIII.8	Black glazed ware	Decorated fragment (transition between shoulder and handle)	-	-
IV-XXIV.9	Black glazed ware	Stamped base	300 – 200 BC	Gruppo dei Piccoli Stampigli; no exact parallel
IV-XXIV.10	Black glazed ware	Oil lamp	Republican	-
IV-XXV.11	Terra sigillata	Complete cup with stamped base	AD 40 – 70	Ettlinger *et al.* 1990, 113, form 34. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690
IV-XXV.12	Terra sigillata	Complete cup with stamped base	AD 40 – 70	Ettlinger *et al.* 1990, 113, form 34. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690
IV-XXV.13	Terra sigillata	Complete plate with stamped base	AD 25 – 75	Ettlinger *et al.* 1990, 87, form 20. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690
IV-XXV.14	Terra sigillata	Rim of a cup with stamped base	AD 15 – 100	Ettlinger *et al.* 1990, 105, form 29. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690

Chapter 4 Typological table, continued

Nettuno				
Plate	**Ware**	**Shape**	**Date**	**Parallel/literature**
IV-XXV.15	Terra sigillata	Complete cup with stamped base	AD 15 – 100	Ettlinger *et al.* 1990, 105, form 29. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690
IV-XXV.16	Terra sigillata	Complete cup with stamped base	AD 15 – 100	Ettlinger *et al.* 1990, 105, form 29. Stamp: Oxé, Comfort & Kenrick 2000, 363, stamp type 1690
IV-XXV.17	Terra sigillata	Stamped base	10BC – 10AD	Oxé, Comfort & Kenrick 2000, 447, stamp type 2209
IV-XXV.18; fig. 4.2	Green Terra sigillata?	Decorated body fragment	early Imperial	-
IV-XXV.19	Utilitarian pottery – Pantellerian ware	Almost complete casserole	AD 450 – 600	Arthur 1994, 229, form 7.1; Fulford & Peacock 1984, 162, form 20
IV-XXVI.20	-	Loomweight	Republican	-
IV-XXVI.21	Bone	Agho crinalo	-	-
IV-XXVI.22	-	Statue	-	-
IV-XXVI.23	Bronze	Lance point	-	-

Poligono				
IV-XXVI.1	Black glazed ware	Rim of a bowl	300 – 200 BC	Morel 1981, pls.72-73, form 2783-84
IV-XXVI.2	Black glazed ware	Almost complete profile of a miniature bowl	300 – 200 BC	Morel 1981, pls.72-73, form 2783-84
IV-XXVII.3	Black glazed ware	Rim of a plate/dish	280 – 260 BC	Morel 1981, pl.36, form 2233(g1)
IV-XXVII.4	Black glazed ware	Complete bowl		Morel 1981, pl.69, form 2751(g1)
IV-XXVII.5	Black glazed ware	Rim of a bowl	2nd century BC?	Either Morel 1981, pl.55, form 2552 or Morel 1981, pl.69, serie 2750 (2752?)
IV-XXVII.6	Black glazed ware	Complete bowl	250 – 200 BC	Morel 1981, pl.75, form 2812(a1)
IV-XXVII.7	Black glazed ware	Rim and handle of a large bowl	300 – 250 BC	Morel 1981, pl.119, form 4211(a1)
IV-XXVII.8	Black glazed ware	Base and body of a jug/cup	320 – 275 BC	Stanco 2009, 183, fig.10.12
IV-XXVII.9	Black glazed ware	Rim of a jug	300 – 250 BC	Morel 1981, pl.159, form 5231
IV-XXVII.10	Black glazed ware	Rim of a jug	300 – 250 BC	Morel 1981, pl.159, form 5231
IV-XXVII.11	Black glazed ware	Rim of a jug	300 ca.	Morel 1981, pl.156, form 5213?
IV-XXVII.12	Black glazed ware	Rim of a bowl/*kylix*	300 – 200 BC?	Mother of pearl on interior identifying the fragment of a product from the Rome workshop (see Stanco 2009, 159-160)
IV-XXVII.13	Black glazed ware	Base fragment	3rd century BC?	Base type for example on Morel 1981, pl.20, form 1471(a1) & pl.96, form 3511
IV-XXVII.14	Black glazed ware	Base fragment	300 – 150 BC	Resemblance with Morel 1981, pl.221, base types 4-7
IV-XXVII.15	Black glazed ware	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 10; Cederna 1951, 211; Bernardini 1986, TAV.LVI.25
IV-XXVII.16	Black glazed ware	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 12; Jehasse & Jehasse 1973, pls.179-180, Type B27
IV-XXVII.17	Black glazed ware	Stamped base	300 – 200 BC	Bernardini 1986, TAV.LV.14
IV-XXVIII.18	Black glazed ware	Stamped base	300 – 200 BC	Bernardini 1986, TAV.LVI.21
IV-XXVIII.19	Black glazed ware	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 9; Jehasse & Jehasse 1973, pl.179, no.L.197; Pellegrino 1983, fig.5; Muzzioli 1981, no.D105
IV-XXVIII.20	Black glazed ware	Stamped base	300 – 200 BC	Resembles Bouma 1996, 416, stamp type 2

Chapter 4 Typological table, continued

Poligono				
Plate	**Ware**	**Shape**	**Date**	**Parallel/literature**
IV-XXVIII.21	Black glazed ware	Stamped base	300 – 200 BC	Resembles Bernardini 1986, TAV.LVIII.112
IV-XXVIII.22	Black glazed ware	Stamped base	300 – 200 BC	No exact parallel
IV-XXVIII.23	Black glazed ware	Stamped base	300 – 200 BC	No exact parallel
IV-XXVIII.24	Black glazed ware	Stamped base	300 – 200 BC	Resembles Jehasse & Jehasse 1973, pl.174, F21.453-455
IV-XXVIII.25	Black glazed ware	Stamped base	300 – 200 BC	Resembles Bernardini 1986, TAV.LVIII.118
IV-XXVIII.26	Black glazed ware	Stamped base	300 – 200 BC	Jehasse & Jehasse 1973, pl.183, rosette type G; Ambrosini 2009, 108, fig.16.152
IV-XXVIII.27	Black glazed ware	Stamped base	280 – 260 BC	See Stanco 2009, 178, upper right corner stamps 2&6
IV-XXVIII.28	African red slip ware	Rim of a bowl	AD 200 – 300	Hayes 1972, 54, form 31
IV-XXIX.29	African red slip ware	Rim of a large plate	AD 360 – 470	Hayes 1972, 114, form 67
IV-XXIX.30	African red slip ware	Base of a dish	AD 320 – 420	Probably Hayes 1972, 98, form 59
IV-XXIX.31	Fine ware?	Rim of a bowl	-	-
IV-XXIX.32	Fine ware?	Knob of a lid	-	-
IV-XXIX.33	Utilitarian pottery	Rim of a tegame	200 BC – AD 25	Olcese 2003, TAV.XVI (Tegame Type 7)
IV-XXIX.34	Utilitarian pottery	Rim of a tegame	325 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1)
IV-XXIX.35	Utilitarian pottery	Rim of a tegame	AD 0 – 200	Olcese 2003, TAV.XV (Tegame Type 4)
IV-XXIX.36	Utilitarian pottery	Body and base of a brocca	-	-
IV-XXIX.37	Utilitarian pottery	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)
IV-XXIX.38	Utilitarian pottery	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)
IV-XXIX.39	Utilitarian pottery	Complete stopper?	-	-
IV-XXIX.40	-	Terracotta die	3rd century AD?	Stamp type: Steinby, Helen & Solin 1977, no.1140; Tol 2010; De Haas, Tol & Attema 2011. Die: Attema, Derks & Tol 2010; Tol 2010; De Haas, Tol & Attema 2011
IV-XXX.41	-	Antefix	-	-
IV-XXX.42	-	Antefix	-	-
IV-XXX.43	-	Antefix	-	-
IV-XXX.44	-	Antefix	-	-
IV-XXX.45	-	Antefix	-	-
IV-XXXI.46	-	Antefix	-	-
IV-XXXI.47	-	Antefix	-	-
IV-XXXI.48	-	Antefix	-	-
IV-XXXI.49	-	Antefix	-	-
IV-XXXI.50	-	Antefix	-	-
IV-XXXI.51	-	Antefix	-	-
IV-XXXII.52	-	Loomweight	-	Ricci 1985, 70, TAV.17.2
IV-XXXII.53	-	Loomweight	400 – 200 BC	
IV-XXXII.54	-	Loomweight	400 – 200 BC	
IV-XXXII.55	-	Loomweight	-	Ricci 1985, 70, TAV.17.2
IV-XXXII.56	-	Loomweight	-	Ricci 1985, 70, TAV.17.2

Chapter 4 Typological table, continued

Poligono				
Plate	**Ware**	**Shape**	**Date**	**Parallel/literature**
IV-XXXII.57	Bronze	-	-	-
IV-XXXII.58	Bone	Agho crinalo	-	-
Torre Astura				
IV-XXXII.1	Bucchero	Handle fragment	-	-
IV-XXXII.2	Bucchero	Handle fragment	-	-
IV-XXXII.3	Black glazed ware	Rim of a plate	200 – 0 BC	Morel 1981, pl.7, form 1222/24 (Campana B form?)
IV-XXXII.4	Black glazed ware	Almost complete plate	200 – 0 BC	Morel 1981, pl.16, serie 1410
IV-XXXIII.5	Black glazed ware	Body- and base of a bowl	300 – 200 BC	Morel 1981, pls.72-73, form 2783-84
IV-XXXIII.6	Black glazed ware	Stamped base	300 – 200 BC	No exact parallel
IV-XXXIII.7	Black glazed ware	Stamped base	300 – 200 BC	No exact parallel
IV-XXXIII.8	Black glazed ware	Decorated base	-	-
IV-XXXIII.9	Terra sigillata	Rim of a bowl	10 BC – AD 15	Ettlinger *et al.* 1990, 79, form 15
IV-XXXIII.10	Terra sigillata	Base fragment	-	-
IV-XXXIII.11	Terra sigillata	Decorated body fragment	-	-
IV-XXXIII.12	Terra sigillata	Rim of a cup	AD 40 – 70	Ettlinger *et al.* 1990, 113, form 34
IV-XXXIII.13	Terra sigillata	Decorated body fragment	-	-
IV-XXXIII.14	Terra sigillata	Decorated body fragment	-	-
IV-XXXIII.15	Terra sigillata	Decorated body fragment	-	-
IV-XXXIII.16	Terra sigillata	Decorated body fragment	-	-
IV-XXXIV.17	Terra sigillata	Base and decorated body fragment	-	-
IV-XXXIV.18	Terra sigillata	Decorated body fragment	-	-
IV-XXXIV.19	Terra sigillata	Rim of a bowl	AD 15 – 50	Probably Ettlinger *et al.* 1990, 115, form 36
IV-XXXIV.20	Terra sigillata	Rim of a bowl	10 BC – AD 15	Ettlinger *et al.* 1990, 79, form 15
IV-XXXIV.21	Terra sigillata	Rim of a bowl	10 BC – AD 15	Ettlinger *et al.* 1990, 79, form 15
IV-XXXIV.22	Fine ware/ceramica a pareti sottili?	Complete bowl	-	-
IV-XXXIV.23	Utilitarian pottery – African cookware	Rim of a casserole	AD 75 – 125	Hayes 1972, 46, form 19
IV-XXXV.24	Utilitarian pottery – African cookware	Complete profile of a casserole	AD 150 – 250	Hayes 1972, 206, form 196
IV-XXXV.25	African red slip ware	Rim of a carenated bowl	AD 100 – 175	Hayes 1972, 32, form 8A
IV-XXXV.26	African red slip ware	Rim of a dish	AD 100 – 150	Hayes 1972, 20, form 3C
IV-XXXV.27	African red slip ware	Rim of a bowl	AD 150 – 225	Hayes 1972, 40, form 16
IV-XXXV.28	African red slip ware	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B
IV-XXXV.29	Ceramica a pareti sottili	Rim of a bowl	25 BC – AD 75	Marabini Moevs 1973, form XXXVI

Chapter 4 Typological table, continued

Torre Astura				
Plate	**Ware**	**Shape**	**Date**	**Parallel/literature**
IV-XXXV.30	Ceramica a pareti sottili	Base fragment	-	-
IV-XXXV.31	Ceramica a pareti sottili	Rim of a pitcher?	150 BC – AD 50	Marabini Moevs 1973, form XVII/XVIII
IV-XXXVI.32	Ceramica a pareti sottili	Rim of a cup	AD 0 – 75	Marabini Moevs 1973, form XLVI
IV-XXXVI.33	Ceramica a pareti sottili	Rim of a jug	AD 15 – 50	Marabini Moevs 1973, form L
IV-XXXVI.34	Ceramica a pareti sottili	Rim of a mug	25 BC – AD 75	Marabini Moevs 1973, form XLVII
IV-XXXVI.35	Ceramica a pareti sottili	Rim of a jug	AD 40 – 70	Marabini Moevs 1973, form LXVIII
IV-XXXVI.36	Ceramica a pareti sottili	Rim of a jug	AD 40 – 70	Marabini Moevs 1973, form LXVIII
IV-XXXVI.37	Utilitarian pottery	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2)
IV-XXXVI.38	Utilitarian pottery	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2)
IV-XXXVI.39	Utilitarian pottery	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)
IV-XXXVI.40	Utilitarian pottery	Almost complete *unguentarium*	200 – 0 BC	Dyson 1976, fig.26.97 & fig.40.148-158; Jehasse & Jehasse 1973, pl.142
IV-XXXVII.41	Utilitarian pottery	Complete brocca	-	-
IV-XXXVII.42	Utilitarian pottery	Almost complete brocca	-	-
IV-XXXVIII.43	Utilitarian pottery	Rim of a casserole	AD 500 – 700	Close to Fontana *et al.* 2004, 554, TAV.IV.35; Ricci 1998, 354, fig.2.3; Ciarrocchi *et al.* 1998, 406, fig.9.6; Santangeli Valenzani *et al.* 2002, 137, fig.7.5; see also *infra*, pl.VI-VIII.6
IV-XXXVIII.44	Utilitarian pottery – African coarse ware	Rim of a basin	AD 400 – 500	Bonifay 2004, 256, fig.139 (=Fulford & Peacock 1984, bowl 22-23 = CATHMA A1). See also Attema, de Haas & Tol 2011, 155, fig.C.59; Ciarrocchi *et al.* 1998, 410, fig.11.7; Whitehouse *et al.* 1982, 79, fig.13.182-184; see also *infra*, pl.VI-VI.2a/2b
IV-XXXVIII.45	Utilitarian pottery	Rim of a mortar/basin	AD 150 – 300	See Ricci 1985, 221, TAV.57.2; Frova & Bertino 1973, TAV.74.19
IV-XXXVIII.46	Utilitarian pottery	Rim of a casserole	-	
IV-XXXVIII.47	Utilitarian pottery	Rim of a lid/bowl	-	
IV-XXXVIII.48	Utilitarian pottery	Complete lid	-	
IV-XXXIX.49	Utilitarian pottery	Complete lid	-	
IV-XXXIX.50	Glass	Rim of a flask	AD 50 - 100	Frova & Bertino 1973, TAV.82.8 & TAV.217.5
IV-XXXIX.51	Glass	Rim of an *unguentarium*	----	Ricci 1985, 231, TAV.59.14 (=Isings 1957, form 26A)
IV-XXXIX.52	Glass	Rim of a cup	50 – 200 AD	Ricci 1985, 179, TAV.47.5
IV-XXXIX.53	Bronze	Key	Imperial	Examples in Galliazzo 1979, 153, nos.25-27; Potter & King 1997, 243, fig.169.13; Ricci 1985, 55, TAV.7.3-11
IV-XXXIX.54	Bronze	Needle	-	-
IV-XXXIX.55	Lead	Oil lamp	AD 500 – 700	Arena *et al.*, 424, figs.II.4.1026-1027
IV-XXXIX.56	Bronze	Shaft	-	-

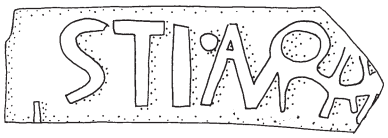
Chapter 4 Typological table, continued

Torre Astura				
Plate	**Ware**	**Shape**	**Date**	**Parallel/literature**
IV-XXXIX.57	Bronze	Piece of horse garment	-	-
IV-XXXIX.58	Lead	Ring	-	-
IV-XXXIX.59	Lead	Shell	-	Frova & Bertino 1973, TAV.138.30

La Campana				
IV-XXXIX.1	Black glazed ware	Rim fragment of a situla	350 – 300 BC	Morel 1981, pl.199, form 6523
IV-XXXIX.2	Glass	Almost complete glass unguentarium	AD 0 – 200	Frova & Bertino 1973, TAV.215.23-31; Ricci 1985, 204, TAV.51.5
IV-XXXIX.3	Bronze	-	-	-

Museum collection
Building materials

Plate IV-I



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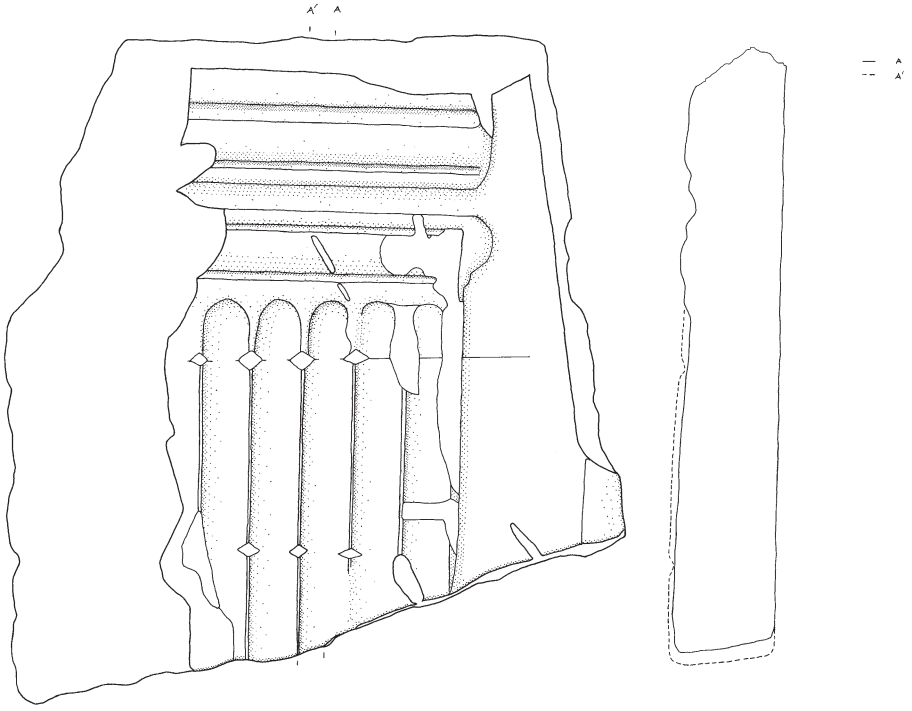

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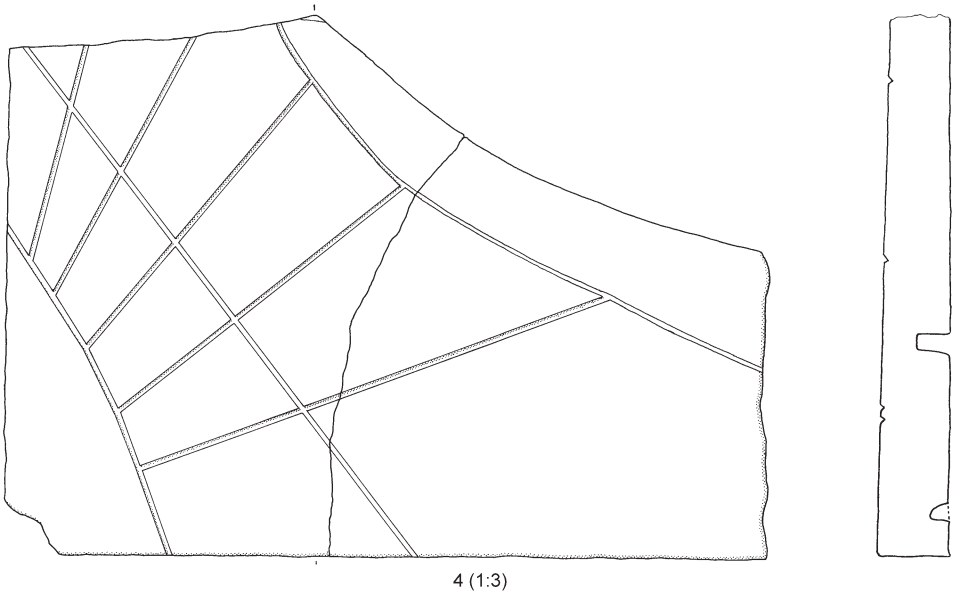
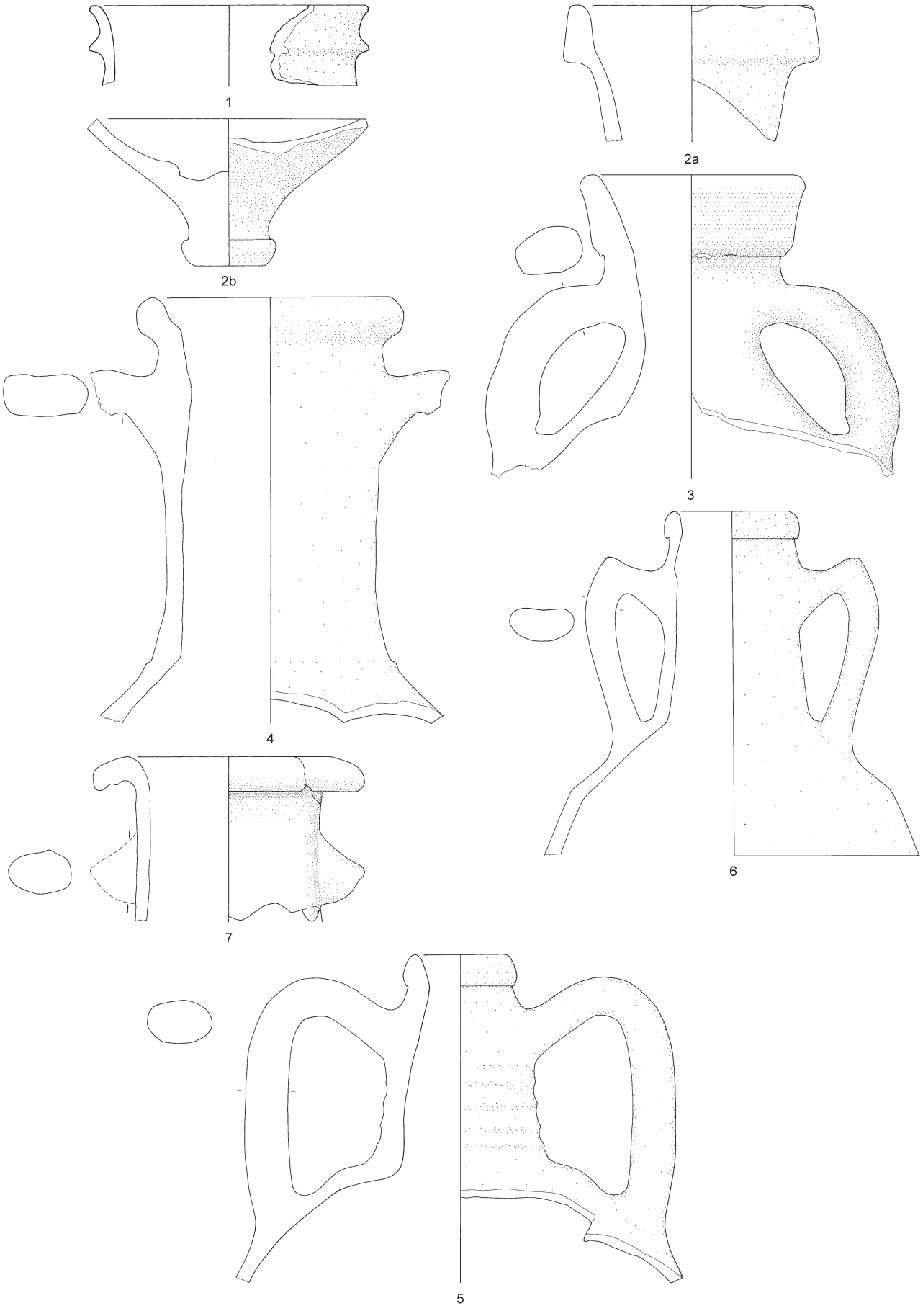


4 (1:3)

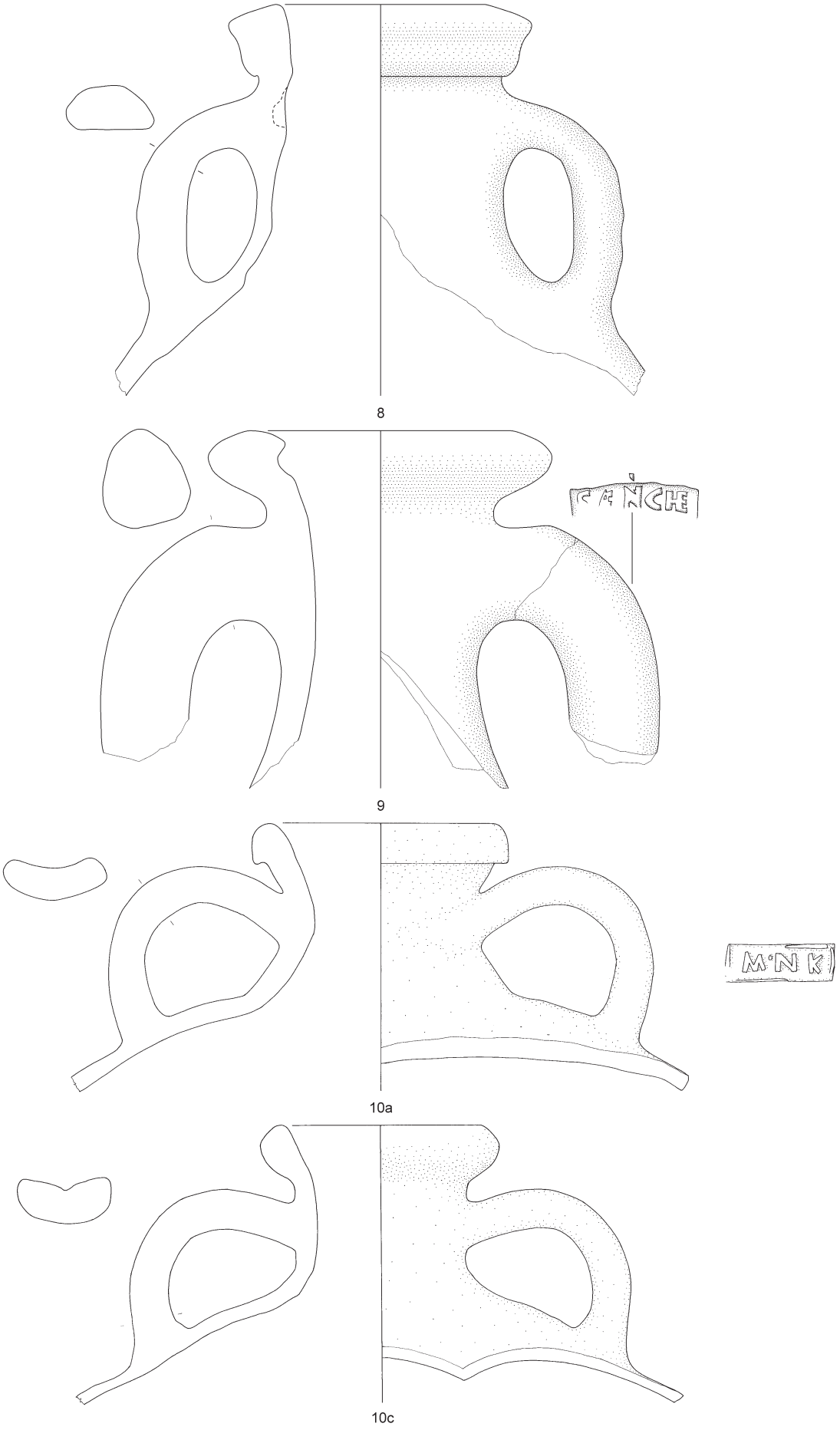
Museum collection cont.
Amphorae (scale 1:3)

Plate IV-II



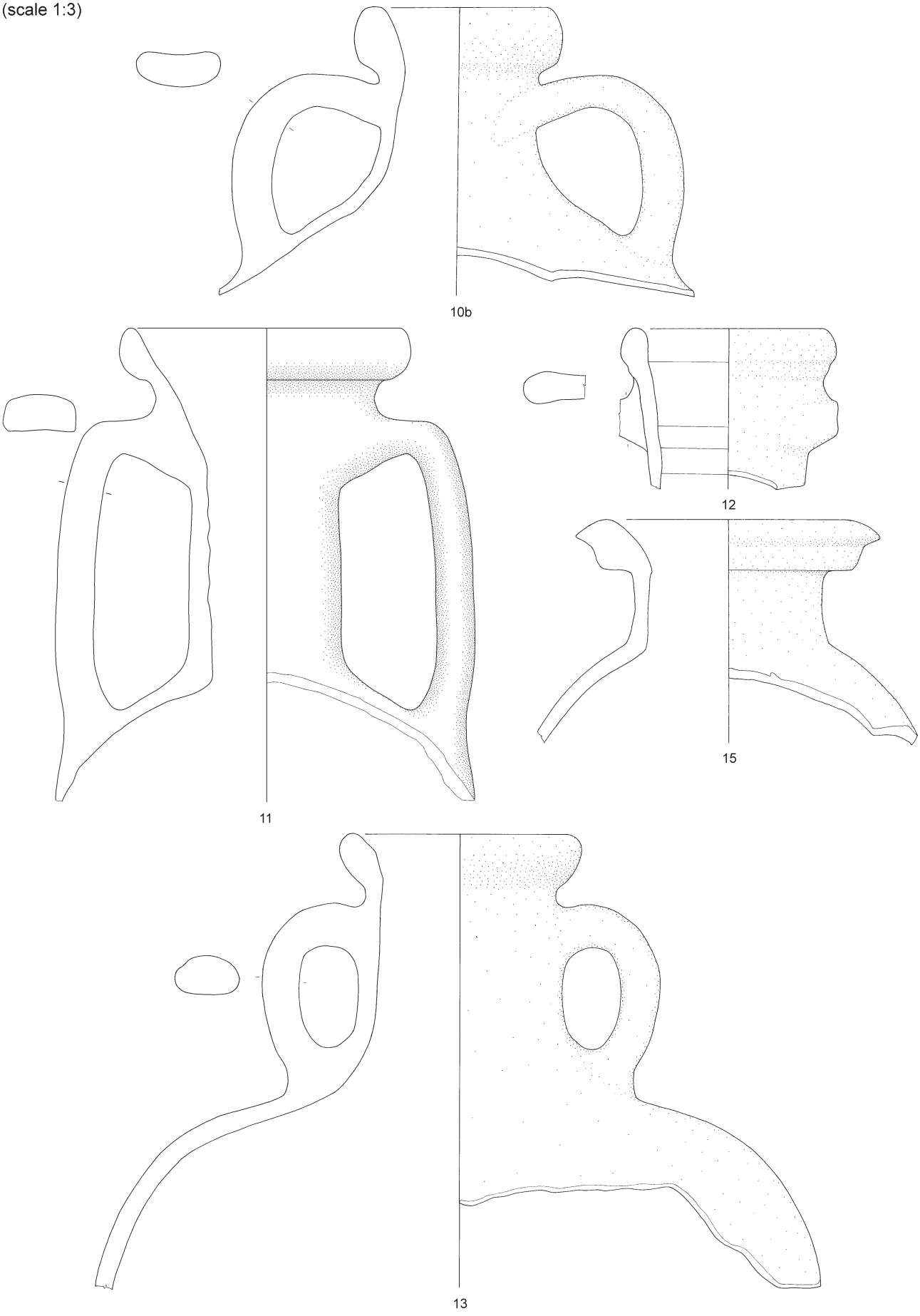
Museum collection cont.
(scale 1:3)

Plate IV-III



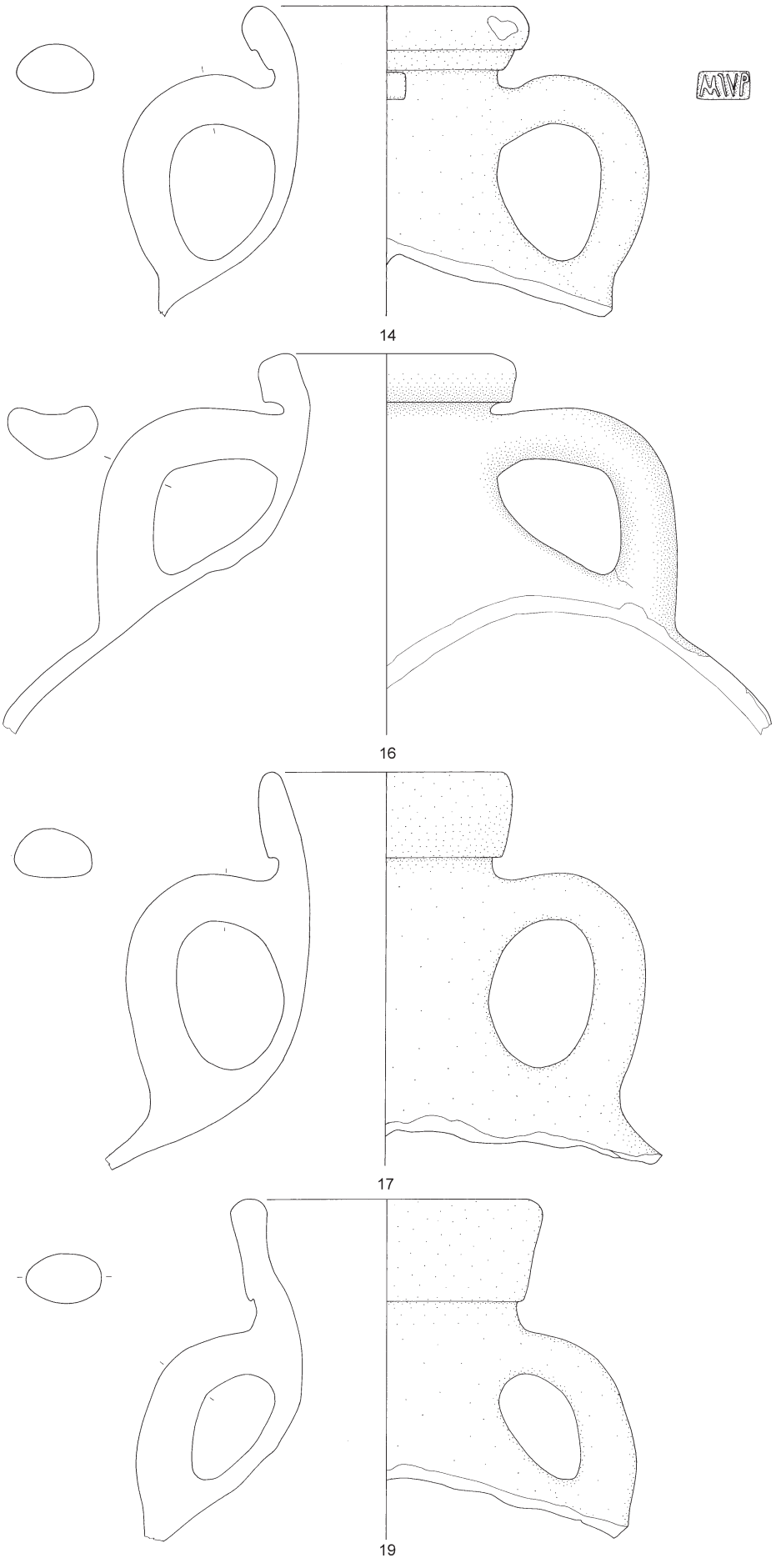
Museum collection cont.
(scale 1:3)

Plate IV-IV



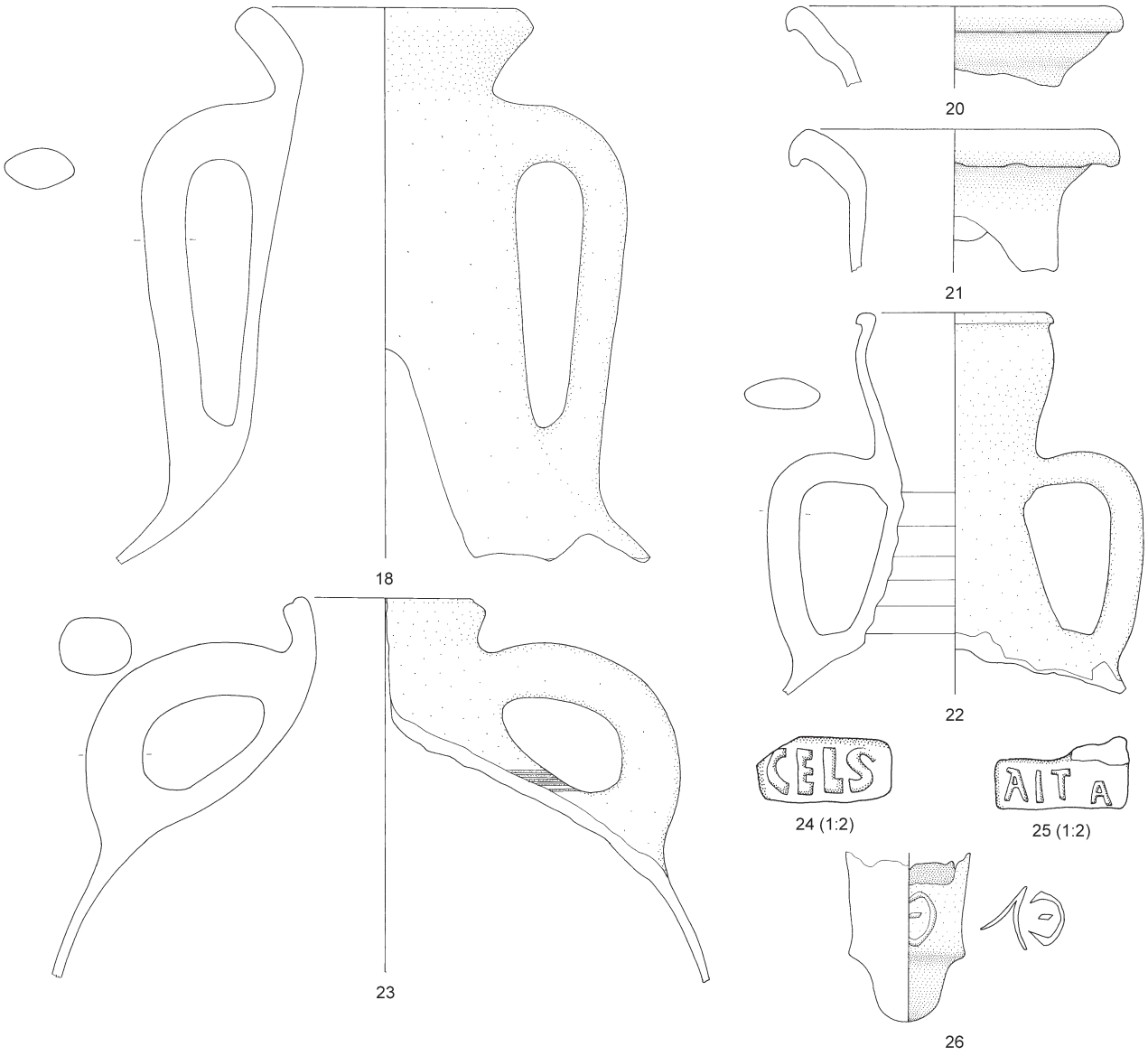
Museum collection cont.
(scale 1:3)

Plate IV-V

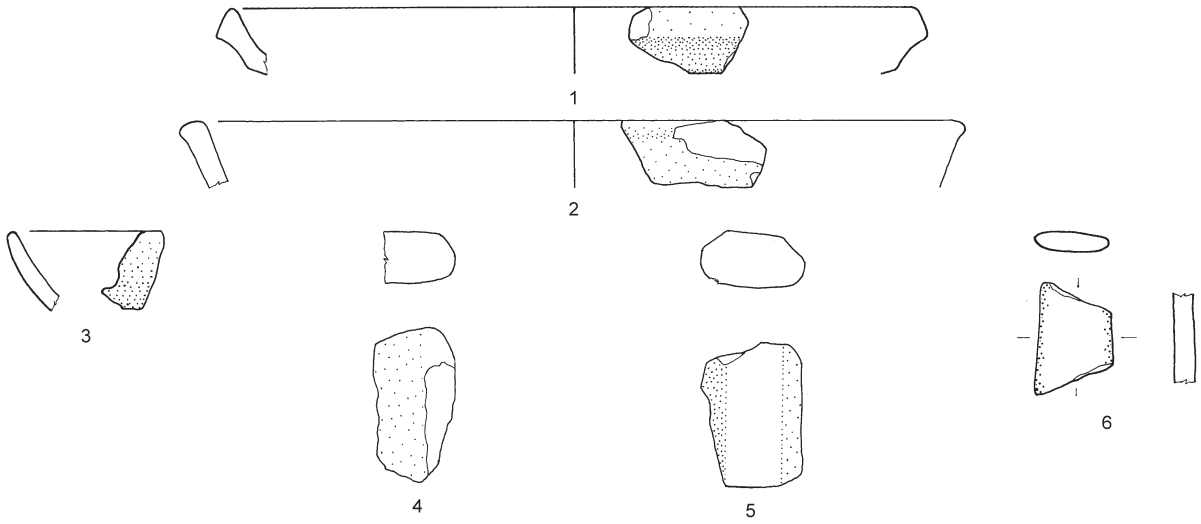


Museum collection cont.
(scale 1:3)

Plate IV-VI

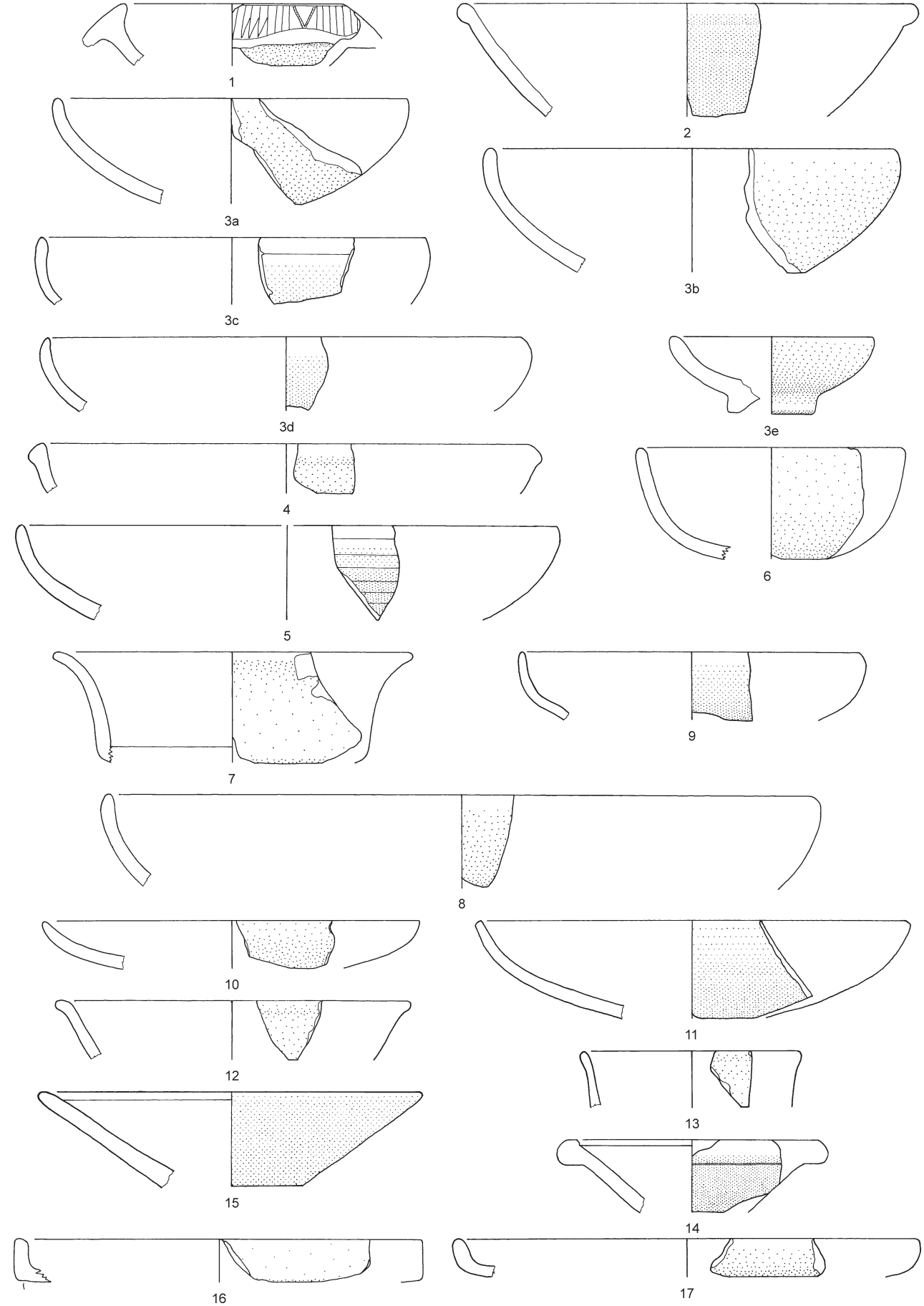


Fine ware - Bucchero



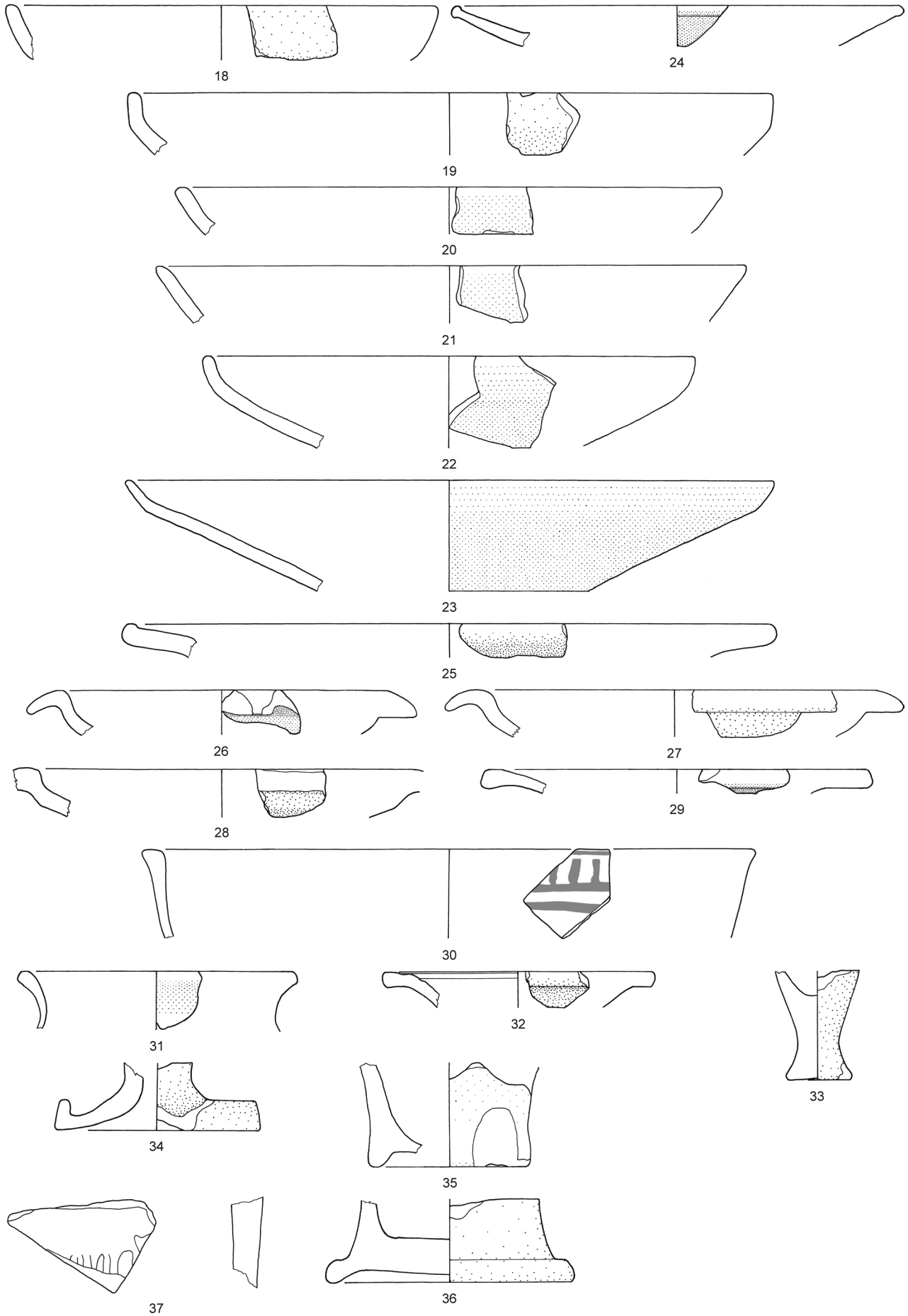
Museum collection cont.
Fine ware - *Black Glazed Ware*

Plate IV-VII



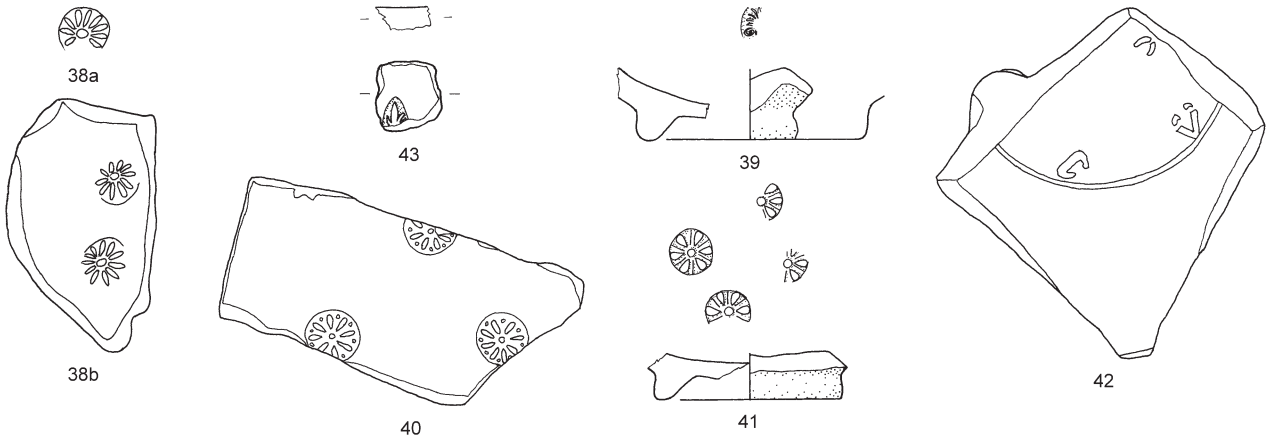
Museum collection cont.

Plate IV-VIII

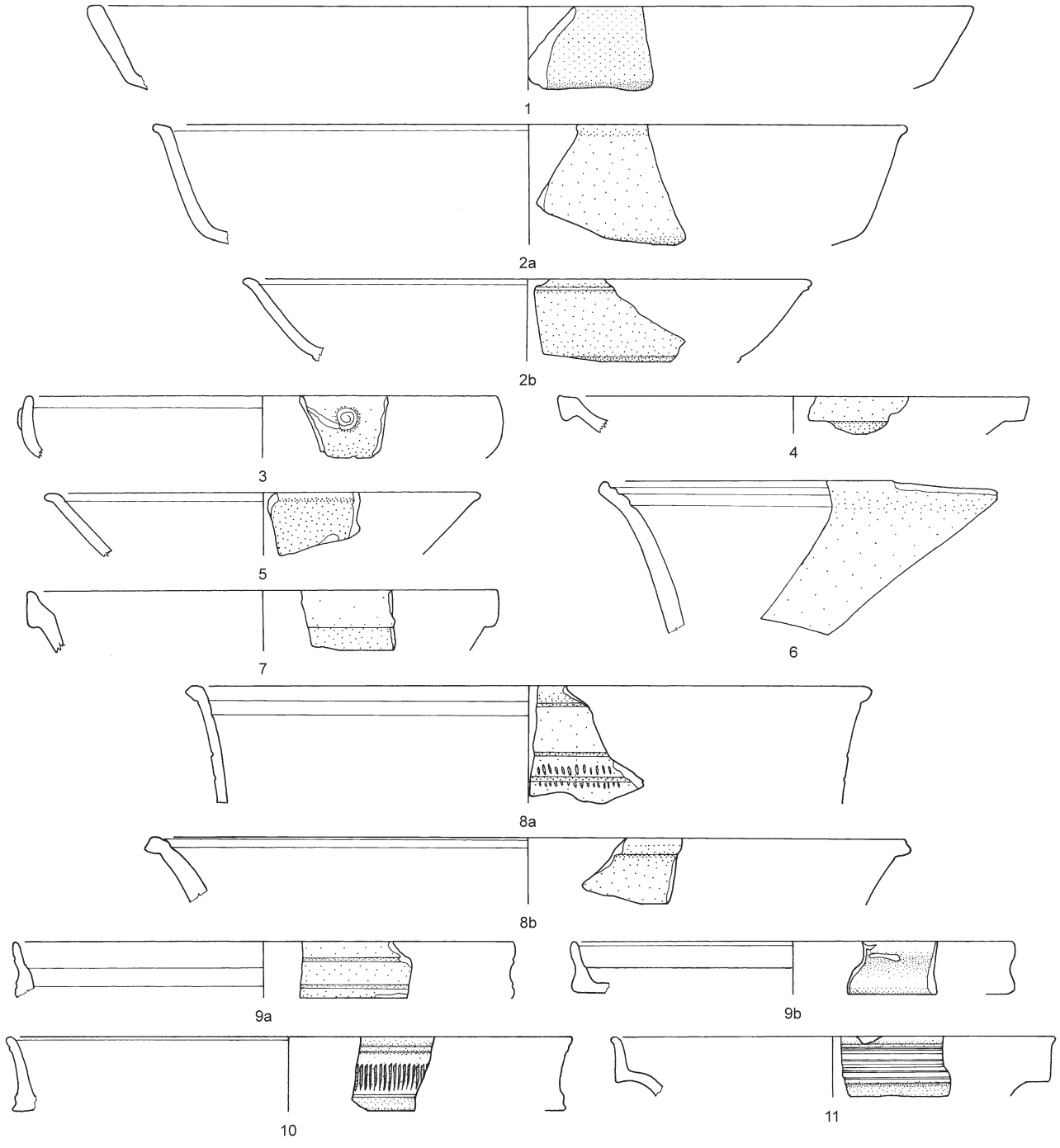


Museum collection cont.

Plate IV-IX

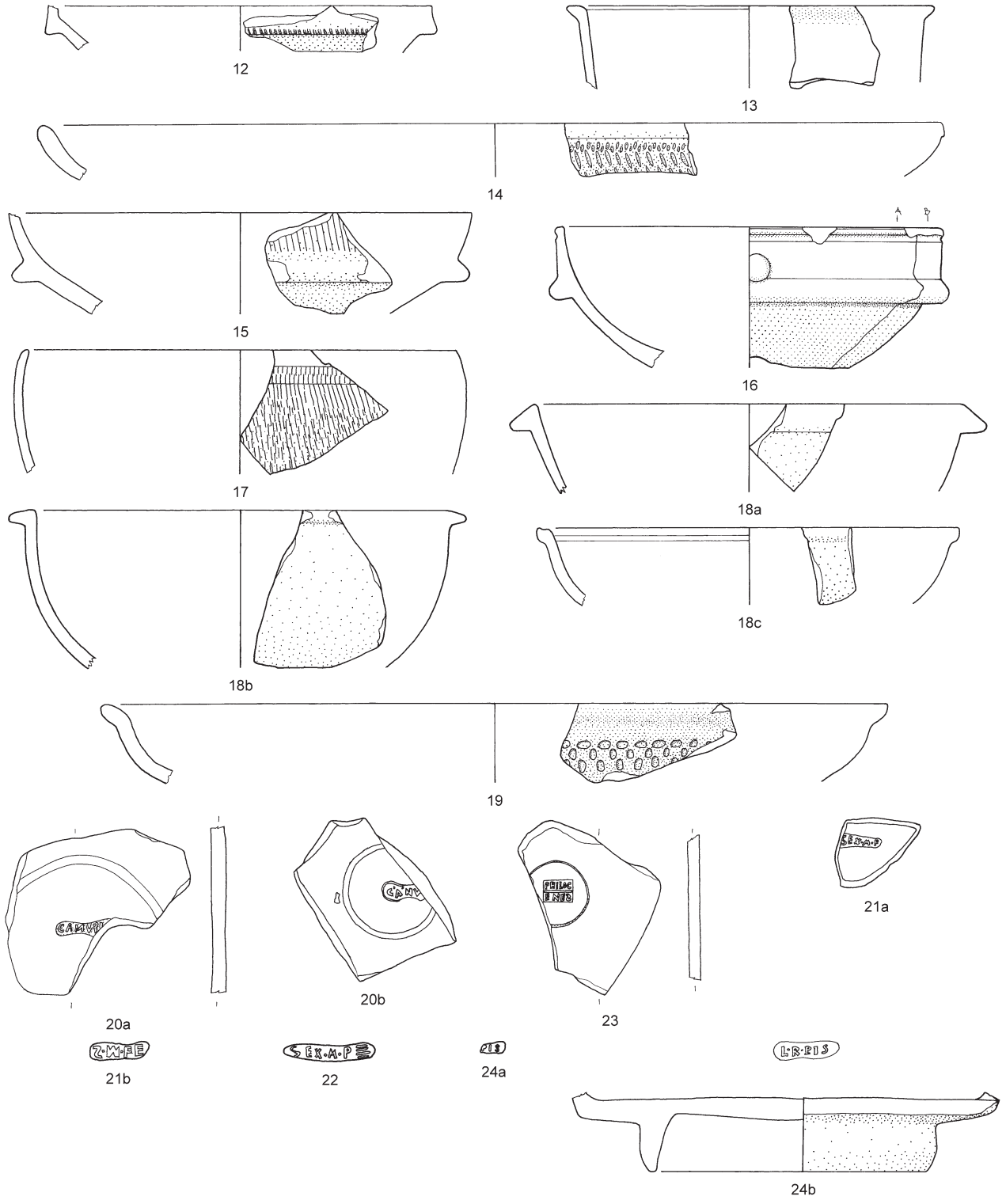


Fine ware - Terra Sigillata

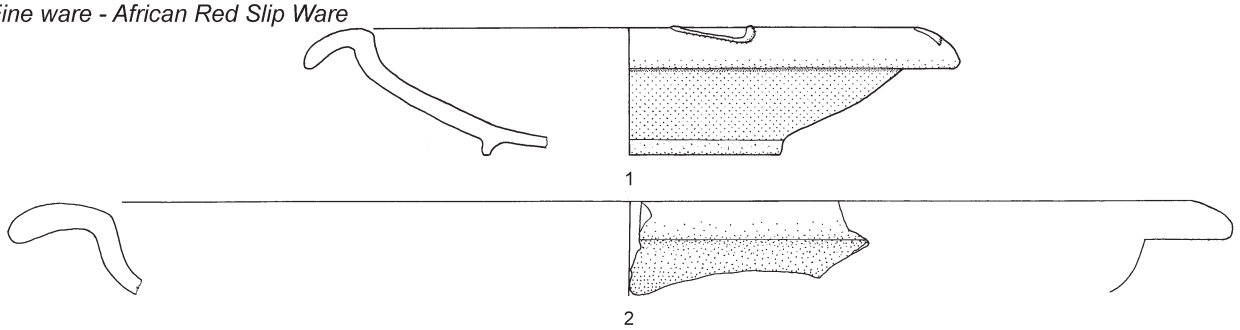


Museum collection cont.

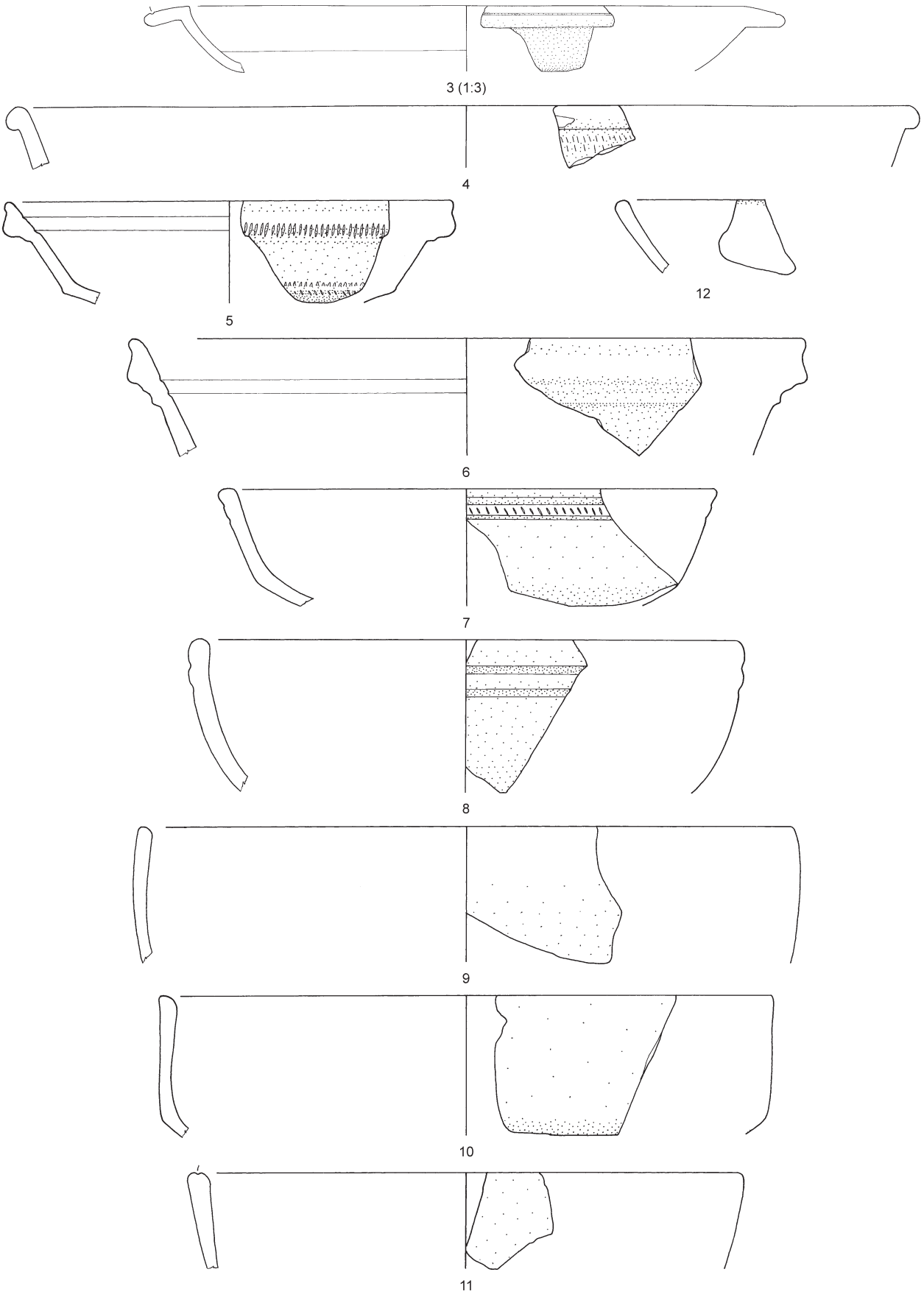
Plate IV-X



Fine ware - African Red Slip Ware

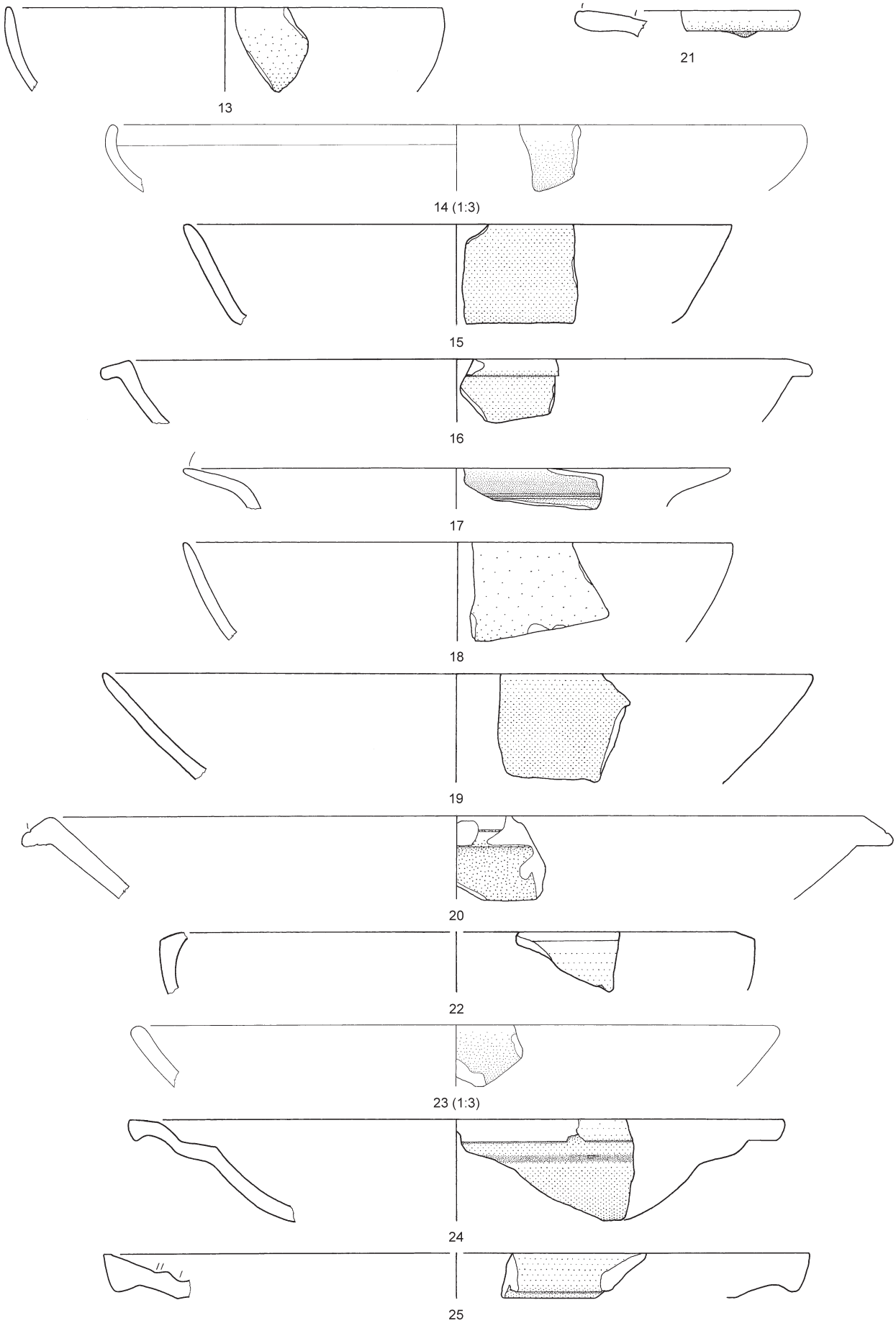


Museum collection cont. Plate IV-XI

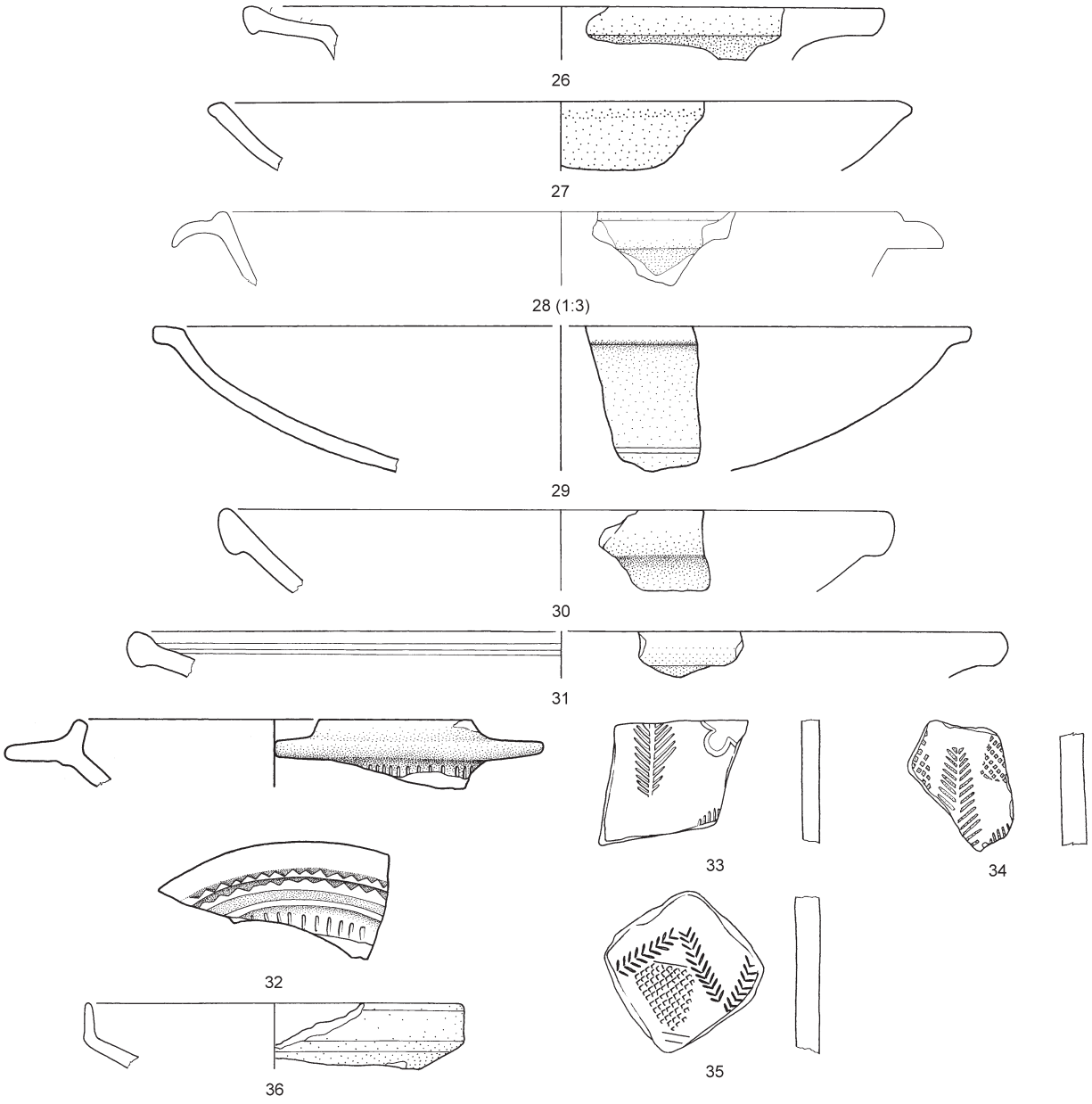


Museum collection cont.

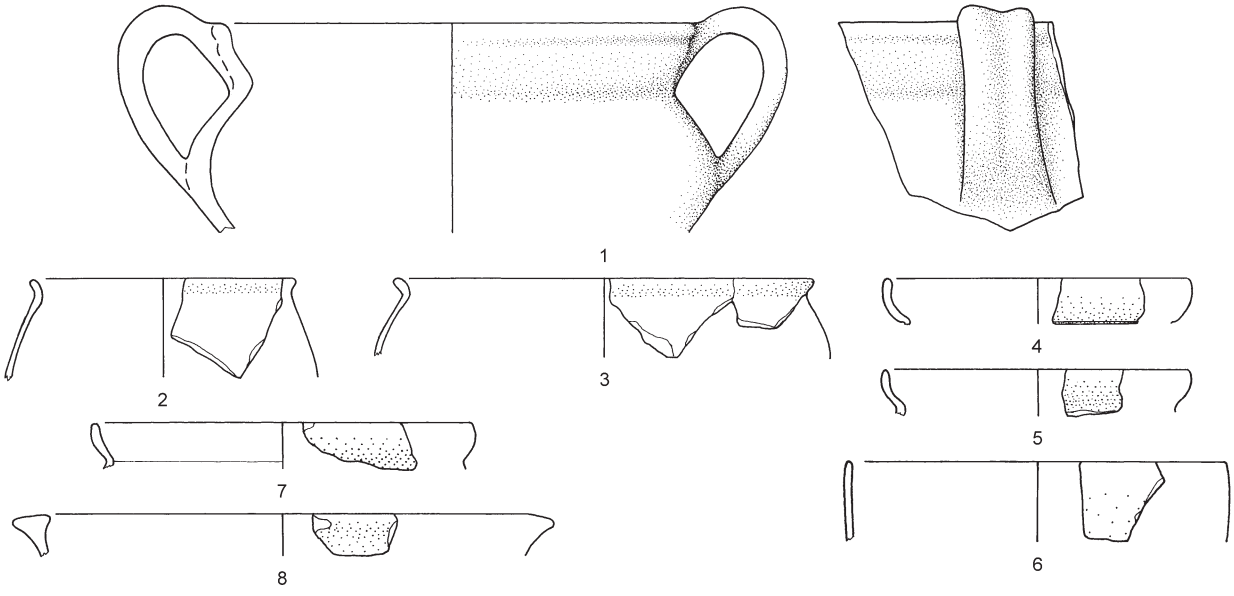
Plate IV-XII



Museum collection cont. Plate IV-XIII

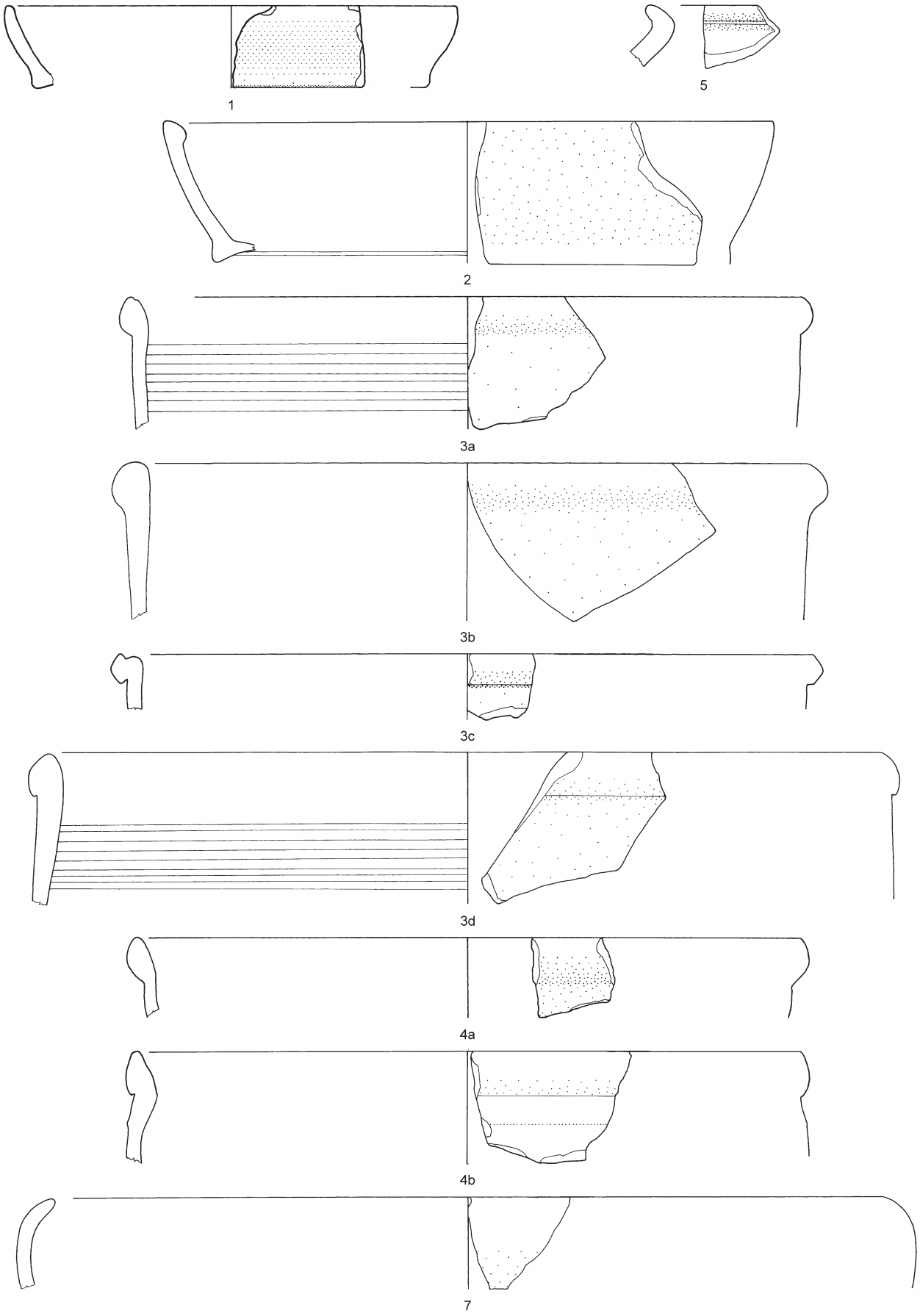


Fine ware - Ceramica a pareti sottili

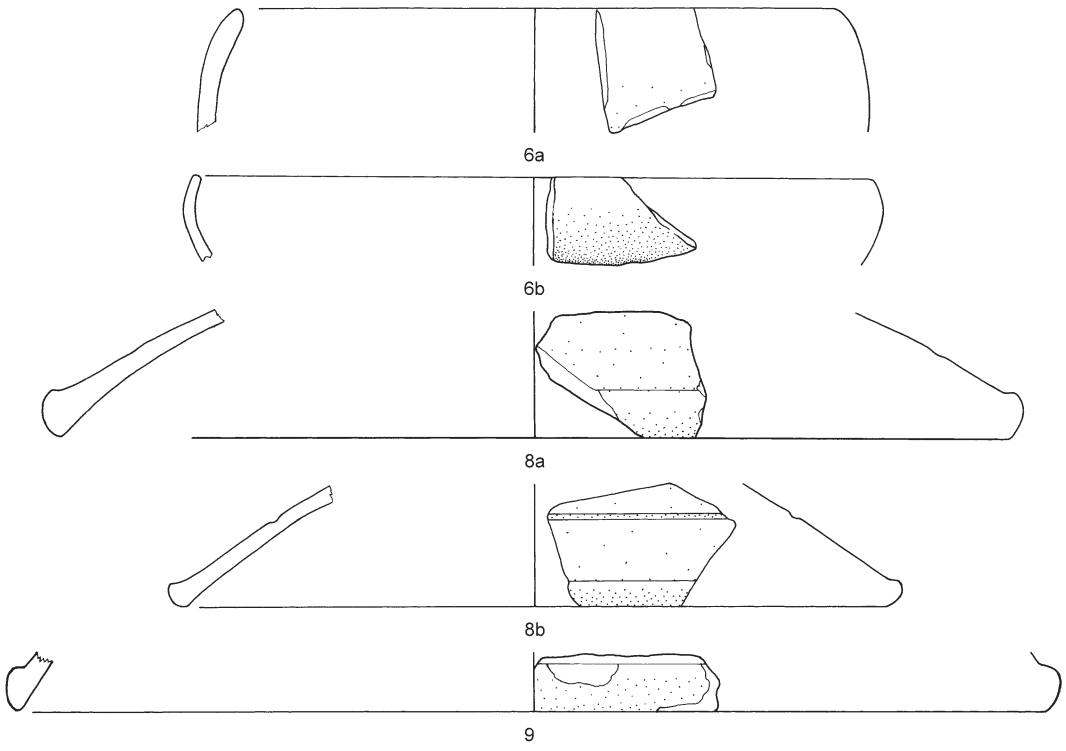


Museum collection cont.
Utilitarian pottery - *African Cookware*

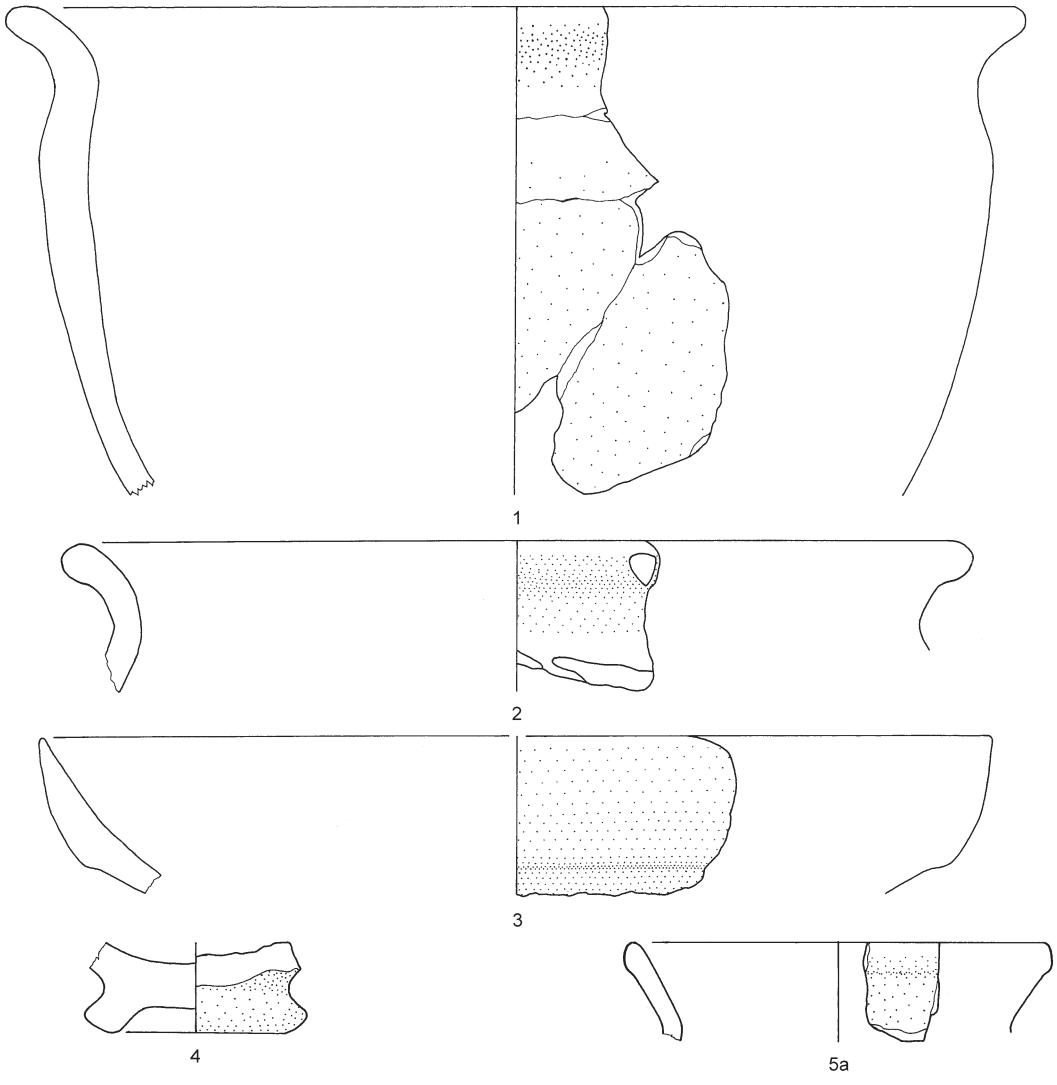
Plate IV-XIV



Museum collection cont. Plate IV-XV



Utilitarian pottery - Other coarse ware



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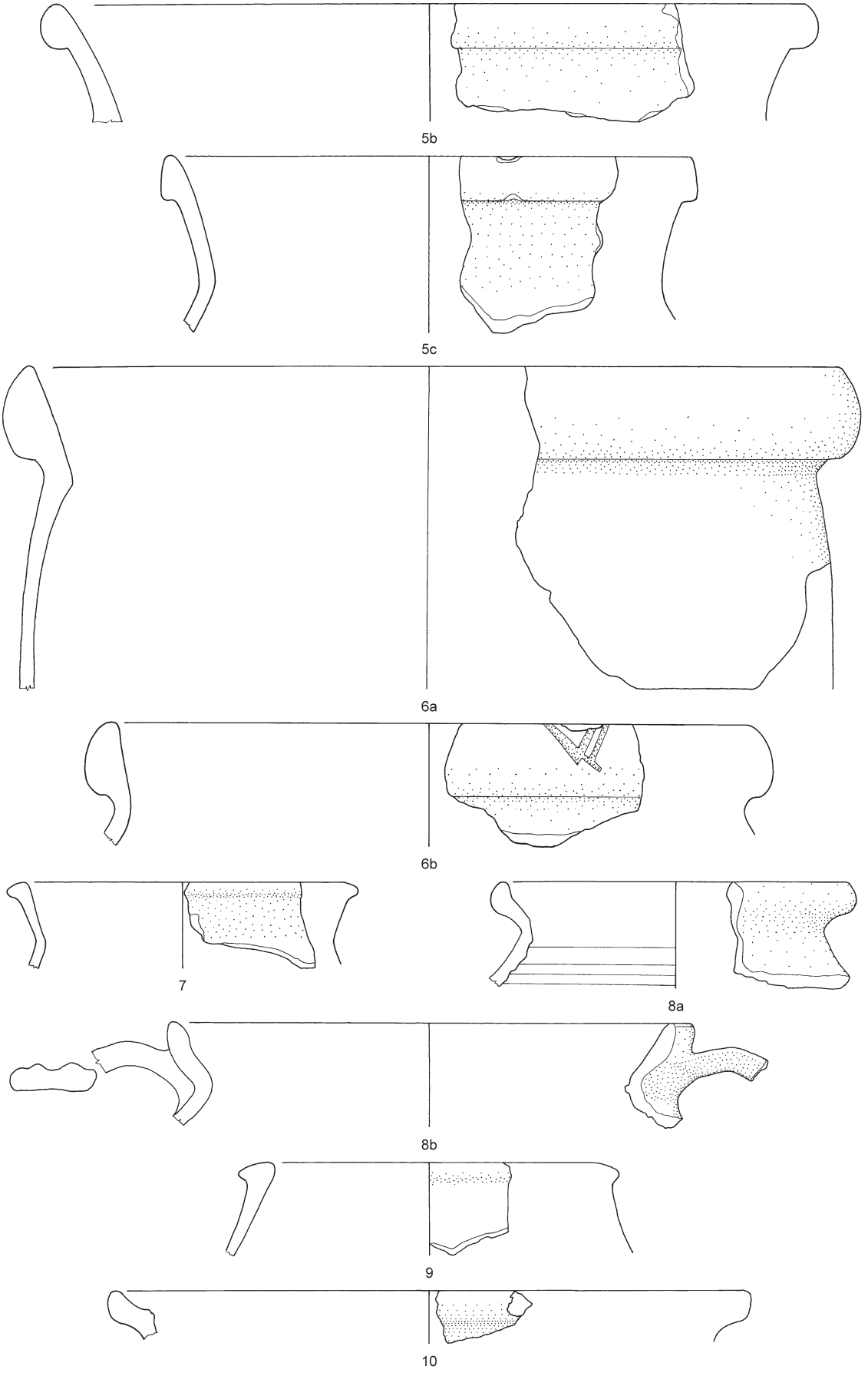
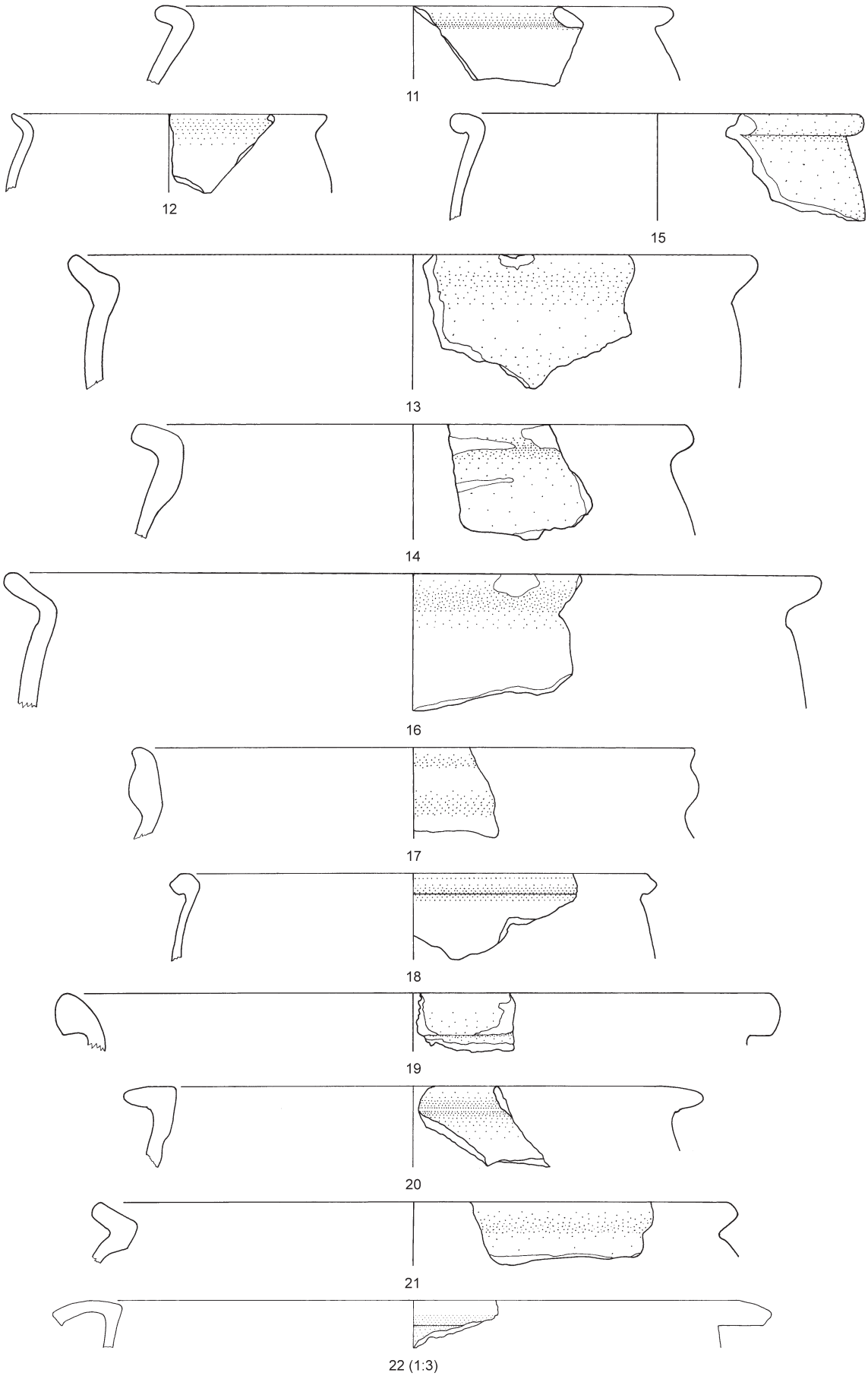
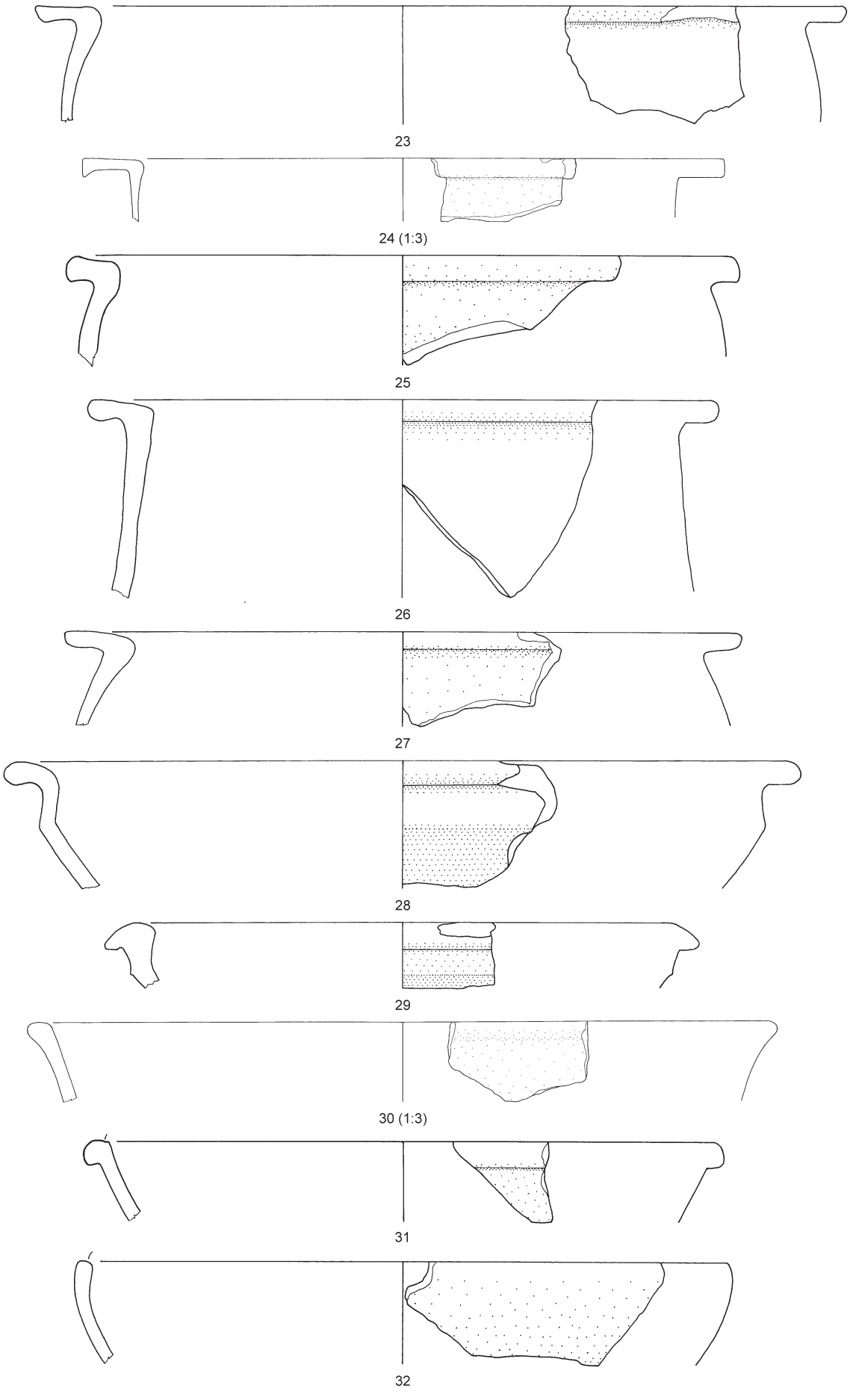


Museum collection cont. Plate IV-XVII



Museum collection cont. Plate IV-XVIII



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24 (1:3)

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30 (1:3)

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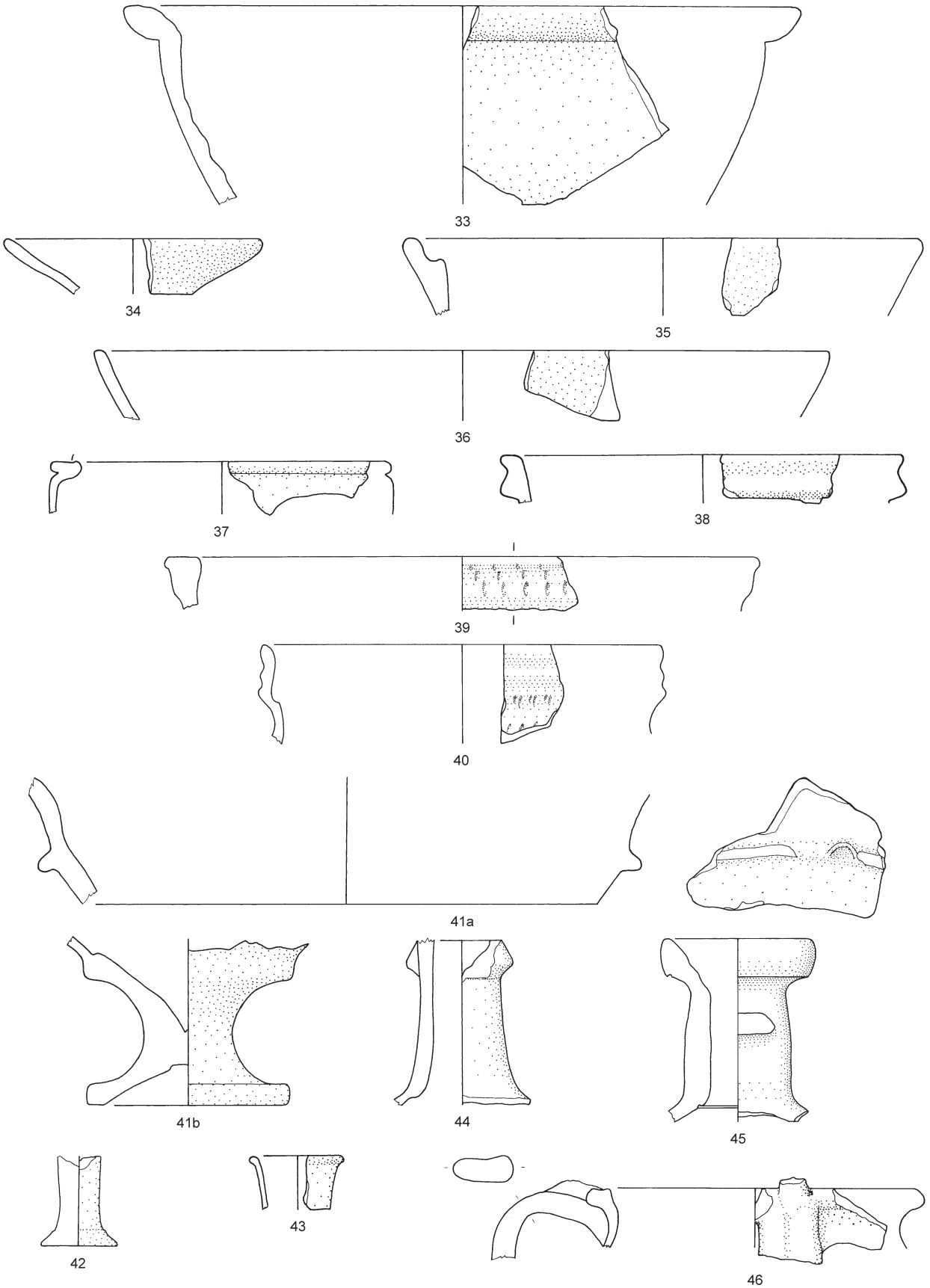
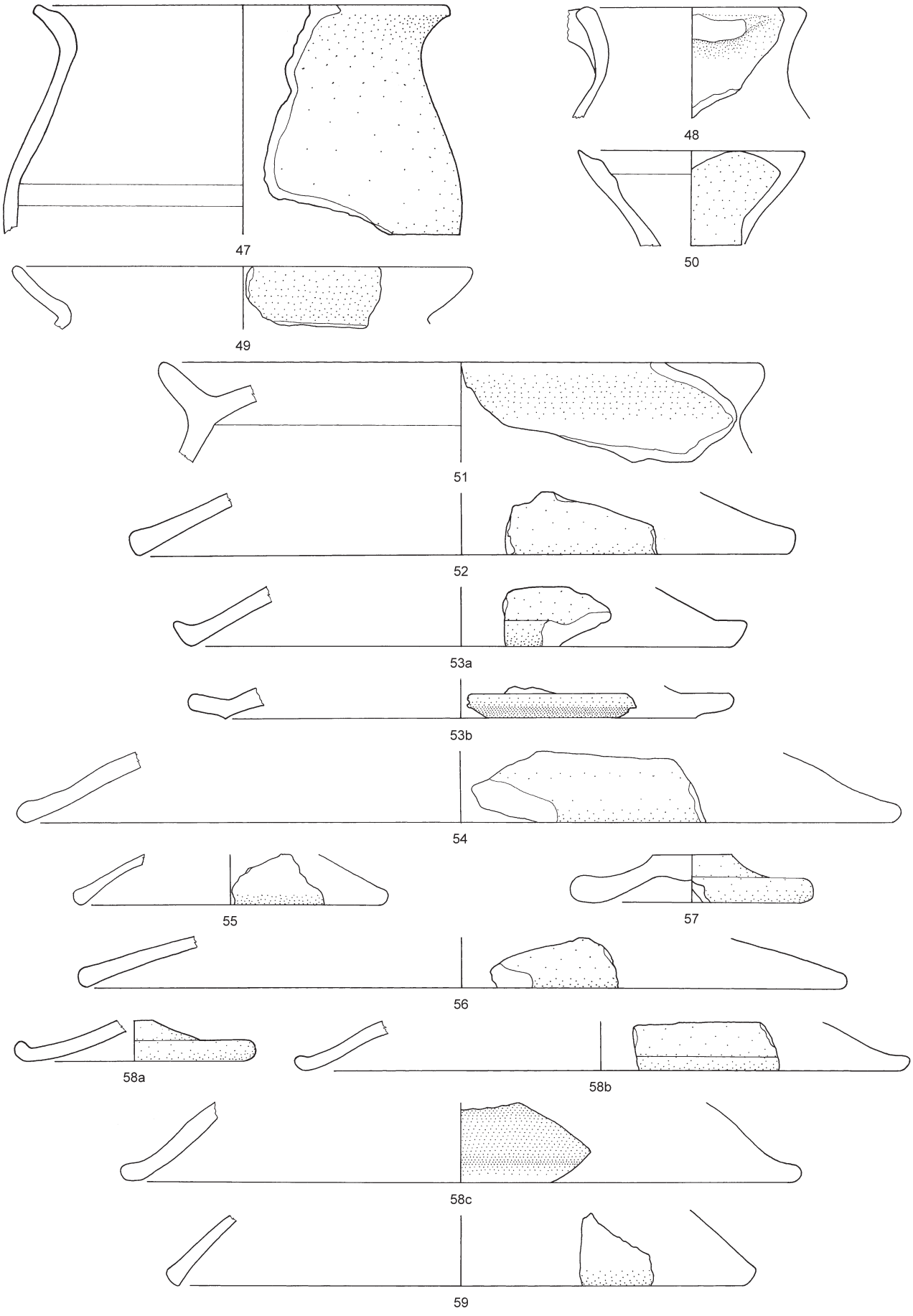
Museum collection cont. Plate IV-XIX

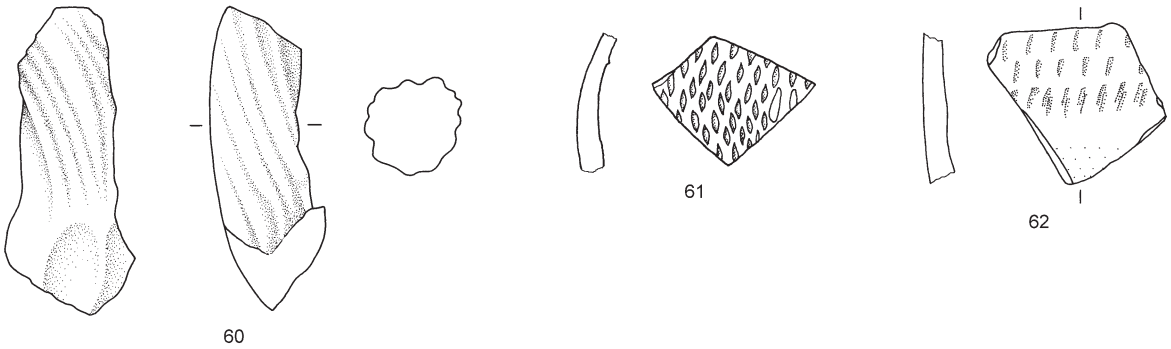


Museum collection cont.

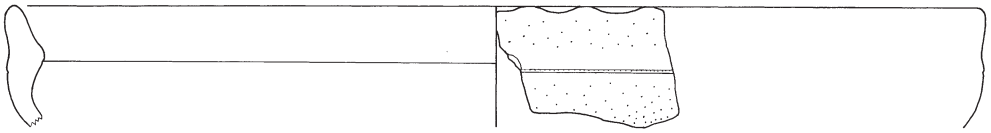
Plate IV-XX



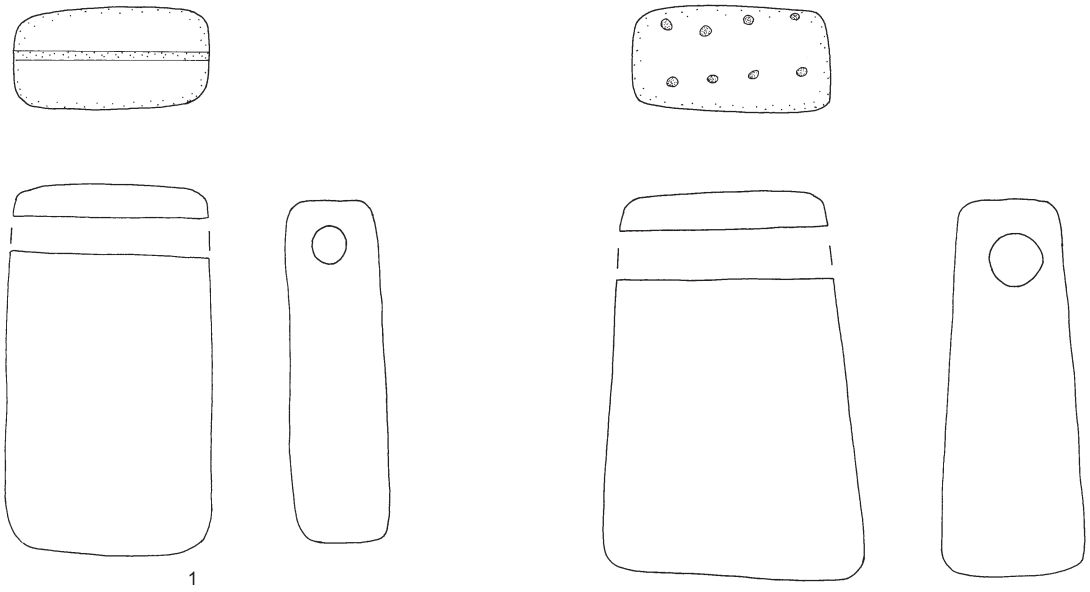
Museum collection cont. Plate IV-XXI



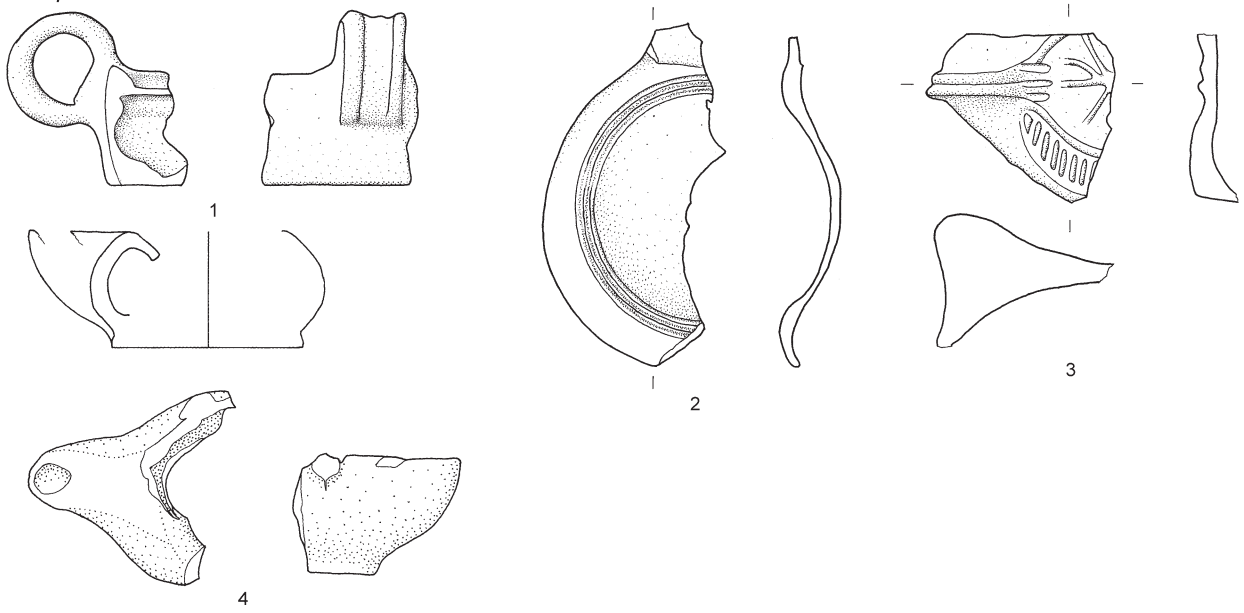
Glazed ware



Loomweights



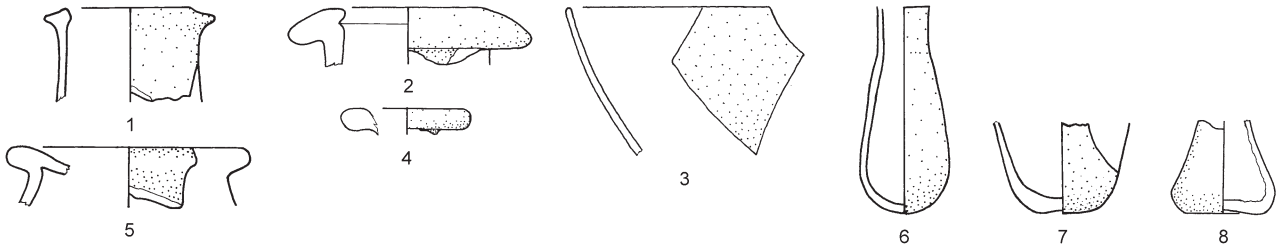
Oil lamps



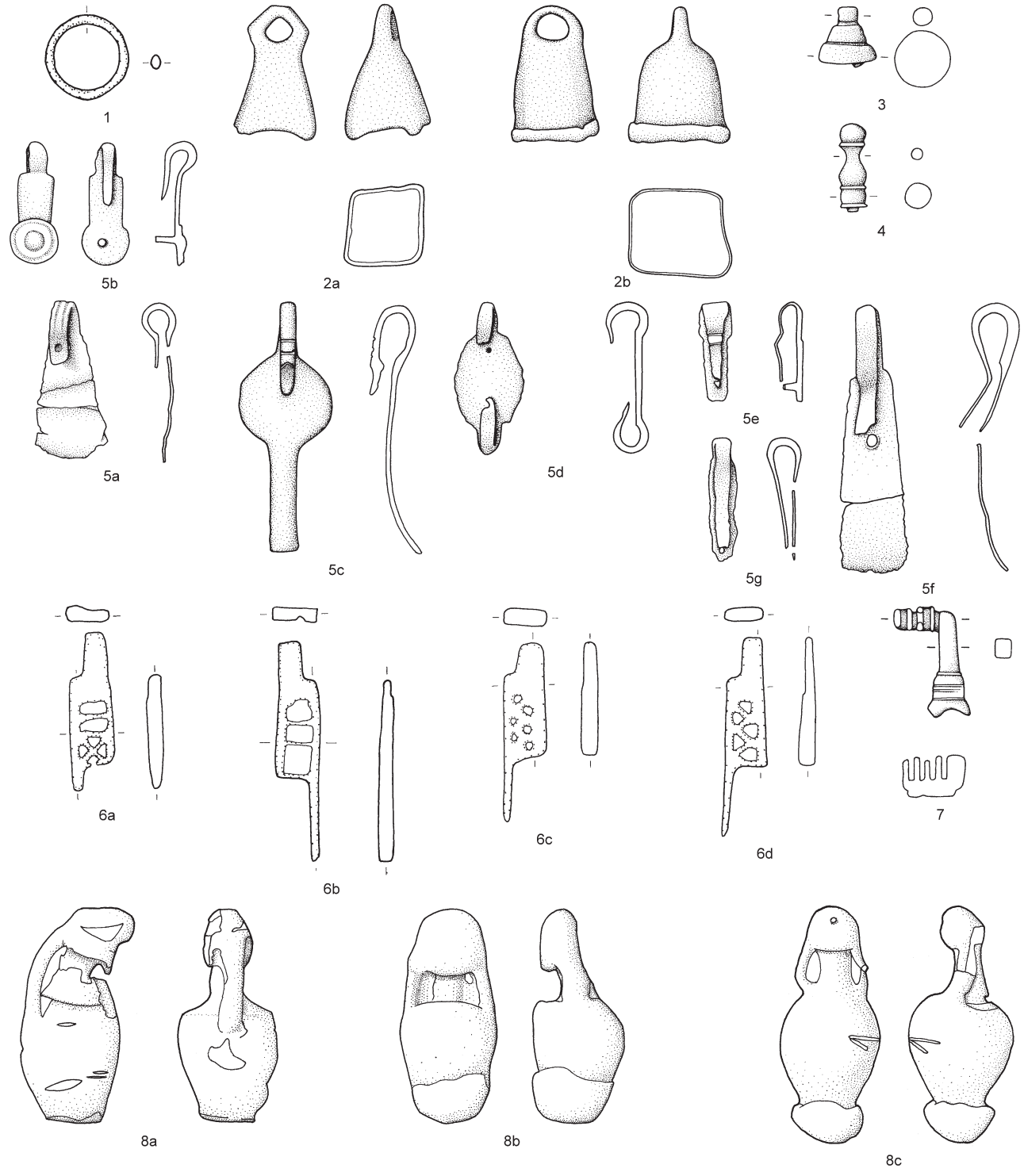
Museum collection cont.

Plate IV-XXII

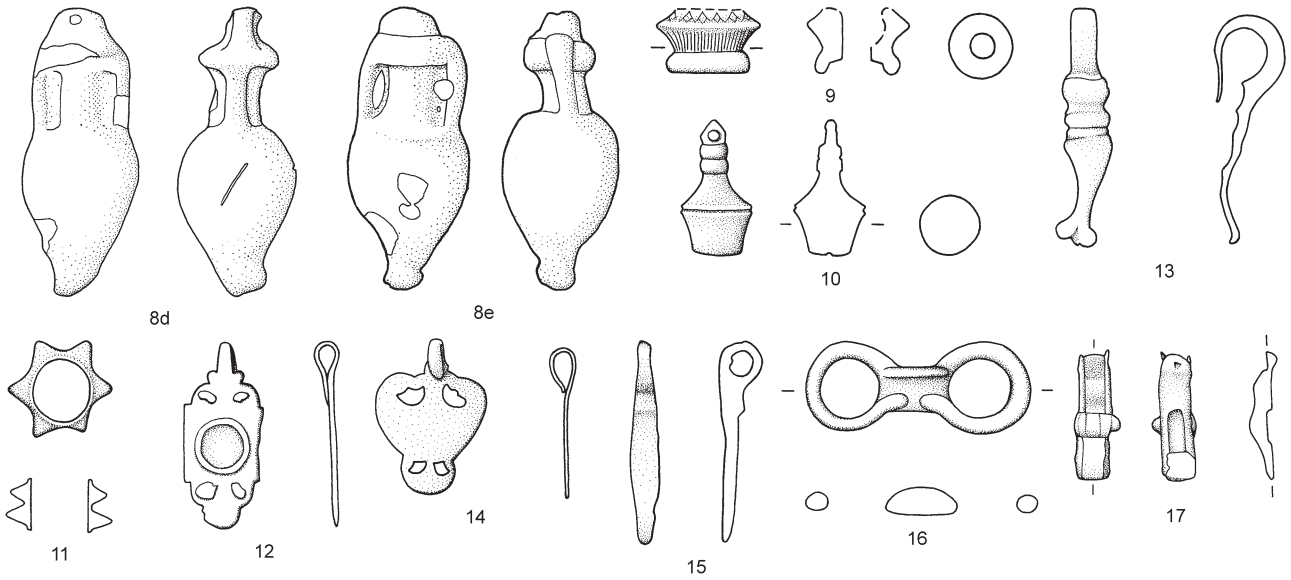
Glass



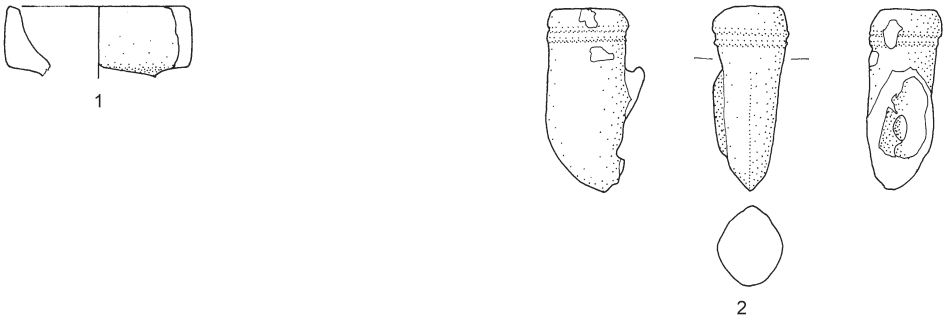
Metal artefacts



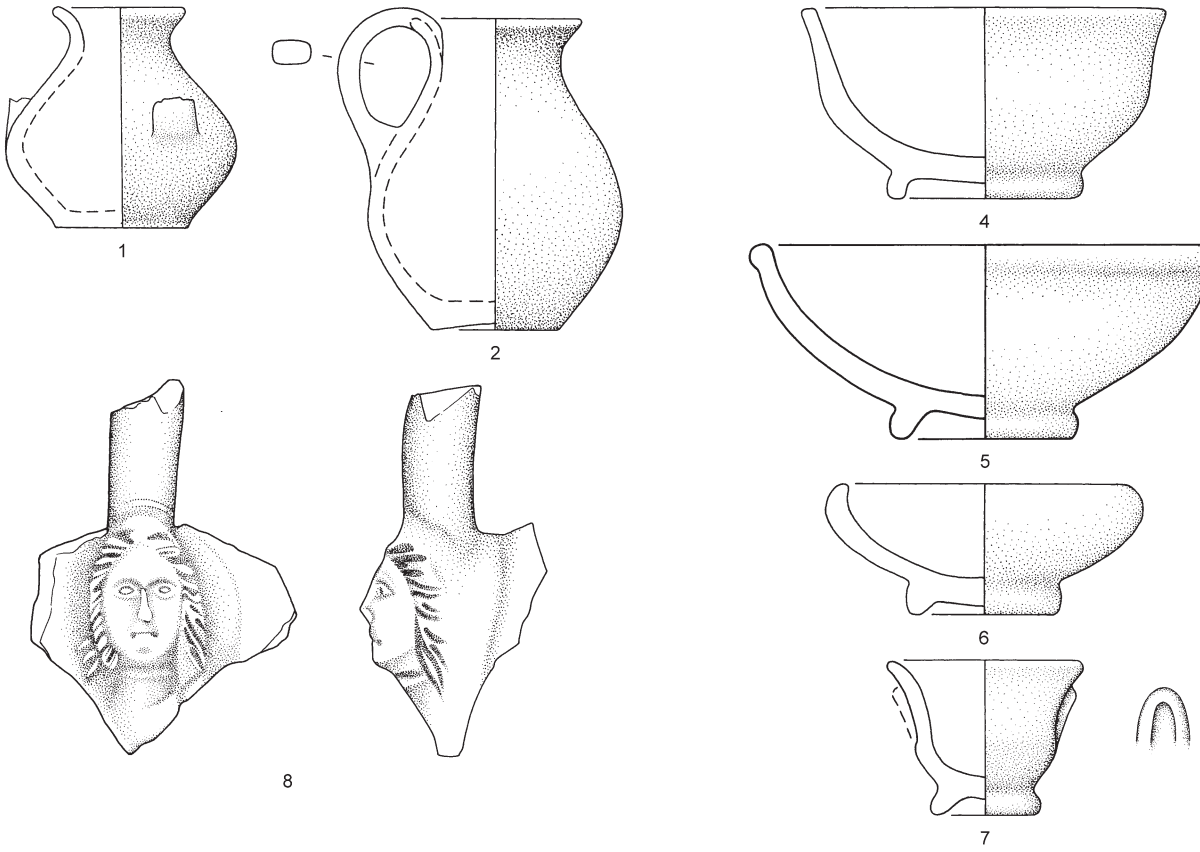
Museum collection cont. Plate IV-XXIII



Miscellaneous

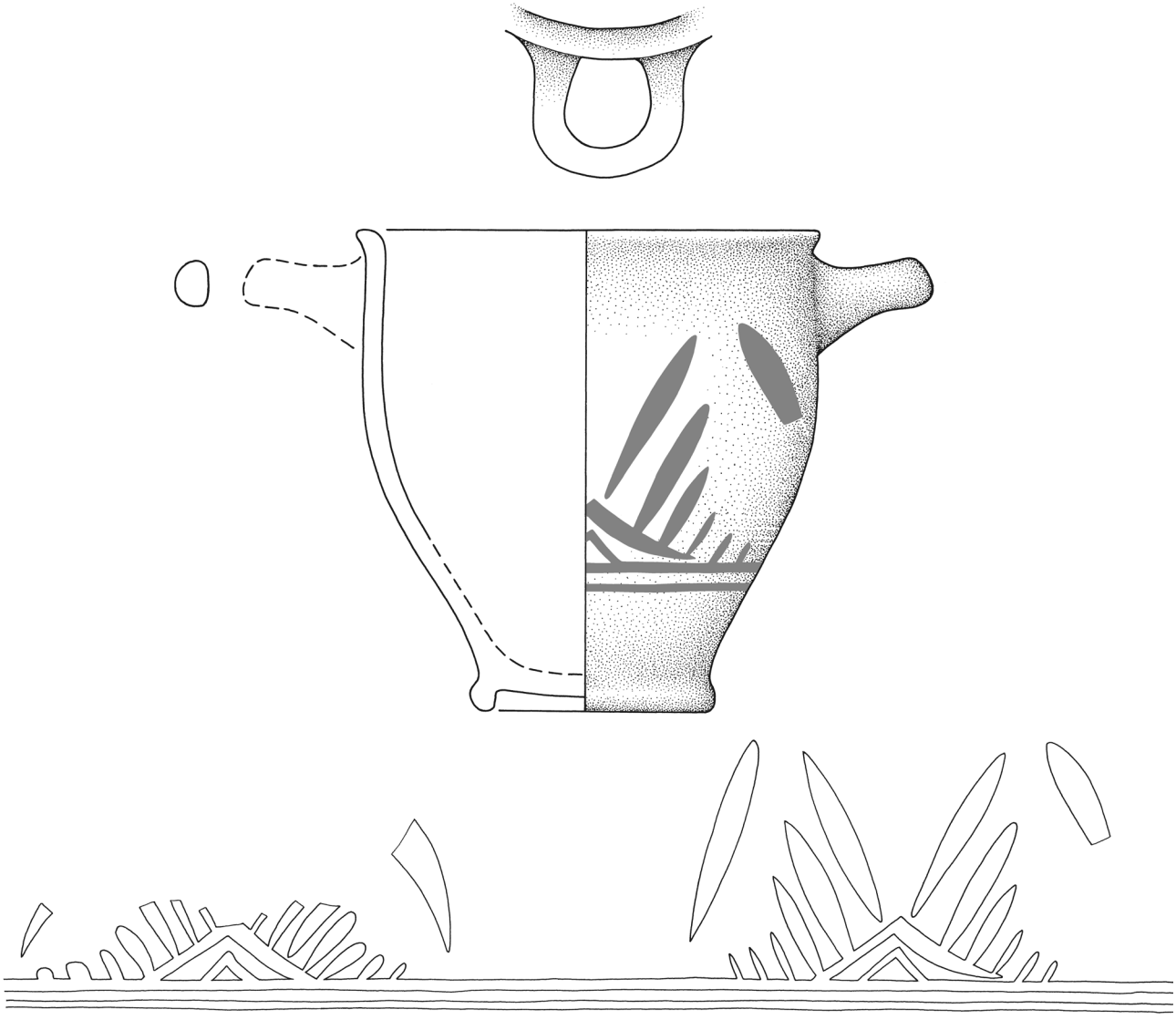


Nettuno



Museum collection cont.

Plate IV-XXIV



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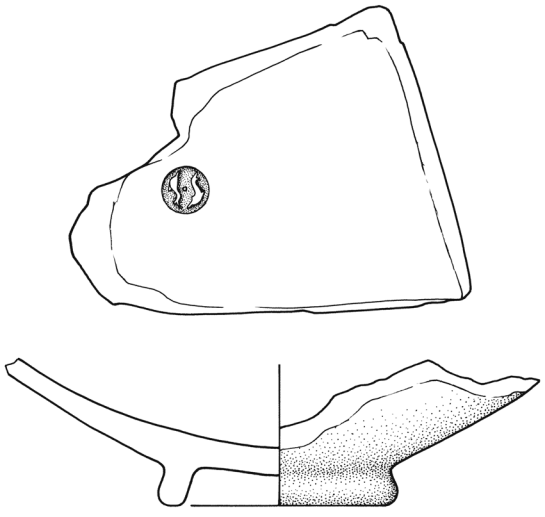

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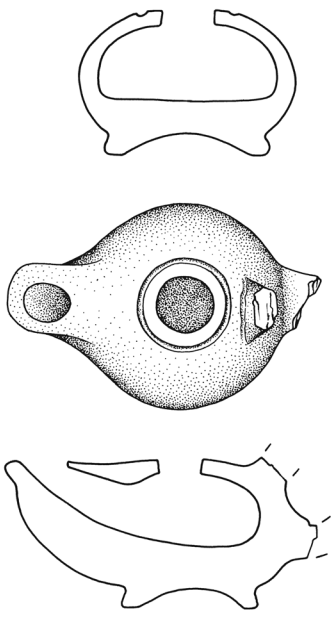

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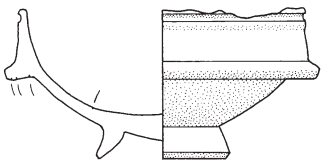
Museum collection cont. Plate IV-XXV



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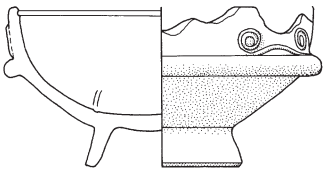

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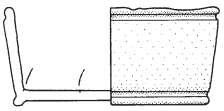

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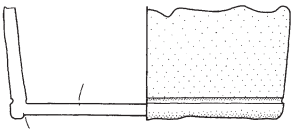

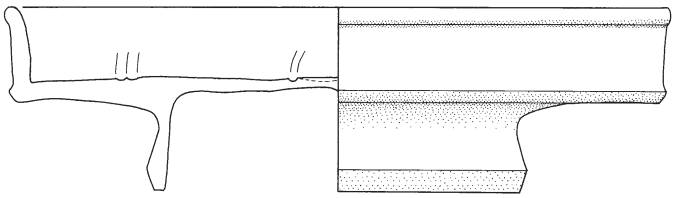

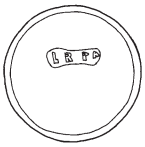

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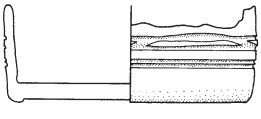

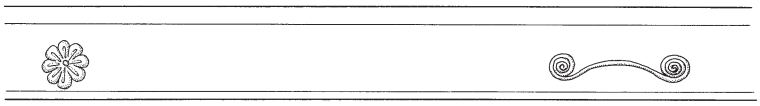

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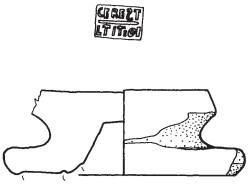

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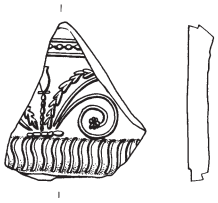

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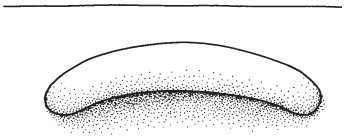

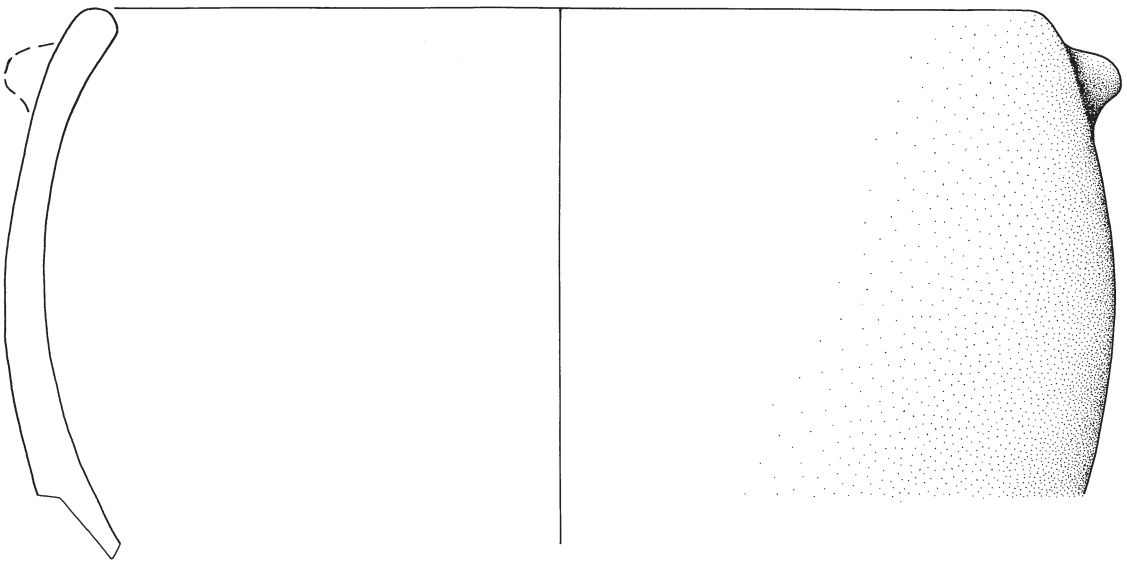

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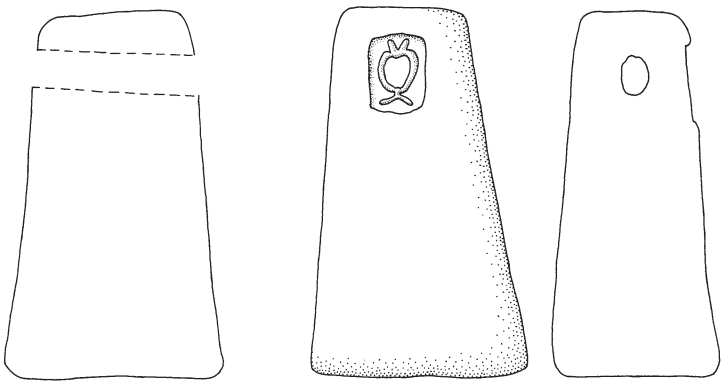
Museum collection cont.

Plate IV-XXVI



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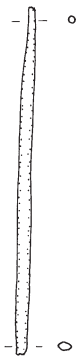

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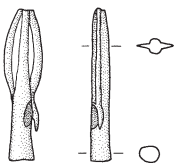

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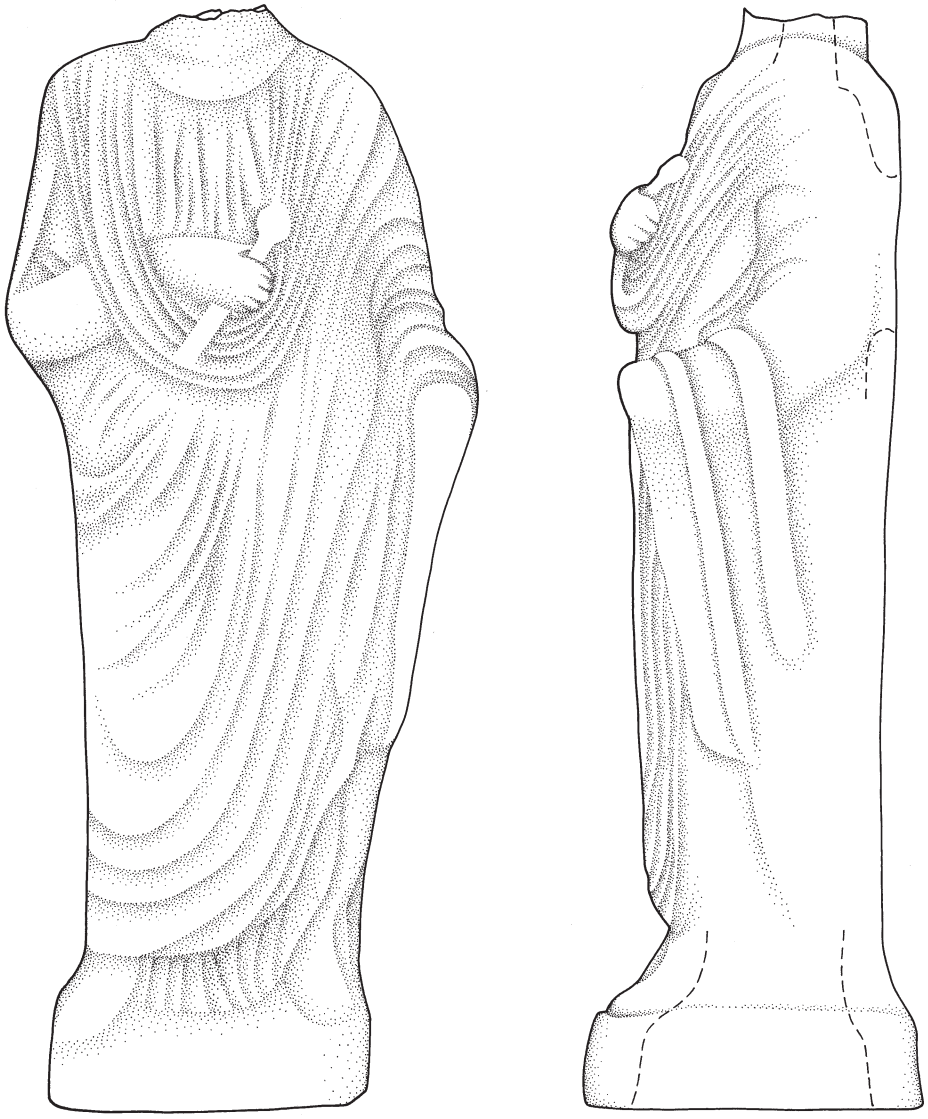

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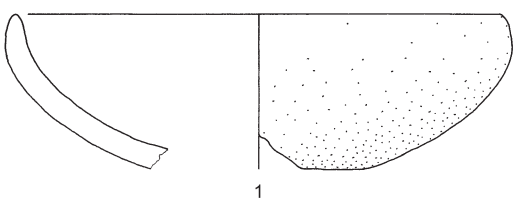

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Museum collection cont. Plate IV-XXVII

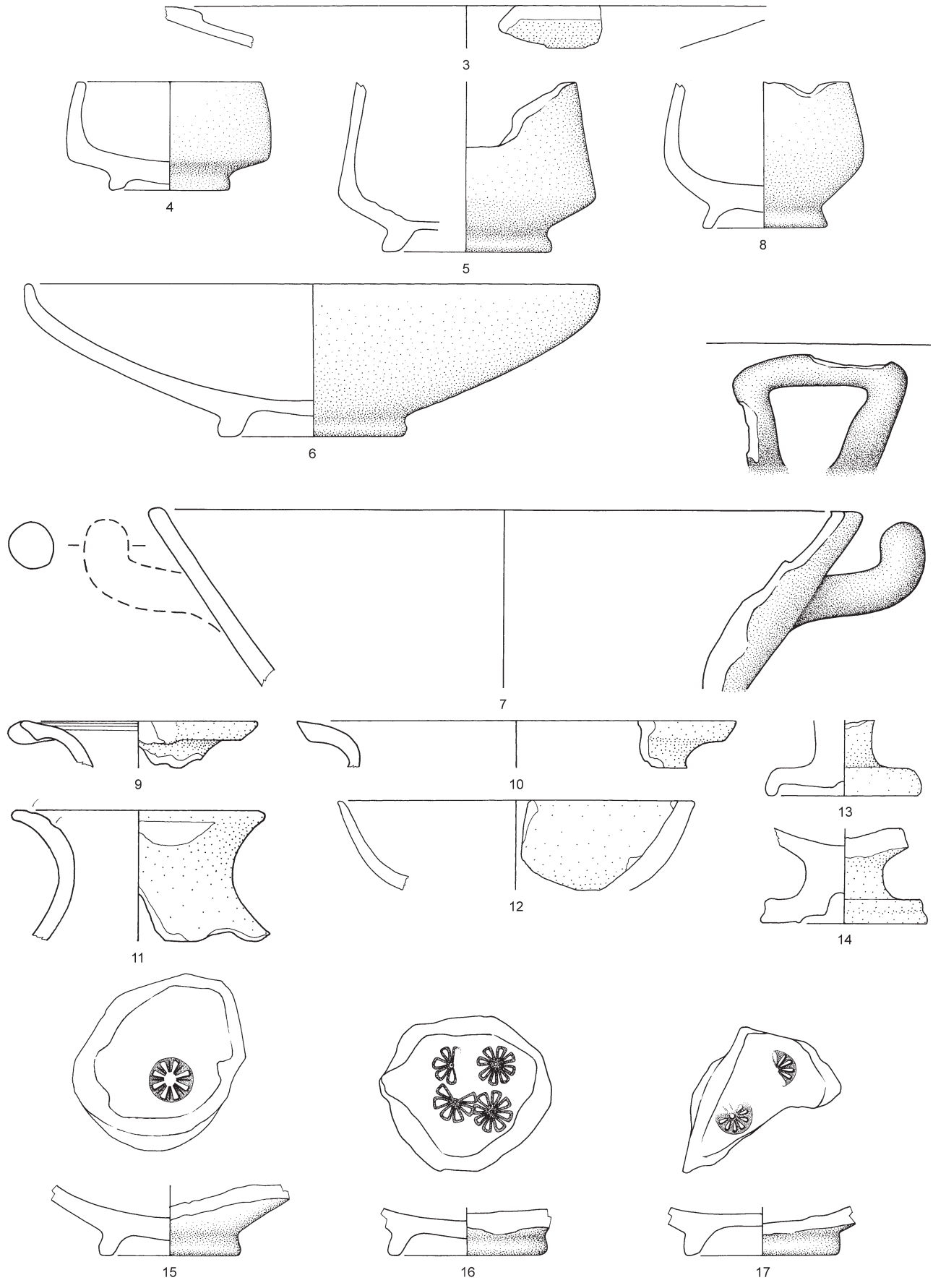

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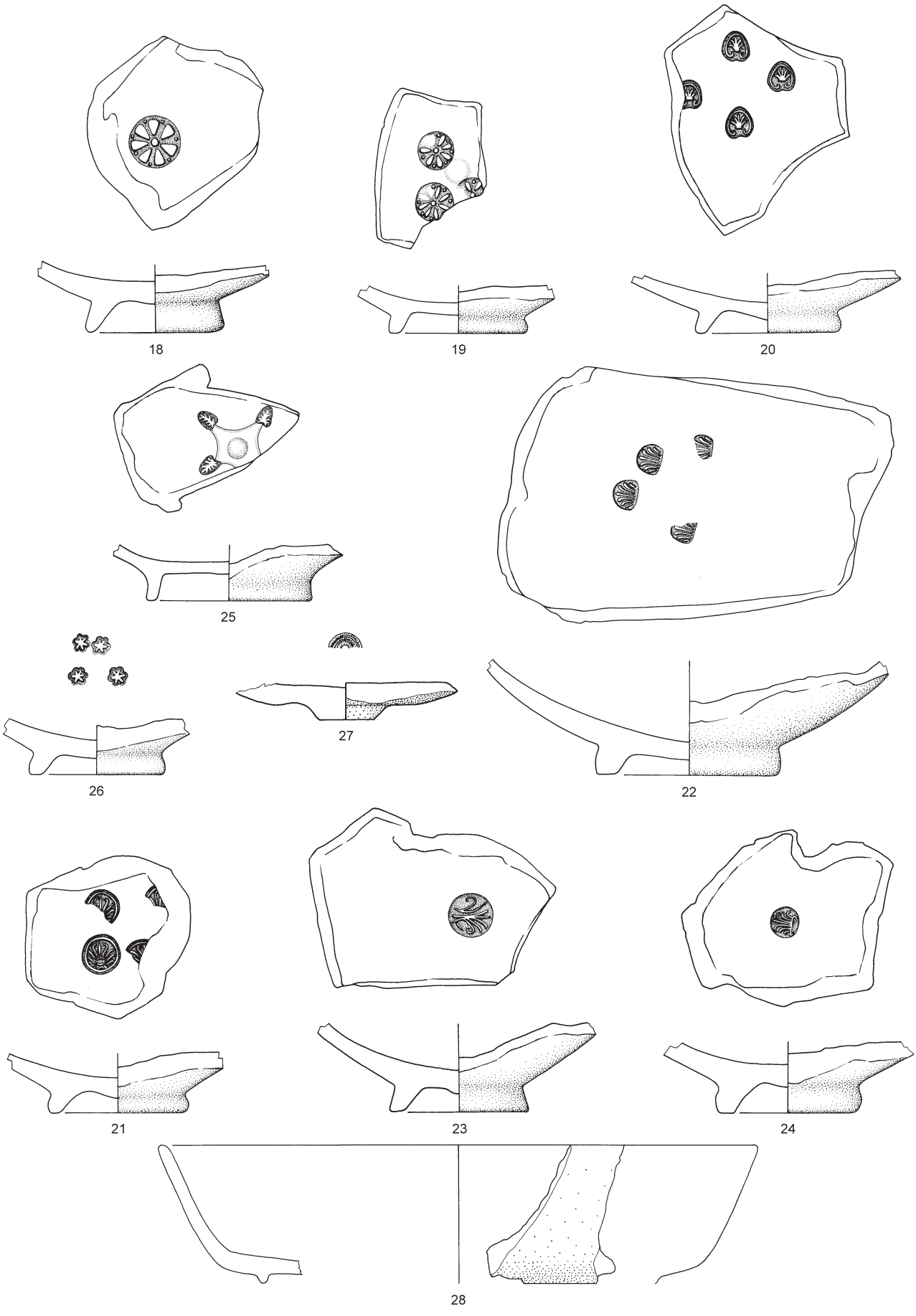
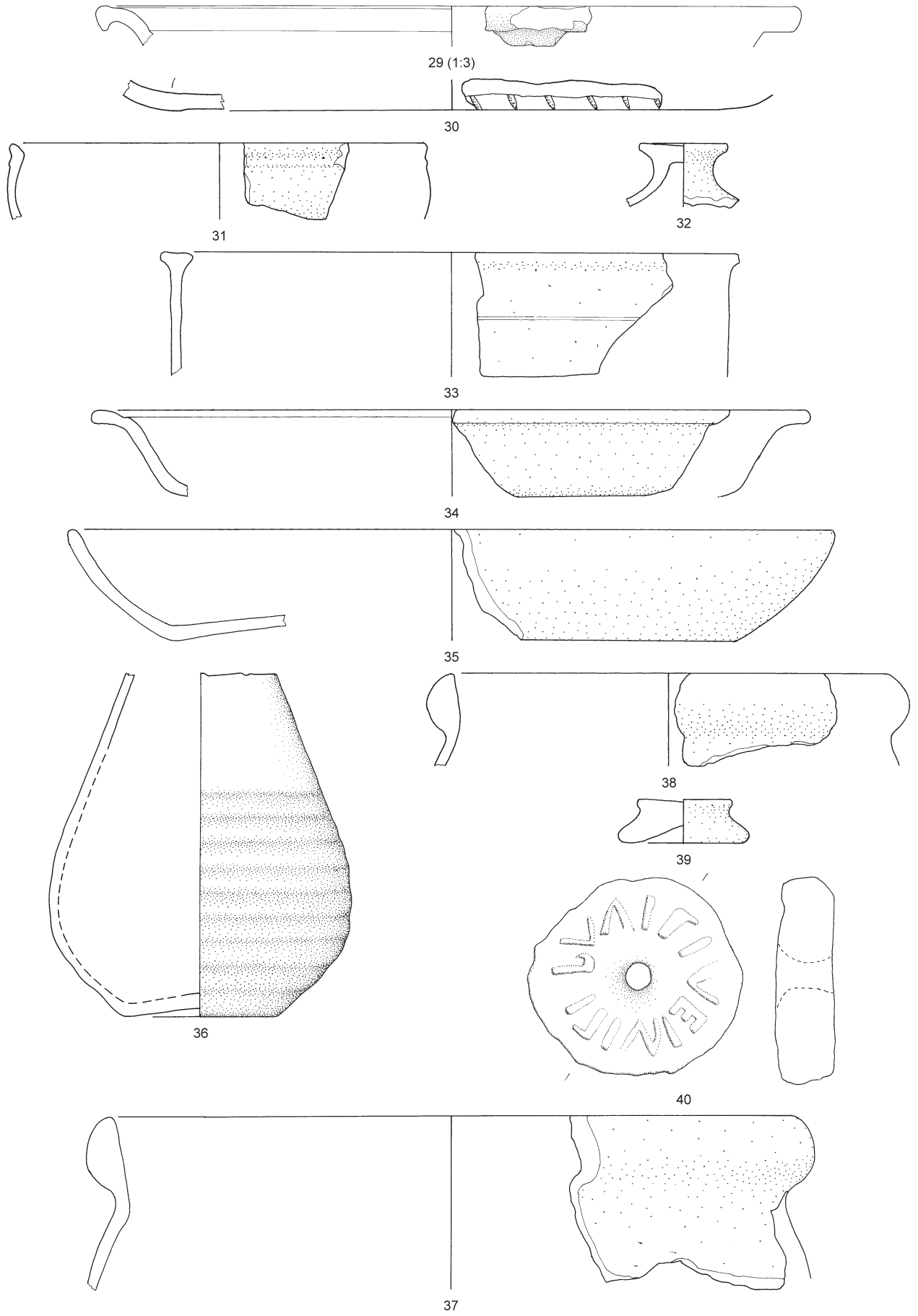
Plate IV-XXVIII

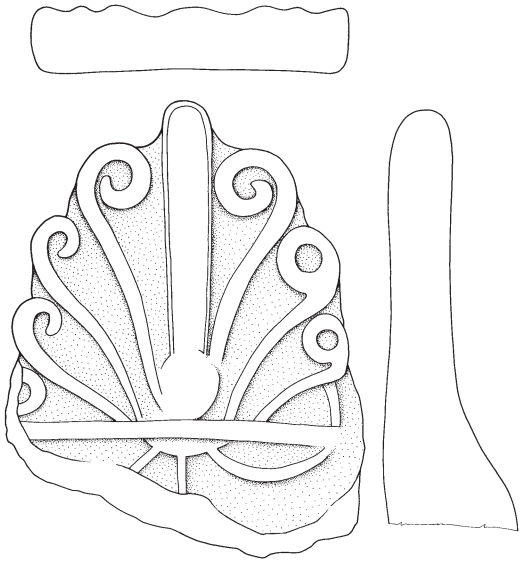


Museum collection cont. Plate IV-XXIX



Museum collection cont.
scale 1:3

Plate IV-XXX



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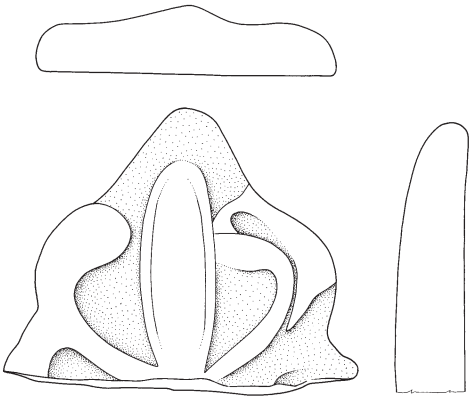

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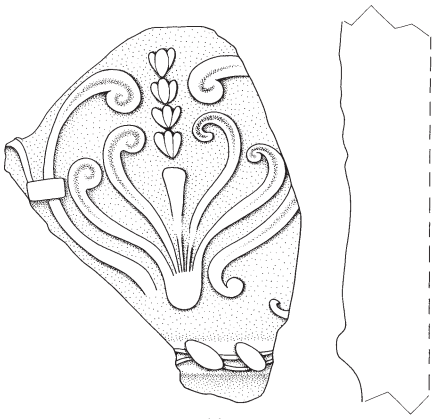

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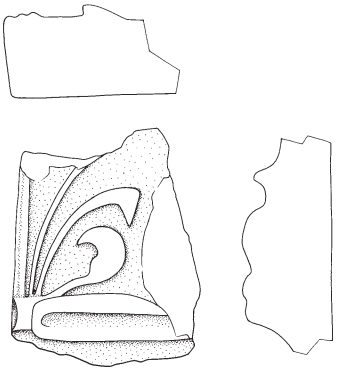

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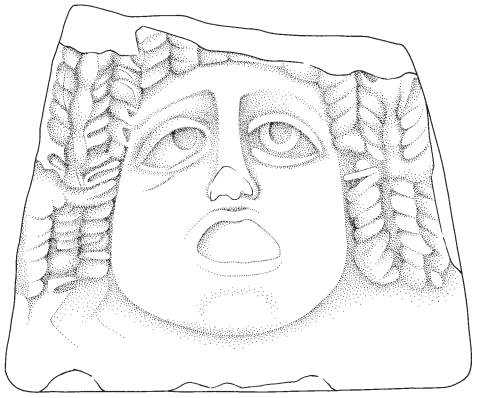

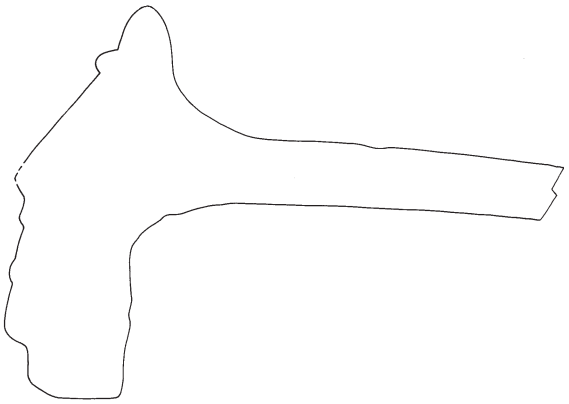

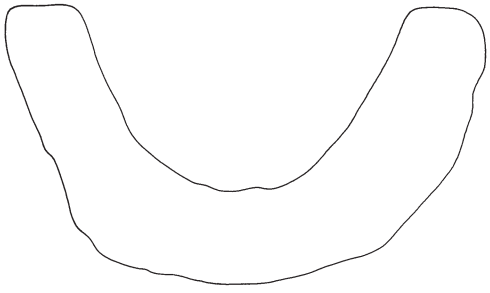

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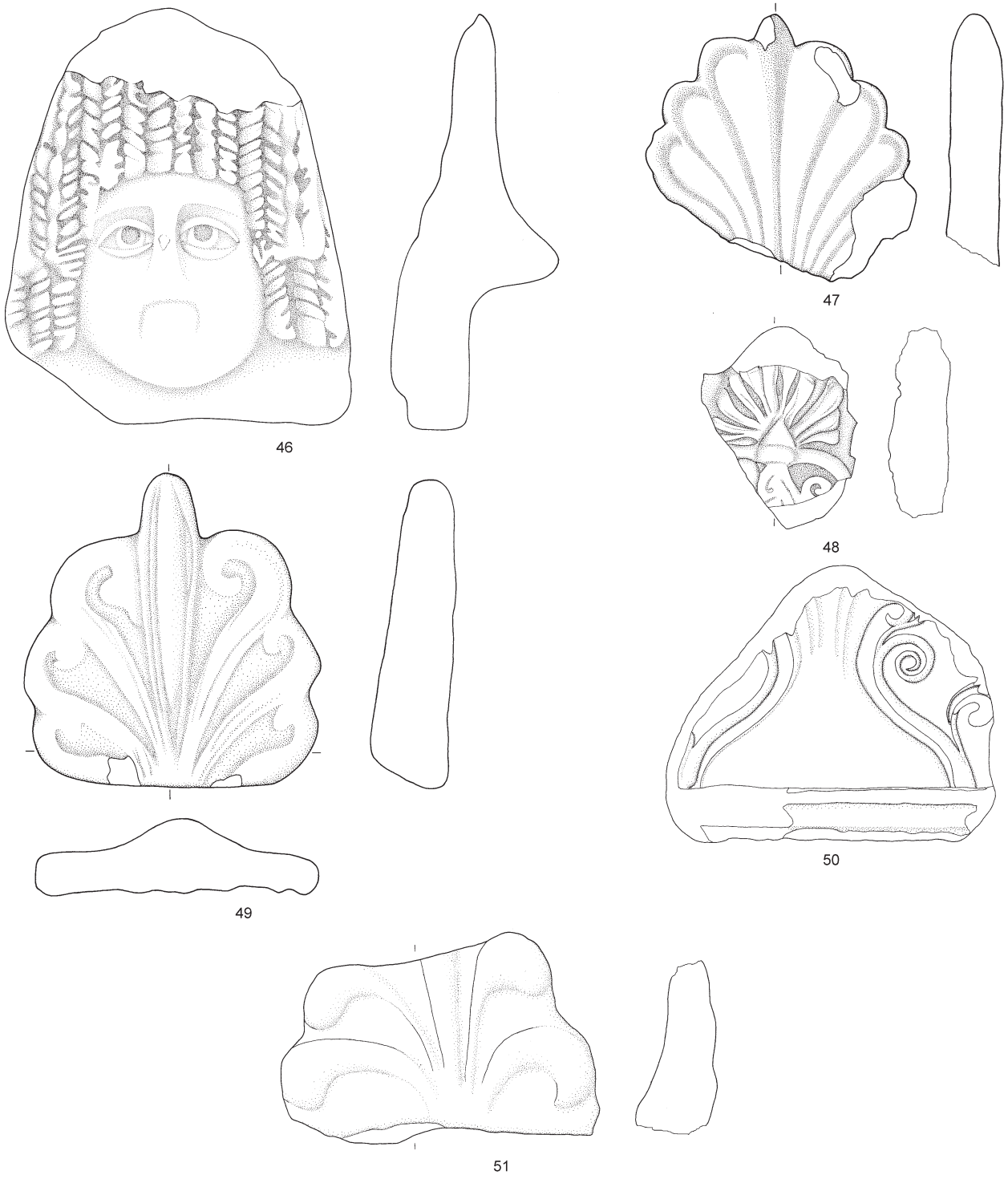
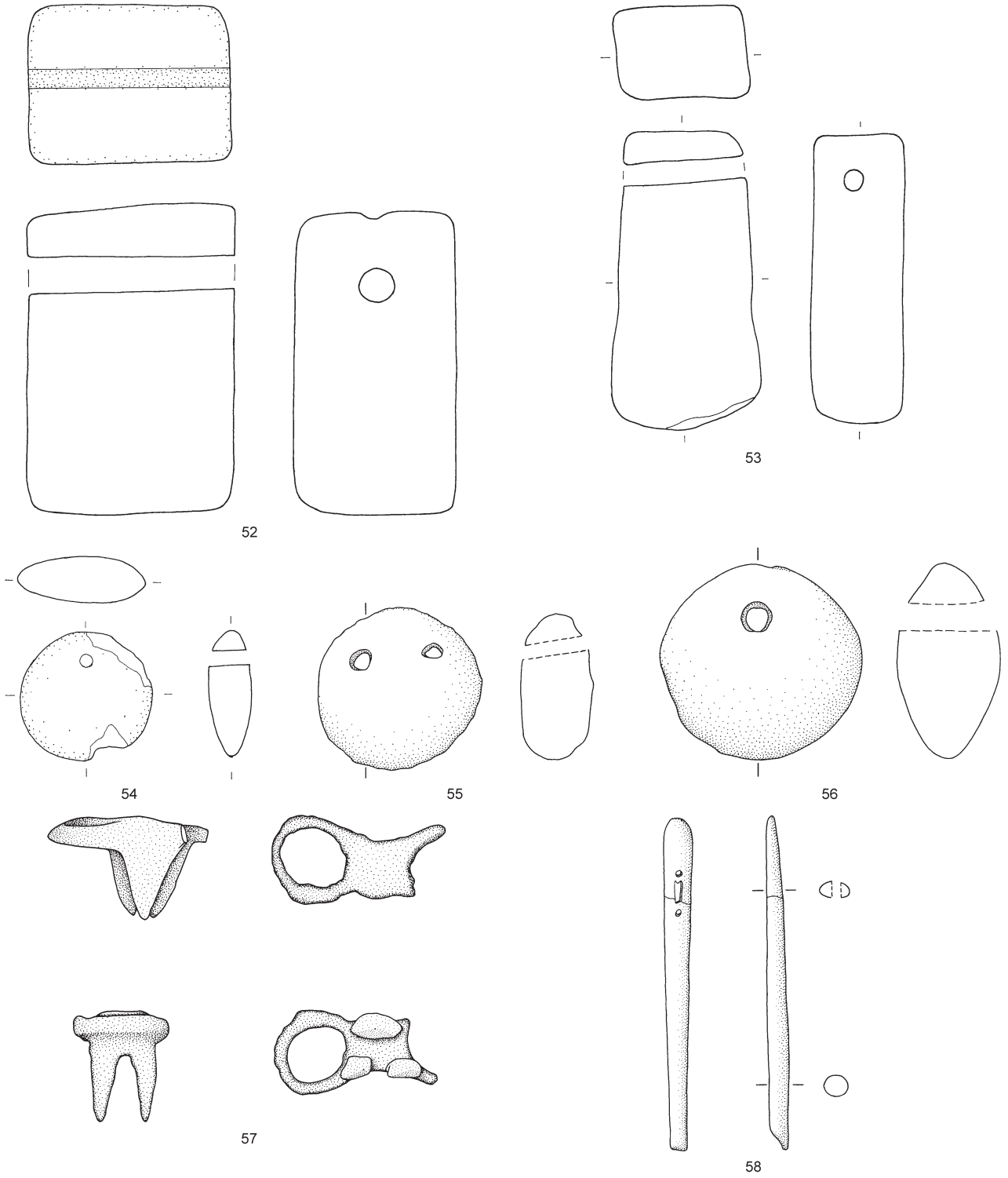
Museum collection cont.
scale 1:3

Plate IV-XXXI



Museum collection cont.

Plate IV-XXXII



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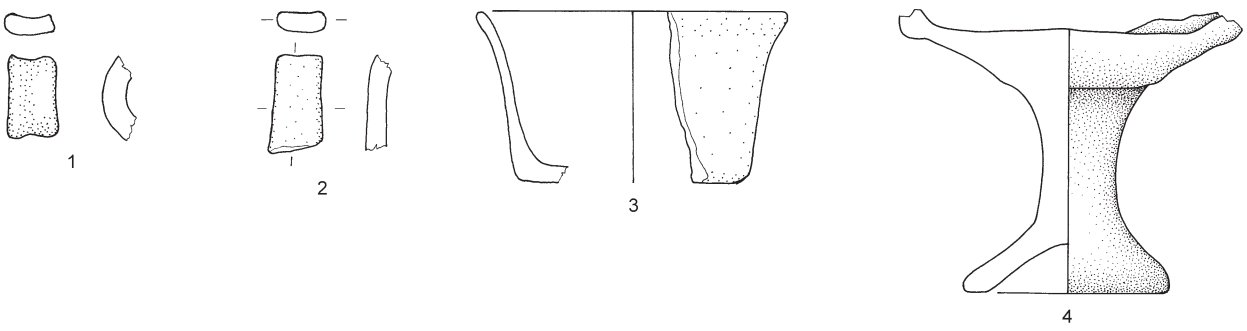

Museum collection cont. Plate IV-XXXIII

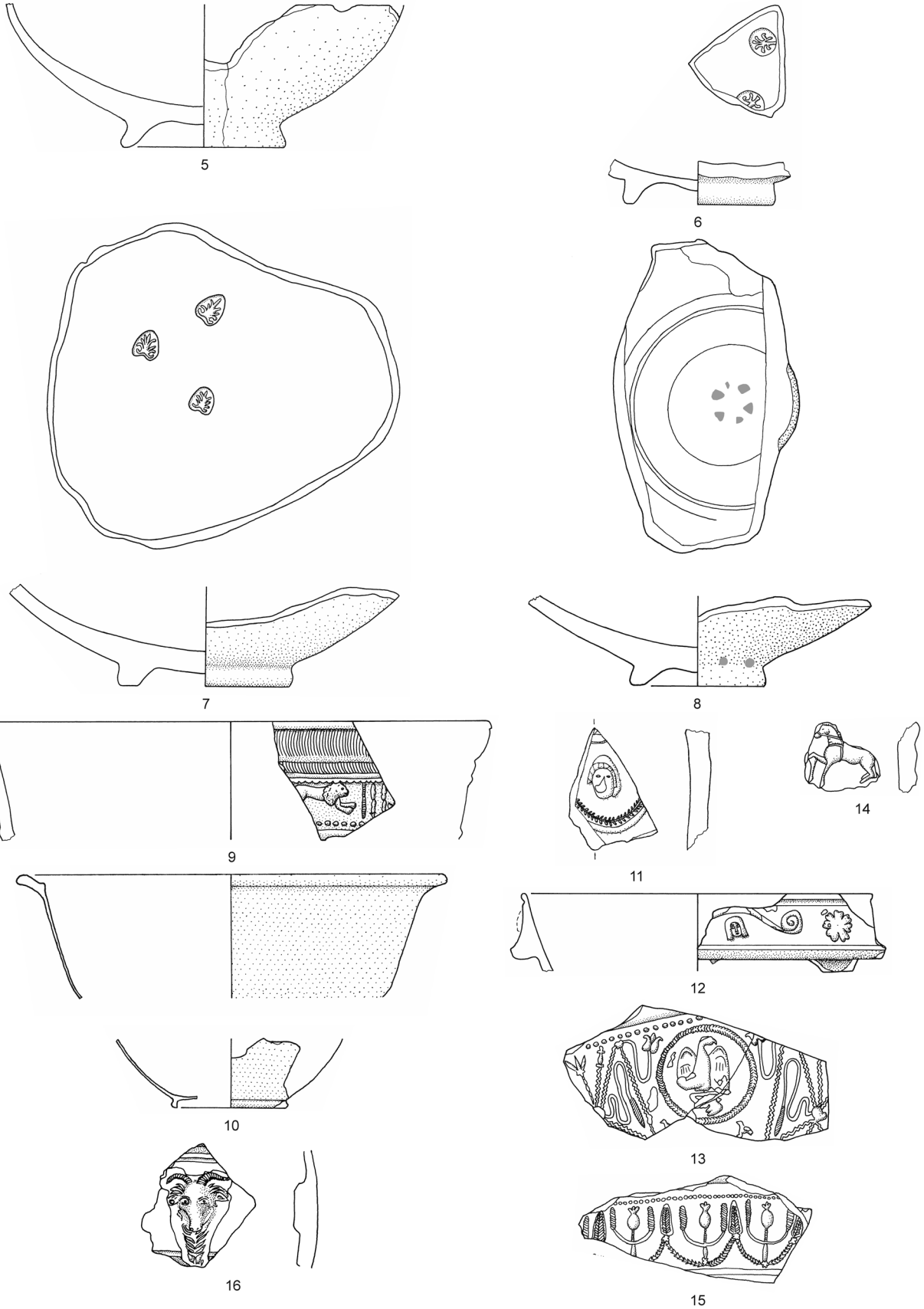

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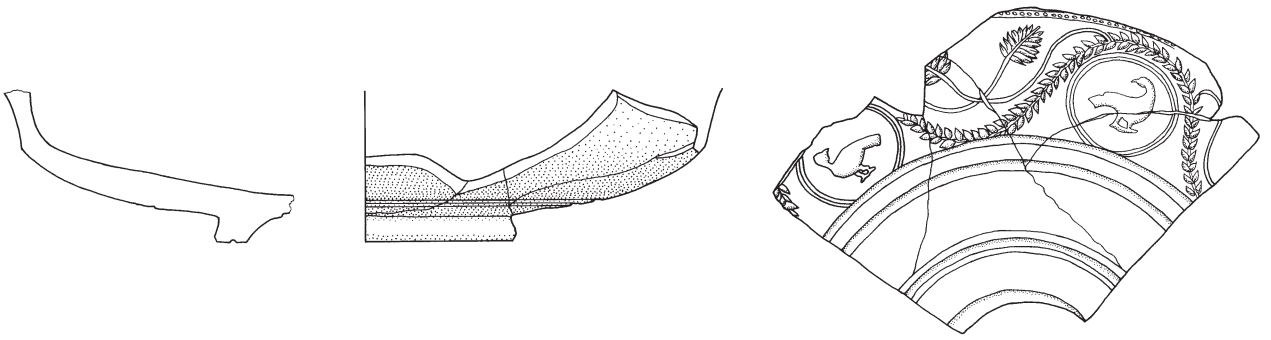
Plate IV-XXXIV



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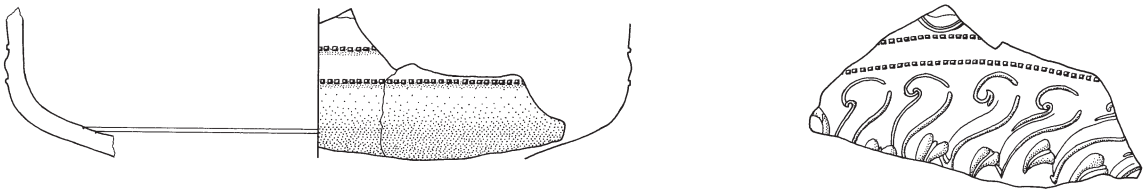

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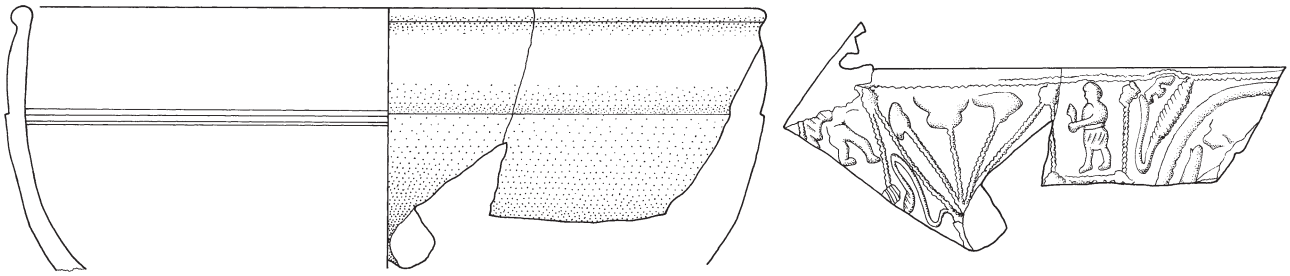

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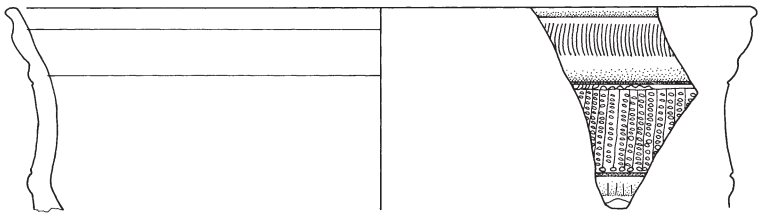

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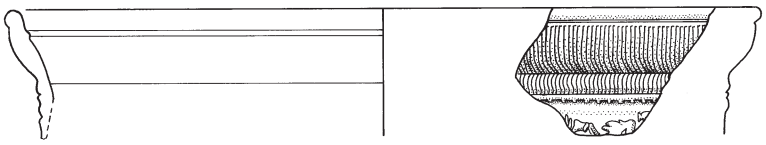

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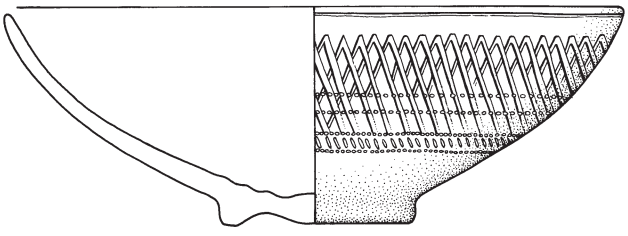

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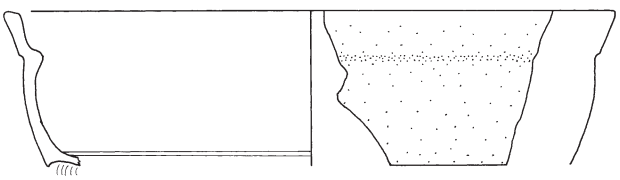

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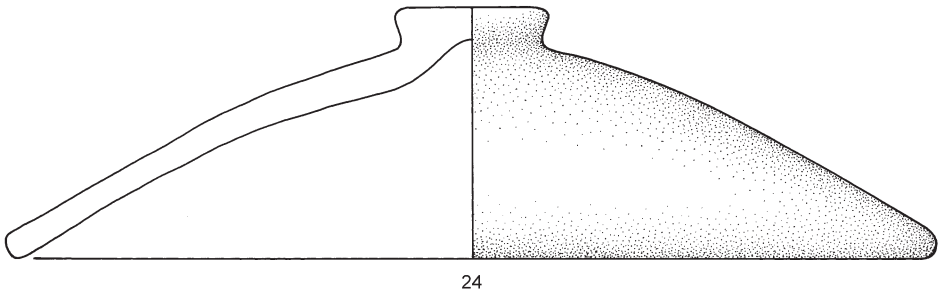
Museum collection cont. Plate IV-XXXV



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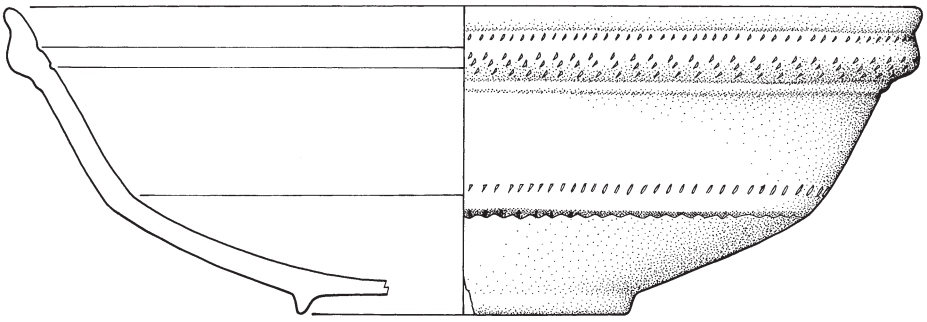

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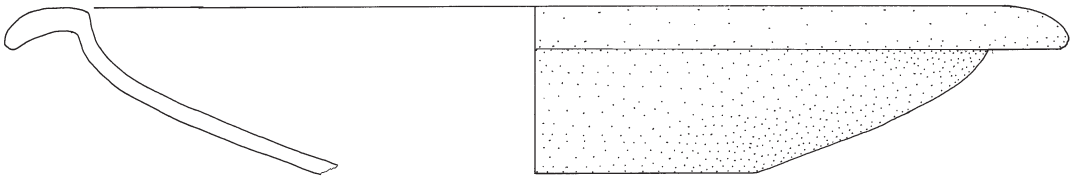

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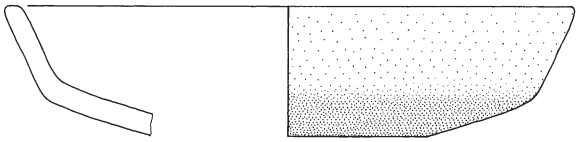

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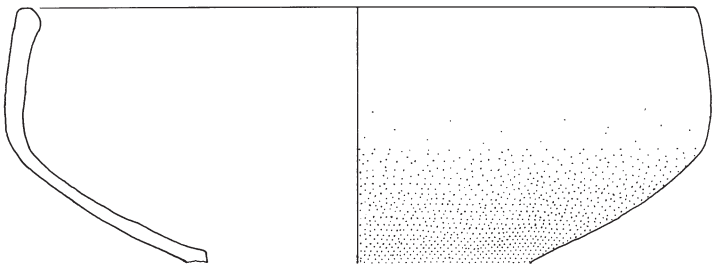

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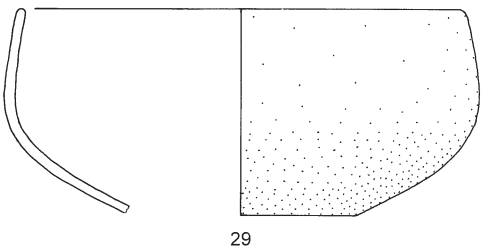

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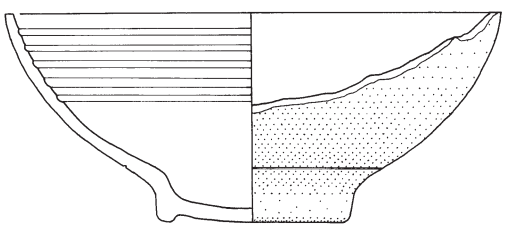

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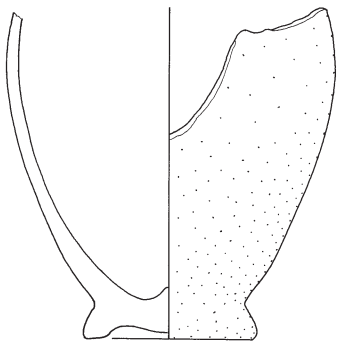

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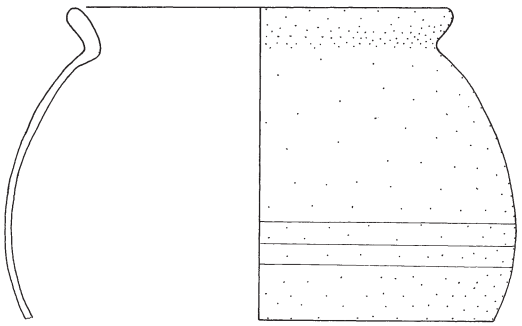
Museum collection cont.

Plate IV-XXXVI



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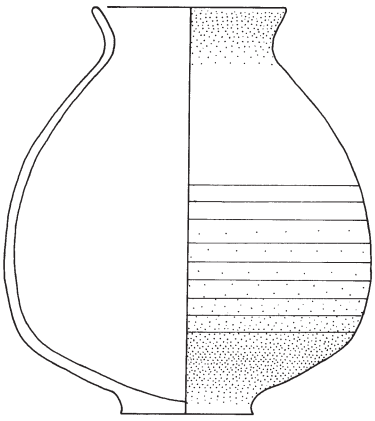

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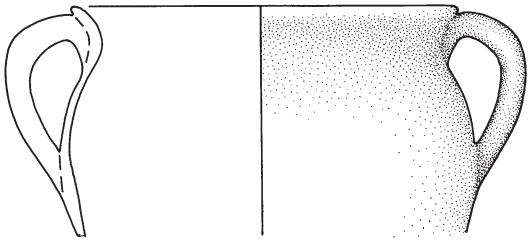

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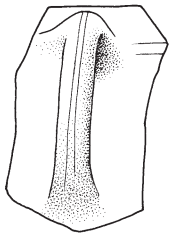

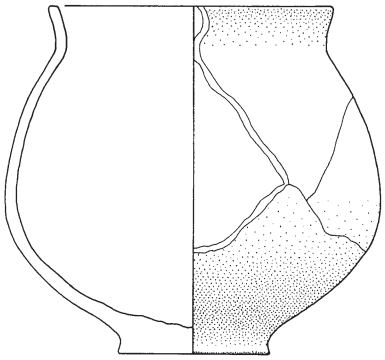

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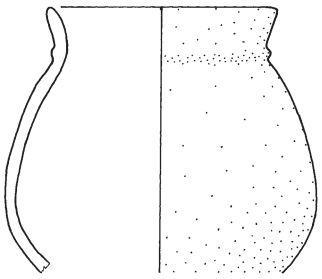

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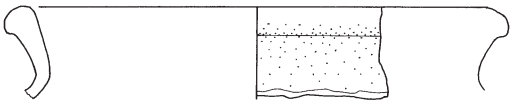

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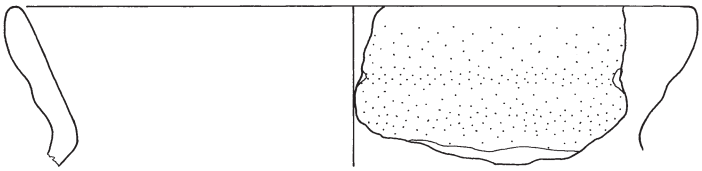

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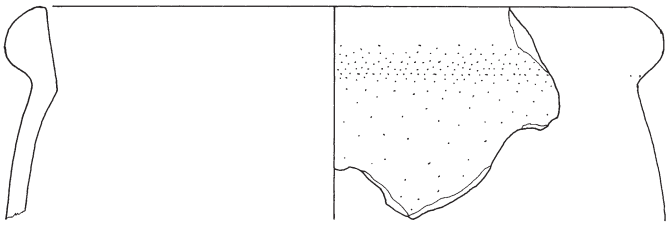

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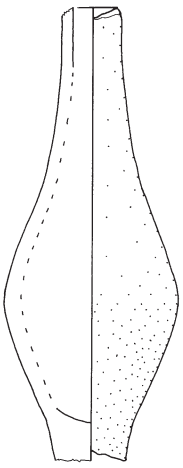

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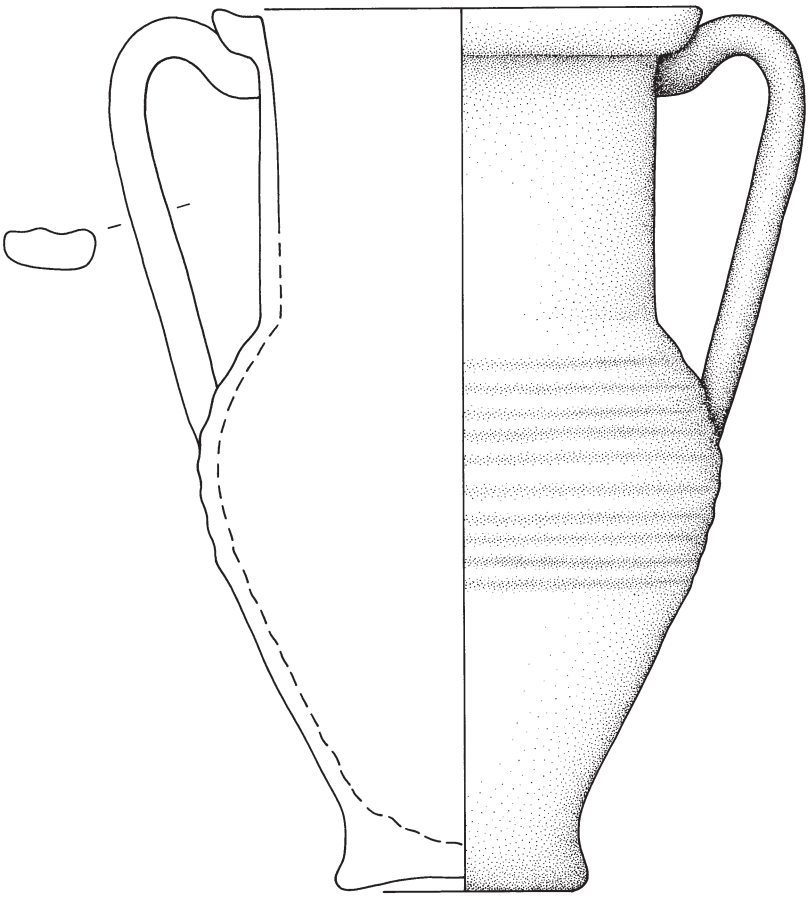
Museum collection cont. Plate IV-XXXVII



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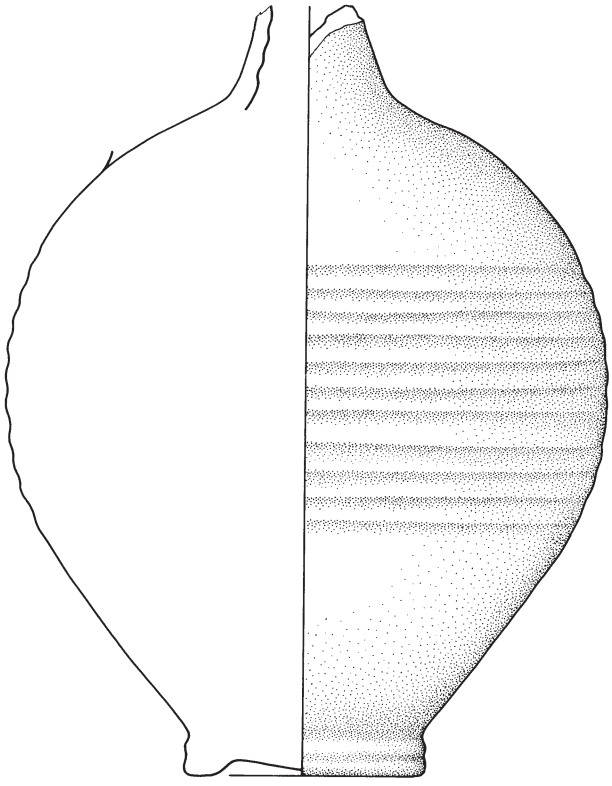

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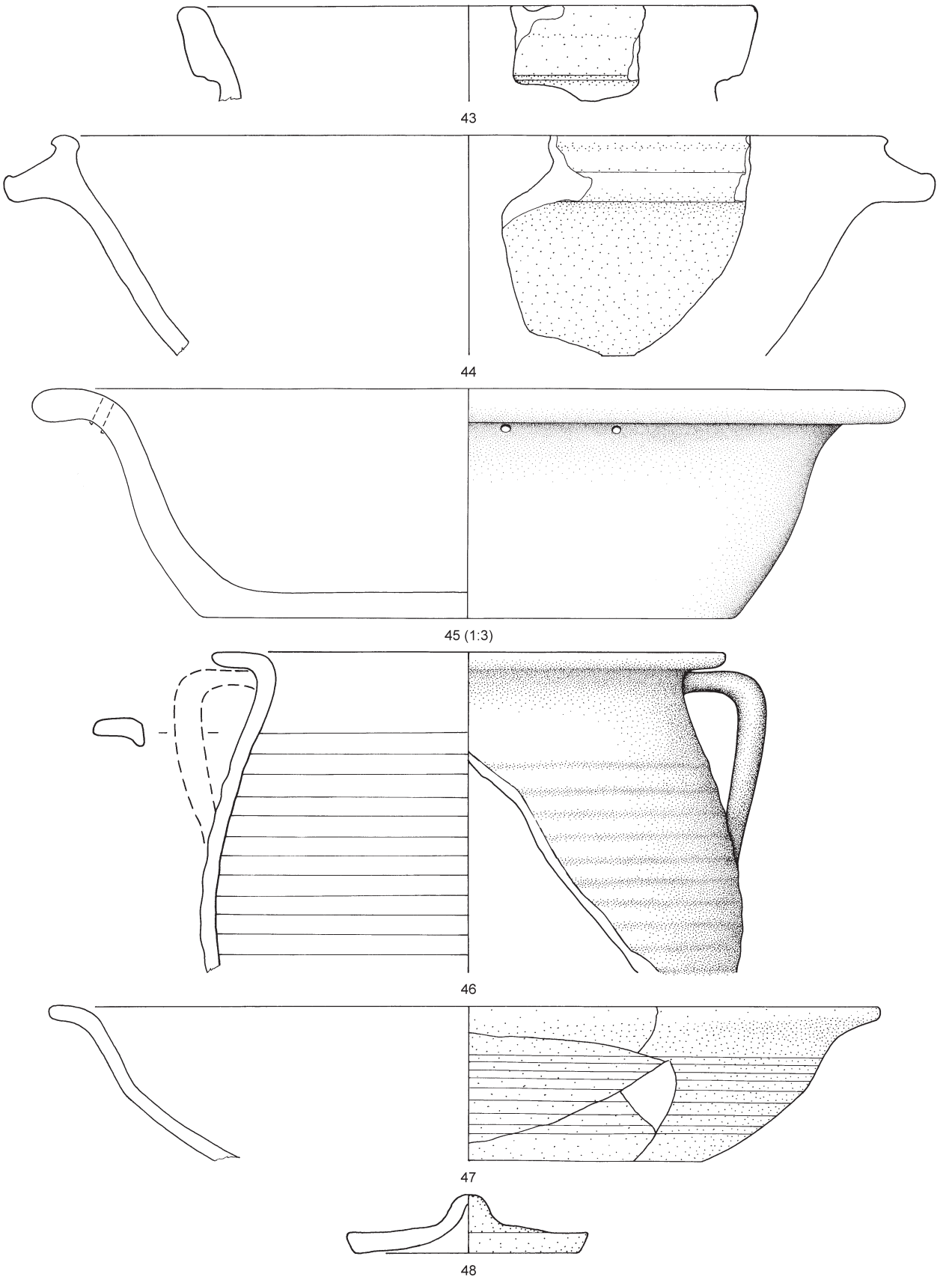
Museum collection cont.

Plate IV-XXXVIII



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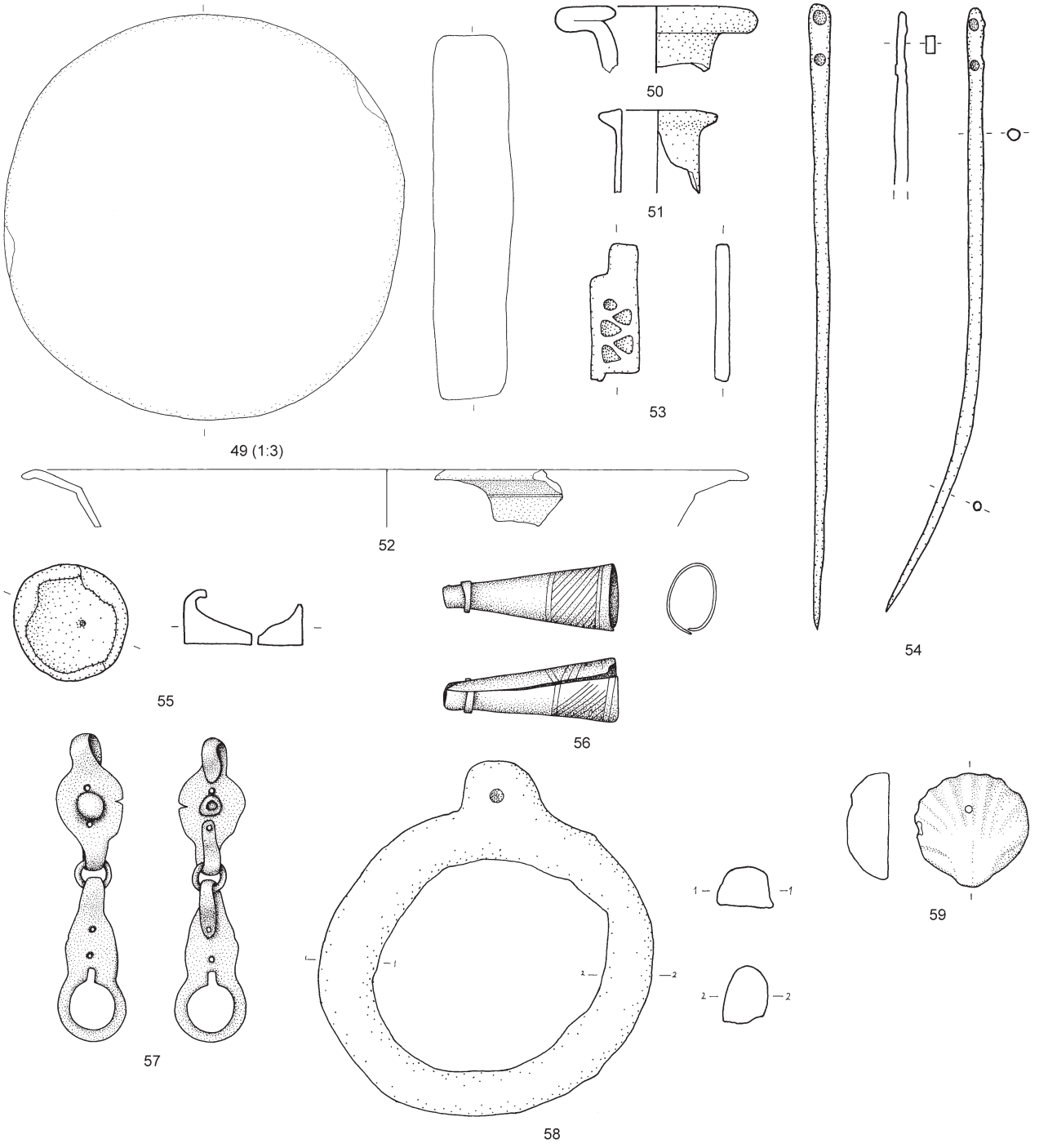
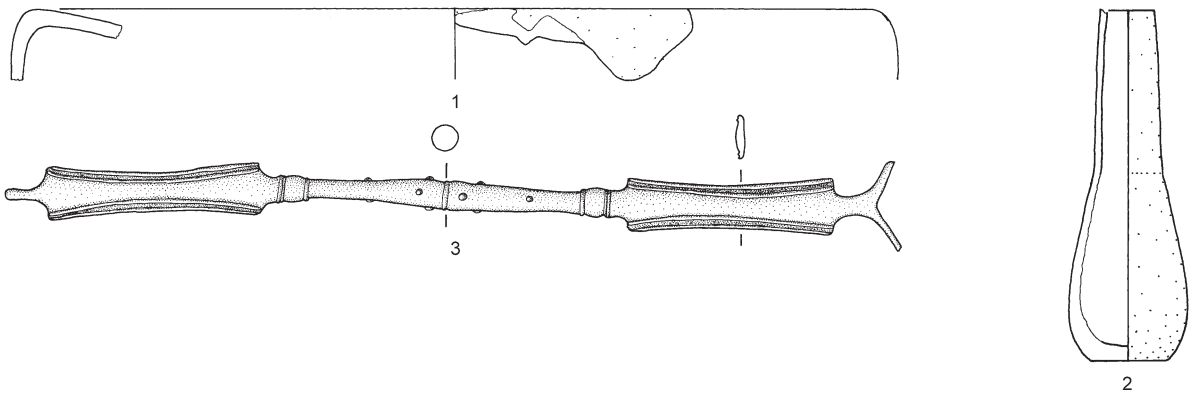
Museum collection cont.

Plate IV-XXXIX



La Campana



Chapter 5 – Case study 3:

The execution of intensive on-site surveys[348]

'...the examination of survey projects revealed that none of them made the field walkers get down on their knee to collect or count the total sample, or even walk closely enough together to be able to cover the total surface from a walking position.' (Winther-Jacobsen 2010, 48)

This chapter presents the results of intensive surface investigations carried out on four sites within the municipal area of Nettuno, all previously identified during GIA fieldwork. The first part of this chapter comprises the theoretical and methodological background for the study, followed by a detailed discussion of the results obtained for each of the four sites. After this, the results for two of these sites are compared with those obtained during previous fieldwork on the same sites. To conclude, an overall assessment of the added value of the applied method is made.

5.1 The representativity of surface distributions: post-depositional processes

The principal aim of the intensive on-site surveys was to examine whether the surface distribution of finds on the four investigated sites still preserved information on their original morphology. If so, the detailed mapping of these distributions could potentially provide additional chronological, functional and spatial information for each of these locations.

The potential of these investigations depends strongly on the representativeness of the surface distributions in relation to buried features. Sceptics usually point to the influence of both natural and anthropogenic factors (mainly associated with agricultural practices) thought to neutralize this relationship.[349] Among the natural processes in our study area erosion is likely to be of some influence, especially in the more undulating parts.[350] The main anthropogenic disturbances are thought to be caused by agricultural practices; Lewarch and O'Brien list the five principal biasing processes associated with cultivation: 1) lateral displacement of artefacts; 2) vertical displacement of artefacts; 3) changes in class frequencies; 4) alteration of the form and content of features and 5) changes in the condition and preservation of artefacts.[351] A number of studies in the 1980's and 1990's have – both by means of experimental fieldwork and computer modelling – focused on the effect of these processes, yielding equivocal results.[352]

Although a fair amount of research has been dedicated to the study of surface versus subsurface relations, till now few studies have systematically and thoroughly investigated the subject. Without exception, the results of studies focusing on this relation are obtained either by investigating small sample areas or computer modelling. Furthermore, most of the work was carried out in a geographical setting hardly comparable to Central Italy (in terms of landscape, climate etc.), focussing on artefact classes rather different than the relatively durable pottery of the Roman period.[353]

348 In this chapter, the term *on-site survey(s)* is used to indicate the detailed gridded surveys here discussed. The term *intensive survey(s)* indicates the systematic walking of fields at 20% coverage, used normally in PRP surveys (for a detailed explanation of the method see for example Attema, de Haas & Tol 2011, chapter 3).

349 For recent overviews see Cavanagh, Mee & James 2005, chapter 2 and Winther-Jacobsen 2010, chapter 3.

350 Feiken 2011, 7.

351 Lewarch & O'Brien 1981, 308-311.

352 Research has focused predominantly on the first three of these processes. For the lateral displacement of artefacts see for example the seeding experiments by Ammerman (Ammerman 1985); also Redman & Watson 1970 and Roper 1976. These studies all estimate this effect to be rather limited (for the same view see also Lewarch & O'Brien 1981), although on slopes of more than ten degrees, the effects are considerable (Ammerman 1985). However, some argue for a more substantial effect of this process on surface distributions (Yorston, Gaffney & Reynolds 1990; Boismier 1997). Processes 2 and 3 (vertical displacement of artefacts and changes in class frequencies) appear to be closely related. In cultivated areas the surface assemblage appears to form a more or less randomly selected sample of the materials circulating in the ploughzone (the 'mother-assemblage'). Estimates on how much of this ploughzone assemblage is actually exposed on the surface range from as less as 0.3% (Shott 1995) to as much as 35% (Schörner forthcoming). Most scholars, however, estimate a figure of between 5-6% (Boismier 1997; Ammermann 1985; Schörner forthcoming) and 15-16% (Reynolds 1988; Frink 1984). Furthermore, it appears that larger fragments have a relatively better chance to reach the surface (for this so-called 'size-effect' see Baker 1978). The effects of processes 2 and 3 have been modelled by Haselgrove (1985) and were also investigated by relating surface observations to the investigation of the ploughzone as well as sub-surface features (Schörner forthcoming).

353 Winther-Jabobsen suggests that different types of artefacts can produce different patterns of artefact movement (2010, 45).

In addition, experimental studies (e.g. seeding experiments) have played a comparatively insignificant role in Italy.[354]

Despite the many uncertainties associated with the representativeness of surface distributions, the intensive survey of both urban and rural sites is regularly employed to investigate their chronological, functional and spatial development.[355] However, these normally focus on a single site and do not involve full coverage and meticulous surface inspection. [356] The only example of a systematic program of intensive site-studies - comparable to the work discussed in this chapter in terms of scale, intensity and methods - is formed by the *Laconia Rural Sites Project*.[357] Such programs are in my view essential in providing a benchmark for the (im) possibilities of studying surface distributions; the four case studies presented hopefully contribute towards this goal.

5.2 Methodology

The selection of sites for these detailed surface investigations was based on: 1) chronological diversity and variation in scatter size and 2) state of preservation of the site. To reduce the possibility that sites were considerably degraded by natural factors (e.g. erosion), locations were chosen after consultation of a physical geographer. Field owners were contacted to inquire about any interventions in the original morphology of the area by, for example, levelling or bringing up of soil. Furthermore, sites were chosen with a fair or good surface visibility. The sites selected are 15034, 15085-03, 15085-04 and 15106 (see fig. 2.2)

The on-site surveys entailed the total coverage of each of the four sites. The decision to examine entire site areas was made to obtain an artefact mapping of each site that was as complete as possible. Furthermore, this way the influence of many of the known biasing factors, associated with archaeological survey, could be eliminated or at least substantially reduced.[358] Based on the results, it could subsequently be assessed whether similar results would have been obtained by using a different, less intensive coverage or sampling strategy. Since two of the locations discussed here were studied before during the intensive survey, the results obtained by the on-site surveys could provide a frame of reference, allowing for comparative studies between results acquired with different methodologies. Although there is no direct relationship between observations made during two different fieldwork episodes, a comparison between the two datasets does allow a study of general distorting factors influencing the results of intensive survey.

On all four sites a detailed grid was applied with units measuring four by four meters.[359] The entire surface of each of these units was intensively searched by two or three walkers, assembling all surface pottery in one corner of the unit.[360] These materials were all classified in the field according to a pre-determined classification system, with each class of material divided further into date-related fabric characteristics, and a selection of finds was taken from the field for further study.[361] On three of the four sites, overall weight of the finds, as well as the total weight for each distinguished pottery ware, was recorded for each unit separately. A metal detector was used to scan the upper 20cm of each unit to evaluate the contribution of metal finds (jewellery, coins) in the interpretation and dating of identified spatial patterns. The detail surface mapping on all four sites was not complemented by subsurface investigations for a number of reasons. Firstly, the preservation, at least to some extent, of spatial relations in surface distributions was anticipated, based on observations made during earlier fieldwork.[362] Secondly, there were a number of practical obstacles (permits, money and time).

354 For a positive exception see Ammerman 1985.

355 Finer-grained survey methods are commonly applied in urban contexts aimed at mapping the lay-out of towns or cities and are not uncommonly accompanied by large-scale geophysical activities to relate surface observations to subsurface features (see for example Bintliff & Snodgrass 1988b for the city of Thespiai and Keay *et al.* 2005 for the city of Portus. During the Roman towns project on various sites surface walking was combined with large-scale geophysical research (e.g. Johnson, Keay & Millett 2004 for Baccanae, Forum Casii and Castellum Amerinum; Keay, Millett & Strutt 2006 for Capena; Carlucci *et al.* 2007 for Vignale). Similar methods have only sparsely been used on rural sites; see Carreté, Keay & Millett 1995, 218; Redman & Watson 1970; Mattingly & Coccia 1995 and Attema 1991 & 2001.

356 Surface studies of such intensity were executed in selected small sample areas during the Riu Mannu Survey Project (Van de Velde 2001).

357 Cavanagh, Mee & James 2005.

358 This includes for example the influence of (ground) visibility and individual walker performance.

359 On one of the sites (15106), eleven units were of different dimensions; the recorded pottery values for these units were corrected according to their size compared to the 16m² units.

360 On site 15106, garden utensils were used to clear the ground of any vegetation.

361 To safeguard consistency all classifications and selections were done by the author. Easily recognisable forms were determined in the field and not taken for further study (see also notes 371, 373, 377, 378 and 385); consequently these fragments are excluded from the plates and associated table at the end of this chapter. Also excluded are a number of simple ring- and band handles and base fragments.

362 On a number of sites, clusters of fragments belonging to the same ware or dating to the same period were observed during the campaign of revisits for this study (see chapter 3).

Table 5.1 General observations on the four studied sites. N.r. = not recorded.

Category/Site	15034	15085-03	15085-04	15106
No. of units studied	106	122	46	110
Total area studied	1696m²	1952 m²	736 m²	1684 m²
Total no. of finds	1875	13654	3533	29233
Total weight (in grams)	41207	692821	276676	n.r.
Average no. of finds per unit	17,69	111,92	76,80	265,75
Average weight per find (in grams)	21,98	50,74	78,32	n.r.

Explaining tables 5.1 and 5.2

Tables 5.1 and 5.2 provide information for each site on a general level. The former lists the total number of units and the total surface covered on each site. It also mentions the total number and weight of the collected fragments and the average number of finds and average weight per find per unit. The latter lists the total number of fragments for each recorded pottery class and the percentage that fragments of each class takes in within the total assemblage, as well as its share in terms of weight.

Several entries in table 5.2 require further explanation. In this table, the number of tile and pottery fragments is listed separately from other architectonical materials. The share of tile and pottery is calculated without taking account of these 'other' architectonical fragments (mainly fragments of luxury architecture). The reasons for this are threefold: 1) these fragments of luxury architecture are considered more decorative than functional; 2) these fragments do not provide information on the intensity and chronology of settlement; 3) these fragments were not found on all sites studied. Therefore, calculating their share of the total assemblage could influence the possibility to compare between the ceramic assemblages collected on the four sites and consequently obscure possible patterns between them. The values given for these 'other' categories of luxury architecture, however, represent their share of the complete assemblage collected.

For the coarse ware and *impasto* pottery, both the total number of fragments collected on each of the four sites and the relative share that different sub-classes account for (in italics) are recorded. Tiles can incidentally include fragments of other building materials, such as *mattone* (brick) or pavement stone, because of the difficulty of distinguishing between these types of fragments when in fragmentary state.

The *utilities* comprise all ceramic objects with a 'special' function, not connected to building and food preparation/consumption. On the four sites studied they include oil lamps (on sites 15106 and 15085-03), loomweights (on site 15106) and a kiln spacer (on site 15106).

Structure of the site descriptions

In the following, the results for each of the four sites will be discussed separately. These discussions have a similar build-up, consisting of:

- An introduction to the site, providing a short description of its location and research history.
- An overview of the results of the intensive on-site survey, with references to tables 5.1 and 5.2.
- A discussion of spatial patterns. This will be done by the presentation of distribution maps, both on a general (total number of shards, weight) as, when possible, on a more interpretative level (functional classes, chronology, tile:pottery ratios). For the recognition of possible spatial patterning, only distribution maps of ceramic classes that are represented by a sufficiently large amount of shards are presented. Furthermore, no distribution maps for utilitarian pottery are presented, since this ceramic class aggregates many different shapes that neither functionally nor chronologically form a homogeneous group.[363] The legends of all distribution maps are constructed in the same manner: the difference between the lowest and the highest value is divided by five, normally resulting in five classes. The only instances when this is not the case is when the amount of fragments for a ware was so low or showed so little variation in number that fewer classes were defined. For reasons of clarity, this straightforward method of data presentation is preferred over the use of more complex algorithms. As in table 5.2, architectonical elements are excluded from the maps presenting the total number of fragments and the total weight, for reasons explained above.
- A discussion of the finds. Bibliographical references for identified pottery types are normally not included in the text, but are listed in the finds catalogue at the end of this chapter.
- A reconstruction of the chronology of the site. As explained in chapter 2, the large amount of (diagnostic) materials collected during the here discussed on-site surveys allows a more accurate assessment of the chronology of each site. This is achieved by

363 Olcese 2003; Cortese 2005, 325.

Table 5.2 No. of fragments, share of the total no. of fragments, total weight and share of total weight for each of the recorded find categories.

Category/site	15034				15085-03				15085-04				15106		
	Nr of fragments		Weight		Nr of fragments		Weight		Nr of fragments		Weight		Nr of fragments		Weight
Tile	1344	71,68 %	35.563 kg	86,30 %	9926	73,41 %	593.527 kg	85,67 %	2307	80,24%	203.241 kg	73,46 %	22768	77,89%	n.r.
Amphora	144	7,68 %	3.430 kg	8,32 %	1445	10,69 %	30.451 kg	4,40 %	272	9,46 %	5.692 kg	2,06 %	2723	9,32%	n.r.
Coarse ware	342	18,24 %	1.884 kg	4,57%	1485	10,98 %	30.361 kg	4,38 %	191	6,64 %	45.559 kg	16,47 %	2595	8,88%	n.r.
Coarse ware (thin)	*126*	*6,72 %*	*0.216 kg*	*0,52 %*	610	*4,51 %*	*1,148 kg*	*0,17 %*	*41*	*1,43 %*	*0.099 kg*	*0,04 %*	*1190*	*4,07%*	n.r.
Coarse ware (medium)	*213*	*11,36 %*	*1.289 kg*	*3,13 %*	*801*	*5,92 %*	*3,952 kg*	*0,57 %*	*83*	*2,89 %*	*0,464 kg*	*0,18 %*	*1382*	*4,73%*	n.r.
Coarse ware(thick)	*3*	*0,16 %*	*0.379 kg*	*0,92 %*	*74*	*0,55 %*	*25,261 kg*	*3,65 %*	67	*2,33 %*	*44,996 kg*	*17,64 %*	*23*	*0,08%*	n.r.
Black glazed ware	*29*	*1,55 %*	*0.140 kg*	*0,34 %*	-	-	-	-	-	-	-	-	240	0,82%	
Terra sigillata	-	-	-	-	27	0,20 %	0.073 kg	0,01 %	-	-	-	-	48	0,16%	
African red slip ware	-	-	-	-	573	4,24 %	2.610 kg	0,38 %	68	2,37 %	0.456 kg	0,16 %	6	0,02%	n.r.
Other Fine wares (Pareti Sottili)	-	-	-	-	3	0,02 %	0.003 kg	0,00 %	1	0,03 %	0.009 kg	0,00 %	15	0,05%	n.r.
Impasto Chiaro Sabbioso	7	0,37 %	0.044 kg	0,11 %	-	-	-	-	-	-	-	-	634	2,16%	n.r.
Impasto	6	0,32 %	0.144 kg	0,35 %	-	-	-	-	-	-	-	-	173	0,59%	n.r.
Impasto (thick)	-	-	-	-	-	-	-	-	-	-	-	-	*135*	*0,46%*	n.r.
Utilities	-	-	-	-	1	0,01 %	0,004 kg	0,00 %	-	-	-	-	5	0,02%	n.r.
Glass objects	-	-	-	-	35	0,26 %	0.119 kg	0,02 %	4	0,14 %	0.020 kg	0,01 %	6	0,02%	n.r.
Metal objects	3	0,16 %	0.002 kg	0,00 %	26	0,19 %	0.238 kg	0,03 %	31	1,08 %	0.167 kg	0,06 %	10	0,03%	n.r.
Bone	-	-	-	-	1	0,01 %	0.004 kg	0,00 %	1	0,03%	0.007 kg	0,00 %	3	0,01%	n.r.
Architectonical elements	-	-	-	-	42	0,31 %	35.431 kg	5,11 %	658	18,62 %	21.525 kg	7,78 %	3	0,01%	n.r.
Mattone	-	-	-	-	*9*	*0,07 %*	*5.986 kg*	*0,86 %*	11	*0,31 %*	*10.052 kg*	*3,63 %*	-	-	n.r.
Marble	-	-	-	-	30	*0,22 %*	*29.442 kg*	*4,25 %*	22	*0,62 %*	*9.010 kg*	*3,26 %*	1	*0,00%*	n.r.
Tesserae	-	-	-	-	3	*0,02 %*	*0.003 kg*	*0,00 %*	*553*	*15,65 %*	*1.812 kg*	*0,65 %*	*2*	*0,01%*	n.r.
Plaster	-	-	-	-	-	-	-	-	*70*	*1,98 %*	*0.578 kg*	*0,21 %*	-	-	n.r.
Other	-	-	-	-	-	-	-	-	*2*	*0,05 %*	*0.073 kg*	*0,03 %*	-	-	n.r.

overlapping the date ranges of all diagnostic materials, assuming that a period can never be represented by a single fragment except when its date range falls entirely outside that of all other materials. The start of activity on a site thus corresponds to the moment that date ranges of different ceramic types overlap, whereas the end date of a site corresponds to the moment from which no new pottery types are introduced on the site.
- A concluding discussion of the site.

5.3 Site 15034

This site is located in the northern part of the communal area of Nettuno, in the Campana region (fig. 2.2). It is located in the central and highest part of a relatively flat and large field. The site was included in the topographical inventory of the museum collection (see chapter 4) and was studied by the GIA on three separate occasions. The site was briefly visited for the first time in 2004, when a grab sample was taken. In February 2005, the site was investigated during the intensive survey. In 2007, during the programme of revisits, a diagnostic sample was taken from the surface of the site.[364] On all three occasions, a large amount of *basoli* was found piled together at a nearby bush. It therefore seems likely that the site was originally located along a road that must have been paved at least in Roman times. During the intensive survey, the dimensions of the site were established, measuring some 550m². From the collected materials it appeared that it must have known occupation from the Archaic until the Roman Republican period. The site was identified as a small Republican farmstead, with evidence for household activities, as is evident from the find of a complete loomweight.

The survey

The site was divided into 106 units, therefore resulting in a mapped area of 1696m². From these units 1875 fragments were collected, among which 37 of diagnostic value. Compared to the other three sites studied, site 15034 yielded by far the lowest amount of fragments per unit, and the weight per find is extremely low. Of the finds, more than 70% belong to the class of tile fragments, approximately 8% to amphorae and 18% to coarse wares (almost all thin- or medium-walled vessels). Furthermore, 29 black glazed ware fragments were found, as well as sparse fragments of *impasto chiaro sabbioso* and *impasto*. By using the metal detector three metal objects were recovered, among which a single coin.

When looking at the relative weight for each of the identified wares, we observe an even stronger dominance of tile, accounting for approximately 86% of the total weight. Amphora fragments account for little over 8% of the total weight, compared to approximately 4.5% for the coarse ware fragments. The black glazed ware, *impasto chiaro sabbioso*, *impasto* and metal finds all contribute less than half a percent to the total weight.

Surface distribution

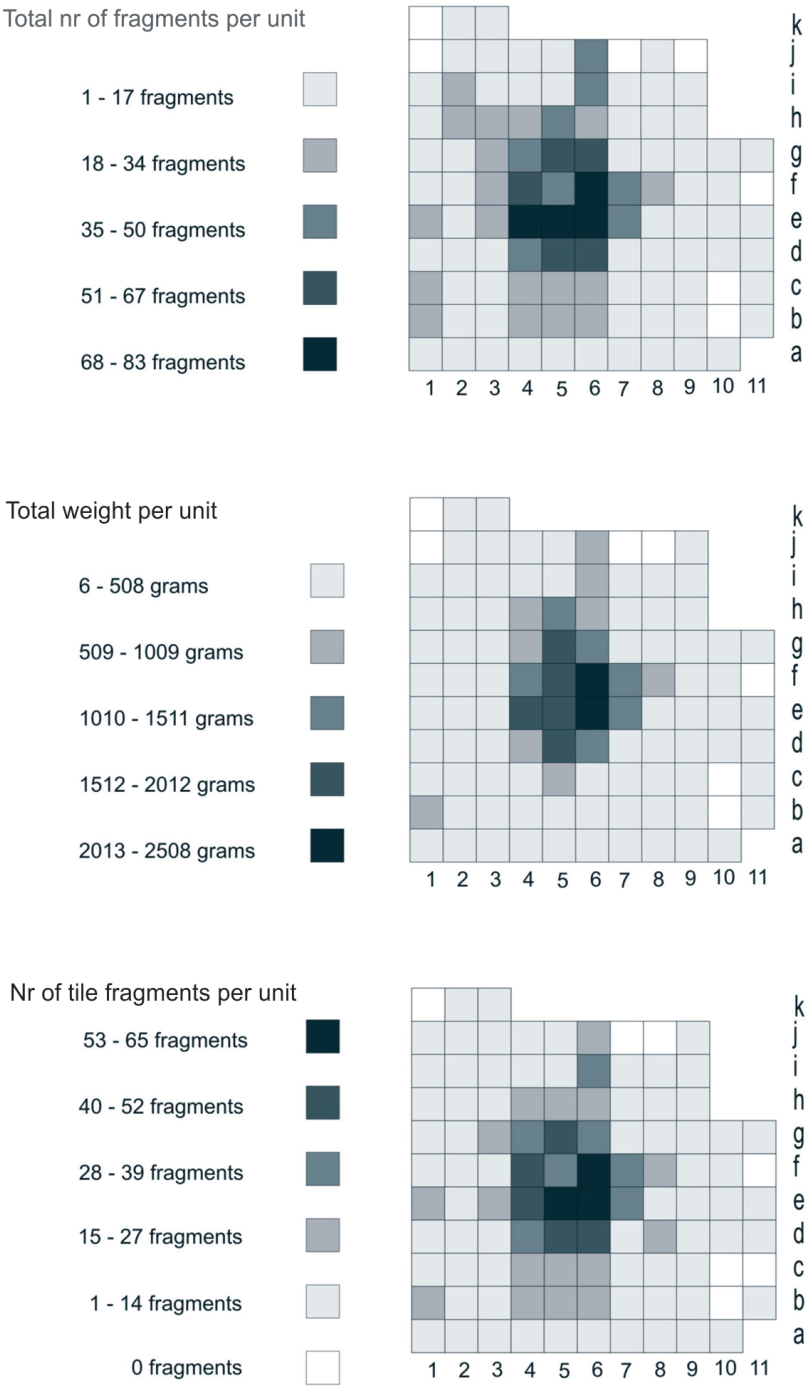
Figures 5.1a-b display the number of fragments and the total weight of all fragments respectively for all of the sampled units. Both show the highest values around the centre of the studied area (units B4-B6; E4-E7; F4-F7; G5-6 & H5). However, this concentration, measuring some 320m², appears much more discrete and delimited when comparing weights. In figure 5.1a, a row of units with high density values is observed comprising units I6 and J6 and the transition from the core area to the surrounding units is more gradual compared to figure 5.1b. Furthermore, on both maps one or a series of units outside this core area show slightly higher values than their immediate surroundings. Although factors such as scaling can play their part, the same phenomenon is observed in the distribution of other classes of pottery. For only three of these enough fragments were collected to map their surface distribution; tile, amphora and black glazed ware (figs. 5.1c-e). The distribution of tile fragments shows only minor differences with that for all finds. This is in accordance with expectations, since tile fragments constitute more than 70% of all finds on this site. The number of amphora and black glazed ware fragments is rather low, making it difficult to discuss patterns on a unit-by-unit basis. However, their distribution allows for some general observations. Although the pattern as a whole is relatively dispersed, the highest density of amphora fragments is strongly associated with the identified core area. Again, a single unit on the western margin of the mapped area shows a higher number of amphora fragments than its surroundings. Black glazed ware fragments were found in adjacent units both in the central-western part and in the south-western part of the site, although other units yielded isolated fragments. The main concentration again corresponds to the identified core area, although extending somewhat further to the west.

In contrast to the other three sites that will be discussed in this chapter, no map depicting the tile:pottery ratios for each unit is presented for site 15034. The low number of fragments collected in many of the units, and the absence of either tile or pottery fragments in some of them renders this type of analysis unreliable.

The finds

Of the 37 fragments of diagnostic value, 16 shards could be dated with more precision. The most secure dating

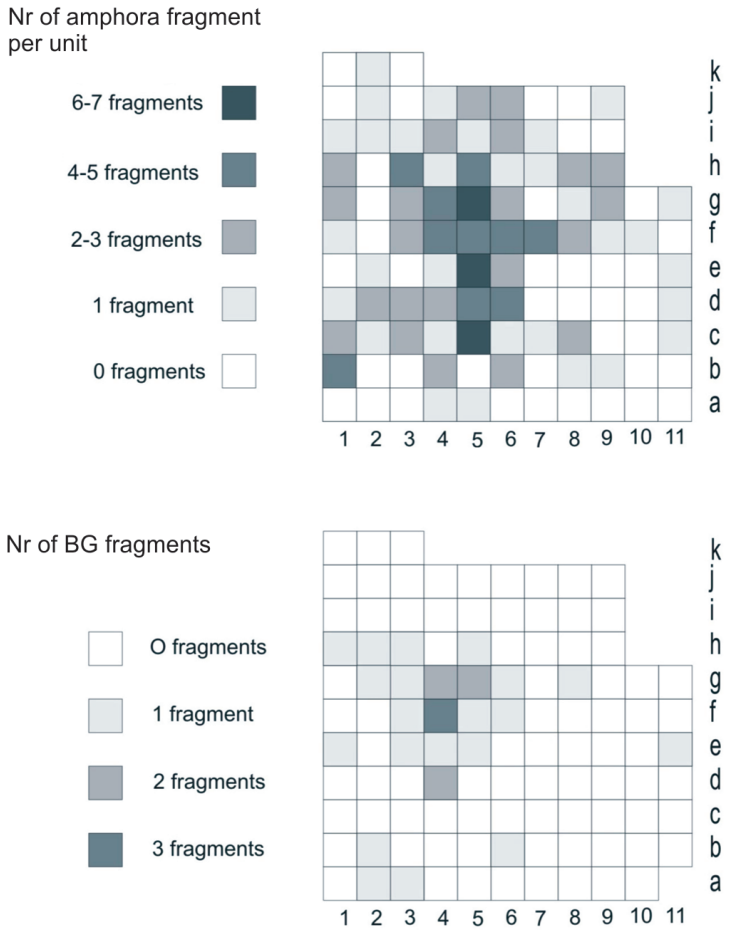
364 The first revisit and the intensive survey are discussed in Attema, de Haas & Tol 2011, 214-5. For the second revisit see chapter 3 of this thesis.



Upper: *Figure 5.1 a* *Site 15034: Total nr of fragments per unit*
Middle: *Figure 5.1 b* *Site 15034: Total weight per unit*
Below: *Figure 5.1 c* *Site 15034: Nr of tile fragments per unit*

evidence comes from the few diagnostic black glazed ware fragments. A stamped base bearing a worn *palmette* stamp belongs to the third style of the *Gruppo dei Piccolo Stampigli*, dating between 280 and 260 BC.[365] A fragment of a Morel 2621 bowl dates in the first half of the 3rd century BC, while the rim fragment of a small cup belonging to Morel series 2745 dates in the second half of the same century. Four amphora rims were found. One fragment represents part of either a Graeco-Italic or Dressel 1 rim, two rim fragments belong to mid-Republican Neo-Punic amphorae (van der Werff type 3) while the fourth fragment, with a particular shape, could not be identified, although its depurated

365 Stanco 2009.



Upper: *Figure 5.1 d* *Site 15034: Nr of amphora fragments per unit*
Below: *Figure 5.1 e* *Site 15034: Nr of black glazed ware fragments per unit*

fabric makes a Republican date probable. The coarse ware fragments include several almond rimmed jars, comprising both earlier examples with a less pronounced exterior rim thickening (in general dating in the 4th and 3rd centuries BC) and a later example with a more pronounced rim thickening (dating from the 2nd century onwards). A rim fragment of a small bowl has a parallel in Cosa, in a deposit dated between 275 and 150 BC. Furthermore, two lids, two pan rims and the rim of a *brocca* all have relatively long date ranges, including the Republican period. The single coin is a silver *denarius* of Roman mint issued in 75 BC (fig. 5.2).

Several undiagnostic pottery fragments are in the *impasto chiaro sabbioso* fabric, typical for the Republican period. Most tiles are also in this fabric, although depurated examples occur as well. In various units, small amounts of basalt and local macco stone were found, possibly indicating their use in structures (basalt, macco) or the remains of the nearby road mentioned earlier (basalt).

Date

When considering the assemblage as a whole, on this site no exclusively 4th-century fragments are found. It is therefore plausible that the earliest activity dates in the early 3rd century BC. Based on the collected materials, occupation ended in the second quarter of the 2nd century BC. The coin outdates all other finds by approximately 100 years and is therefore likely to represent an off-site find.

Conclusion

The study of site 15034 allows making several spatial and chronological observations. However, it is necessary to keep in mind that the overall densities of material per unit and the average weight per fragment were relatively low compared to the other sites presented in this chapter. This makes the observed pattern more sensitive to factors such as scaling and dependent on the presence or absence of small amounts of pottery. Furthermore, the somewhat dispersed spatial distribution as well as the fragmentation ratio of the shards makes it plausible that the site is in a progressive state

Figure 5.2 C. Egnaius junior AR denarius (75 BC) from site 15034.

of decay, caused by continuing tillage.[366] The observations must therefore be considered predominantly in general terms.

In the central part of the site we observed a well-defined core area, associated with high densities of different types of material. In the western as well as the northern part of the site higher densities of material were observed as well. Although the assemblage, the small size of the site and its location along the track of a Roman road does not exclude the presence of Republican graves, the most probable interpretation is that it represents a small, roofed, farmstead. This is, in my view, indicated by the spatial distribution, presenting a single clear core area and the association of different wares with this core area. The smaller areas that show a somewhat higher density of materials may represent refuse dumps.

Based on the collected fragments, the site must have been occupied for a few generations only. Its inhabitants must have participated primarily in local or regional commercial networks, since the coarse and fine wares comprise mainly types of Etrusco-Latial production. However, the finding of two early North African amphorae indicates that, to some extent, foodstuffs from overseas found its way to the site as well.

5.4 Site 15085-03

This site is located in the same field as site 15085-04 (see below), in the eastern margins of a large property in the western part of the Nettuno municipality. It is situated close to the *via Selciatella* whose track appears to constitute the field boundary. The site area is relatively flat but includes a discrete slope near its western extremity. The site was included in the topographical inventory of the museum collection and it was revisited by a GIA-team in 2007; on this occasion a diagnostic sample was taken[367]. Based on the collected materials, the site was tentatively identified as a Roman villa with continuity into the late Imperial period.

366 Boismier 1997, 241, stage 2/3.

367 For the results of the revisit see chapter 3 of this thesis.

The survey

The site area was subdivided into 122 units, covering an area of 1952 m^2. These units together yielded 13654 fragments, of which 344 fragments could be typologically ascribed. Another 39 fragments were collected directly outside the studied area, representing off-site materials.

Tile fragments constitute more than 73% of all finds. Amphorae and coarse ware fragments each account for almost 11% of all finds, whereas 573 fragments of African red slip ware were recorded (4.24%). Terra sigillata, *ceramica a pareti sottili*, glass objects, bone and 'utilities' occur in more modest numbers; all of these categories account for less than 0.3% of all finds. With the metal detector, 26 objects were found, among which six coins. Apart from the tile fragments, fragments of other building materials were also collected; these include 30 fragments of marble, nine *mattoni* and three *tesserae*.

When comparing relative weights, tile fragments account for more than 85%. Amphorae and coarse wares each contribute approximately 4.4% to the total. Despite their small number the 'other' building materials account for more than 5% of the total weight; this is mainly due to the marble and *mattoni* fragments. African red slip ware shards account for almost 0.4% of the total weight, whereas all other identified material categories contribute 0.03% or less.

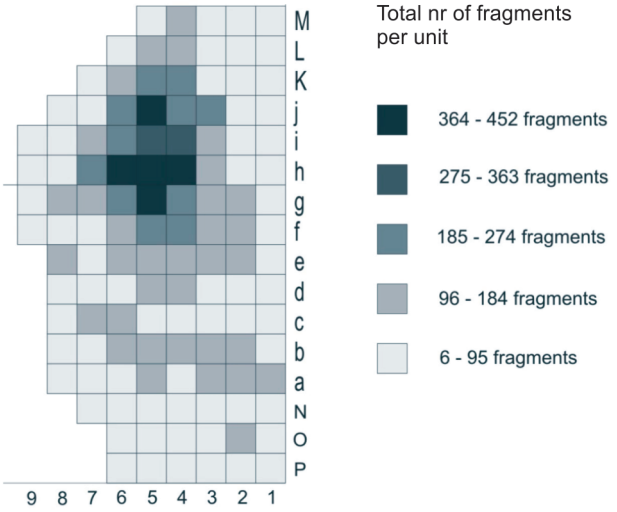
Surface distribution

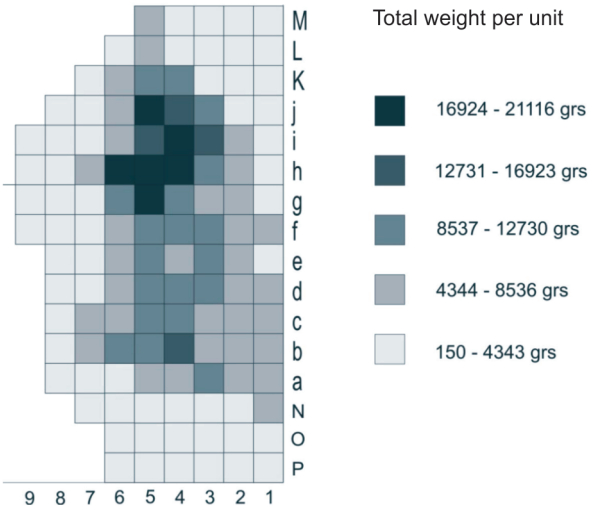
Figures 5.3a-b show the number of fragments and the total weight per unit respectively. Both illustrate a clear and uninterrupted concentration in the central-northern part of the site, comprising units F4&5, G4-6, H 4-7, I4-6, J3-6 and K4&5. However, figure 5.3b shows an extension of this core area towards the south, as well as a more gradual transition from units with high values to units with lower values. Figure 5.3a shows a more scattered distribution of units with values belonging to the two lowest scales.

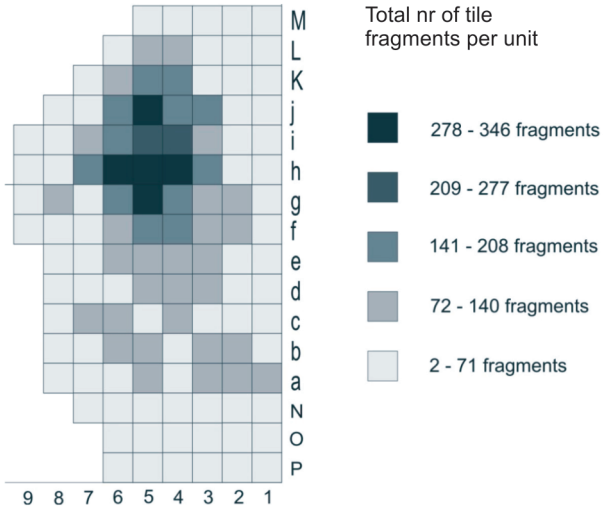
Figures 5.3c-f represent the distribution for a number of individual wares. The distribution of tile fragments (fig. 5.3c) conforms largely to that for all finds. This is hardly surprising, since tile fragments constitute by far the largest material category. The distribution of amphora and African Red Slip fragments (figs. 5.3d-e) show a strong correlation with the identified core area as well.

Although altogether few terra sigillata fragments (27 fragments) were found on this site, their distribution is divergent from the overall pattern. Only one fragment was found in association with the core area and the bulk of shards is found in the southern-most part of the site (fig. 5.3f).

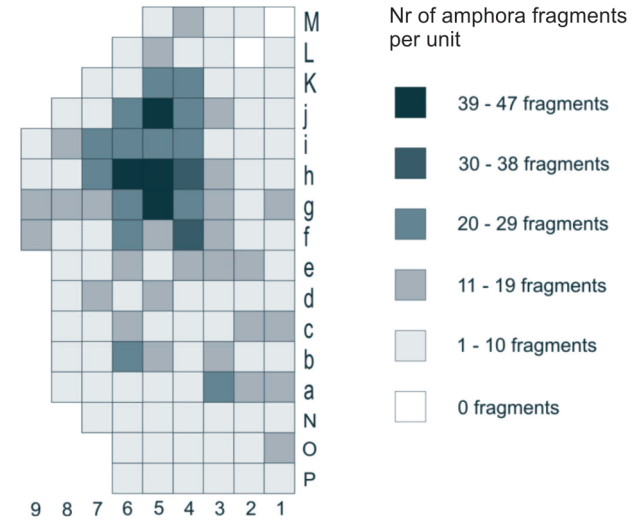
Several luxury indicators were observed on this site as well, though in restricted numbers. Many of the

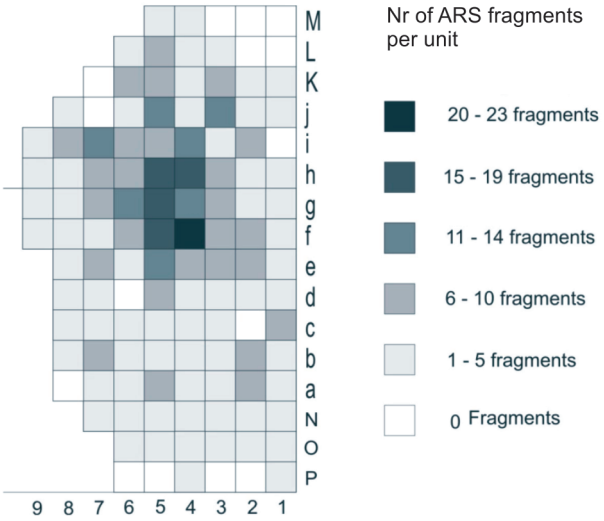


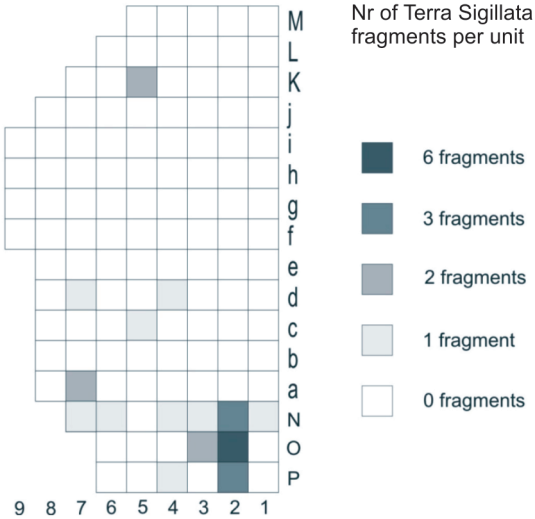




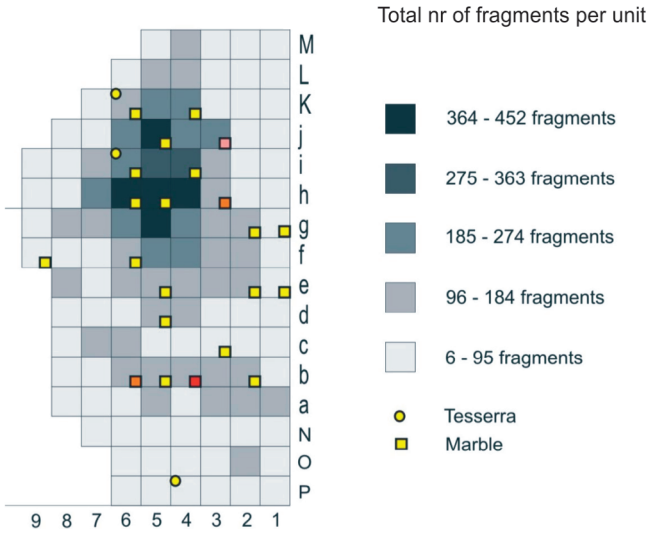
Upper: *Figure 5.3 a Site 15085-03: Total nr of fragments per unit*
Middle: *Figure 5.3 b Site 15085-03: Total weight per unit*
Below: *Figure 5.3 c Site 15085-03: Total nr of tile fragments per unit*

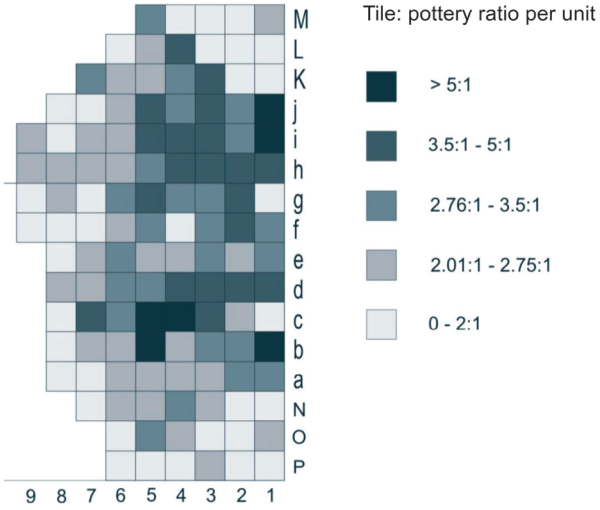


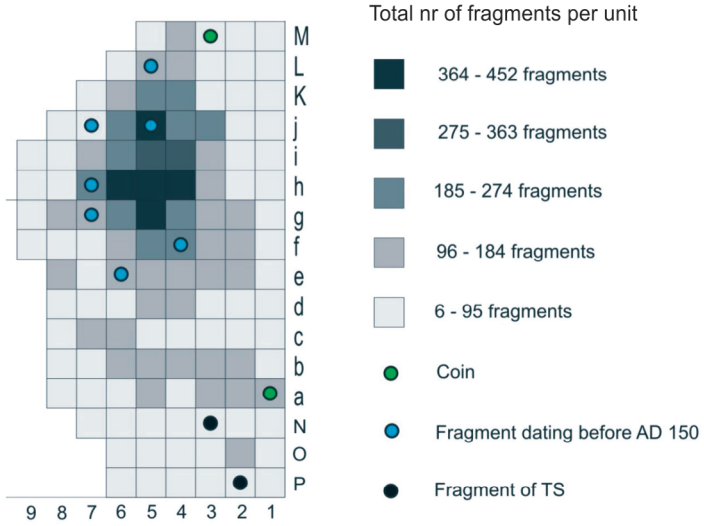




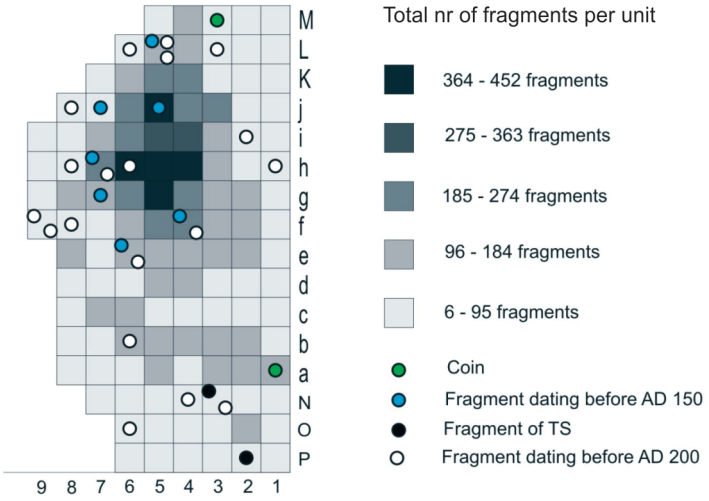
Upper: *Figure 5.3 d Site 15085-03: Nr of amphora fragments per unit*
Middle: *Figure 5.3 e Site 15085-03: Nr of African red slip ware fragments per unit*
Below: *Figure 5.3 f Site 15085-03: Nr of Terra Sigillata fragments per unit*

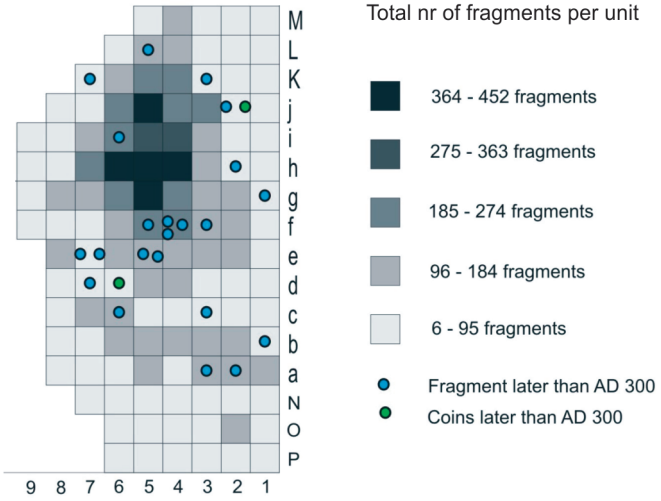






Upper: *Figure 5.3 g* *Site 15085-03: Distribution of marble and* tesserae
Middle: *Figure 5.3 h* *Site 15085-03: Tile: pottery ratio per unit*
Below: *Figure 5.3 i* *Site 15085-03: Distribution of diagnostic fragments dating before AD 150 (circles)*





Upper: *Figure 5.3 j* *Site 15085-03: Distribution of diagnostic fragments dating before AD 200 (circles)*
Below: *Figure 5.3 k* *Site 15085-03: Distribution of diagnostic fragments dating later than AD 300 (circles)*

marble fragments are associated with the core area of activity; four adjacent units with marble fragments in line B possibly indicate the presence of a linear feature (fig. 5.3g). Figure 5.3h shows the tile:pottery ratio for each unit. Two areas (or possibly one continuous area?) show high amounts of tile compared to pottery. The first comprises a large area in the south-eastern part of the site, covering the eastern part of the core area and continuing to the border of the surveyed grid. The second is situated in the central and central-eastern part of the site, comprising units in lines D, C and B. At the moment, no convincing interpretation for these areas can be provided. The relatively low ratios recorded in the northern, southern and western part of the site suggests that these constitute off-site areas.[368] Almost all collected TS fragments fall within an area with a low tile:pottery ratio. This possibly indicates that after the first phase of the site, this area fell in disuse and became an off-site area.

The large amount of shards and the high number of diagnostic materials collected allow a diachronic study of spatial patterning. Figure 5.3i shows the find locations of all diagnostics fragments dating before AD 150, showing a dispersed distribution, covering most parts of

368 Because of their generally higher weight, tile fragments are less likely to be removed from their original position (Cavanagh, Mee & James 2005, 292), although the authors mention that this can also be a reflection of differing discard practices of tile and pottery).

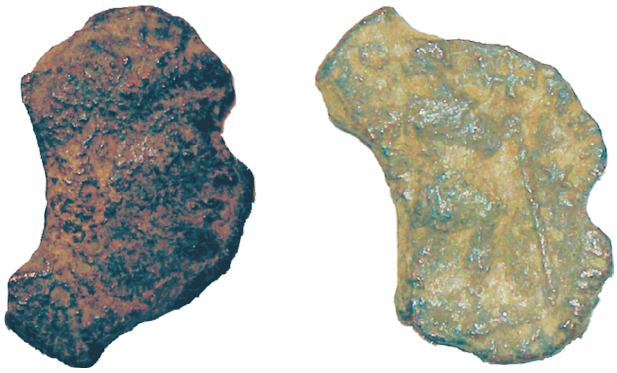


Figure 5.4a Gratian Æ 3 (AD 367 – 375) from site 15085-03.

Figure 5.4b Gordian III Antoninianus (AD 238 – 244) from site 15085-03.

Figure 5.4c Constantine I Æ 3 (AD 307 – 337) from site 15085-03.

Figure 5.4d Claudius Gothicus Æ Antoninianus (AD 270 – 275) from site 15085-03.

Figure 5.4e Titus AR denarius (AD 79) from site 15085-03.

Figure 5.4f Vespasian AR denarius (AD 75) from site 15085-03.

the mapped area.[369] The dispersed spread of these early fragments excludes the possibility that the distribution pattern of terra sigillata fragments is related to the fact that 'early' layers are reached on only some parts of the site; more likely it represents a specific functional area.

The distribution of all diagnostic finds dating before AD 200 shows a further infill of the site area, although spatially confined to the earlier occupied areas (fig. 5.3j).[370] Two other observations can be made. The first is the low association of these early and mid-Imperial fragments with the core area. Secondly, there is an area between this core area and the southern-most part of the site that is rather empty on the two discussed period maps. This could indicate that on this specific part of the site, pottery fragments dating before AD 200 are rare in the plough zone. There can be various explanations for this phenomenon. Firstly, it is possible that these early layers are not yet touched upon in this part of the site. Secondly, this area might have been free of structures in these periods or thirdly, structures did exist, but were associated with a relatively low amount of pottery.

Figure 5.3k shows the distribution of all diagnostic fragments dating later than AD 300. The total number of fragments is low, but two observations can still be made. Firstly, almost no fragments are associated with the overall core area and secondly, there seems to be some form of clustering of these late Imperial fragments. A continuous occurrence of late fragments is found in the central-western part of the site and also somewhat to the northeast and southeast pieces are

369 Considered are all finds with a date range that falls entirely before the year AD 150. Non-diagnostic fragments are not considered, although it is certain that all TS wall fragments fall within this time-span. The year AD 150 is chosen since this is generally considered to be the end of (large-scale) TS production (Oxé, Comfort & Kenrick 2000); the entire date range of TS is considered, since our fragments, based on the parallels found probably belong to the late production phases.

370 Considered are all finds with a date range that falls entirely before the year AD 200. This means that many African red slip ware fragments, both table- and cookwares, are excluded from this map, since their date range extends beyond this date.

Figure 5.5a Lead cram from site 15085-03.

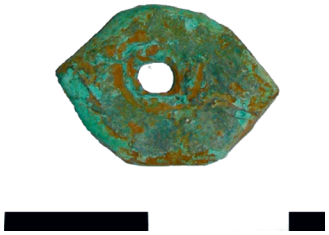


Figure 5.5b Bronze borchietta from site 15085-03.

Figure 5.5c Fragment of a bronze fibula from site 15085-03.

Figure 5.5d Part of an iron chain from site 15085-03.

Figure 5.5e Fragment of a bronze buckle from site 15085-03.

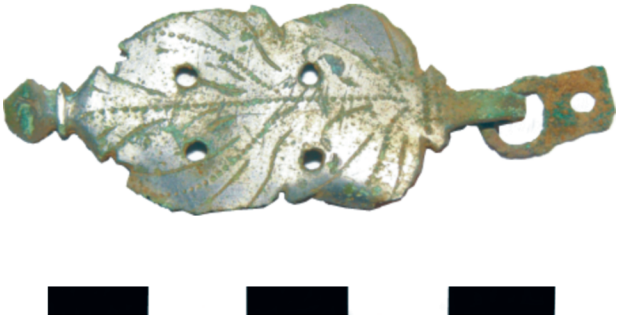


Figure 5.5f Leaf-shaped pendant from site 15085-03.

found in adjacent units. Although these observations must be treated with caution, this 'nucleated' pattern could be indicative of some sort of re-arrangement or contraction of space in this period.

The finds

A total of 257 of the 383 diagnostic fragments could be dated with more precision. Most of these concern African table- and cookwares (194 pieces). Some 130 rim and body fragments of casseroles were collected, mainly belonging to types Hayes 23B and Hayes 197 and their associated lid Hayes 196.[371] Based on their morphology, it can be assumed that these fragments include little to no late variants and therefore date in the later 2nd or 3rd century AD.[372] The tablewares include both early and mid-Imperial bowls and dishes (mainly Hayes 6, 8, 9, 14 and 27) as well as several later types (predominantly the thin-walled bowl Hayes 50, but also fragments of Hayes 59, 61, 67, several stamps and body fragments with feather-rouletting, which is typical for Hayes 53 and 91).[373]

The terra sigillata fragments include two stamps. One is *a planta pedis* and identifies the potter as C•P( ) PI(SANVS), while the other fragment bears a crescent-shaped stamp of SEXTVS MVRRIVS PRISCVS. Both potters operated in Pisa in the second half of the 1st or the first half of the 2nd century AD. Two fragments of Conspectus form 34 are of 1st century date.

The amphora fragments include predominantly African types of mid- and late Imperial date. The most

371 Besides the casseroles included in the finds catalogue at the end of this chapter another 45 fragments of lid Hayes 196, 51 fragments of casserole Hayes 197 and 26 fragments of casserole Hayes 23B were left in the field.

372 For a typo-chronology of the forms discussed see Bonifay 2004.

373 Besides the African red slip ware fragments included in the finds catalogue at the end of this chapter, two fragments of flanged bowl Hayes 91a/b, one fragment of dish Hayes 6, two fragments of bowl Hayes 50A, one fragment of bowl Hayes 9B, five fragments of bowl Hayes 9A and three fragments of carenated bowl Hayes 8A were left in the field.

numerous among these is the Africana II amphora, but also fragments of Africana I and III and Tripolitanian III amphorae were collected. Furthermore, a single fragment of a *Spatheion* 3 amphora was found, dating in the 6th or 7th century AD. A large proportion of the amphorae originates from the Iberic peninsula, including Dressel 20, Haltern 70, Dressel 7-11 and Almagro 51 types. Also multiple rim and handle fragments of Gauloise 4 amphorae were found. Furthermore, single fragments of a Cretan amphora (a handle fragment) and a rim fragment of a Keay 52 occur, the latter being the only identified type of Italian manufacture on this site. Just outside the mapped area a handle of an African amphora was found, bearing a partially preserved rectangular stamp for which no parallel was found.

Relatively few local/regionally produced types of utilitarian pottery were recorded on this site. However, several lid and jar fragments and individual fragments of an *olpe* and a basin were found. These all date in the first two centuries AD, possibly indicating their use before the start of the large-scale importations of African cookwares. Several late Imperial and late Antique types were identified as well. Two jar fragments date in the 5th or 6th century AD, one of them also frequent among the Astura materials (see chapter 6). A large basin is of African origin (Uzita 3B), while the fragment of a *vaso a listello* dates in the 6th or 7th century AD.

Further dating evidence is provided by metal and glass objects. A silver pendant as well as bronze *fibula* date in the 1st century AD, while another *fibula* dates in the 2nd or 3rd century AD (figs. 5.5a-f). Furthermore, all six coins could be identified and dated (figs. 5.4a-f). Two silver coins were issued in AD 75 and 79 respectively, whereas the four bronze coins were minted between AD 238-244, AD 270-275, AD 307-337 and AD 367-375 respectively. The two first century coins were minted in Rome, while the 4th century coins were issued in Arles and Siscia, modern-day Sisak, Croatia. The mints of the two 3rd-century coins are unknown. Glass vessels were used at least from the 1st to the 4th century on this site.

Fragments of limestone and tuff, probably used as building materials, were noted in every unit, although they were not quantified. Also, fragments of basalt were noted in large numbers, but their interpretation is more problematic. These fragments can either belong to the road that ran close to the site or indicate their use in the construction of buildings on this site (either originally or by re-using road pavement). So-called luxury elements were found in modest quantities. They comprise three crudely made *tesserae*, as well as 30 marble fragments (all in white marbles) and four fragments of window glass. One of the marble fragments is part of a doorway, while another has a central hole; this indicates that these fragments also had a practical function besides constituting an object of prestige.

Date

Based on the collected materials the first activity on site 15085-03 can be dated in the third quarter of the 1st century AD. The site was continuously occupied until at least AD 500. It is probable that the site was abandoned in the early 6th century since no exclusively late 6th- or 7th-century pottery forms were identified.

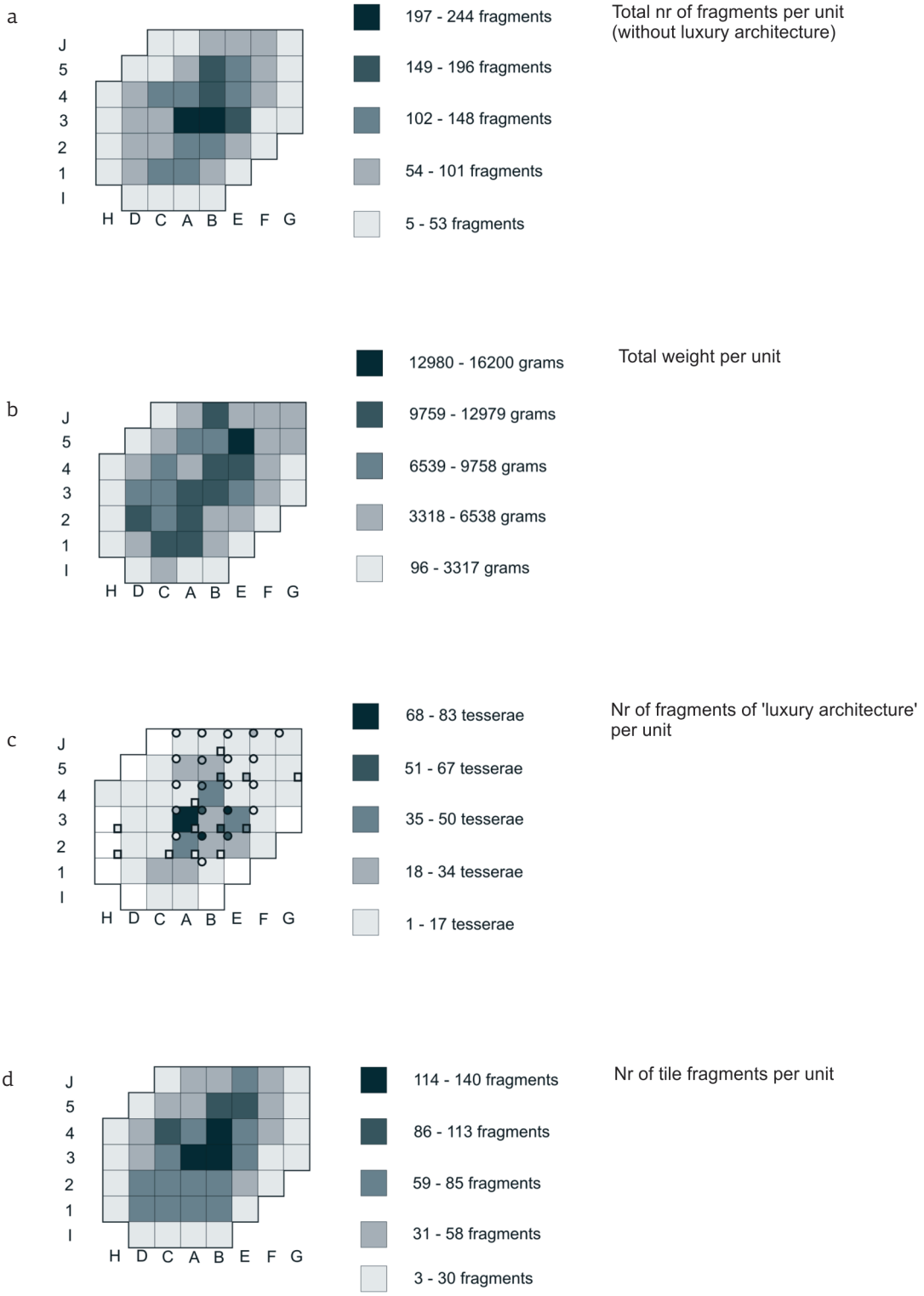
Conclusion

The most likely interpretation of site 15085-03 is that it constitutes the remains of a rural villa or farmstead with continuity from the second half of the 1st century until the end of the 5th or the beginning of the 6th century AD. There is no evidence for earlier occupation on this location. The on-site survey yielded several indications for 'intra-site' developments and transformations. The distribution of terra sigillata fragments shows a conspicuous clustering in the southern part of the site that seems to have a functional rather than a chronological origin. The area comprising units B, C and D indicate the presence (at least for part of the site's chronology) of structures where activities were conducted that involved little pottery. A clear core area was identified in the central part of the site, associated with a wide variety of materials, identifying it as a habitation area. The high tile:pottery ratio observed in the eastern part of this core area, continuing towards the border of the surveyed grid, indicates that these structures probably extended even further to the west. There are indications for a contraction of the inhabited area and/or a restructuring of space in the later phases of the site, perhaps from the 4th century AD onwards. This is a well-known phenomenon on Imperial villa sites across Italy and has been noted on other sites in our study area before as well.[374]

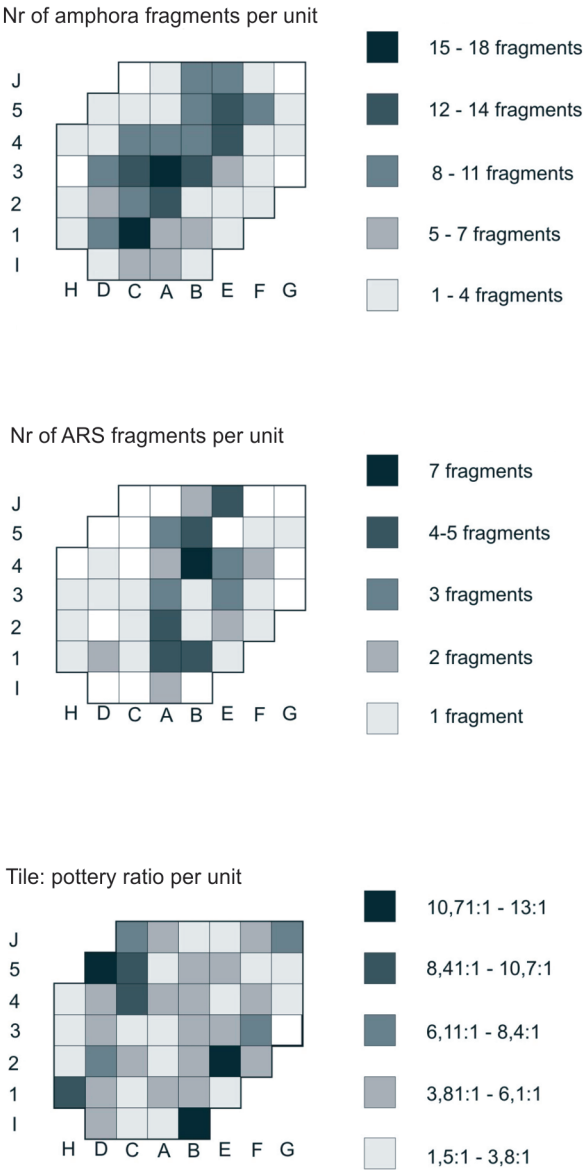
On this particular site, the amount of luxury indicators is much more restricted than on other large settlements sites along the Roman road.[375] Only a few *tesserae*, some marble and a few fragments of window glass were found. However, the site bears sufficient evidence for access to imported goods, mainly reflected in the abundance of African amphorae, tablewares and cookwares. Most fragments of imported pottery date to the second half of the 2nd and the 3rd century AD. For the same period we have only scarce evidence for the consumption of locally made utilitarian pottery and amphorae, indicating a reliance on imported pottery only. Different types of imported wares (tablewares, utilitarian pottery, amphorae) continued to find their way to the site right down to its abandonment. This shows a continuing relatively high standard of living. The observed spatial

374 Attema, Derks & Tol 2010; Raaymakers 2007; Christie 2004, 20-23. See also Lewitt 2003.

375 See for example sites 15004, 15014, 15029 and 15111 in chapters 3 and 4 of this thesis.



a: Figure 5.6 a Site 15085-04: Total nr of fragments per unit
b Figure 5.6 b Site 15085-04: Total weight per unit.
c Figure 5.6 c Site 15085-04: Nr of tesserae per unit. Small squares indicate marble fragments (from light to dark 1, 2, 3 or 4 fragments), circles indicate fragments of painted wall plaster (from light to dark 1-2, 3-4, 7-8, > 8 fragments).
d Figure 5.6 d Site 15085-04: Total nr of tile fragments per unit.



Upper: *Figure 5.6 e* *Site 15085-04: Nr of amphora fragments per unit*
Middle: *Figure 5.6 f* *Site 15085-04: Nr of African red slip ware fragments per unit*
Below: *Figure 5.6 g* *Site 15085-04: Tile: pottery ratio per unit*

transformations occurring after AD 300 must therefore not be interpreted as an indication of social downturn.

5.5 Site 15085-04

This site is located in the western-most extremity of the municipal territory of Nettuno. It was included in the topographic inventory of the museum collection and was revisited by a GIA-team in 2006; on this occasion a grab sample was taken. [376] Based on the observations made during this visit, the site was tentatively interpreted as a small outbuilding of a Roman villa that was identified 100 metres to the west (site 15085-03, see above), adjacent to the track of the *via Selciatella.*

The survey

The site area was subdivided into 46 units, covering a total area of 736m². These units together yielded 3533 artefacts, 88 of which could be typologically ascribed. On average almost 77 fragments per unit were found, and the average weight per find was by far the highest recorded for all four sites studied. Tile fragments constitute over 80% of all finds. The most common classes of pottery are amphorae (9.5% of all finds) and utilitarian pottery (6.64% of all finds). The latter includes, compared to the other three sites, many fragments of thick-walled vessels. Furthermore, 69 fragments of fine

376 For the results of the revisit see chapter 3 of this thesis.

Figure 5.7a Faustina AR denarius (AD 161 – 175) from site 15085-04.

Figure 5.7b Constantine II/Constantius II Æ 3 (AD 324 – 337).

Figure 5.7c Constantine II Æ 3 (AD 337 – 340) from site 15085-04.

Figure 5.7d Unidentified Æ 3 (4th century AD) from site 15085-04.

Figure 5.8a Fragment of a bronze fibula from site 15085-04.

Figure 5.8b Iron key from site 15085-04.

Figure 5.8c Fragment of a bronze fibula from site 15085-04.

Figure 5.8d Fragment of a bronze bracelet from site 15085-04.

ware pottery were recorded (almost exclusively African red slip ware) as well as small amounts of glass and bone. Remarkable is the high quantity of so-called luxury indicators retrieved from the site's surface. These include 550 *tesserae*, 70 pieces of painted wall plaster, two fragments of window glass and 22 marble fragments. Several pieces of *mattoni* and two 'other' architectonical elements were also recorded. With the metal detector 31 metal items were found, including four coins.

When comparing relative weights tile accounts for almost 80%. Furthermore, utilitarian pottery takes in a relatively high share of the total weight; this is predominantly due to the thick-walled vessels, constituting little over 2% of all finds but more than 17.5% of the total weight. Amphora fragments account for little over 2% of the total weight, whereas African red slip ware, glass, metal and bone all have a share of less than 0.2%. The architectonical elements constitute almost 8% of the total weight. *Mattoni* and marble fragments together contribute almost 7% to the total; the rest of the weight is accounted for by the *tesserae*, the plaster and the 'other' architectonical elements.

Surface distribution

The distribution of finds clearly demonstrates a north-east-southwest orientated row of units with high values (figs. 5.6a-b), comprising an area of approximately 250m² (units E3-5; B3-5; A1-5; C1-4; D2-3 and J3). The

distribution of luxury materials over the site's surface strongly correlates with this feature (see fig. 5.6c). Also, the distribution of other classes of material, such as amphorae and tablewares, produces a largely identical pattern (figs. 5.6d-f). Figure 5.6g shows the tile:pottery ratio for each of the units, resulting in a reverse spatial pattern; the lowest values are recorded for the units with the highest overall number of finds. The relatively high share of building materials compared to pottery in the units directly outside the identified core area (units H1; C4-5; D5; I4 & E2) suggests that these represent the outer limit of the original structure.

The finds

Of all diagnostics collected, 38 fragments could be dated with more precision, including 25 shards of African table- and cookware. The tablewares comprise exclusively bowls, apart from one rim of a mug (form Hayes 138). Most fragments date between AD 100 and 250, whilst a single fragment of a thin-walled bowl (Hayes 50b), dates in the second half of the 3rd or the 4th century AD.[377] The cookwares, 14 fragments, include six casserole rims and eight lids and cover a date range of AD 150 to 300.[378] Two fragments of *ceramica a pareti sottili* date in the 1st century AD. No fragments belonging to other fine ware types were found.

As mentioned earlier, few diagnostic fragments of amphorae and utilitarian pottery were found on this site. Based on both fabric and shape one amphora handle can be identified as part of a *Campanian almond rim* amphora, dating in the 2nd or 3rd century AD. Among the utilitarian pottery is a fragment of a thick-walled African basin (Uzita 2), dating between the 3rd and the 5th century AD. A fragment of a cooking stand finds an exact parallel in an unstratified context at Posto, Francolise. Furthermore, two stamped tile fragments were collected. One bears an anepigraphical motive, probably forming one or more rows of impressed dots, the other preserves only two characters of a larger epigraphical stamp. For both of these fragments no parallel was found.

The uncovered metal items include both functional objects (an iron key, nails and coins) and objects of personal ornament (a bracelet and two *fibulae*; see fig. 5.8a-d). The *fibulae* date in the 2nd century and 3rd-4th century respectively. Apart from the coins, all other metal fragments could not be dated with any precision and provide only a generic Imperial date. One of the four coins is a silver *denarius* that was minted between AD 161 and 175, whereas the three others are 4th century bronze Æ 3 coins (fig. 5.7a-d). Two are of the GLORIA EXERCITUS type, one struck under Constantinus II and the other under either Constantinus II or Constantius II (AD 324-337). The third is of the GLORIA ROMANORVM-type and has an illegible obverse. For two of the coins the mint is known; the silver coin was struck in Rome and one of the 4th-century coins was minted in ancient *Siscia*, modern-day Sisak, Croatia.

The largest category of luxury indicators are the *tesserae*. Although these mainly comprise either small and square or long and rectangular black and white examples, they include a few pieces in precious polychrome marbles; at least two *tesserae* in *serpentine verde* and two in *porfido rosso* were collected.[379] Furthermore, two square marble centre-pieces were found, of which one was of *giallo antico*. These two pieces must have been part of a larger *emblema*, a decorative floor motive composed of different marbles. The shapes of the marble fragments recovered do not indicate the presence of an *opus sectile* floor, as larger sized thin cut slabs are missing. The painted wall plaster is of many different colours. One fragment bears white-painted decoration. Two 'other' finds of ornamental architecture are a fragment of a figurative wall decoration in terracotta and a hexagonal marble slab.

Tile fragments were mostly in hard fabrics of different colour, often bearing a white coating on the top part of the plate. These fragments can generically be dated in the Imperial period. Fragments of macco stone, tuff and basalt were also frequently encountered, but not quantified. The tuff and macco fragments were probably used on this site as construction materials. The basalt fragments are probably provenient from the *via Selciatella* or one of its branches and as such could indicate either the ploughed out remains of a road course or the re-use of road pavement for construction purposes.

Date

The structure must have remained in use for a substantial period of time. Based on the collected materials the first activity can be dated in the last quarter of the 1st century AD. The bulk of the pottery belongs to the second half of the 2nd and the 3rd century AD. The latest activity on the site, based on both pottery and coins, can be dated in the first half of the 4th century AD; no exclusively later 4th- or 5th-century types were found.

Conclusion

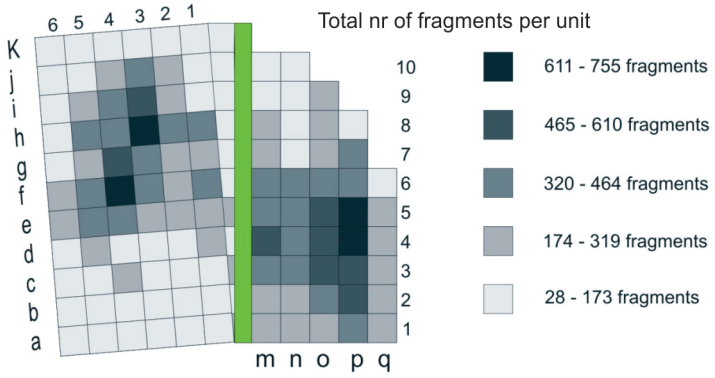
Summarizing, investigations on site 15085-04 have identified a well demarcated, northeast-southwest

377 Besides the fragments included in the finds catalogue at the end of this chapter one fragment of carenated bowl Hayes 8A and one fragment of bowl Hayes 9A were left in the field.

378 All of these were left in the field. They include one fragment of a casserole Hayes 23B, five fragments of casserole Hayes 197 and eight fragments of lid Hayes 196.

379 The use of polychrome marbles for *tesserae* has been documented on other sites; see for example Keay *et al.* 2005, 191 and table 6.9. Of the six marble tesserae identified at Portus, three are in fact of *serpentine verde*.

a



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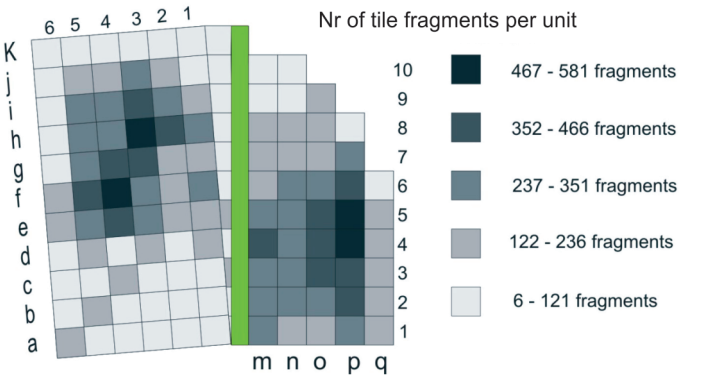

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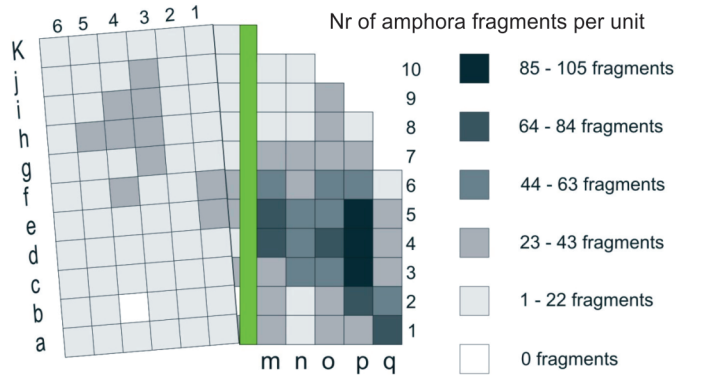

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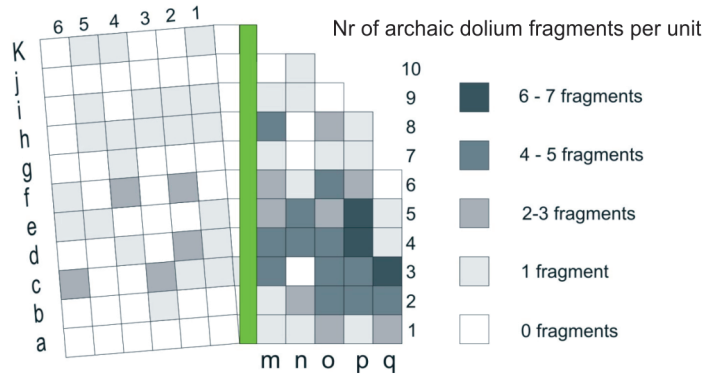
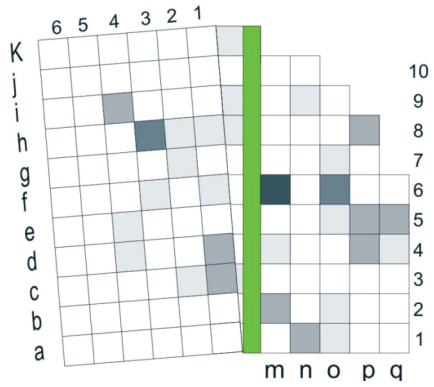
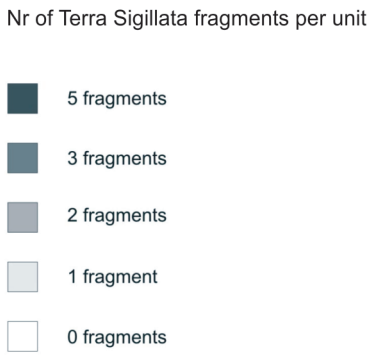


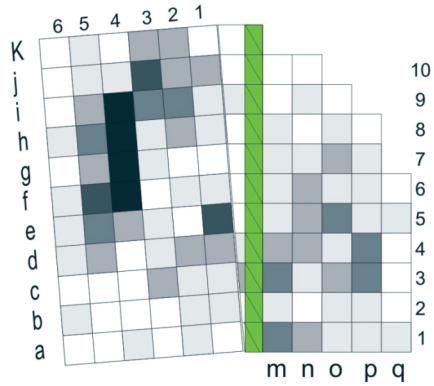
a: *Figure 5.9 a Site 15106: Total nr of fragments per unit*
b: *Figure 5.9 b Site 15106: Nr of tile fragments per unit*
c: *Figure 5.9 c Site 15106: Nr of amphora fragments per unit*
d: *Figure 5.9 d Site 15106: Nr of 'archaic' dolium fragments per unit*

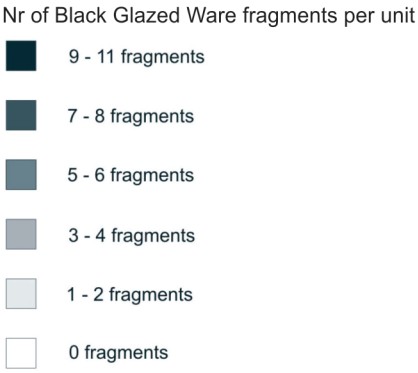
a



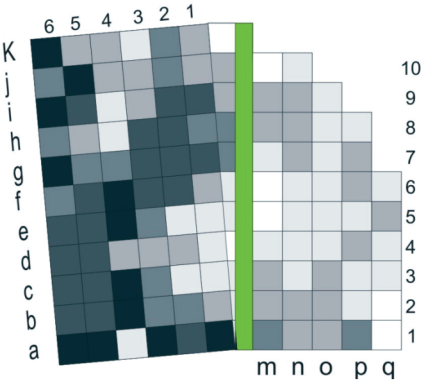


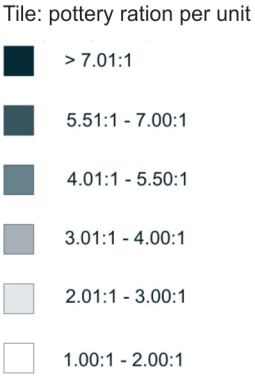
b



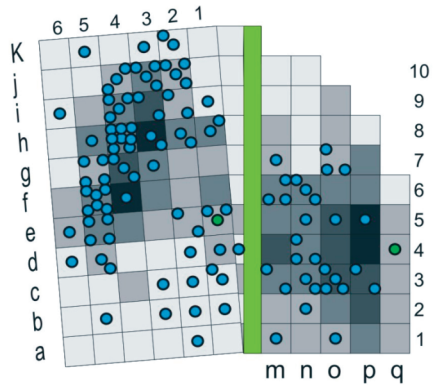


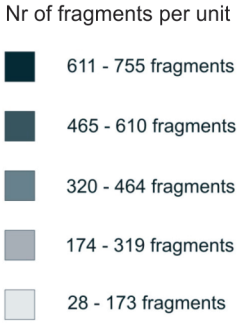
c



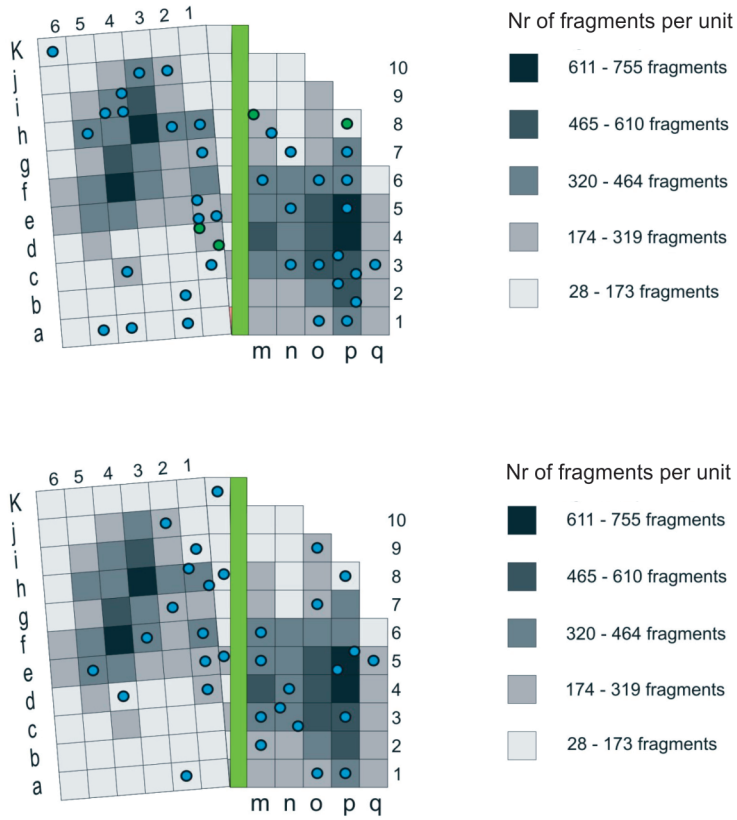


d





a: Figure 5.9 e Site 15106: Nr of Terra Sigillata fragments per unit
b: Figure 5.9 f Site 15106: Nr of black glazed ware fragments per unit
c: Figure 5.9 g Site 15106: Tile: pottery ratio per unit
d: Figure 5.9 h Site 15106: Distribution of diagnostic fragments dating between 400 and 200 BC (circles)



Upper: *Figure 5.9 i Site 15106: Distribution of diagnostic fragments dating between 200 and 0 BC (circles)*
Below: *Figure 5.9 j Site 15106: Distribution of diagnostic fragments dating between AD 0 and 200 (circles)*

orientated structure. This structure was, at least partly, embellished with painted walls and mosaic floors with central elements in exotic marbles. The identification of this site is, however, not straightforward. The rich decoration of the structure, combined with its small surface area, render identification as either a residential structure or an outbuilding unlikely. Identification as a monumental tomb is improbable, in view of the long chronology of activity. Perhaps the most convincing interpretation, also considering the location of the site close to a major road, is that of a small roadside chapel/rural shrine.[380]

5.6 Site 15106

This site is situated in the central-western part of the Nettuno municipality, on the edge of a large field, overlooking the valley of the *Fosso Loricina*. The site area is flat, although the field as a whole slopes down towards the north-east. The site is located in two different plots, divided by a row of low-standing bushes, approximately two metres wide. Both plots, however, have the same owner and on all site visits showed similar cultivation (on one occasion melons, on two other occasions potatoes). The site was first identified during the intensive survey in 2004 and was revisited in 2007.[381] The samples collected on both occasions pointed to the presence of a Republican to mid-Imperial *villa rustica* with evidence for activity as early as the Archaic period.

The survey

The site area was divided into 110 units; 99 units measured 16m², whereas the remaining eleven units were of different dimensions, filling the gap between the regular grid and the field boundary. The grid thus covered a total area of 1744m². Within this grid a total of 29233 fragments were recorded, including 432 diagnostic fragments.

Tile fragments form the largest category of finds on this site, accounting for almost 78% of all finds. Amphorae and fragments of utilitarian pottery account for little over and little under 9% of all finds respectively. More than 2% of all finds belong to pottery in *impasto chiaro sabbioso*, whereas *impasto* pottery accounts for almost 0.6%, of which the largest share is formed by

380 For a recent discussion of this class of sites see Stek 2009, chapter 9.

381 The intensive survey is discussed in Attema, de Haas & Tol 2011. For the results of the revisit see chapter 3 of this thesis.

red-firing 'Archaic' dolium fragments.[382] Black glazed ware is the most common type of fine ware encountered (240 fragments). Smaller numbers of terra sigillata (48 fragments), *ceramica a pareti sottili* (15 fragments) and African red slip ware (six fragments) were recorded as well. The site also yielded a modest number of glass fragments, several pieces of bone and five 'utilities'. Using the metal detector, ten objects were recovered, among which six coins. Finally, three 'luxury-items' were also found, consisting of a single fragment of marble and two *tesserae*.

No weights were recorded on this site.

Surface distribution

Figure 5.9a shows the total number of fragments for each unit. Two clear areas of high artefact density can be distinguished, one in the south-eastern part of the site (core area 1) and another in the north-western part of the site (core area 2). These two areas are separated from each other by a line of units with northeast-southwest orientation that generally yielded smaller numbers of finds.

Figures 5.9b-f present the surface distribution for a number of individual wares; these can possibly help identify specific functional areas or chronological changes to the lay-out. The distribution of tile fragments over the site's surface is almost identical to that for all finds (fig. 5.9b). This is hardly surprising, since tile fragments constitute almost 80% of all finds. On the other hand fragments of amphorae (fig. 5.9c), 'Archaic dolium' (fig. 5.9d) and terra sigillata (fig. 5.9e) are predominantly found in association with core area 1, whereas these wares all have a much weaker and less coherent association with core area 2. This is in marked contrast with the distribution of black glazed ware pottery that reproduces a strong association with core area 2, with four adjacent units (F4, G4, H4 & I4) yielding the highest number of fragments (fig. 5.9f).

Figure 5.9g shows the numerical relation between pottery fragments and fragments of tile for each of the units. A clear southwest-northeast orientated sequence of units shows a clear dominance of building materials over pottery. This sequence of units does not correspond to core area 2, but rather skims past it.

The large amount of shards and the high number of diagnostic materials allows a diachronic study of spatial patterning.[383] When plotting all finds dating before 200 BC a clear concentration is observed around core

Figure 5.10a Augustus Æ quadrans (9 BC) from site 15106.

Figure 5.10b Augustus Æ sestertius type 2 (27 BC – AD 14) from site 15106.

Figure 5.10c Augustus Æ denarius (37 BC) from site 15106.

Figure 5.10d Æ-as anonymous (209 – 208 BC) from site 15106.

Figure 5.10e Æ-as anonymous (209 – 208 BC) from site 15106.

382 The association of these fragments, on many sites in our inventory, with fragments of black glazed ware and Graeco-Italic amphorae suggests that they are predominantly of mid-Republican date.

383 The three maps presented include only diagnostic fragments with a date range that falls entirely within the discussed period.

Figure 5.10f M. Aemilius Scaurus and P. Plautius Hypsaeus AR denarius (58 BC) from site 15106.

Figure 5.11a Piece of silver from site 15106.

Figure 5.11b Part of a bronze ring from site 15106.

area 2 (fig. 5.9h). Finds from this period are found in other parts of the site as well, but in more restricted numbers. A less dense distribution of finds is associated with core area 1. For the period between 200 BC and 0 there are only a few diagnostic fragments that are associated with core area 2, whereas fragments appear to cluster around core area 1 and, in general, the eastern part of the site (fig. 5.9i). No diagnostic fragments dating between 0 and AD 200 are associated with core area 2; the distribution pattern for this period is somewhat dispersed, but again most fragments are found in and around core area 1 (fig. 5.9j).

The finds

Of the 428 diagnostic fragments collected, 261 pieces could be dated with more precision.

The most abundant ceramic class is formed by amphorae. These include 37 rim fragments of nine different types. The most common shapes are the Tunisian van der Werff 3 and Graeco-Italic amphorae, both characteristic for the mid-Republican period. Furthermore, several examples of Graeco-Italic/Dressel 1a, van der Werff 2, Dressel 1 (A, B and C variants) and Dressel 2-4 amphorae, as well as a single fragment of a Dressel 5 amphora were identified; all these amphora types date in the mid-Republican to early Imperial periods.[384] Furthermore, single fragments of early Imperial amphorae Dressel 12 and Gauloise 3 were found, whereas two fragments remain unidentified. Among the handles are mainly fragments of Graeco-Italic/Dressel 1 and Dressel 2-4 amphorae, as well as single examples of a Haltern 70 (late Republican – early Imperial) and Gauloise 4 amphora (early/mid-Imperial).[385]

The utilitarian pottery mainly comprises very conservative central-Italian types, bringing about difficulties in their dating.[386] The sample comprises types that date between the 7th century BC and the mid-Imperial period. Various types of basins/mortars (many in *impasto chiaro sabbioso*), jars (many of the almond-rim type), lids, *tegami* (mainly of 4th-3rd century date), jugs and smaller numbers of *teglie*, *pentole*, cups and bowls are recorded. A single fragment of *Pompeian Red Ware* dates in the 1st century AD. Furthermore, two large rims as well as several body fragments of dolia were found. Most of these are in *impasto chiaro sabbioso*, therefore providing a generic Republican date.

The collected fragments of black glazed ware pottery can almost without exception be attributed to the so-called Etrusco-Latial production of the ware, characterized by a distinct set of forms (comprising mainly simple bowls) bearing simple stamped floral motives (*rosette* and *palmette*) on their interior floors. These products are therefore generally referred to as belonging to the *Gruppo dei Piccoli Stampigli*.[387] Remarkably the array of stamps identified on site 15106 forms a fairly

384 The Graeco-Italic and Dressel 1 fragments include many examples in the so-called 'Black Sand Fabric (for description of the fabric see Peacock & Williams 1986, 87) typical for production in the Bay of Naples. Furthermore, several non-diagnostic fragments have a badly-mixed fabric, typical for the workshop at Le Grottacce that was studied by the GIA (Attema, de Haas & Nijboer 2003; De Haas, Attema & Pape 2008). Dressel 2-4 fragments occur both in the black sand fabric and in a red fabric containing many large white inclusions, known to be of Catalan origin (for a description see Peacock & Williams 1986, 94-95).

385 However, only a few amphora types can be readily identified based on the shape of their handle. Besides the fragments included in the finds catalogue at the end of this chapter another eight Dressel 2-4 handle fragments were left in the field.

386 For a typo-chronology see Olcese 2003

387 Ferrandes 2006; Stanco 2009.

homogeneous group, indicative for the third and fourth production phase of this *Gruppo dei Piccoli Stampigli,* to be dated between 280 and 240 BC. The collection of black glazed ware fragments also includes various other shapes of late 4th- or 3rd-century date (dishes, plates, jugs and *skyphoi*), as well as a small number of fragments of 2nd- or 1st-century origin.[388]

Several diagnostic fragments of terra sigillata were found as well. All identified fragments date in the 1st century AD and include a stamp of the workshop of P. CLODIVS PROCVLUS, located in Arezzo. A total of six, in general quite worn, fragments of African cook- and tablewares were found. These comprise the rim of a casserole (Hayes 197), several rim fragments of lids (Hayes 196) and the rim of a dish (Hayes 27), all dating in the later 2nd or 3rd century AD. Several fragments of *ceramica a pareti sottili* date between the 1st century BC and the 2nd century AD.

Grouped under the utilities are several special shapes. They include two fragments of oil lamps, one in black glazed ware, the other part of a so-called *Warzenlampe,* dating in the 1st century BC. Two fragments of loomweights were identified; one is of a thin circular shape, whereas the other belongs to a rectangular or square model. Furthermore, part of a kiln spacer was found, that is identical to a type attested in a workshop for the production of black glazed ware in *Segni.*[389]

Further dating evidence is provided by the metal finds. These include part of a bronze finger ring, dating in the early or mid-Imperial period, and six coins (figs. 5.10a-f; 5.11a-b).[390] Two coins, issued in 209/208 BC, are Æ-as examples, depicting Janus. The other four coins were struck in the 1st century BC or the early years of the 1st century AD. All coins were minted in Rome.

Most tile fragments are in *impasto chiaro sabbioso,* dating to either the post-Archaic or Republican period; several fragments of depurated tile were collected as well. Structures must have been built using tuff and local *macco* stone, as both categories of building materials were found in large numbers on this site. However, from their spread no wall courses could be deduced. A complete worked tuff block was found in the bushes covering the field boundary. Luxury materials were found in very small numbers and include just a single fragment of marble and two crudely made *tesserae.*

Date

The earliest activity on site 15106 can be dated around the middle of the 5th century BC, on the basis of different coarse ware shapes. Activity in the Archaic period, as was assumed after the first visit to the site, is in my view not probable. Although several shapes found on this site are attested as early as the Archaic period (exclusively traditional coarse wares shapes with long date ranges), no fragments of Archaic tile were observed and no exclusively Archaic shapes were identified. Based on the material evidence, continuity of activity can be assumed until at least the mid-2nd century AD. Soon after AD 150 the site must have been abandoned, since after this date no new types appear to be introduced.

Conclusion

Based on the data from these detailed surface investigations site 15106 appears to be a lot more complex than previously assumed. The distribution of finds reveals two distinct core areas of activity. Core area 1 is, based on the high number of finds and the strong association with pottery of different date and function identified as a residential area. The distribution of tiles suggests the presence of a roofed building of approximately 400m² in this part of the site.

The interpretation of core area 2 is aided by a special find. In one of the units part of a kiln spacer was found; these spacers were used for stacking pottery in the kiln and are thus clear evidence for the production of pottery. The fragment finds a direct parallel in a workshop for the production of black glazed ware in *Signia* (modern-day Segni).[391] The observed density of black glazed ware in association with core area 2, the restricted set of vessel forms and stamp types in this ware, the limited time-span of their production, as well as the association of the kiln spacer with the production of black glazed ware together suggest that this ware was produced on or near our site. The sequence of units, with a dominance of building materials over pottery, is tentatively interpreted as a roofed structure with an industrial character, whereas the density of black glazed ware observed right next to this feature possibly constitutes a dump, associated with the production of this ware.[392]

The manufacturing of black glazed ware pottery is normally closely tied to the production of other types of pottery.[393] On our site many different shapes

388 Stanco 2009.

389 Stanco 1988, 26.

390 The three other metal fragments comprise a piece of silver (fig. 5.11a) for which no parallel was found, and two lumps of bronze.

391 Stanco 1988.

392 No clear wasters were collected. However, it is difficult to identify waster pottery during surveys due to the generally high rate of fragmentation of surface pottery (Pena 2007a, 34). A sample of the black glazed ware fragments was examined by Enrico Stanco; he noticed that several pieces do exhibit large patches of discoloured glaze or show evidence of over-firing, possible characteristics of waster pottery. A similar dump, associated with the production of black glazed ware and flanking a residential area, is known from Iesi, near Ancona on the Adriatic coast (Brecciaroli Taborelli 1998; see also Pena 2007a, 292-95).

393 Stanco 1988; Esteve 2008.

Figure 5.12 Two joining African red slip ware fragments from site 15085-03.

of possible 3rd-century date are found, including both common central Italian coarse ware shapes (jugs, jars, *tegami* and basins/mortars) and amphorae (Graeco-Italic type). However, no wasters of any of these types were found, whereas most of them occur in limited numbers (with the exception of the high-collared almond rims) and exhibit a fair degree of morphological variety. Therefore, the production of any of these types cannot be inferred at present.

The location of this *officina* in an extra-urban location is uncommon, as the production of black glazed ware is traditionally thought to take place at urban centres.[394] This pattern can, however, partly be due to a bias in previous research. Since most rural areas are studied with less intensive research methods than urban areas, structures as discussed here are difficult to identify.[395] Indeed, the suggestion of a pottery workshop at this site was only obtained by a detailed study of distribution patterns based on the collection of all surface materials, and the identification of a single kiln spacer (that of course with a lower surface coverage could easily have been missed). Furthermore, the identification of kilns appears to be particularly difficult based on surface investigations.[396] In the absence of fabric studies, the distributional range of the pottery produced on this site cannot be established with certainty. Stamps similar to the ones found on site 15106 are, however, found on various sites in the Nettuno area, as well as in contexts at *Antium* and *Satricum*.[397] The former town is, because of its nearness, the most likely market for the consumption (and redistribution) of the products manufactured on this site. At the same time, *Antium* forms the likely distribution node for the imported foodstuffs that arrived on site 15106.

To conclude, the detailed surface investigation at site 15106 revealed the presence of a Republican *villa rustica*, with core areas 1 and 2 representing a *pars urbana* and a *pars rustica* respectively. The site's inhabitants produced pottery in the Etrusco-Latial tradition during a brief spell in the mid-3rd century BC.

5.7 Evaluation of the results

Site and intra-site patterning

It appears that on all sites the surface distribution of finds still holds significant information on the site's original morphology. On all sites, the spread of finds does not appear random, but shows patterning. No abrupt changes in find densities are observed, transitions from core to more peripheral areas appear gradual and the most frequently occurring wares show a strong association with the identified core areas. This indicates that at least no large-scale interventions, such as soil movement, have taken place on these sites. On the other hand, the gradual transitions from core to more peripheral areas on all sites suggest limited stochastic displacement of artefacts from their original position.[398] Even such small-scale movements of materials can complicate the identification (and interpretation) of intra-site patterning, as these movements cause a homogenization of the surface assemblage, especially in areas that were in continuous use for activities that required the use of many different pottery wares. This is for example the case in core area 1 on site 15106 as well as in the core areas of sites 15034 and 15085-03, all interpreted as residential areas. Within these core areas, it has not been possible to differentiate rooms or identify chronologically induced patterns. This small-scale movement of artefacts, is further highlighted by the finding of several fitting fragments bearing old fractures, which were

394 For a listing of production centres see Stanco 2009.

395 See Tol & de Haas forthcoming for a summary of the evidence for pottery production and distribution based on the Pontine Region Project-database.

396 See Cavanagh, Mee & James 2005. On a number of sites soil sampling and geophysical investigations revealed the presence of kilns. The intensive study of the surface of these sites did not reveal the presence of these structures.

397 During the revisits (see chapter 3 of this thesis) a fragment of stamp pl.V-XXIX.262-264 was found on site 15153 (pl.III-VIII.22), whereas four fragments of stamp pl.V-XXIX.265-268 were collected (two more from the here discussed site 15106 and single specimens from sites 15034 and 15150 respectively). In the collection of the local museum (see chapter 4 of this thesis) a stamp identical to pl.V-XXIX.270 derives from site 15082, whilst the material sample from site 15262 contains a specimen of pl.V-XXIX.265-268. For identical stamps from *Antium* see Rossini 2007; for *Satricum* see Bouma 1996.

398 This effect is described in detail in Boismier 1997.

Table 5.3 Share of all pottery and share of all diagnostic fragments for the three main ceramic classes on sites 15085-03, 15085-04 and 15106.

Site 15085-03	**Share of all pottery**	**Share of diagnostics**
Amphora	40,20%	11%
Utilitarian pottery	41,29%	19%
African Red Slip	15,95%	66%
Site 15085-04	**Share of all pottery**	**Share of diagnostics**
Amphora	47,87%	1%
Utilitarian pottery	33,60%	24%
African Red Slip	11,99%	73%
Site 15106	**Share of all pottery**	**Share of diagnostics**
Amphora	42,15 %	16 %
Utilitarian pottery	50,00 %	60 %
Black Glazed Ware	3,70 %	18 %

found never more than one unit apart (thus at a distance between zero and eight metres from each other; see fig. 5.12). The survival of these relatively intact site areas is in line with observations made elsewhere when dealing with more or less stable landscapes (see also chapter 2).

In spite of this homogenization, several observations regarding intra-site patterning could still be made. It appears that areas attesting to non-residential activities, relying on a restricted set of ceramics or showing a divergent tile:pottery ratio, can still be identified by the detailed study of surface distributions of artefacts. Examples are core area 2 of site 15106, site 15085-04 and the distribution of terra sigillata on site 15085-03.

As mentioned in the introduction of this chapter, the best comparison for the here discussed intensive on-site surveys is the *Laconia Rural Sites Project* (hereafter LRSP).[399] Although there are differences both in the criteria used for the selection of sites (focusing on small single-period sites only) and the applied method (surface survey combined with geophysical prospection and soil sampling), the obtained results of the LRSP are surprisingly comparable to ours. The sample of sites studied in the course of the LRSP revealed a large degree of diversity between sites that were thought to form a uniform class. Of many of the investigated locations a better assessment of its general function and chronology was obtained.[400] On the other hand, here the identification of intra-site patterning was also difficult. Cavanagh, Mee & Jones conclude that the surface distribution of finds forms a largely reliable reflection of sub-surface features. Furthermore, there was a large degree of correlation between the results of the surface survey, the geophysical survey and the soil sampling. The integrated approach of the project was especially useful for the identification of kilns, as the presence of these structures left no clear traces on the surface.

To conclude, surface assemblages present a homogenized picture of the original palimpsest of a site, probably containing materials from originally different stratigraphical layers. Despite this, however, the intensive on-site surveys carried out within the municipal territory of Nettuno, suggests that in favourable circumstances, *the surface distribution of finds forms a good indicator of the original lay-out of the site.*

Low-density areas

On all sites, zones with relative and absolute low densities of finds were mapped. These range from quite small (15106 and 15085-04) to large, covering an area of up to 20-25 metres (15034, 15085-03). Studies, mainly performed in the 80's and 90's of the last century have tried to explain this phenomenon. The most accepted explanation for these low-density distributions is that they constitute the remains of manure spreads. On middens,

399 For the results of the project see Cavanagh, Mee & James 2005, 281 and further.

400 Although in both cases total samples were collected, sites studied during the LRSP yielded relatively little pottery, ranging from 28 to a maximum of 1793 fragments (Cavanagh, Mee & James 2005, chapter 3). For the Nettuno area already higher figures were noted on some sites during the intensive survey (Attema, de Haas & Tol 2010), whereas the intensive on-site surveys yielded between 528 (15034) and 6549 (site 15085-03) pottery fragments. This must be one of the main reasons for the still low chronological resolution of several of the LRSP samples.

domestic refuse (including pottery) became mixed with manure that was subsequently spread out over gardens and agricultural fields as a fertilizer.[401] Others, however, have objected to the use of such generalizing explanations, stressing that the observed patterns must always be studied in its specific local context.[402]

Considering the few low-density units surrounding the structures identified on sites 15085-04 and 15106, these are best explained as resulting from small-scale artefact displacements caused by post-depositional movement, either by natural or anthropogenic causes. These fragments are thus thought to originate from the original site area, being moved over short distances. The low-density areas surrounding sites 15034 and 15085-03 can, however, not be explained this way. Although on site 15034 it was noted that the site was probably in a more advanced state of degradation than the other sites studied, a clear core area could still be distinguished. In the western part of the site, a small area consistently showed somewhat higher densities of different types of material. Considering the composition of the assemblage, the presence in this area of a small refuse-dump can be hypothesized. The surrounding area, as well as areas to the north, east and south of the nucleus of the site, consistently show low artefact densities. The spread of material in these areas cannot be explained by small-scale lateral movement of artefacts only. This renders the use of this area for discard practices such as a midden probable. On site 15085-03 the core of the site is flanked to the east by a large area with units yielding low-densities of material as well as showing relatively low tile:pottery ratios. Although the area to the east is slightly sloping downwards, the pattern observed is too extensive and coherent to be caused by lateral movement of artefacts. Also in this case the most logical explanation for the thin spread of materials is that these indicate refuse spread out over a large area, possibly intended for the fertilization of soil.[403]

Variation in diagnosticity

The intensive on-site surveys provide insight in the varying diagnosticity of different pottery wares. Table 5.3 compares the share of all collected pottery with the share of diagnostic fragments for the three largest pottery classes on sites 15085-03, 15085-04 and 15106.[404]

Several distinct and consistent differences can be observed between the two values. The first is a clear underrepresentation of amphorae among the diagnostic materials. On all three sites 40 to 50% of all collected pottery fragments belong to amphora; however, they only account for 1 to 16% of all diagnostic fragments. This must be primarily due to the morphology of such vessels, having a long body compared to a small rim diameter, rendering only a small proportion of the whole vessel 'diagnostic'. Another observation is the relatively high diagnosticity of fine ware pottery. On all three sites, the relative share of fine ware fragments is four to five times higher for the diagnostic fragments than for all collected pottery. On site 15106, black glazed ware is the dominant tableware. Shapes in this ware are generally small in size (with a small rim diameter; for example bowls, jugs), rendering a relatively large part of the vessel diagnostic. On the two Imperial sites, African red slip ware constitutes the dominant tableware. These vessels are thought to be relatively durable, facilitating their survival in plough-zone assemblages. Furthermore, many African red slip ware shapes (including the African cookwares) generally have fairly large rim diameters and a rather shallow body. The general morphology of such vessels renders a relatively large part of their shape diagnostic. No consistent deviation was noted for the utilitarian pottery. On both Imperial sites (15085-03 and 15085-04) it accounts for relatively higher shares of all collected pottery, whereas on site 15106 it takes in a somewhat higher share of the diagnostic fragments.

Whereas for closed assemblages corrective measures can be applied (although until now sparsely done), these are less suitable for survey assemblages.[405] For their dating and interpretation we rely heavily on the collected diagnostic pottery; substantial variation in the diagnosticity of different wares thus presents a serious research bias. It appears that on top of a traditional reliance on fine ware pottery for the dating of surface assemblages, this ceramic class also has a higher intrinsic diagnosticity compared to other wares. This phenomenon must be considered among the main contributors to the low number of sites (and the low degree of certain occupation) that is often recorded for periods when access to fine ware pottery was limited. To account for this possible bias additional research into its exact nature and impact is, in my view, urgently needed.

401 Bintliff & Snodgrass 1988a; Wilkinson 1989.

402 Alcock, Cherry & Davis 1994.

403 The low amount of tile compared to pottery possibly is further evidence for such an interpretation, as manuring spreads normally contain more pottery than tile (Alcock, Cherry & Davis 1994, 164; Fentress 2000).

404 Site 15034 is omitted from this table, as on this site a much lower number of diagnostic fragments was collected. In this discussion only rim fragments are considered. African cookware fragments were, as explained earlier, classed together with the African red slip ware.

405 Such corrective measures include calculating the EVE (Estimated Vessel Equivalent) and EVREP (Estimated Vessels Represented). For both methods see Orton 1982. For the application of the EVE on pottery from the Palatine Hill see Pena 2007b.

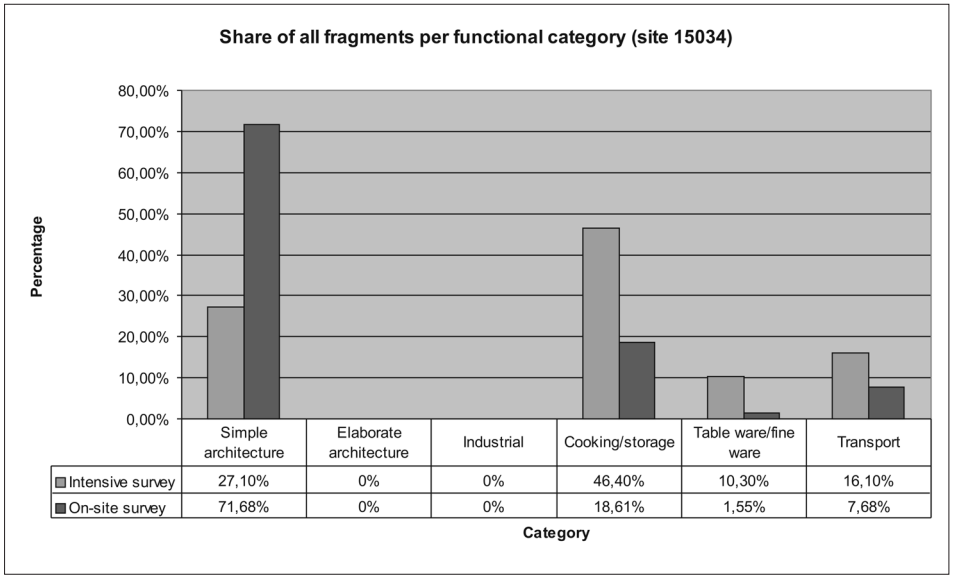


Figure 5.13a Functional composition of the artefact assemblages collected during the intensive survey and the on-site survey on site 15034.

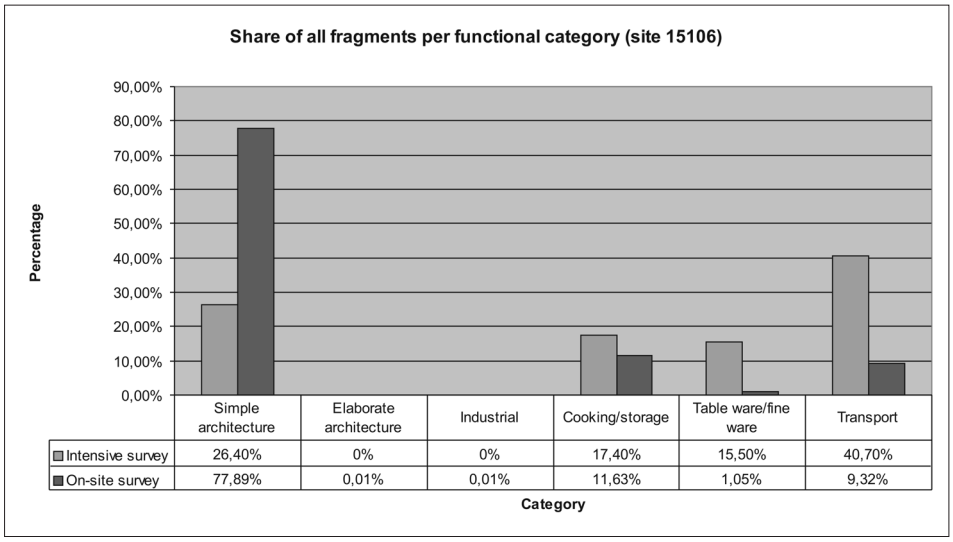


Figure 5.13b Functional composition of the artefact assemblages collected during the intensive survey and the on-site survey on site 15106.

The contribution of the metal detector

The use of the metal detector on the four sites studied resulted in the finding of three (15034), 26 (15085-03), 31 (15085-04) and ten (15106) metal items respectively. These included coins, functional items (e.g. an iron key on site 15085-04) and personal ornaments (a ring, several *fibulae* and a bronze bracelet). However, the contribution of these finds towards the establishment of site function and chronology was limited; only in the case of site 15085-04 the numismatic evidence, together with the pottery data, was used in establishing the moment of abandonment.

A common observation on all four sites is that coins were found outside the core areas.[406] There are several possible explanations for this phenomenon. Firstly, isolated coins most likely were not deposited intentionally, but rather constitute accidental losses. These could have occurred outdoors, where they have only a small chance of being retrieved. When lost indoors, coins were obviously easier to regain. However, those that were not recovered probably became mixed with other refuse that was subsequently deposited somewhere on the premises.[407] The chance of these coins ever being retrieved was unlikely when removed from a 'high activity area'.

The distribution of the coins is possibly also influenced by amateur archaeologists using metal detectors. Although on none of the four sites discussed disturbances of this kind were observed, several interested local people appeared to know exactly what type of coins we were most likely to find on the sites. It is

406 Of the 17 coins found only one was retrieved from an identified core area.

407 Reece 2003, 151.

plausible that amateurs target those areas of sites where the overall density of finds is the highest. This would mean that in those areas metal finds as a rule have been removed from the plough soil, whereas coins contained in the plough soil of more peripheral areas of a site are less likely to be removed.

5.8 Methodological reflections

In this section I will briefly review various aspects of the applied methodology.

Research intensity and grid size: A four by four metre grid was used on all sites. On average, it took three people 30 minutes (thus together 1½ man hours) to complete one unit. This includes setting out the grid, finds collection, classification and selection and scanning the surface of the unit with the metal detector. Using a workday of seven hours, this means that per person/day 4.67 units could be studied. These figures can be compared with those recorded for the LRSP. Here per person/day 2.02 units were studied.[408] However, this lower figure also comprises the soil sampling, whereas somewhat larger units were used (5x5). These figures are obviously much higher than those recorded for a regular intensive survey.[409] The different scale and aims, however, complicate a direct comparison in time-effort between the two methods.

The small unit size of 16m² has, in my view, proven to be effective for the recording of both large and, more importantly, smaller features. As proven by the various joining fragments (see above), the unit size also appears sufficient to successfully neutralize at least part of the stochastic lateral artefact movement. The use of an even smaller unit size would, in my view, not lead to the recognition of even smaller features, as the same limited lateral movement of artefacts is likely to impede their identification. The recorded data is suited to assess whether we could have worked with larger units or with partial sampling of the grid (for example application of a checkerboard system); such an analysis has not yet been performed but is planned for the near future.

Sampling technique: Several valuable insights have been obtained by the recording of all surface pottery. It allowed a more accurate assessment of the chronology of each site, whereas in some cases the distribution of fragments helped identifying spatial developments and specific functional areas (for example core area 2 on site 15106). Furthermore, the total sampling furnished insight in a number of research biases associated with surface surveys (see above). Although another system of pottery recording (for example diagnostic sampling) would have considerably reduced the time spent on each unit, this would have reduced both the analytical and comparative value of the pottery data.

Site dating and interpretation

The large amount of pottery collected on each of the four studied sites allows an accurate assessment of their chronology. This is achieved by overlapping the date ranges of all diagnostic materials, assuming that a period can never be represented by a single fragment, except when its date range falls entirely outside that of all other materials. The start of activity on a site thus corresponds to the moment that date ranges of different ceramic types overlap, whereas the end date of a site corresponds to the moment that no new pottery types are introduced on the site. In practice, this method results in a substantially shorter lifespan for three of the four sites than was assumed based on an earlier study by the GIA. The absence on these sites of exclusively later and earlier materials makes it unlikely that activity on these sites continued beyond the proposed date ranges.[410] For one of the sites, 15085-04, the chronology was extended. Based on a small number of pottery fragments, as well as three coins, activity certainly continues well into the 4th century AD. Based on the - admittedly small – sample collected during an earlier visit, activity in the period AD 100 – 400 was thought to be uncertain.

A rather comforting result is that the original interpretation of three of the four sites was not altered by these intensive on-site surveys. An interpretation as a habitation site was and still is the most plausible for sites 15034, 15085-03 and 15106. However, the intensive on-site surveys did reveal substantial differences in their respective chronology, size and groundplan. On the other hand, the original interpretation of site 15085-04 as an outbuilding to site 15085-03 can no longer be sustained. This small, but elaborately decorated site is now tentatively identified as a road-side chapel/rural shrine.

5.9 Comparing methods

As two of the sites discussed (sites 15034 and 15106) were previously studied during the intensive surveys carried out for the *Carta Archeologica del comune di Nettuno,* the results of the two different fieldwork campaigns can be compared.[411] Since the on-site surveys

408 Cavanagh, Mee & James 2005, 283.

409 For example, during recent intensive surveys by the GIA in the area around Pontinia in the Pontine plain and around the colony of Norba, approximately 0.36 person/day per ha was spent.

410 This reduction in the chronology of these sites should not be surprising, since the earlier assessment of their chronology was based on aggregate dates that take the full date range of each individual fragment into account.

411 For the Carta Archeologica del comune di Nettuno see Attema, de Haas & Tol 2009 and 2011. For a discussion of the general results of the Nettuno surveys see Attema, de Haas & Tol 2010. For a more in depth discussion of the results of these surveys see De Haas 2011.

Table 5.4 Comparison of the total no. of fragments (both raw count and corrected) collected on sites 15034 and 15106 during the intensive survey and the on-site survey.

Site\fieldwork type	*Intensive survey*		*On-site survey*
	Nr of sherds collected	Corrected nr of sherds	
Site 15034	354 fragments	5465 fragments	1875 fragments
Site 15106	465 fragments	4276 fragments	29233 fragments

presented here involved a total coverage of the site's surface as well as collection and classification of all surface materials, this comparison provides us with the opportunity to identify possible biases in the collection of surface materials by intensive survey. To facilitate comparison, the pottery data obtained during the two different types of fieldwork have been grouped in six functional classes (figs. 5.13a/b).[412]

A first observation concerns differences in the number of fragments collected between the two site visits. After correcting for coverage and surface visibility the number of fragments recorded during the intensive survey is seven times lower (for site 15106) and three times higher (site 15034) than for the intensive on-site surveys (table 5.4).[413] Furthermore, several strong dissimilarities are noted in the composition of the two assemblages. These concern the same two functional categories; simple architecture (tile, imbrex) and tableware/fine ware. The samples from the intensive surveys contain a relative proportion of tile that is almost three times as small as that recorded during the on-site survey. Furthermore, the relative share of tableware/fine ware is in both cases more than ten times higher in samples from the intensive survey. These differences cannot be explained by the incidental erroneous classification of individual pieces only; they are most likely caused by a combination of biasing factors associated with intensive surveys, such as surface visibility and varying performances between walkers.[414] It seems likely that tile fragments – as one can imagine especially the smaller pieces – were not collected systematically, probably due to their abundance. The relatively strong presence of tablewares/fine wares in assemblages collected during the intensive survey is possibly due to the relatively high recognisability of the distinct surface coating or slip that characterizes these wares.

Between the two methods, differences in retrieval rates for pottery associated with cooking/storage and transport exist as well, although these are less dramatic. Since the noted lower percentage of tile fragments collected during the intensive survey results in higher relative shares for all other functional classes, it is wiser to compare the relative differences between the retrieval rates for these material classes instead of their relative share of the total assemblage. When taking this into account, the sample from the intensive survey on site 15106 includes far more pottery associated with transport than fragments associated with cooking/storage, whereas the latter category was recorded in relatively higher numbers during the on-site survey on the same site. In my view, differences between the ratios noted for these two functional categories are probably conditioned by the rather different build of the vessels they incorporate. Amphorae, due to their durable build with relatively thick walls (since intended for long-distance transport) are preserved in larger pieces, facilitating their recognition.[415] On the other hand, on site 15034 a similar retrieval rate between the number of fragments associated with cooking/storage and transport is recorded with both methods.[416]

As mentioned earlier, site 15034 is probably in an advanced state of degradation. One of the indications for this is the extremely high fragmentation rate of all fragments, visible in a very low 'average weight per find' (see table 5.1). However, when analysing the rate of fragmentation for fragments of the cooking/storage and amphora category, the figures are surprisingly similar to those noted on sites 15085-03 and 15085-04.[417]

412 The analysis uses six distinct categories: 1) simple architecture (tile, imbrex); 2) elaborate architecture (luxury indicators; *tesserae*, plaster, window glass etc.) 3) industrial (slags, oven remains, industrial artefacts); 4) cooking/storage (all coarse ware shapes, including dolia); 5) table ware/fine ware (black glazed ware, terra sigillata, African red slip ware, *ceramica a pareti sottili*; other fine wares); 6) transport (amphorae).

413 See chapter 2 for difficulties associated with correction procedures.

414 See also Van de Velde 2001, 34-35.

415 On site 15106 no weights were recorded, unfortunately. This phenomenon was, however, clearly observed on sites 15085-03 and 15085-04. Here, amphora fragments on average weigh ca. 21 grams (on both sites). Excluding the storage vessels found on both sites, the average fragment of coarse/cookware weights 3.6 grams (site 15085-03) and 4.54 grams (site 15085-04).

416 The relative share that pottery of these categories account for is 2.5 times (storage/cooking) and 2.1 times (transport) higher in samples from the intensive survey. This is mainly caused by the earlier identified bias associated with the collection of tile (2.6 times lower in samples from the intensive survey).

417 On site 15034 the average weight of an amphora fragment was 23.82 grams. The average weight of a fragment of cook/coarse ware is 4.81 grams.

This indicates that this lower average weight per find is mainly caused by a higher rate of fragmentation of tiles on this site. The almost identical average weight for pottery associated with cooking/storage (ca. four grams per fragment) and transport (ca. 21 grams per fragment) recorded on sites 15034, 15085-03 and 15085-04 suggests that the fragmentation of these wares in surface assemblages reaches an equilibrium after repeated ploughing.

Conclusions

A comparison between samples taken from the same site in two different fieldwork episodes provides unambiguous evidence for several biasing factors associated with intensive survey. In samples collected during these intensive surveys tile fragments appear to be heavily underrepresented, whereas a strong overrepresentation of tableware/fine ware is evident. Furthermore, a less intensive method of surface inspection in some cases appears to favour the finding of amphora fragments compared to fragments of pottery associated with cooking/storage. It must be stressed, however, that this study is based on two sites only and further work is necessary to reveal possible consistent distortions.[418] Several of the observations made above could, for example, be examined by comparing weights recorded for both intensive and on-site surveys. Since during intensive surveying small-sized fragments are possibly overseen (especially for the simple architecture and the cooking ware/storage categories), such a comparison should reveal lower average weights for these categories in on-site survey samples.

5.10 Concluding remarks

The intensive on-site surveys carried out on four sites within the Nettuno municipality have significantly changed our knowledge of their chronology, function and lay-out. On site 15034, the remains of a small mid-Republican farmstead were recorded. Site 15085-03 is identified as a substantial residential structure, situated right next to a Roman road forming a connection with ancient *Antium*. The site was continuously inhabited between the last quarter of the 1st and the early 6th century AD and, based on its surface distribution of finds, shows various changes to its lay-out during its lifespan.

On site 15085-04 the presence of a small, elaborately decorated, structure was identified. The site is tentatively interpreted as a small roadside chapel that shows uninterrupted use between the last quarter of the 1st century AD until at least the mid-4th century AD. On the fourth site studied, 15106, two distinct core areas were identified; core area 1 represents the remains of a residential structure, whereas core area 2 is associated with industrial activity, probably for the production of black glazed ware. Based on the surface materials, the site was continuously occupied between the second half of the 5th century BC and the mid-2nd century AD.

For now, the detailed surface investigations at four sites provide insight into the complexity and diversity of human activity in the *ager* of *Antium* in the Roman period. A better knowledge of the chronology and typology of individual sites in my view will ultimately lead to a better understanding of the historical development of the study area as a whole.

418 It must, for example, be noted that the two sites discussed recorded relatively low tile shares compared to other sites found during the intensive survey (De Haas 2011), possibly partly conditioned by factors such as surface visibility.

Chapter 5 Typological table

Site 15034

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V-I.1	Rim of an amphora	350 – 0 BC	Graeco-Italic/Dressel 1	C5
V-I.2	Rim of an amphora	-	-	H5
V-I.3	Rim of an amphora	225 – 175 BC	Van der Werff form 3	E6
V-I.4	Rim of an amphora	225 – 175 BC	Van der Werff form 3	D6

Utilitarian pottery				
V-I.5	Rim of a basin?	-	-	E4
V-I.6	Rim of a jug	450 – 200 BC	Similiarities with Carandini, d'Alessio & di Giuseppe 2007, TAV.30, no.270	F5
V-I.7	Rim of a pan	175 – 125 BC	Torelli & Pohl 1973, 134, fig.70, Type IX; Dyson 1976, fig.11.8	F1
V-I.8	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372 (Olla type IV); Dyson 1976; e.g. fig. 2-3.19-28	E9
V-I.9	Rim of a jar	-	-	E4
V-I.10	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372 (Olla type IV); Dyson 1976; e.g. fig. 2-3.19-28	E8
V-I.11	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372 (Olla type IV); Dyson 1976; e.g. fig. 2-3.19-28	G4
V-I.12	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372 (Olla type IV); Dyson 1976; e.g. fig. 2-3.19-28	F6
V-I.13	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	C2
V-I.14	Rim of a small bowl	275 – 150 BC?	Although our example is somewhat smaller and has a more pronounced interior thickening, the fabric and the shape resemble Dyson 1976, fig.5.62	A1
V-I.15	Rim of a bowl/jar	-	-	B4
V-II.16	Rim of a pan	250 – 200 BC?	Dyson 1976, fig.8.14	C2
V-II.17	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2)	D3
V-II.18	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 1)	I5
V-II.19	Rim of a lid	-	-	H5
V-II.20	Knob of a lid	-	-	G5

Black glazed ware				
V-II.21	Rim of a bowl	250 – 200 BC	Bernardini 1986, TAV.XXXVII..462 (= Morel 1981, pl.69, Serie 2745a1)	E1

Chapter 5 Typological table, continued

Black glazed ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V-II.22	Rim of a bowl	300 – 250 BC	Morel 1981, pl.60, Serie 2621	F6
V-II.23	Stamped base	290 – 260 BC	Bernardini 1986, TAV.LVIII, stamp type 116; Stanco 2009, GPS phase II/III	E5

Coins				
Fig. 5.2	Coin	75 BC	C.Egnaius junior AR denarius	A3

Site 15085-03

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V-II.1	Rim of an amphora	AD 300 - 400	Africana IIIa (Keay 25)	I6
V-II.2	Rim of an amphora	AD 250 – 300	Africana IIC	Off-site
V-II.3	Rim of an amphora	AD 150 – 300	Africana I	H6
V-II.4	Rim of an amphora	AD 250 – 300	Africana IID	J3
V-II.5	Rim of an amphora	AD 175 – 250	Africana IIA	L5
V-II.6	Rim of an amphora	AD 175 – 250	Africana IIA	I7
V-II.7	Rim of an amphora	AD 175 – 250	Africana IIA	F5
V-II.8	Rim of an amphora	AD 175 – 250	Africana IIA	F8
V-III.9	Rim of an amphora	AD 250 – 300	Africana IID	B6
V-III.10	Rim of an amphora	AD 375 – 450	Africana IIIC	E7
V-III.11	Rim of an amphora	AD 375 – 450	Africana IIIC	A3
V-III.12	Rim of an amphora	AD 150 – 300	Tripolitana III	B8
V-III.13	Rim of an amphora	AD 500 – 675	Spatheion 3	Off-site
V-III.14	Rim of an amphora	AD 350 – 700	Keay 52	E5
V-III.15	Rim of an amphora	AD 50 – 300	Gauloise 4	J3
V-III.16	Rim of an amphora	AD 75 – 225	Dressel 20	O7
V-III.17	Rim of an amphora	AD 75 – 225	Dressel 20	I7
V-III.18	Rim of an amphora	-	-	O7
V-III.19	Rim of an amphora	-	-	P2
V-III.20	Rim of an amphora	25 BC – AD 100	Dressel 7-11 series	Off-site
V-III.21	Rim of an amphora	-	-	H5

Chapter 5 Typological table, continued

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V-III.22	Rim of an amphora	-	-	H5
V-III.23	Handle of an amphora	75 BC – AD 200	Haltern 70	Off-site
V-III.24	Handle of an amphora	75 BC – AD 200	Haltern 70	H6
V-III.25	Handle of an amphora	75 BC – AD 200	Haltern 70	B6
V-IV.26	Handle of an amphora	AD 50 – 300	Gauloise 4	K4
V-IV.27	Handle of an amphora	AD 50 – 300	Gauloise 4	G5
V-IV.28	Handle of an amphora	AD 75 – 225	Dressel 20	Off-site
V-IV.29	Handle of an amphora	AD 75 – 225	Dressel 20	Off-site
V-IV.30	Handle of an amphora	AD 25 – 225	Cretoise 2	H5
V-IV.31	Handle of an amphora	-	-	Off-site
V-V.32	Handle of an amphora	-	-	I2
V-V.33	Handle of an amphora	AD 200 – 600	Possibly Almagro 51A/B amphora	I4
V-V.34	Handle of an amphora	-	-	D8
V-V.35	Handle of an amphora	-	-	H5

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V-V.36	-	-	-	E4
V-V.37	Rim of a casserole	AD 400 – 500	Munzi *et al.* 2004, 105-107, TAV.IV-V. 35, 37 & 40; see also *infra*, TAV.VI-VII.1	G1
V-V.38	Rim of a jug/amphora?	-	-	Off-site
V-V.39	Rim of a jar	AD 475 – 575	Fogagnolo 2004, 593, TAV.VIII. 64; Attema, de Haas & Tol 2011, 155, fig. C.63	D7
V-V.40	Rim of a jug?	-	-	E7
V-V.41	Rim of a jar	-	-	F3
V-V.42	Rim of a jar	25 BC – AD 100	Olcese 2003, TAV.X (Olla Type 7)	G7
V-V.43	Rim of a jug?	-	-	H7
V-V.44	Rim of a jar	-	-	I7
V-V.45	Rim of a jar	25 BC – AD 100	Olcese 2003, TAV.X (Olla Type 7)	Off-site
V-V.46	Rim of a jar	-	-	Off-site
V-V.47	Rim fragment	-	-	P1
V-V.48	Rim of a basin	AD 275 – 400	Bonifay 2004, 264 (Bassin Uzita 3B); Frova & Bertino 1973, TAV.213.1	I8

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.VI.49	Rim of a flanged basin	AD 500 – 700	Ricci 1998, 361, fig.5	Off-site
V.VI.50	Rim of a bowl	-	-	G4
V.VI.51	Rim of a large bowl/lid	-	-	F8
V.VI.52	Rim of a bowl	-	-	E4
V.VI.53	Rim of a bowl	-	-	C7
V.VI.54	Rim of a bowl	-	-	N1
V.VI.55	Rim of a bowl	-	-	I3
V.VI.56	Rim of a bowl?	-	-	I2
V.VI.57	Rim of a bowl	-	-	J4
V.VI.58	Rim of a basin/mortar	AD 150 – 200	Potter & King 1997, 342, fig.227.95	H8
V.VI.59	Rim of a bowl?	-	-	H4
V.VI.60	Rim of a bowl	AD 350 – 450	Aylwin Cotton 1979, 183, fig.59.14	F4
V.VI.61	Rim fragment	-	-	E1
V.VI.62	Rim of a bowl	-	-	A4
V.VI.63	Rim of a cup	-	See *infra*, pl.III-XX.35	H4
V.VI.64	Rim of an *olpai*	AD 0 – 200	Resembles Olcese 2003, TAV.XXX (Olpai Type 3)	N7
V.VI.65	Rim fragment	-	-	N7
V.VI.66	Rim of a jug	-	-	H9
V.VI.67	Rim of a jug/jar	AD 0 – 100	Zevi & Carta 1978, brocca/olla Type Vb; Olcese 2003, TAV.XXIII (Olla ansata Type 3)	H7
V.VI.68	Rim of a dish?	-	-	Off-site
V.VII.69	Rim of a lid	-	-	A1
V.VII.70	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	E5
V.VII.71	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	F6
V.VII.72	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	G6
V.VII.73	Rim of a lid	-	-	G4
V.VII.74	Rim of a lid	AD 0 – 100	Pohl 1978, 403, no.278	L5
V.VII.75	Rim of a lid	AD 50 – 200	Olcese 2003, TAV.XIX (Coperchio Type 4)	L3
V.VII.76	Rim of a lid	-	-	N3
V.VII.77	Rim of a lid	AD 50 – 200	Olcese 2003, TAV.XIX (Coperchio Type 4)	N3
V.VII.78	Rim of a lid	AD 0 – 200	Duncan 1964, 82, Form 48; Olcese 2003, TAV.XIX (Coperchio Type 3)	O2

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.VII.79	Knob of a lid	-	-	Off-site
V.VII.80	Handle fragment	-	-	I7
V.VII.81	Base fragment	-	-	G4
Fine ware - Terra sigillata				
V.VII.82	Rim of a cup	AD 30 – 100	Ettlinger *et al.* 1990, 113, Form 34	Off-site
V.VII.83	Rim of a cup	AD 30 – 100	Ettlinger *et al.* 1990, 113, Form 34	N3
V.VII.84	Rim of a bowl/cup	-	-	N6
V.VII.85	Rim of a plate?	-	-	O2
V.VII.86	Rim of a plate?	-	-	C5
V.VII.87	Decorated wall fragment	-	-	O2
V.VII.88	Decorated wall fragment	-	-	D4
V.VII.89	Stamped base	AD 60 – 150	Oxé, Comfort & Kenrick 2000, 293, stamp type 1213.36	Off-site
V.VII.90	Stamped base	AD 50 – 100	Oxé, Comfort & Kenrick 2000, 310-311, stamp type 1342	P2
Fine ware - African red slip ware				
V.VIII.91	Rim of a dish	AD 100 – 150	Hayes 1972, 20, form 3C	E6
V.VIII.92	Rim of a dish	AD 100 – 150	Hayes 1972, 20, form 3C	F4
V.VIII.93	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	F4
V.VIII.94	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	F9
V.VIII.95	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	F9
V.VIII.96	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	H1
V.VIII.97	Rim of a dish	-	-	H3
V.VIII.98	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B	G8
V.VIII.99	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	B1
V.VIII.100	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	K2
V.VIII.101	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B	K3
V.VIII.102	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B	I4

Chapter 5 Typological table, continued

Fine ware - African red slip ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.VIII.103	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B	H4
V.VIII.104	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	A5
V.VIII.105	Rim of a casserole	AD 150 – 225	Hayes 1972, 40, form 14A	A6
V.VIII.106	Rim of a casserole	AD 150 – 225	Hayes 1972, 40, form 14A	I1
V.VIII.107	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	H8
V.IX.108	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	H4
V.IX.109	Rim of a bowl	-	-	D3
V.IX.110	Rim of a bowl	-	-	I6
V.IX.111	Rim of a bowl	AD 150 – 225	Hayes 1972, 40, form 16; Bonifay 2004, 158; Atlante I 1981, TAV.XVI.10-11	I7
V.IX.112	Rim of a bowl	AD 150 – 225	Hayes 1972, 40, form 16; Atlante I 1981, TAV.XVI.11 (Type Lamboglia 3C)	H2
V.IX.113	Rim of a bowl	AD 150 – 250	Hayes 1972, 40, form 17; Atlante I 1981, TAV.XVII.5-10 (Form 17a)	F4
V.IX.114	Rim of a bowl	AD 150 – 250	Hayes 1972, 40, form 17; Atlante I 1981, TAV.XVII.5-10 (Form 17a)	F3
V.IX.115	Rim of a bowl	AD 150 – 250	Hayes 1972, 40, form 17A; Atlante I 1981, TAV.XVII.7	I5
V.IX.116	Rim of a bowl	AD 150 – 250	Hayes 1972, 40, form 17; Atlante I 1981, TAV.XVII.5-10 (Form 17a)	O2
V.IX.117	Rim of a bowl	AD 200 – 250	Bonifay 2004, 158; Hayes 1972, 50, form 27. For dating: Atlante I 1981, 54	M4
V.IX.118	Rim of a bowl	AD 200 – 250	Bonifay 2004, 158; Hayes 1972, 50, form 27. For dating: Atlante I 1981, 54	K2
V.IX.119	Rim of a bowl	AD 200 – 250	Bonifay 2004, 158; Hayes 1972, 50, form 27. For dating: Atlante I 1981, 54	G5
V.IX.120	Rim of a bowl	AD 200 – 250	Bonifay 2004, 158; Hayes 1972, 50, form 27. For dating: Atlante I 1981, 54	E1
V.IX.121	Rim of a bowl	AD 200 – 250	Bonifay 2004, 158; Hayes 1972, 50, form 27. For dating: Atlante I 1981, 54	F1
V.IX.122	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981, TAV.XXVIII.14	E5
V.IX.123	Rim of a bowl	AD 230/40 – 325	Hayes 1972, 68, form 50A; Atlante I 1981, TAV.XXVIII.10 (Type Lamboglia 40bis)	F4
V.IX.124	Rim of a bowl	AD 300 – 360	Hayes 1972, 68, form 50B; Atlante I 1981, TAV.XXVIII.11 (Type Lamboglia 40)	H2
V.IX.125	Rim of a bowl	AD 300 – 360	Hayes 1972. 68, form 50A; Atlante I 1981, TAV.XXVIII.11 (Type Lamboglia 40)	K7
V.IX.126	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981, TAV.XXVIII.14	L5
V.X.127	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981, TAV.XXVIII.14	Off-site
V.X.128	Rim of a bowl	AD 200 – 300	Bonifay 2004, 158, no.19; Hayes 1972, 54; Atlante I 1981, TAV.XVII.19 & TAV. XVIII.1	N1
V.X.129	Rim of a bowl	AD 200 – 300	Bonifay 2004, 158, no.19; Hayes 1972, 54; Atlante I 1981, TAV.XVII.19 & TAV. XVIII.1	E3
V.X.130	Rim of a dish	AD 320 – 420	Hayes 1972, 98, form 59; Hayes 2008, Fig.33.1051-1056.	E7

Chapter 5 Typological table, continued

Fine ware - African red slip ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.X.131	Rim of a dish	AD 320 – 420	Hayes 1972, 98, form 59; Hayes 2008, Fig.33.1051-1056.	F3
V.X.132	Rim of a small bowl	AD 220/40 – 300	Hayes 1972, 58, form 44; Atlante I 1981, TAV.XXX.7.	B3
V.X.133	Rim of a dish	AD 325 – 400	Closely resembles Mackensen 1993, TAV.54, Form 4.4; Hayes 2008, fig.33.1060-1061 (=Hayes 1972, 102, form 61A); Atlante I 1981, TAV.XXXV.2 (Type Lamboglia 54)	C3
V.X.134	Rim of a dish	AD 300 – 375	Hayes 1972, 92, variant of form 58; Atlante I 1981, TAV.XXXII.2-6	F4
V.X.135	Rim of a large plate	AD 350 – 400	Hayes 1972, 114, form 67; Bonifay 2004, 172 (Variant A, considering flat rim)	F5
V.X.136	Rim of a bowl?	-	-	H3
V.X.137	Stamped base	AD 350 – 380	Hayes 1972, 230, stamp type 2d & 234, stamp type 31m; Atlante I 1981, TAV. LVI.27 & TAV.LVII.50	J2
V.X.138	Stamped base	AD 350 – 380	Hayes 1972, 234, stamp type 31m; Atlante I 1981, TAV.LVI.27	K3
V.X.139	Stamped base	AD 440 – 500	Atlante I 1981, TAV.LVI.46; Hayes 1972, 250, stamp type 137g	B1
V.X.140	Handle fragment	-	-	J2
Utilitarian pottery – African cookware				
V.X.141	Rim of a casserole	AD 175 – 300	Hayes 1972, 202, form 181; Bonifay 2004, 212, form 181C	F5
V.X.142	Rim of a casserole	AD 375 – 425	Atlante I 1981, TAV.CVI.6 (Type Ostia IV)	Off-site
V.X.143	Rim of a casserole	AD 150 –250	Resembles Atlante I 1981, TAV.CVIII (Type Ostia I)	J1
V.X.144	Rim of a casserole	AD 150 – 300	Hayes 1972, 206, form 197; Atlante I 1981, TAV.CVII.6/7 (Type Ostia III); Bonifay 2004, 224	Off-site
V.XI.145	Rim of a lid	AD 175 – 300	Hayes 1972, 202, form 182; Bonifay 2004, 216, form 181C	D4
V.XI.146	Rim of a lid	AD 175 – 250	Bonifay 2004, 222 (=Hayes 1972, 202, form 185B)	H6
V.XI.147	Rim of a lid	AD 150 – 400	Atlante I 1981, TAV.CIV.7 (Type Ostia 1 = Hayes 1972, 202, form 185?)	Off-site
V.XI.148	Rim of a lid	-	-	P5
V.XI.149	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196; Bonifay 2004, 226; Atlante I 1981, TAV.CIV.3	Off-site
V.XI.150	Rim of a lid	AD 175 – 250	Bonifay 2004, 222 (=Hayes 1972, 202, form 185B)	G3
V.XI.151	Rim of a lid	AD 175 – 250	Bonifay 2004, 222 (=Hayes 1972, 202, form 185B)	G6
V.XI.152	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196; Bonifay 2004, 226; Atlante I 1981, TAV.CIV.3	N1

Chapter 5 Typological table, continued

Fine ware - Ceramica a pareti sottili				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XI.153	Rim of a cup	-	-	Off-site
V.XI.154	Rim of a cup	-	-	P6
V.XI.155	Rim of a jar/cup	-	-	A7
V.XI.156	Wall and handle fragment	-	-	A1

Glass				
V.XI.157	Rim of a cup	AD 300 – 400	Potter & King 1997, 277, fig.188.91	F4
V.XI.158	Rim of a bowl	-	-	H6
V.XI.159	Rim of a bowl/dish	-	-	I4
V.XI.160	Base fragment	AD 0 - 100	Almagro-Gorbea 1982, 566, no.57	J5
V.XI.161	Base fragment	-	-	E7
V.XI.162	Base fragment	AD 175 – 225	Potter & King 1997, 272, fig.186.59	J5
V.XI.163	Base fragment	AD 100 – 250	Ricci 1985, 210, TAV.52.3	H4

Coins				
Fig. 5.4a	Coin	AD 367 – 375	Gratianus Æ 3	J2
Fig. 5.4b	Coin	AD 238 – 244	Gordianus III Antoninianus	D6
Fig. 5.4c	Coin	AD 307 – 337	Constantinus I Æ 3	D6
Fig. 5.4d	Coin	AD 270 – 275	Claudius II Gothicus Æ Antoninianus	E5
Fig. 5.4e	Coin	AD 79	Titus AR denarius	M3
Fig. 5.4f	Coin	AD 75	Vespasianus AR denarius	A1

Metal artefacts				
Fig. 5.5a	Lead repair	Roman	-	E8
Fig. 5.5b	Bronze *borchietta*	Roman	Serlorenzi & di Giuseppe 2009, 588, fig.13	G5
Fig. 5.5c	Bronze fibula	AD 100 – 300	Mills 2000, 46, no.94	G6
Fig. 5.5d	Iron chain	Imperial	Simpson 2000, pl.34.16 & pl.34.17	G6
Fig. 5.5e	Bronze buckle?	-	-	J1

Chapter 5 Typological table, continued

Metal artefacts				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
Fig. 5.5f	Silvered bronze leaf-shaped pendant	AD 50 – 150	Nicolay 2005, 201, fig.5.8.7 & 438-443; Mills 2000, 75-76, RB220/224; Deschier-Erb 1999, 55-56, Anhänger 558	Off-site
Not depicted	Bronze fibula	AD 0 - 100	Hattatt 2007, 307, figs.780 and 1466; Mackreth 1973, 27-28, no.30	J7

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Building materials				
V.XII.1	Decorated tile	-	-	H3
V.XII.2	Stamped tile	-	-	J5

Amphorae				
V.XII.3	Handle of an amphora	AD 100 – 300	Campanian almond rim amphora	D1

Utilitarian pottery				
V.XII.4	Rim of a basin	AD 200 – 500	Keay *et al.* 2005, 215, no.70.5; Bonifay 2004, 262 (Basin type Uzita 2); Frova & Bertino 1973, TAV.74.20 & TAV.153.94	B2
V.XII.5	Rim of a jug	-	-	A5
V.XII.6	Rim fragment	-	-	A2
V.XII.7	Rim of a bowl/lid	-	-	A3
V.XII.8	Fragment of a cooking stand	Unknown	Aylwin Cotton 1979, 164, fig.50.8 (Unstratified)	B3
V.XII.9	Rim of a lid	-	-	B3
V.XIII.10	Rim of a lid	-	-	C1
V.XIII.11	Handle fragment	-	-	A1
V.XIII.12	Handle fragment	-	-	B2

Fine ware - African red slip ware				
V.XIII.13	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B; Bonifay 2004, 158	J4
V.XIII.14	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B; Bonifay 2004, 158	I3
V.XIII.15	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B; Bonifay 2004, 158	C2
V.XIII.16	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A; Bonifay 2004, 158	B4
V.XIII.17	Rim of a bowl	AD 200 – 250	Hayes 1972, 40, form 14B; Bonifay 2004, 158	B2

Chapter 5 Typological table, continued

Fine ware - African red slip ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XIII.18	Rim of a bowl	AD 200 - 250	Hayes 1972, 40, form 14B; Bonifay 2004, 158	A3
V.XIII.19	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981, TAV.XXVIII.14	F3
V.XIII.20	Rim of a mug	AD 100 – 200	Hayes 1972, 181, form 138 (considering relation between diameter and height); Atlante I 1981, TAV.XIX.6	E2
Fine ware - Ceramica a pareti sottili				
V.XIII.21	Rim of a jug	-	-	A3
V.XIII.22	Rim of a bowl	-	-	A4
V.XIII.23	Rim fragment	-	-	J3
V.XIII.24	Decorated wall fragment	AD 50 – 100	Aylwin Cotton & Métraux 1985, 203-208 (Early Colour-coated wares); for decoration see for example 207, no.16	C1
V.XIII.25	Decorated wall fragment	AD 25 – 75	Marabini Moevs 1973, pl. 52, nos.488-490	D2
Glass				
V.XIV.26	Rim of a bowl?	-	-	C1
Miscellaneous				
V.XIV.27	Architectonic fragment	-	-	B2
V.XIV.28	Architectonic fragment	Unknown	Carandini & Panella 1970, TAV.XLV.652	B4
Coins				
Fig. 5.7a	Coin	AD 161 – 175	Faustina AR denarius	E4
Fig. 5.7b	Coin	AD 324 – 337	Constantinus II/Constantius II Æ 3	H5
Fig. 5.7c	Coin	AD 337 – 340	Constantinus II Æ 3	H3
Fig. 5.7d	Coin	4th century AD	Unidentified Æ 3	A1
Metal artefacts				
Fig. 5.8a	Bronze fibula	AD 200 – 400	Riha 1979, 174, no.1463; Allason-Jones & Miket 1984, 100-102, type 3.44	B2
Fig. 5.8b	Iron key	Imperial	Brunner 1988, 50-63; Ceriez 2004, 44-45	C1
Fig. 5.8c	Bronze fibula	AD 100 – 200	Hattatt 1994, 116, fig.51; Hattatt 2007, 336, fig.195	F4

Chapter 5 Typological table, continued

Metal artefacts				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
Fig. 5.8d	Bronze bracelet	Imperial	Wilmott 1997, 271, fig.182.5	H5

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Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XIV.1	Rim of an amphora	150 – 0 BC	Van der Werff, form 2	I4
V.XIV.2	Rim of an amphora	150 – 0 BC	Van der Werff, form 2	A5
V.XIV.3	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	C1
V.XIV.4	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	C5
V.XIV.5	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	E2
V.XIV.6	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	F5
V.XIV.7	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	K3
V.XIV.8	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	K3
V.XIV.9	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	M3
V.XIV.10	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	M5
V.XIV.11	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	M5
V.XIV.12	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	P5
V.XIV.13	Rim of an amphora	225 – 175 BC	Van der Werff, form 3	P4
V.XV.14	Rim of an amphora	350 – 150 BC	Graeco-Italic	P6
V.XIV.15	Rim of an amphora	350 – 150 BC	Graeco-Italic	B5
V.XV.16	Rim of an amphora	350 – 150 BC	Graeco-Italic	E3
V.XV.17	Rim of an amphora	350 – 150 BC	Graeco-Italic	O4
V.XV.18	Rim of an amphora	350 – 150 BC	Graeco-Italic	H2
V.XV.19	Rim of an amphora	350 – 150 BC	Graeco-Italic	J2
V.XV.20	Rim of an amphora	350 – 150 BC	Graeco-Italic	N7
V.XV.21	Rim of an amphora	350 – 150 BC	Graeco-Italic	O7
V.XV.22	Rim of an amphora	350 – 0 BC	Graeco-Italic/Dressel 1	M8
V.XV.23	Rim of an amphora	350 – 50 BC	Graeco-Italic/Dressel 1A	O3
V.XVI.24	Rim of an amphora	350 – 150 BC	Graeco-Italic	P3
V.XVI.25	Rim of an amphora	125 – 0 BC	Dressel 1B	P2

Chapter 5 Typological table, continued

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XVI.26	Rim of an amphora	125 – 0 BC	Dressel 1B	O6
V.XVI.27	Rim of an amphora	125 – 0 BC	Dressel 1B	N7
V.XVI.28	Rim of an amphora	125 – 75 BC	Dressel 1C	C4
V.XVI.29	Rim of an amphora	125 – 0 BC	Dressel 1B	P5
V.XVI.30	Rim of an amphora	150 – 50 BC	Dressel 1A	K6
V.XVI.31	Rim of an amphora	-	-	M7
V.XVI.32	Rim of an amphora	25 BC – AD 175	Dressel 2-4 Catalan	H1
V.XVII.33	Rim of an amphora	25 BC – AD 175	Dressel 2-4 Catalan	Off-site
V.XVI.34	Rim of an amphora	75 BC – AD 100	Dressel 2-4 Italic	P2
V.XVII.35	Rim of an amphora	AD 0 – 100	Gauloise 3	M3
V.XVII.36	Rim of an amphora	100 BC – AD 200	Frova & Bertino 1973, TAV.214.27 (Dressel 5)	O3
V.XVII.37	Rim of an amphora	75 BC – AD 200	Haltern 70	O3
V.XVII.38	Rim of an amphora	-	-	F6
V.XVII.39	Rim of an amphora	75 BC – AD 75?	Probably Dressel 2-4	Q2
V.XVII.40	Handle of an amphora	75 BC – AD 75	Dressel 2-4	L2
V.XVII.41	Handle of an amphora	75 BC – AD 75	Dressel 2-4 Italic	N8
V.XVII.42	Handle of an amphora	25 BC – AD 175	Dressel 2-4 Catalan	Off-site
V.XVII.43	Handle of an amphora	75 BC – AD 75	Dressel 2-4 Italic	Off-site
V.XVII.44	Handle of an amphora	25 BC – AD 175	Dressel 2-4 Catalan	G2
V.XVII.45	Handle of an amphora	75 BC – AD 200	Haltern 70	Off-site
V.XVIII.46	Handle of an amphora	AD 50 – 300	Gauloise 4	E5
V.XVIII.47	Handle of an amphora	-	-	N3
V.XVIII.48	Handle of an amphora	-	-	N8
V.XVIII.49	Handle of an amphora	-	-	A2
V.XVIII.50	Handle of an amphora	-	-	E2
V.XVIII.51	Handle of an amphora	-	Campanian fabric: Graeco-Italic/Dressel 1?	Q4
V.XVIII.52	Handle of an amphora	-	-	Off-site

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XVIII.53	Rim of a dolium	mid-Republican	Resembles Lambrechts 1996, 123, no.302 (Impasto Chiaro Sabbioso)	F5
V.XVIII.54	Rim of a dolium	-	-	L5
V.XIX.55	Rim of a large basin	-	-	E2
V.XIX.56	Rim of a mortar	450 – 400 BC	Carandini, d'Alessio & di Giuseppe 2007, TAV.19.155; Bouma 1996, Plate CXI, no.T34	E2
V.XIX.57	Rim of a mortar	550 – 200 BC	Olcese 2003, TAV.XXXV (Bacini/Mortaria Type 2); Lambrechts 1989, 201, no.551; Gori & Pierini 2001, TAV.V.60; Carandini, d'Alessio & di Giuseppe 2007, TAV.32.28; d'Alessio & di Giuseppe 2005, 186, fig.10.3	N6
V.XIX.58	Rim of a mortar	550 – 200 BC	Olcese 2003, TAV.XXV (Bacini/Mortaria Type 2); Lambrechts 1989, 201, no.550	N6
V.XIX.59	Rim of a mortar	550 – 400 BC	Olcese 2003, TAV.XXXV (Bacini/Mortaria Type 2); Gori & Pierini 2001, TAV.1.20; Carandini, d'Alessio & di Giuseppe 2007, 517, fig.212.A4; Carafa 1995, 240, form 652	D5
V.XIX.60	Rim of a mortar	550 – 200 BC	Olcese 2003, TAV.XXXV (Bacini/Mortaria Type 2); Gori & Pierini 2001, TAV.3, Type B (Variant B1)	E1
V.XIX.61	Rim of a mortar	600 – 200 BC	Gori & Pierini 2001, TAV.5-7, Type C (Variant C3?); Olcese 2003, TAV.XXXIV (Bacini/Mortaria Type 1); De Waele, Fontaine & Lambrechts 1989, 73	O3
V.XIX.62	Rim of a mortar	600 – 300 BC	Bouma 1996, pl. CX, no.T32; Gori & Pierini 2001, TAV.10.101 (Type F)	C3
V.XX.63	Rim of a mortar	400 – 200 BC?	Lambrechts 1989, 201, nos.548 & 549	G3
V.XX.64	Rim of a basin	325 – 275 BC?	Probably De Waele, Fontaine & Lambrechts 1989, 73, no.39 (although position not exactly the same)	M6
V.XX.65	Rim of a basin	-	-	D3
V.XX.66	Rim of a large bowl	325 – 275 BC?	Similar rims are listed in Lambrechts 1989, 205, fig.55.575/576, 35, fig.5.72 & 145, fig.36.406	C2
V.XX.67	Rim of a large basin	AD 150 – 250	Resembles Ricci 1985, 217, no.4	L7
V.XX.68	Rim of a large basin	-	-	M5
V.XX.69	Rim of a basin/mortar	550 – 450 BC	Gori & Pierini 2001, TAV.8 (Type D)	P5
V.XX.70	Rim of a basin	15 BC – AD 70	Olcese 2003, TAV.XXXIX (Bacini/Mortaria Type 11); Vegas 1973, 31, no.8	F3
V.XX.71	Base of a basin	-	-	D3
V.XX.72	Rim of a teglia	625 – 275 BC	Resembles Bouma 1996, pls. CV-CVIII (Teglia Type 1); Lambrechts 1989, 72, no.21	J3
V.XX.73	Rim of a teglia	475 – 275 BC	Bouma 1996, 375-377 (Teglia Type II); Lambrechts 1989, 92	F5
V.XX.74	Rim of a teglia	475 – 275 BC	Bouma 1996, 375-377 (Teglia Type II); Lambrechts 1989, 92	F5
V.XXI.75	Rim of a catino	AD 450 - 700	Arena *et al.* 2001, 198, fig.I.5.10a	N2
V.XXI.76	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 1); De Waele, Fontaine & Lambrechts 1989, 70, nos. 3 & 4	O3

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXI.77	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 1); De Waele, Fontaine & Lambrechts 1989, 70, nos. 3 & 4	H4
V.XXI.78	Rim of a jar	400 – 200 BC	Duncan 1965, 155, fig.10, form 31; Olcese 2003 includes this shape in her Olla Type 2 (TAV.VII)	N2
V.XXI.79	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	O3
V.XXI.80	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	O1
V.XXI.81	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	N5
V.XXI.82	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	N3
V.XXI.83	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	J4
V.XXI.84	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	J4
V.XXI.85	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	K2
V.XXI.86	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	K2
V.XXI.87	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	K3
V.XXI.88	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	J2
V.XXI.89	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	J2
V.XXI.90	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	J2
V.XXI.91	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	I4
V.XXI.92	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	I6
V.XXI.93	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	I4
V.XXI.94	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	H2

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXI.95	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	H4
V.XXI.96	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	H4
V.XXI.97	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	H1
V.XXII.98	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	G4
V.XXII.99	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	G5
V.XXII.100	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	C1
V.XXII.101	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	D6
V.XXII.102	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	E2
V.XXII.103	Rim of a jar	400 – 200 BC	Olcese 2003, TAV.VII (Olla Type 2); Bouma 1996, 351-372, Olla type IV; Dyson 1976, e.g. fig.2-3, nos.CF19-28	E5
V.XXII.104	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	P7
V.XXII.105	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	P6
V.XXII.106	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	P1
V.XXII.107	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	P2
V.XXII.108	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	N5
V.XXII.109	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	M8
V.XXII.110	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	I4
V.XXII.111	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	I4
V.XXII.112	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	H4
V.XXII.113	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	A4
V.XXIII.114	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	B2
V.XXIII.115	Rim of a jar	200 – 0 BC	Olcese 2003, TAV.VIII (Olla Type 3a)	E1
V.XXIII.116	Rim of a jar	100 – 25 BC	Olcese 2003, TAV.VIII (Olla Type 3b)	M6
V.XXIII.117	Rim of a jar	25 BC – AD 100	Olcese 2003, TAV.X, Olla Type 7; Duncan 1964, fig.12, Form 28	P1
V.XXIII.118	Rim of a jar	-	-	G5

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXIII.119	Rim of a jar	-	-	J5
V.XXIII.120	Rim of a jar	-	-	O4
V.XXIII.121	Rim of a jar	AD 50 – 100	Duncan 1964, 82, fig.15, form 44	J2
V.XXIII.122	Rim of a raised pan	175 – 125 BC?	Dyson 1976, fig.12.12/13	Q3
V.XXIII.123	Rim of a tegame	400 – 200 BC	Zevi & Carta 1978, 72, no.107; Bouma 1996, pl.XLVII.B316; Di Mario 2005, TAV. XI.398	B5
V.XXIII.124	Rim of a tegame	-	-	F4
V.XXIII.125	Rim of a tegame	400 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1)	H4
V.XXIII.126	Rim of a tegame	400 – 200 BC	Although position not exactly the same, probably: Carandini, d'Alessio & di Giuseppe 2007, TAV.34.295 (=Olcese 2003, TAV.XIV, Tegame Type 1?)	H3
V.XXIII.127	Rim of a tegame	400 – 200 BC	Bouma 1996, pl. XLVII.B313; Zevi & Carta 1978, 72, no.107. Similar shape but slightly more shallow body: Dyson 1976, fig.7.8; Stanco 2001, 104, no.12FF9.31	H4
V.XXIII.128	Rim of a tegame	400 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1); Di Mario 2005, TAV.VIII.314	H3
V.XXIII.129	Rim of a tegame	400 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1)	M6
V.XXIII.130	Rim of a tegame	400 – 200 BC	Olcese 2003, TAV.XIV (Tegame Type 1)	N6
V.XXIV.131	Rim of a pentola	AD 0 – 200	Ricci 1985, TAV.27.11; Olcese 2003, TAV.V (Pentola Type 5a)	L4
V.XXIV.132	Rim of a casserole	100 BC – AD 100	Olcese 2003, TAV.VI (Casseruole Type 1)	P7
V.XXIV.133	Rim of a jug?	-	-	M5
V.XXIV.134	Rim of a dish?	-	-	N7
V.XXIV.135	Rim of a ?	-	-	J3
V.XXIV.136	Rim of a ?	-	-	I5
V.XXIV.137	Rim of a jar?	175 – 125 BC?	Dyson 1976, fig.16.66	O1
V.XXIV.138	Rim of a jug	400 – 0 BC	Olcese 2003, TAV.XXV (Brocca Type 1); Dyson 1976, fig.17.74/75	H4
V.XXIV.139	Rim of a jug	400 – 0 BC	Olcese 2003, TAV.XXV (Brocca Type 1); Dyson 1976, fig.17.74/75	I5
V.XXIV.140	Rim of a jug	400 – 0 BC	Olcese 2003, TAV.XXV (Brocca Type 1); Dyson 1976, fig.17.74/75	P2
V.XXIV.141	Rim of a jug	-	-	N4
V.XXIV.142	Rim of a jug	-	-	N2
V.XXIV.143	Rim of a jug	-	-	P4
V.XXIV.144	Rim of a jug	AD 0 – 200	Duncan 1964, 80, Form 30; Olcese 2003, TAV.XXV (Brocca Type 2)	N3
V.XXIV.145	Rim of a flask?	-	-	F3
V.XXIV.146	Rim of a jug	-	-	G3

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXIV.147	Rim of a jug	25 BC – AD 100	Olcese 2003, TAV.XXVII (Brocca Type 4)	M2
V.XXIV.148	Rim of a bowl	-	-	H4
V.XXIV.149	Rim of a bowl?	-	-	K1
V.XXIV.150	Rim of a jug?	-	-	D4
V.XXIV.151	Rim of a bowl	-	-	H4
V.XXIV.152	Rim of a jar/bowl	-	-	J3
V.XXV.153	Rim of a bowl	-	-	M6
V.XXV.154	Rim of a bowl	400 – 100 BC	Bouma 1996, pl. XL.151 (Bowl type III)	M5
V.XXV.155	Rim of a bowl	-	-	O5
V.XXV.156	Rim of a bowl	-	-	O7
V.XXV.157	Rim of a bowl	200 – 0 BC	Torelli & Pohl 1973, 124, fig.70 (Type 1b)	P3
V.XXV.158	Rim of a bowl	-	-	P8
V.XXV.159	Body fragment of a clibane	300 – 100 BC	Carandini, d'Alessio & di Giuseppe 2007, TAV.35.312; Olcese 2003, TAV.XVII (Clibane Type 2)	N2
V.XXV.160	Flange of a clibane?	-	-	F4
V.XXV.161	Rim of a raised pan	175 – 125 BC	Dyson 1976, fig.12.12/13	J2
V.XXV.162	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	M5
V.XXV.163	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	N4
V.XXV.164	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	F2
V.XXV.165	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	P1
V.XXV.166	Rim of a lid	175 – 125 BC	Dyson 1976, fig.16.59	N3
V.XXV.167	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	H3
V.XXV.168	Rim of a lid	175 – 125 BC	Dyson 1976, fig.16.59	H1
V.XXV.169	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	F1
V.XXV.170	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	P3
V.XXV.171	Rim of a lid	AD 0 – 200	Olcese 2003, TAV.XIX (Coperchio Type 3)	P3
V.XXV.172	Rim of a lid	AD 50 – 150	Ricci 1985, 243, no.18; Duncan 1964, 82, form 48	M6
V.XXV.173	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	M6
V.XXV.174	Rim of a lid	530 – 150 BC	Carandini, d'Alessio & di Giuseppe 2007, TAV.35.307	I3
V.XXV.175	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	H5

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXVI.176	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 1); Santrot & Santrot 1995, 211-212, nos. 384, 385 & 396	F4
V.XXVI.177	Rim of a lid	530 – 150 BC	Carandini, d'Alessio & di Giuseppe 2007, TAV.35.307	D5
V.XXVI.178	Rim of a lid	300 – 0 BC	Olcese 2003, TAV.XIX (Coperchio Type 2); Santrot & Santrot 1995, 211, no.391	E6
V.XXVI.179	Rim of a lid	530 – 150 BC	Carandini, d'Alessio & di Giuseppe 2007, TAV.35.307	B1
V.XXVI.180	Rim of a lid	-	-	J3
V.XXVI.181	Rim of a lid	-	-	M5
V.XXVI.182	Rim of a lid	100 – 50 BC	Santrot & Santrot 1995, 211, no.380	G1
V.XXVI.183	Rim of a lid	125 BC – AD 50	Resembles Pohl 1978, 298, no.1812	G2
V.XXVI.184	Knob of a lid	-	-	M3
V.XXVI.185	Knob of a lid	-	-	N4
V.XXVI.186	Knob of a lid	-	-	N5
V.XXVI.187	Knob of a lid	-	-	N4
V.XXVI.188	Base fragment	-	-	D1
V.XXVI.189	Base fragment	-	-	O3
V.XXVI.190	Base fragment	-	-	J1
V.XXVI.191	Handle fragment	-	-	A4
V.XXVI.192	Handle fragment	-	-	E6
V.XXVI.193	Handle fragment	-	-	I3
V.XXVI.194	Handle fragment	-	-	J1
V.XXVI.195	Handle fragment	-	-	M3
V.XXVI.196	Handle fragment	-	-	M5
V.XXVI.197	Handle fragment	-	-	O1
V.XXVI.198	Handle fragment	-	-	O4
V.XXVII.199	Handle fragment	-	-	P1
V.XXVII.200	Handle fragment	-	-	Off-site
V.XXVII.201	Handle fragment	-	-	P5
V.XXVII.202	Handle fragment	-	-	P5
V.XXVII.203	Handle fragment	-	-	O4
V.XXVII.204	Handle fragment	-	-	M6

Chapter 5 Typological table, continued

Utilitarian pottery				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXVII.205	Handle fragment	-	-	G2
V.XXVII.206	Decorated wall fragment	-	-	N2
V.XXVII.207	Rim of a lid?	325 – 275 BC?	Although the shape is somewhat different a comparable specimen is published in Lambrechts 1989, 25, fig.1.11	Off-site
V.XXVII.208	Underside of a dice cup	AD 0 – 100	Zevi & Carta 1978, 126, no.239; Frova & Bertino 1973, TAV.76.14	O7
V.XXVII.209	-	-	-	O4
V.XXVII.210	Base of large pan	100 BC – AD 100	Pompeian Red Ware	H1

Fine ware - Black glazed ware				
V.XXVII.211	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	E5
V.XXVII.212	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	F5
V.XXVII.213	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	H2
V.XXVII.214	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	B1
V.XXVII.215	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	D1
V.XXVII.216	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	G4
V.XXVII.217	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	I2
V.XXVII.218	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	N4
V.XXVII.219	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	N4
V.XXVII.220	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	M3
V.XXVII.221	Rim of a bowl	300 – 200 BC	Bernardini 1986, TAV.XIV.148 (=Morel 1981, pls. 84-85, Serie 2980)	J4
V.XXVII.222	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	H4
V.XXVII.223	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	N4
V.XXVII.224	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	Off-site
V.XXVII.225	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	P3
V.XXVIII.226	Rim of a bowl	300 – 250 BC	Morel 1981, pl.84, form 2981	L8
V.XXVIII.227	Rim of a bowl	275 – 225 BC	Morel 1981, pl.53, form 2537(a1)	J3
V.XXVIII.228	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	I1
V.XXVIII.229	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	H4
V.XXVIII.230	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	G5
V.XXVIII.231	Rim of a bowl	325 – 275 BC	Morel 1981, pl.81, form 2963(b1)	G4

Chapter 5 Typological table, continued

Fine ware - Black glazed ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXVIII.232	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	F5
V.XXVIII.233	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	D5
V.XXVIII.234	Rim of a bowl	300 – 200 BC	Morel 1981, pl.72-73, form 2783-2784	E1
V.XXVIII.235	Rim of a bowl	300 – 200 BC	Bernardini 1986, TAV.XXXI.393; Morel 1981, pl.72, form 2783-2787 (2783c1?)	M7
V.XXVIII.236	Rim of a bowl	300 – 250 BC	Morel 1981, pl.54, form 2538(b1?)	E5
V.XXVIII.237	Rim of a bowl	300 – 250 BC	Morel 1981, pl.54, form 2538(b1)	H4
V.XXVIII.238	Rim of a bowl	300 – 250 BC	Morel 1981, pl.54, form 2538(b1)	I2
V.XXVIII.239	Rim of a bowl	275 – 225 BC	Morel 1981, pl.53, form 2537(a1)	J3
V.XXVIII.240	Rim of a bowl	275 – 225 BC	Morel 1981, pl.54, form 2538(f1)	O3
V.XXVIII.241	Rim of a bowl	300 – 250 BC	Morel 1981, pl.60, form 2621; Bernardini 1986, TAV.XLV-XLVI.600-608	E6
V.XXVIII.242	Rim of a bowl	200 – 100 BC	Considering shape and size: Morel 1981, pl.61, form 2632(b1)	E1
V.XXVIII.243	Rim of a *skyphos*	300 – 250 BC	Morel 1981, pl.127, form 4332(a1)	D2
V.XXVIII.244	Rim of a *skyphos*	330 – 300 BC	Morel 1981, pl.131, form 4373(a2)	E5
V.XXVIII.245	Rim of a jug	-	-	O5
V.XXVIII.246	Rim of a jug	325 – 275 BC	Morel 1981, pl.158, form 5226	H1
V.XXVIII.247	Rim of a dish	320 – 275 BC	Morel 1981, pl.10, serie 1270 (1271b1)	P3
V.XXVIII.248	Rim of a dish	200 – 150 BC	Morel 1981, pl.6, form 1174?	O3
V.XXVIII.249	Rim of a dish	320 – 275 BC	Morel 1981, pl.10, serie 1270 (1271b1)	C1
V.XXIX.250	Rim of a plate/dish	300 – 200 BC	Morel 1981, pl.36, form 2233(j1?)	G5
V.XXIX.251	Rim of a plate	100 – 50 BC	Morel 1981, pl.46, form 2286	J3
V.XXIX.252	Body of an oil lamp	-	-	L3
V.XXIX.253	Spout of a jug	350 – 250 BC	Bouma 1996, 410, no.5.4.9; Morel 1981, pl.191, serie 5810 (5811/12?); Bernardini 1986, TAV.XXVIII-XXIX	B2
V.XXIX.254	Rim of an inkpot	Unknown	For an example with a different shape see Aylwin Cotton & Métraux 1985, 185, fig.39.4; several examples, all of different shape, in Morel 1965, 220-221	P3
V.XXIX.255	Handle fragment	-	-	O7
V.XXIX.256	Decorated wall fragment	-	-	F4
V.XXIX.257	Decorated wall fragment	-	-	O6

Chapter 5 Typological table, continued

Fine ware - Black glazed ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXIX.258	Decorated wall fragment	400 – 200 BC	Zevi & Carta 1978, 57, no.29	J3
V.XXIX.259	Decorated wall fragment	400 – 200 BC	Zevi & Carta 1978, 57, no.29	J3
V.XXIX.260	Decorated wall fragment	400 – 200 BC	Zevi & Carta 1978, 57, no.29	I4
V.XXIX.261	Decorated wall fragment	400 – 200 BC	Zevi & Carta 1978, 57, no.29	I4
V.XXIX.262	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 12; Jehasse & Jehasse 1973, pls.179-180, Type B27	I3
V.XXIX.263	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 12; Jehasse & Jehasse 1973, pls.179-180, Type B27	A2
V.XXIX.264	Stamped base	300 – 200 BC	Pellegrino 1983, 79, fig.5	I3
V.XXIX.265	Stamped base	300 – 200 BC	Pellegrino 1983, 79, fig.5	G5
V.XXIX.266	Stamped base	300 – 200 BC	Pellegrino 1983, 79, fig.5	N3
V.XXIX.267	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 10; Cederna 1951, 211; Bernardini 1986, TAV.LVI.25	F4
V.XXIX.268	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 9; Jehasse & Jehasse 1973, pl.179, no.197; Pellegrino 1983, fig.5; Muzzioli 1981, no.D105	O7
V.XXIX.269	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 9; Jehasse & Jehasse 1973, pl.179, no.197; Pellegrino 1983, fig.5; Muzzioli 1981, no.D105	M1
V.XXIX.270	Stamped base	300 – 200 BC	Jehasse & Jehasse 1973, pl.180, Groupe E, no. A36D	M3
V.XXIX.271	Stamped base	300 – 200 BC	Bouma 1996, 416, stamp type 12; Jehasse & Jehasse 1973, pls.179-180, Type B27	H5
V.XXIX.272	Stamped base	300 – 200 BC	Morel 1969, fig.6, no.32; Jehasse & Jehasse 1973, pl.182, Groupe F, nos.26/27; Perez Ballester 1987, 64, fig.6	K5
V.XXIX.273	Stamped base	300 – 200 BC	Bernardini 1986, TAV.LVIII.111	J2
V.XXIX.274	Stamped base	300 – 200 BC	-	F1
V.XXIX.275	Stamped base	-	-	I3
V.XXIX.276	Stamped base	-	-	N6
V.XXIX.277	Base of a jug	325 – 275 BC	Morel 1981, pl.157, form 5222(a1)	F5
V.XXIX.278	Base fragment	-	-	H4
V.XXIX.279	Base fragment	-	-	N3
V.XXIX.280	Base of a plate	-	-	N6
V.XXIX.281	Base of a jug	400 – 250 BC	This base type is associated with Morel Series 5331, 5622 & 5624	O5

Chapter 5 Typological table, continued

Fine ware - Terra sigillata				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXX.282	Rim of a cup	10 BC – AD 100	Ettlinger *et al.* 1990, 87-89, forms 20-21 (impossible to assign to one of these forms with certainty)	F3
V.XXX.283	Rim of a dish	AD 30 – 80	Ettlinger *et al.* 1990, 87, form 20	D4
V.XXX.284	Rim of a dish	AD 30 – 80	Probably Ettlinger *et al.* 1990, 87, form 20	L1
V.XXX.285	Rim of a cup	15 – 0 BC	Ettlinger *et al.* 1990, 67, form 8.1	C1
V.XXX.286	Rim of a plate?	-	-	L9
V.XXX.287	Rim fragment	-	-	O7
V.XXX.288	Rim of a dish	AD 50 – 100	Ettlinger *et al.* 1990, 57, form 3	Q5
V.XXX.289	Base fragment	-	-	G2
V.XXX.290	Stamped base	-	-	I4
V.XXX.291	Stamped base	AD 40 – 100	Oxé, Comfort & Kenrick 2000, 186, stamp type 592	O1
V.XXX.292	Decorated wall fragment	-	-	I4
V.XXX.293	Decorated wall fragment	-	-	M2
V.XXX.294	Decorated wall fragment	-	-	O2
V.XXX.295	Decorated wall fragment	-	-	P7
Fine ware - African red slip ware				
V.XXX.296	Rim of a dish	AD 150 – 250	Hayes 1972, 50, form 27; Atlante I 1981, TAV.XXIV.5; Bonifay 2004, 158	P8
Utilitarian pottery - African cookware				
V.XXX.297	Rim of a casserole	AD 150 – 300	Hayes 1972, 206, form 197; Atlante I 1981, TAV.CVII.6/7 (Type Ostia III); Bonifay 2004, 224	Off-site
V.XXX.298	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196; Bonifay 2004, 226; Atlante I 1981, TAV.CIV.3	N3
V.XXX.299	Rim of a lid	AD 150 – 250	Hayes 1972, 206, form 196; Bonifay 2004, 226; Atlante I 1981, TAV.CIV.3	O9

Chapter 5 Typological table, continued

Fine ware - Ceramica a pareti sottili				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
V.XXX.300	Rim of a cup	Unknown	Marabini Moevs 1973, pl. 22, no.31 (Form XLIV)	G5
V.XXX.301	Rim of a cup	-	-	F2
V.XXX.302	Rim of a cup	AD 40 – 70	Marabini Moevs 1973, pl.46, no.432 (Form LXVIII)	A2
V.XXX.303	Rim of a dish	AD 50 – 200	Aylwin Cotton & Métraux 1985, 216, fig.52, form 3 (although our specimen has a somewhat more shallow shape)	P5
V.XXX.304	Rim of a jug	125 – 75 BC	Marabini Moevs 1973, pl.3, no.28 (Form 3)	E1
V.XXX.305	Rim of a bowl	100 – 75 BC	Marabini Moevs 1973, pl.11, nos. 116-117 (Type 20)	A2
V.XXX.306	Decorated wall fragment	100 BC – AD 25	Marabini Moevs 1973, pls. 7-8 (Forms IV & VII) - thorn decoration	F6
V.XXX.307	Decorated wall fragment	-	-	G5

Glass				
V.XXX.308	Lug fragment	-	-	M6
V.XXX.309	Handle fragment	-	-	F2

Miscellaneous				
V.XXX.310	Shoulder of an oil lamp	100 – 0 BC	Pohl 1978, 256-257, form Dressel 2 (Warzenlampe); Bailey 1975, 325-326 & 336, nos. Q711 & Q713)	H2
V.XXX.311	Fragment of a loom-weight	early Imperial	Soren & Soren 1999, pl.216; see also *infra*, pl.VI-XXVI.1 (Miscellaneous)	D1
V.XXX.312	Fragment of a kiln spacer	mid-Republican	Zevi & Carta 1978, 57, no.34; Stanco 1988, 26	B3

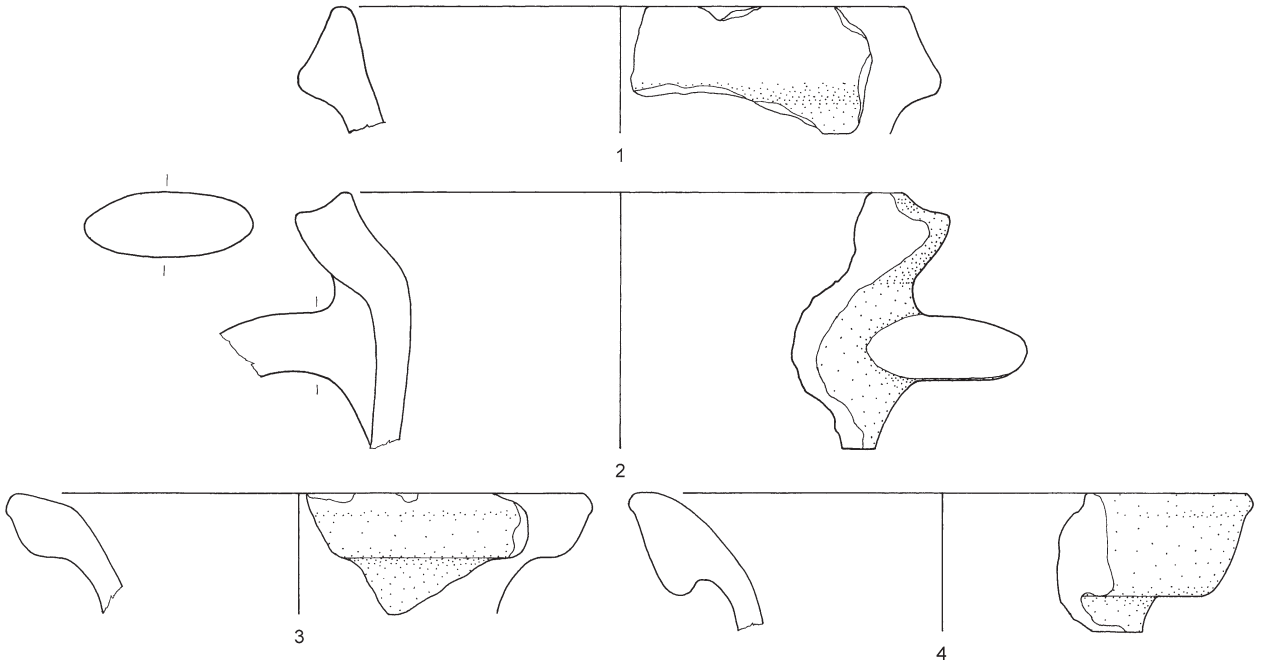
Coins				
Fig. 5.10a	Coin	9 BC	Augustus Æ quadrans	D1
Fig. 5.10b	Coin	27 BC – AD 14	Augustus Æ sestertius	D1
Fig. 5.10c	Coin	37 BC	Augustus (Octavianus) AR denarius	E1
Fig. 5.10d	Coin	209 – 208 BC	Æ As anonymous	P8
Fig. 5.10e	Coin	209 – 208 BC	Æ As anonymous	Q4
Fig. 5.10f	Coin	58 BC	M. Aemilius Scaurus and P. Plautius Hypsaeus AR denarius	M8

Chapter 5 Typological table, continued

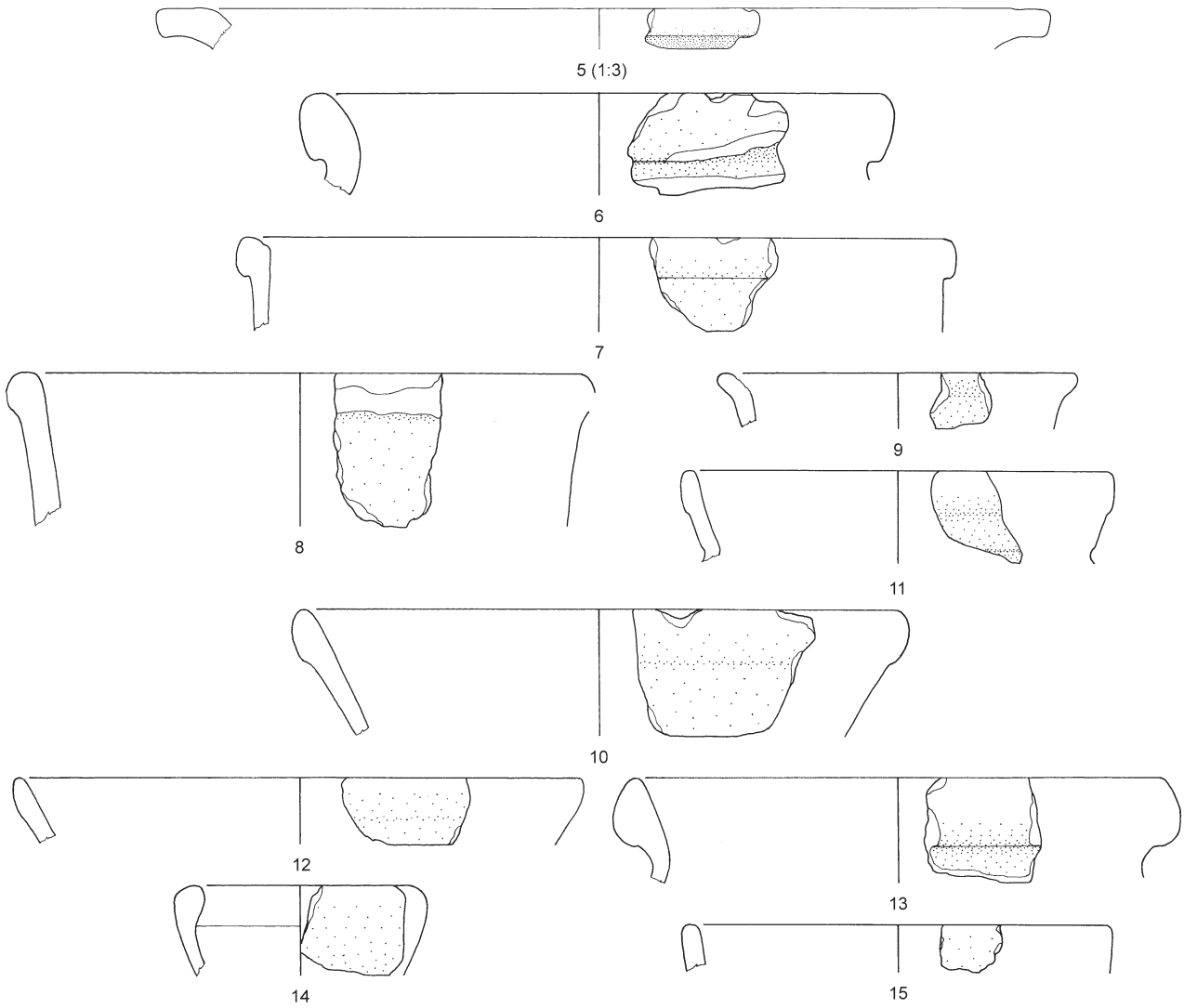
Metal artefacts				
Plate	**Shape**	**Date**	**Parallel/literature**	**Unit**
Fig. 5.11a	Piece of silver	Roman	-	D1
Fig. 5.11b	Bronze ring	AD 0 - 200	Mills 2000, 102; Allason-Jones & Miket 1984, 123-124, no.3.188	E1

Site 15034
Amphorae

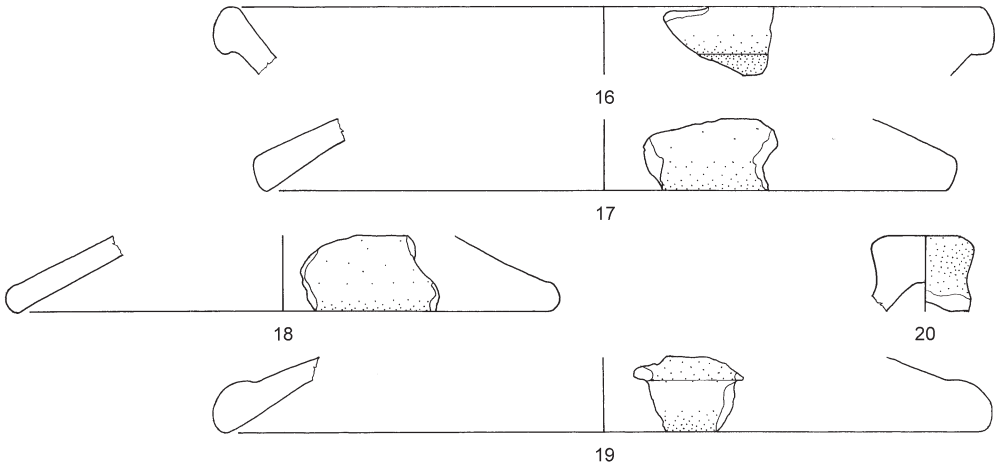
Plate V-I



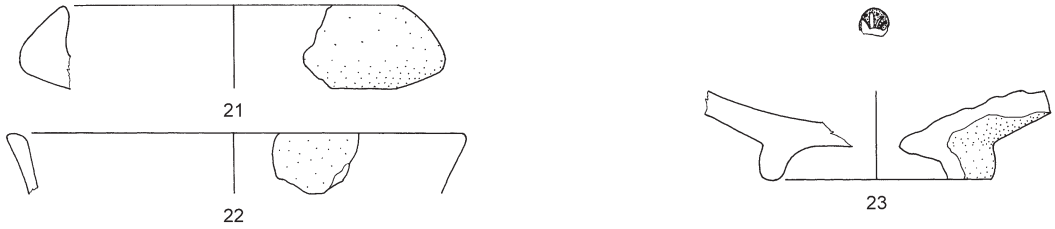
Utilitarian pottery



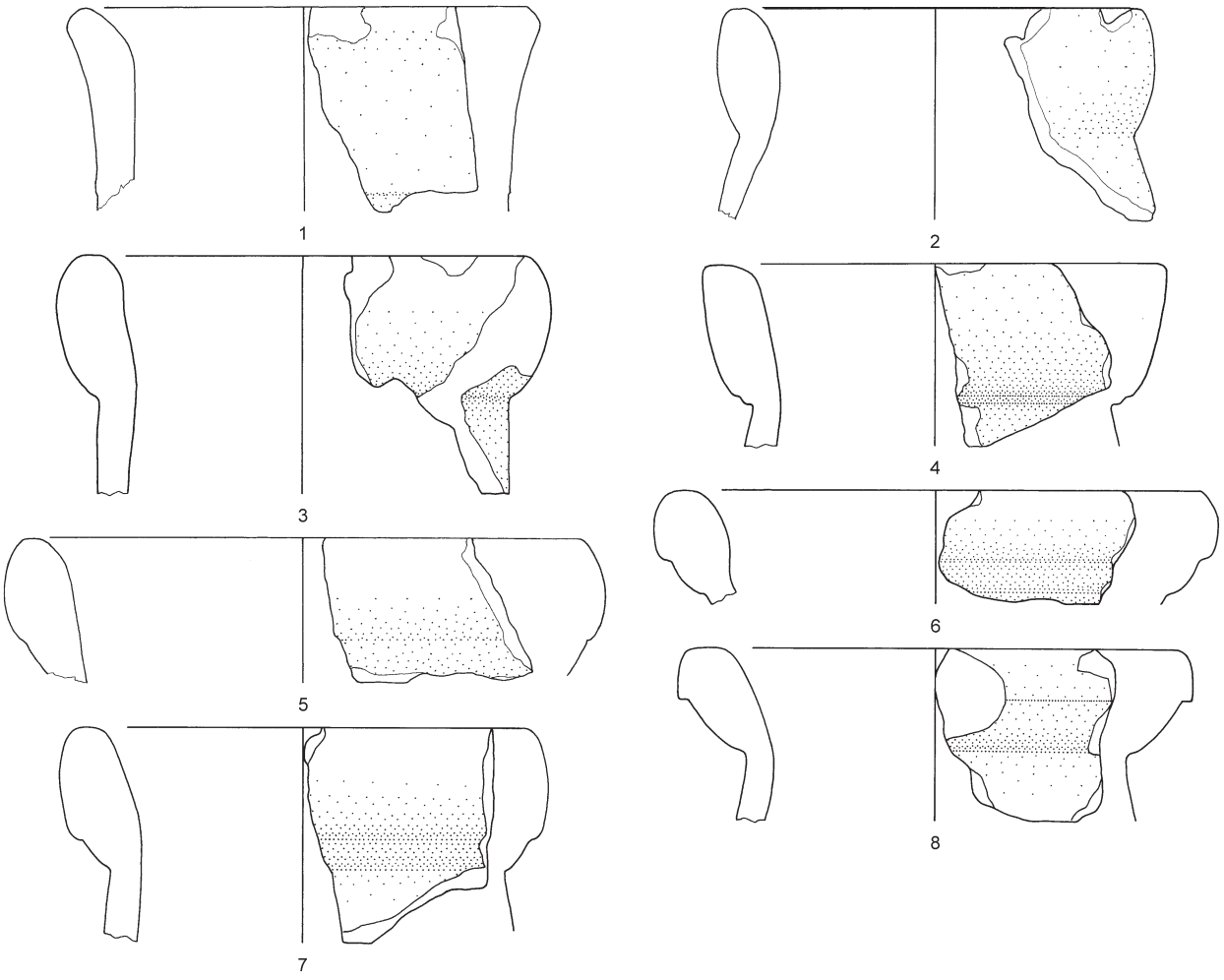
Site 15034 cont. Plate V-II



Fine ware - *Black Glazed Ware*

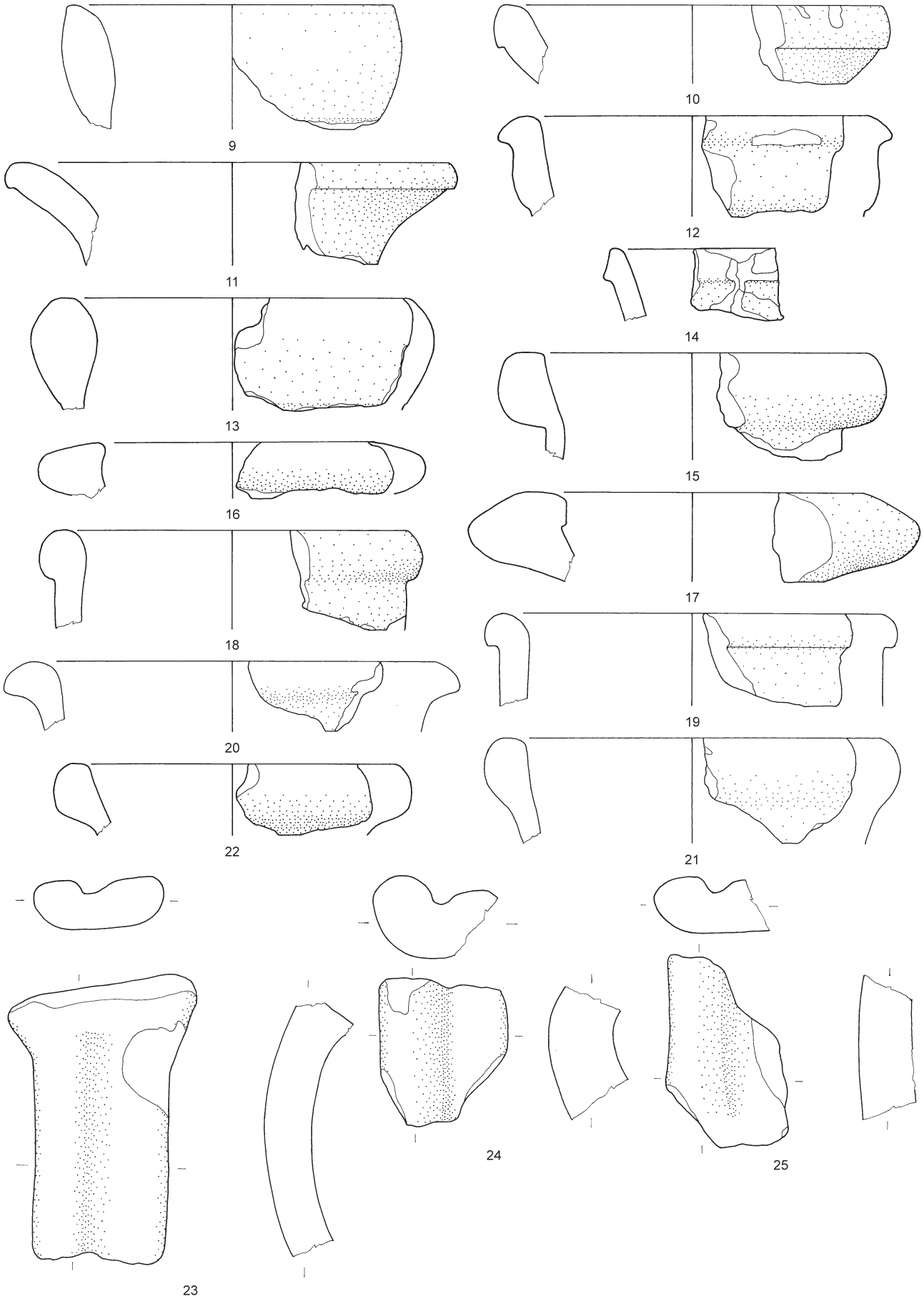


Site 15085-03
Amphorae



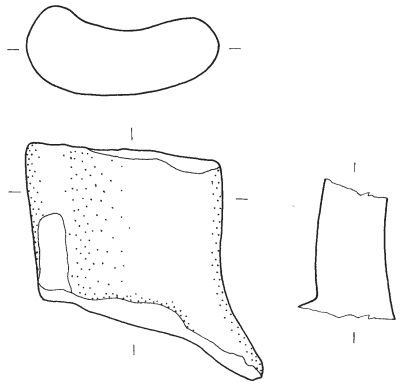
Site 15085-03 cont.

Plate V-III



Site 15085-03 cont.

Plate V-IV



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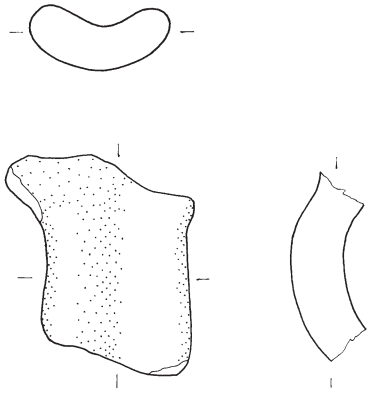

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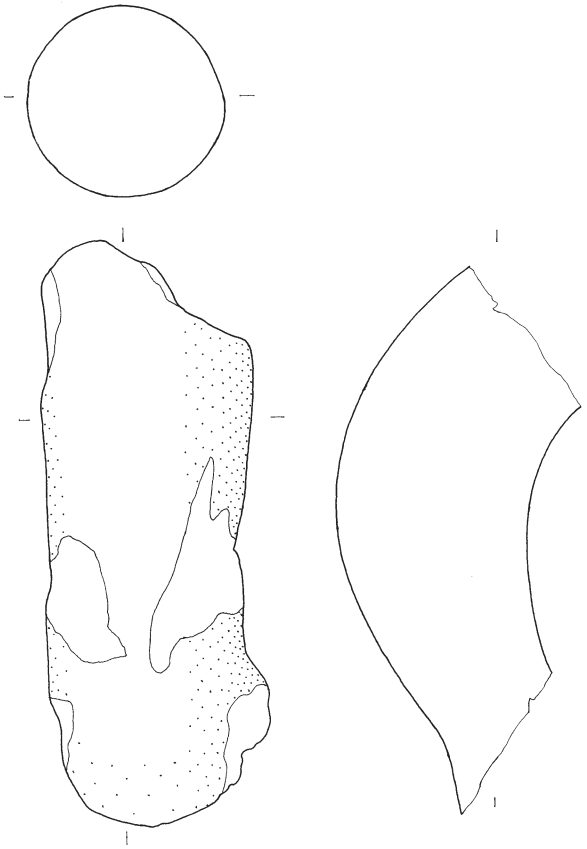

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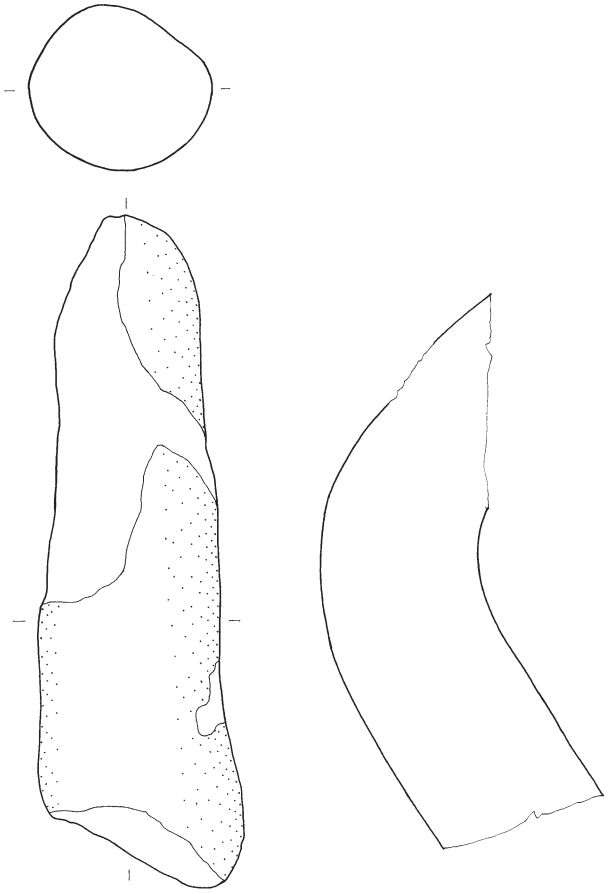

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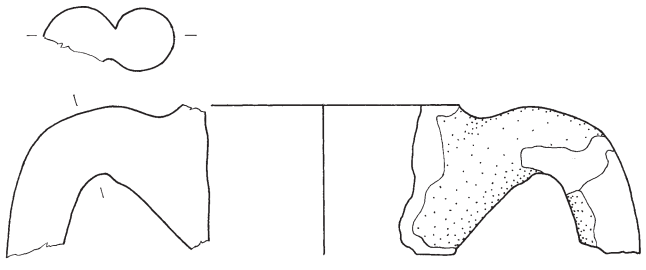

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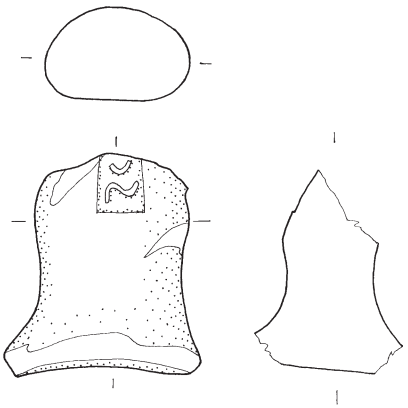

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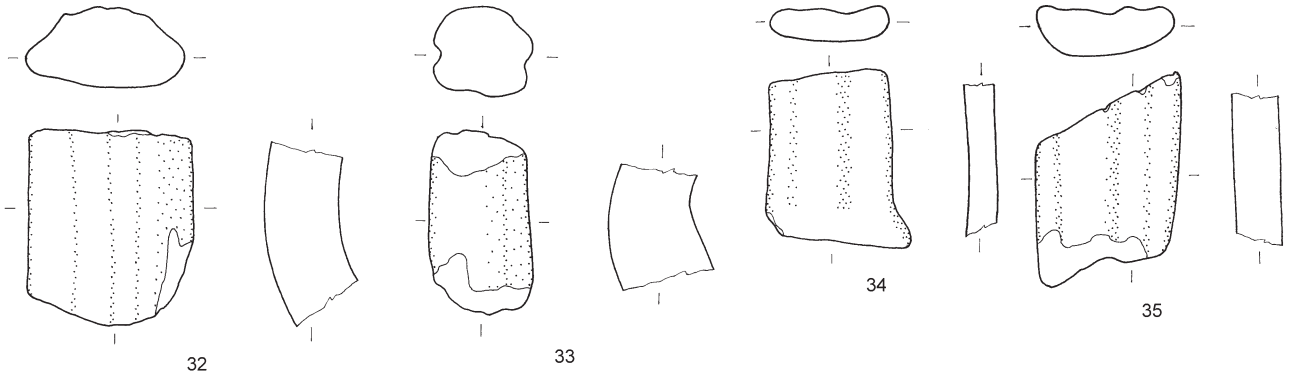
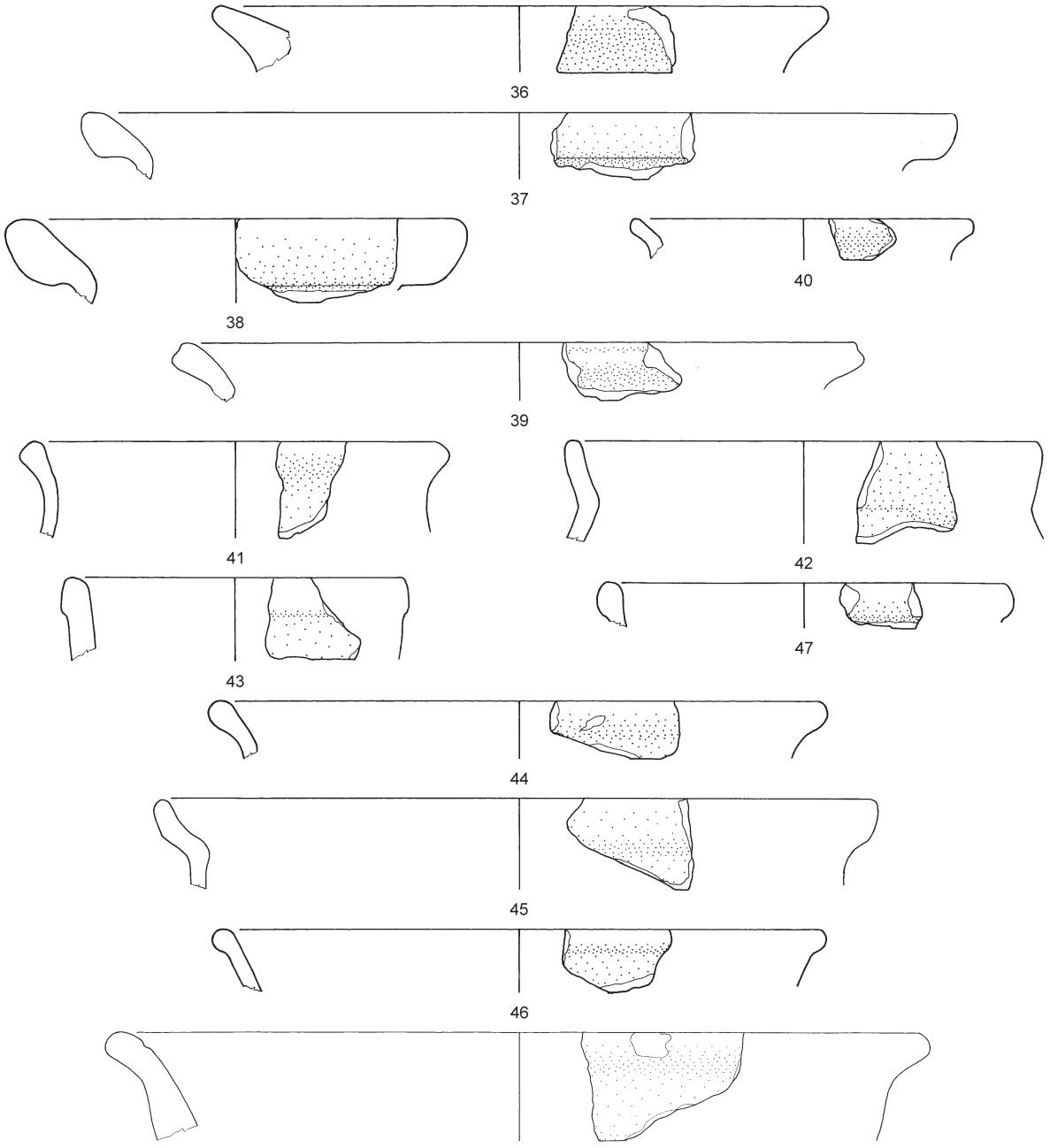
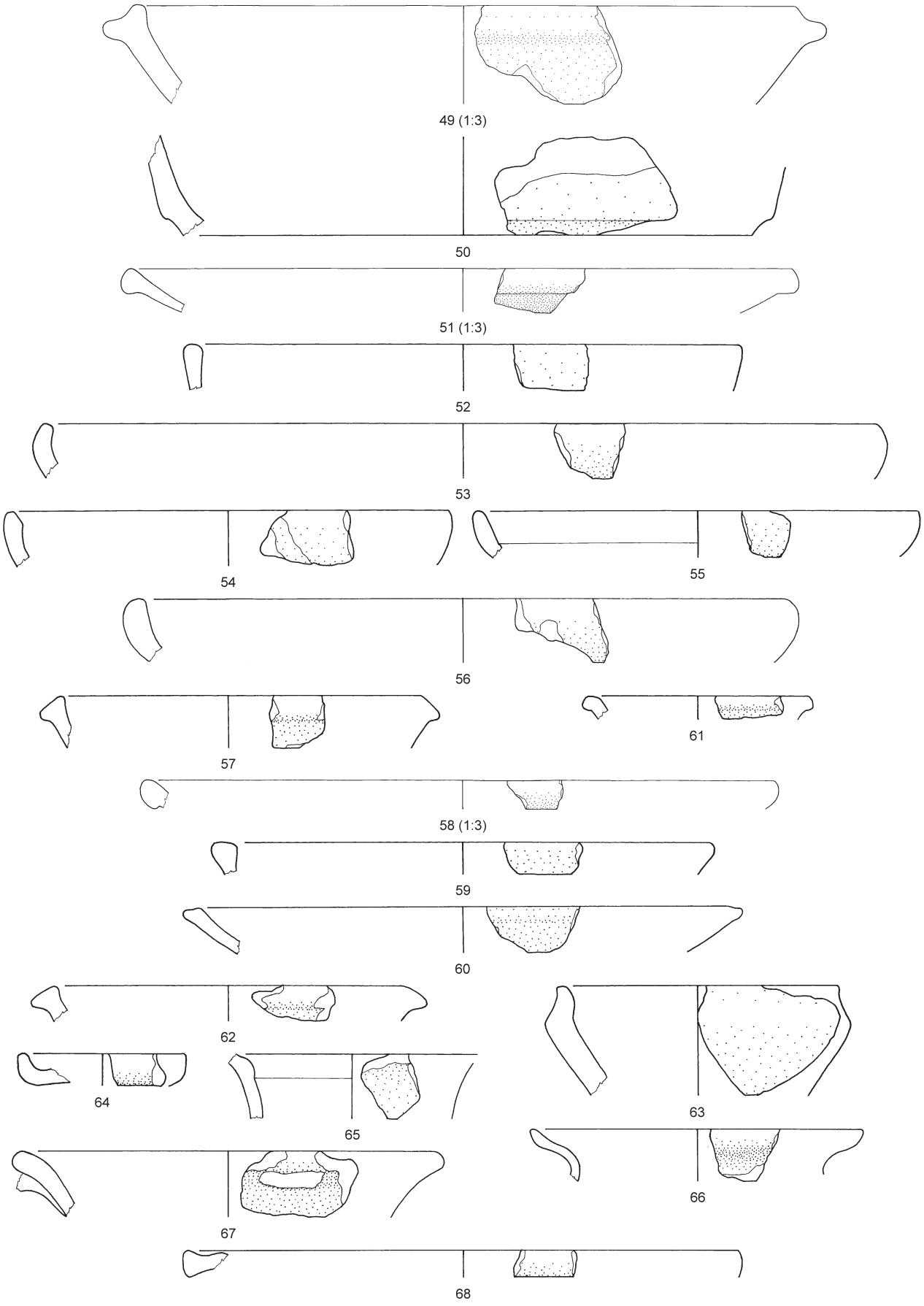
Site 15085-03 cont. Plate V-V



Utilitarian pottery

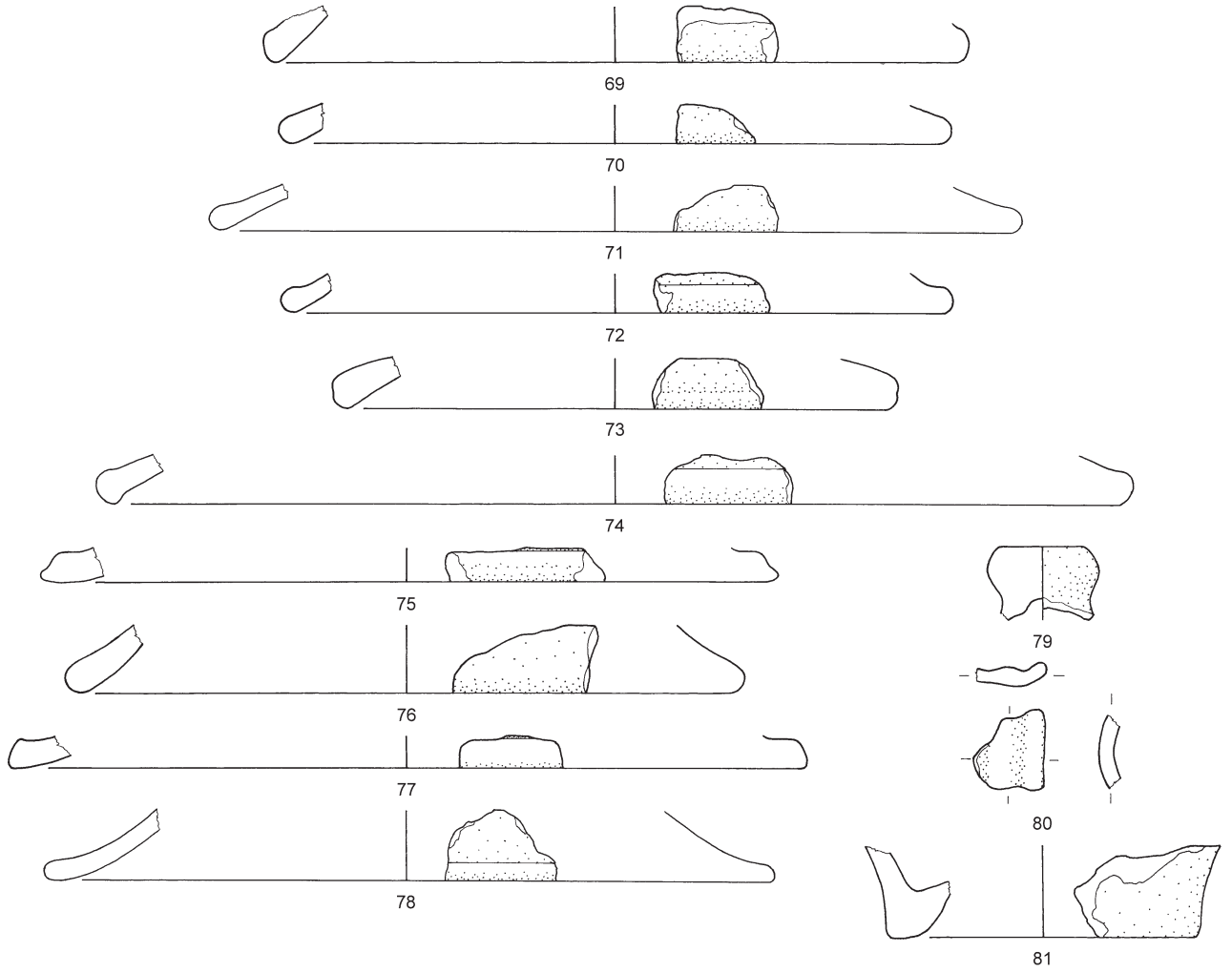


Site 15085-03 cont. Plate V-VI

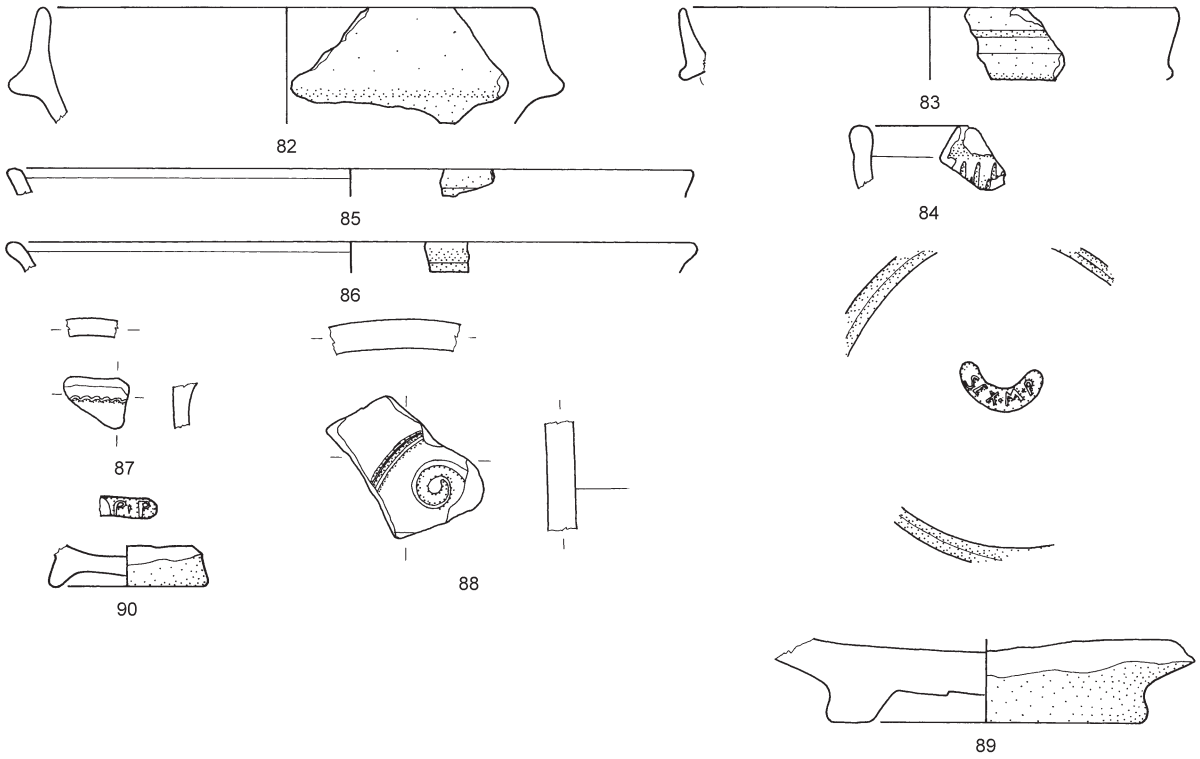


Site 15085-03 cont.

Plate V-VII

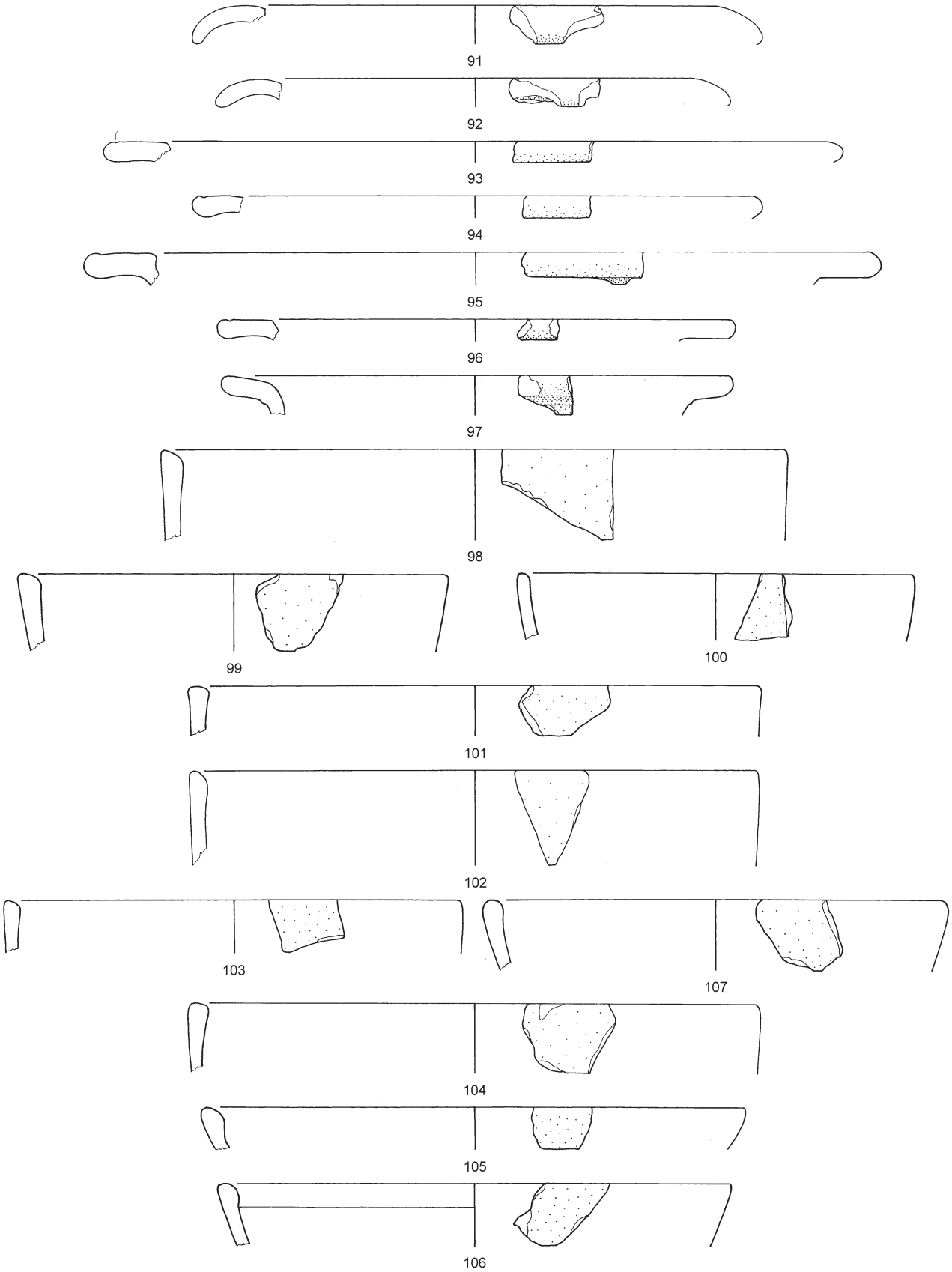


Fine ware - Terra Sigillata



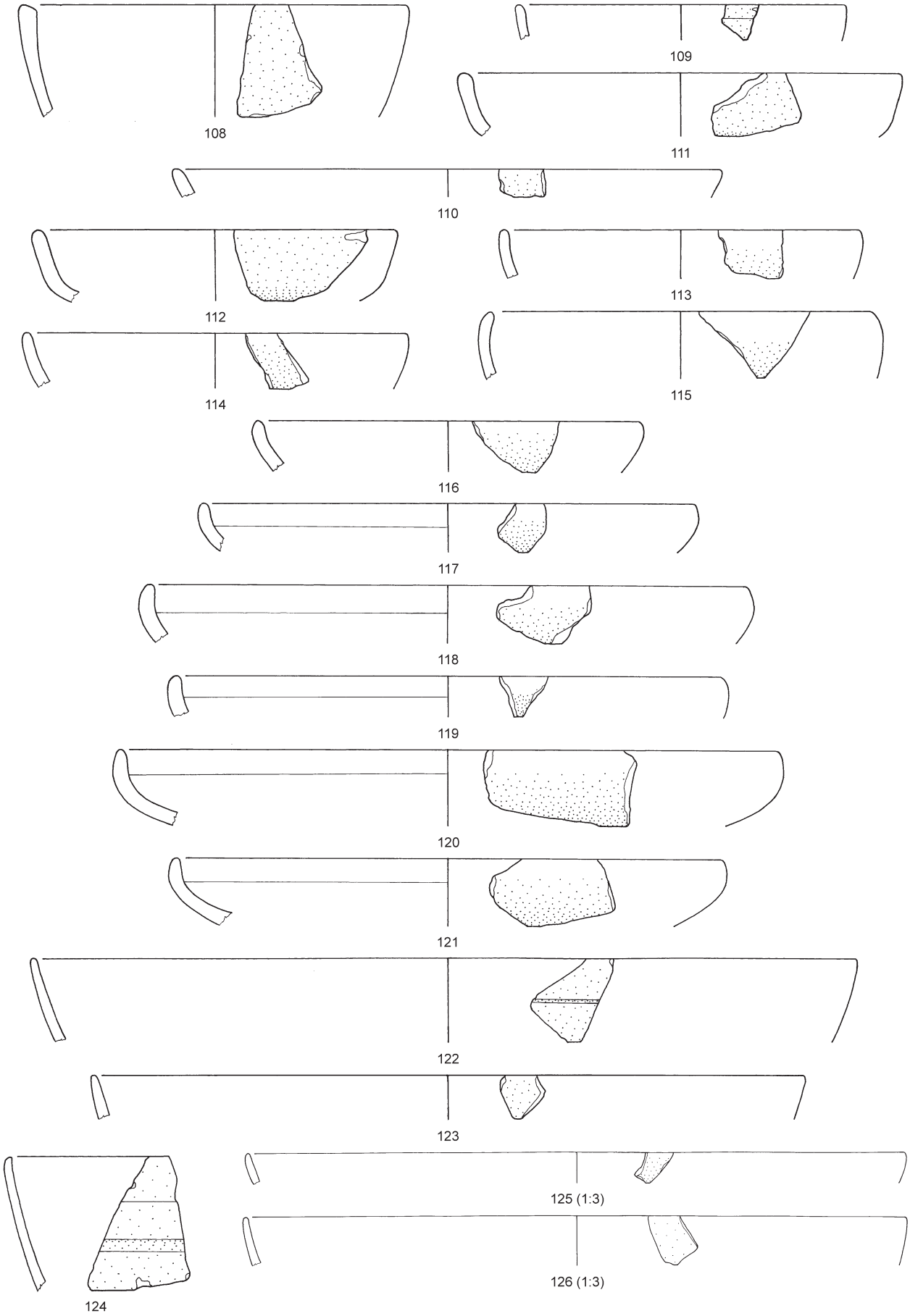
Site 15085-03 cont.
Fine ware - *African Red Slip Ware*

Plate V-VIII

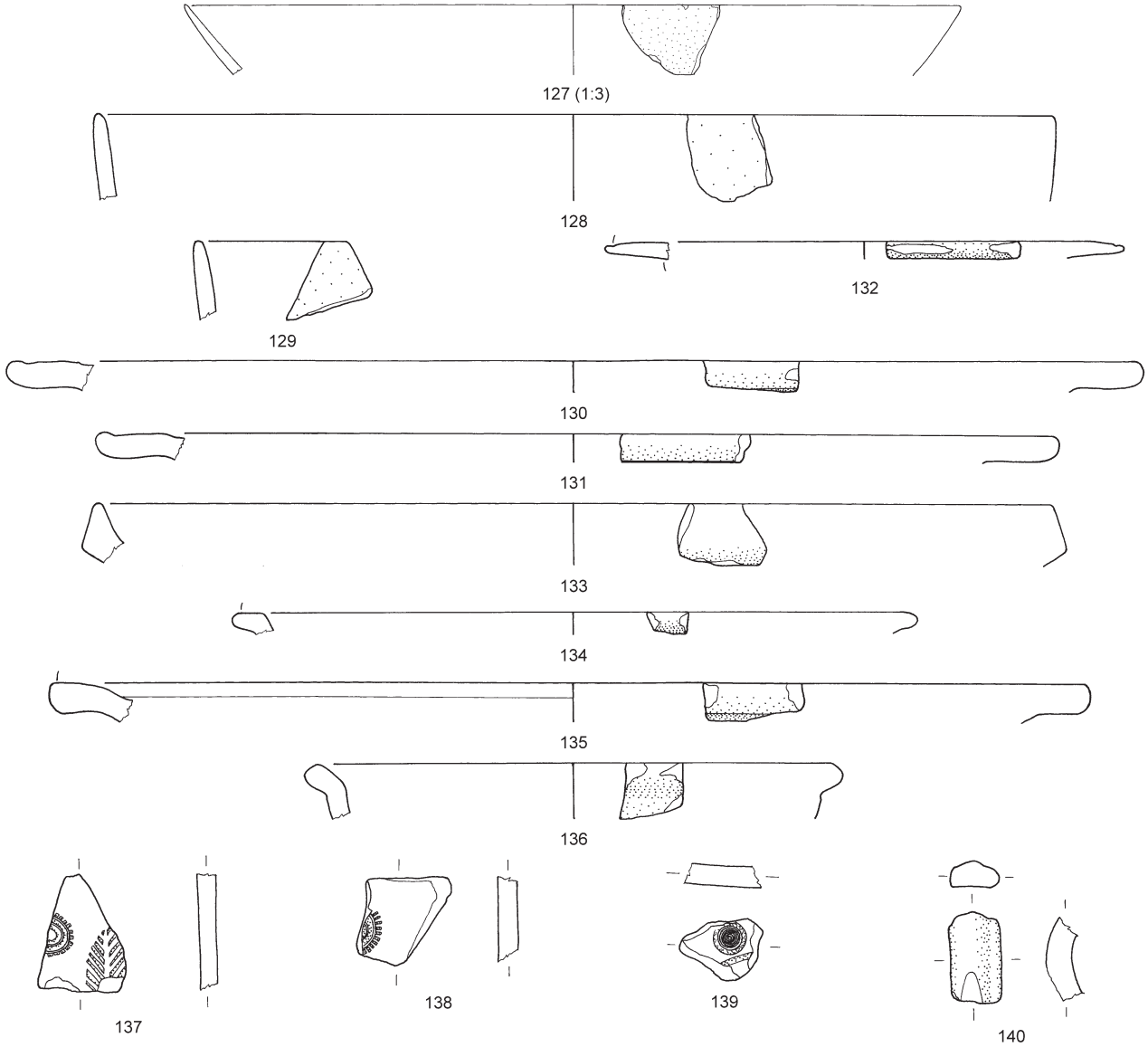


Site 15085-03 cont.

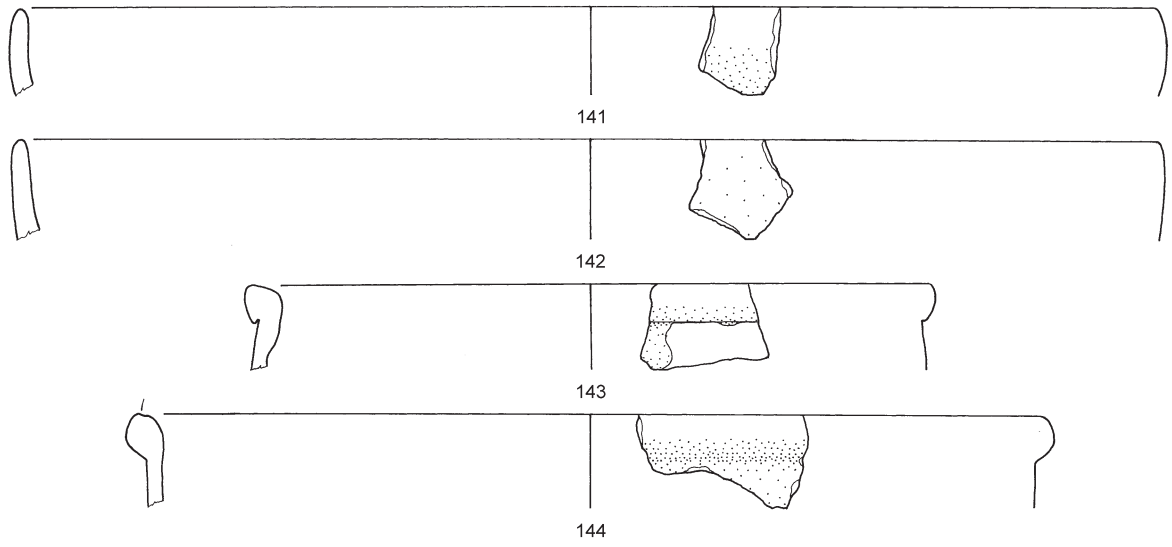
Plate V-IX



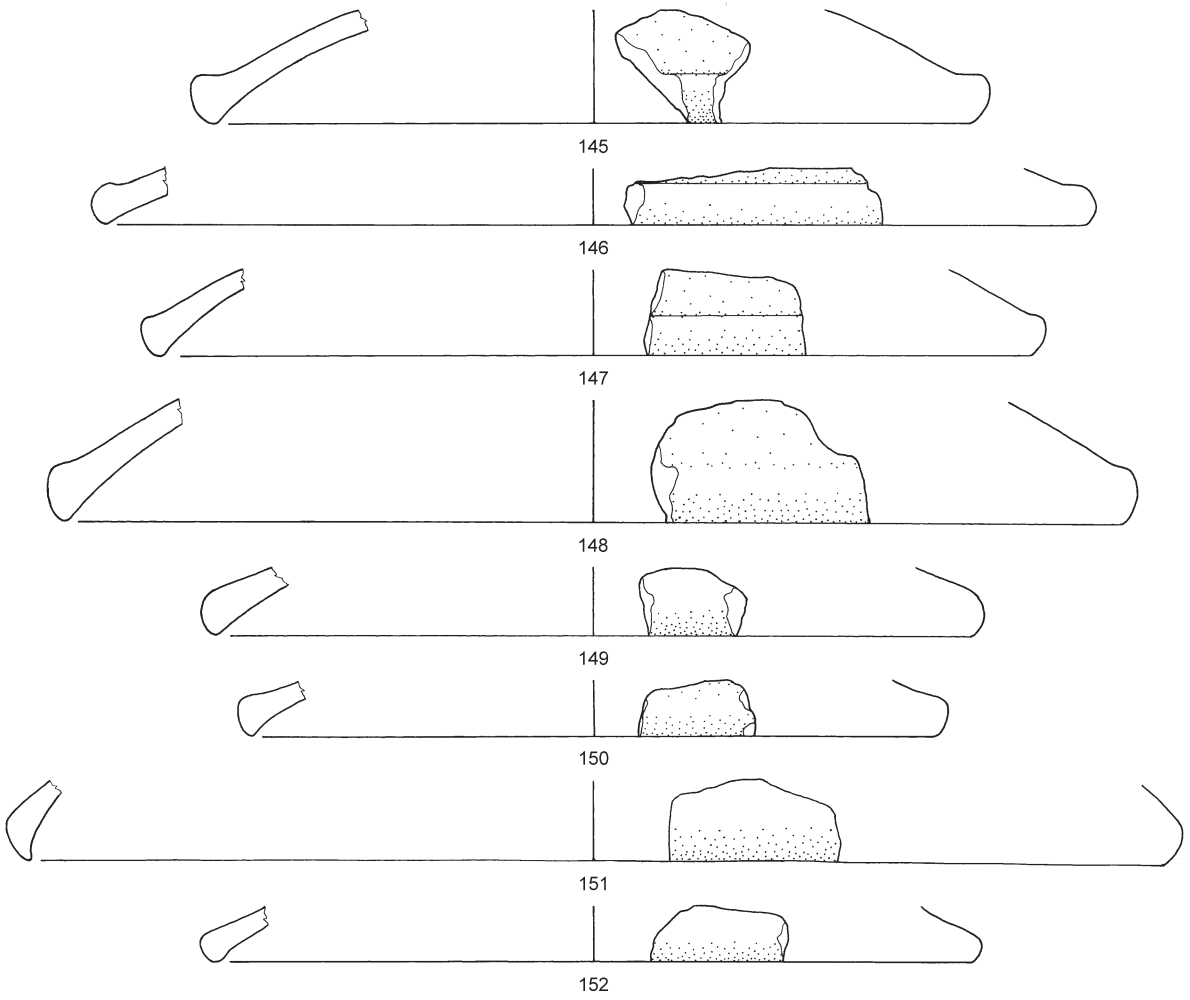
Site 15085-03 cont. Plate V-X



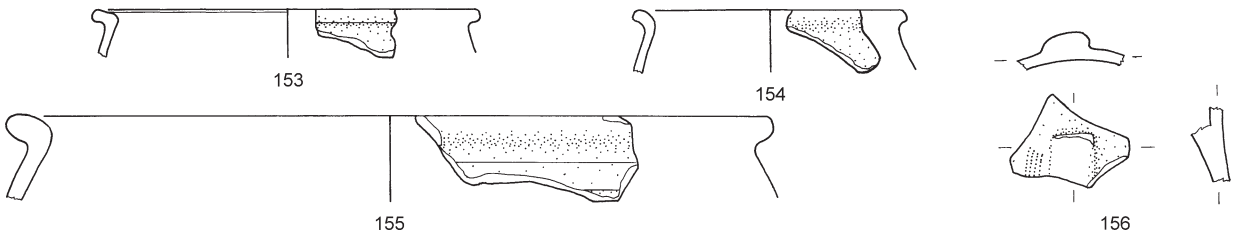
African cookware



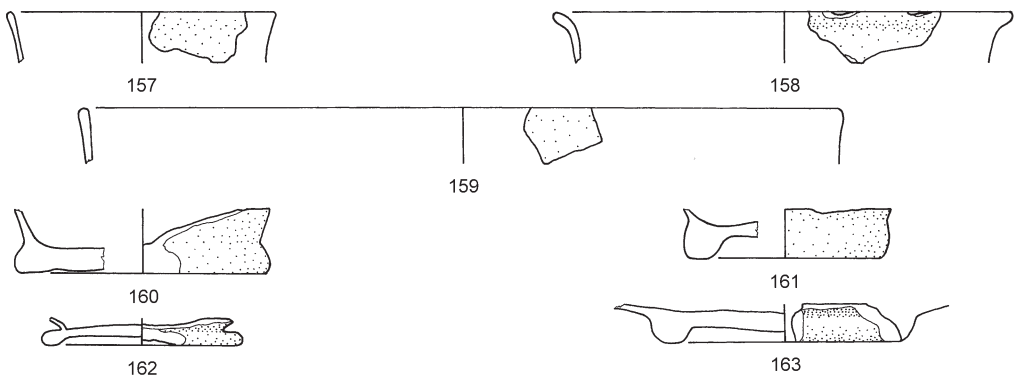
Site 15085-03 cont. Plate V-XI



Fine ware - Ceramica a pareti sottili

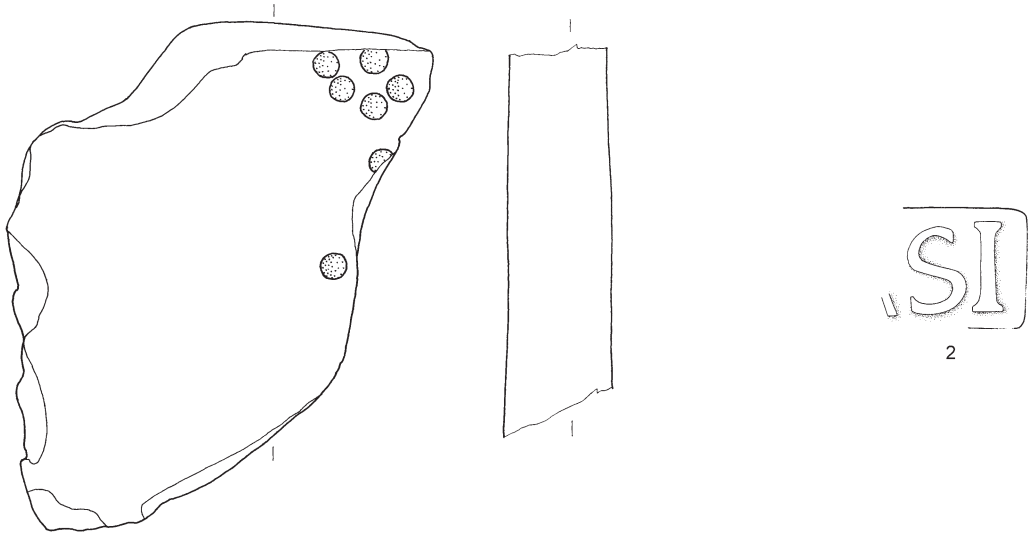


Glass



Site 15085-04 Plate V-XII

Building materials - Tile



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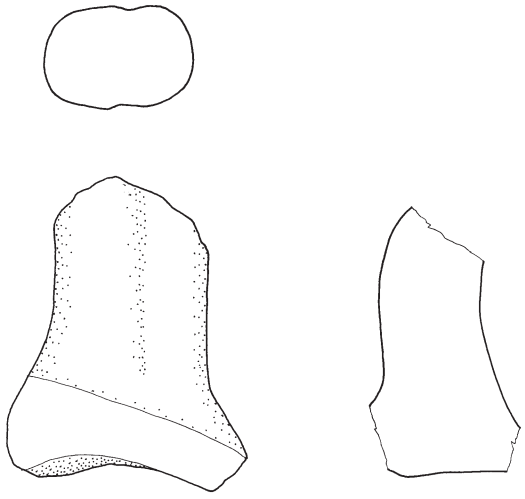
Amphora



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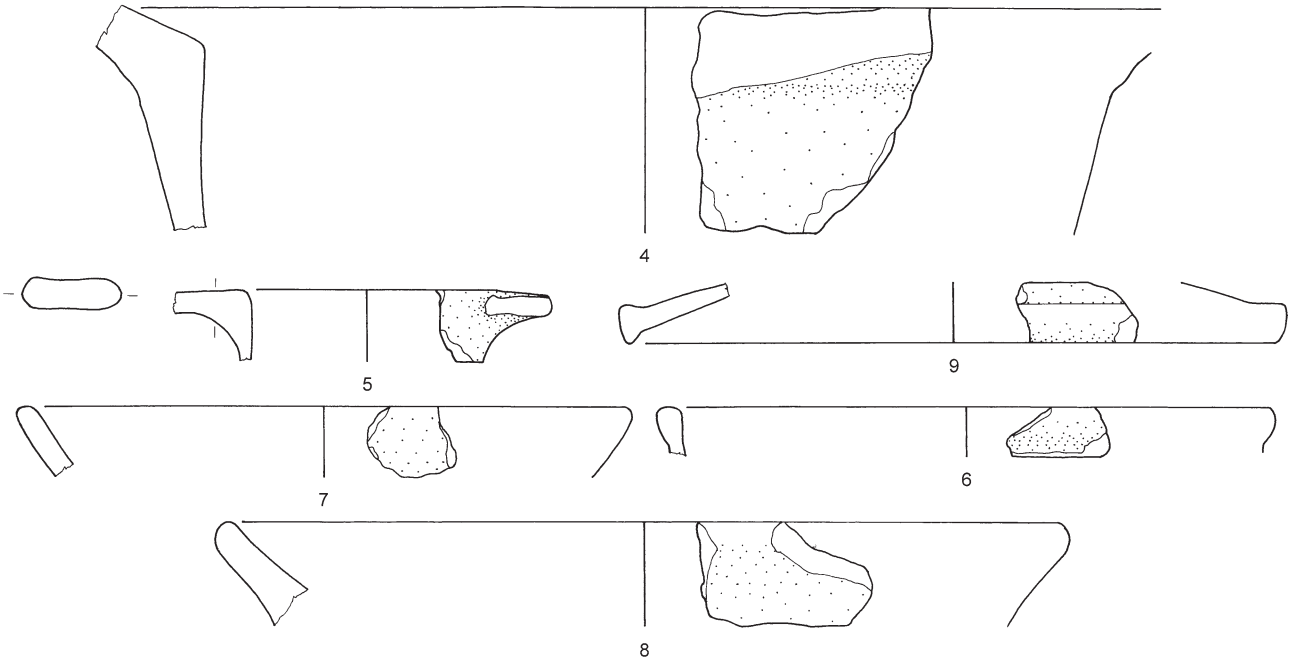
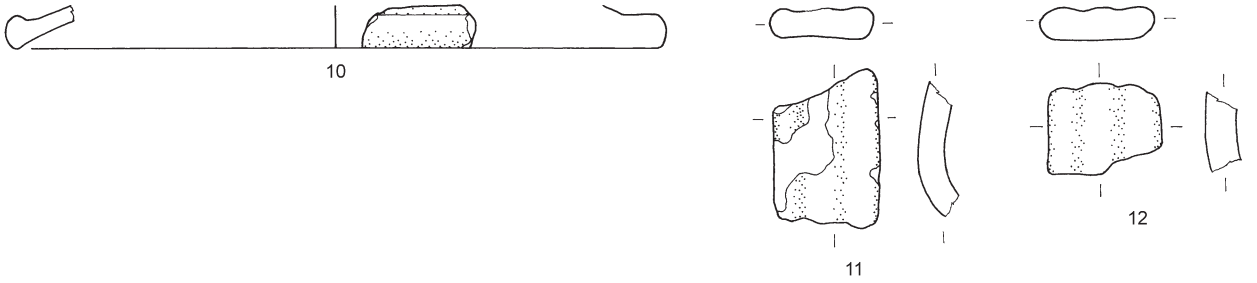
Utilitarian pottery



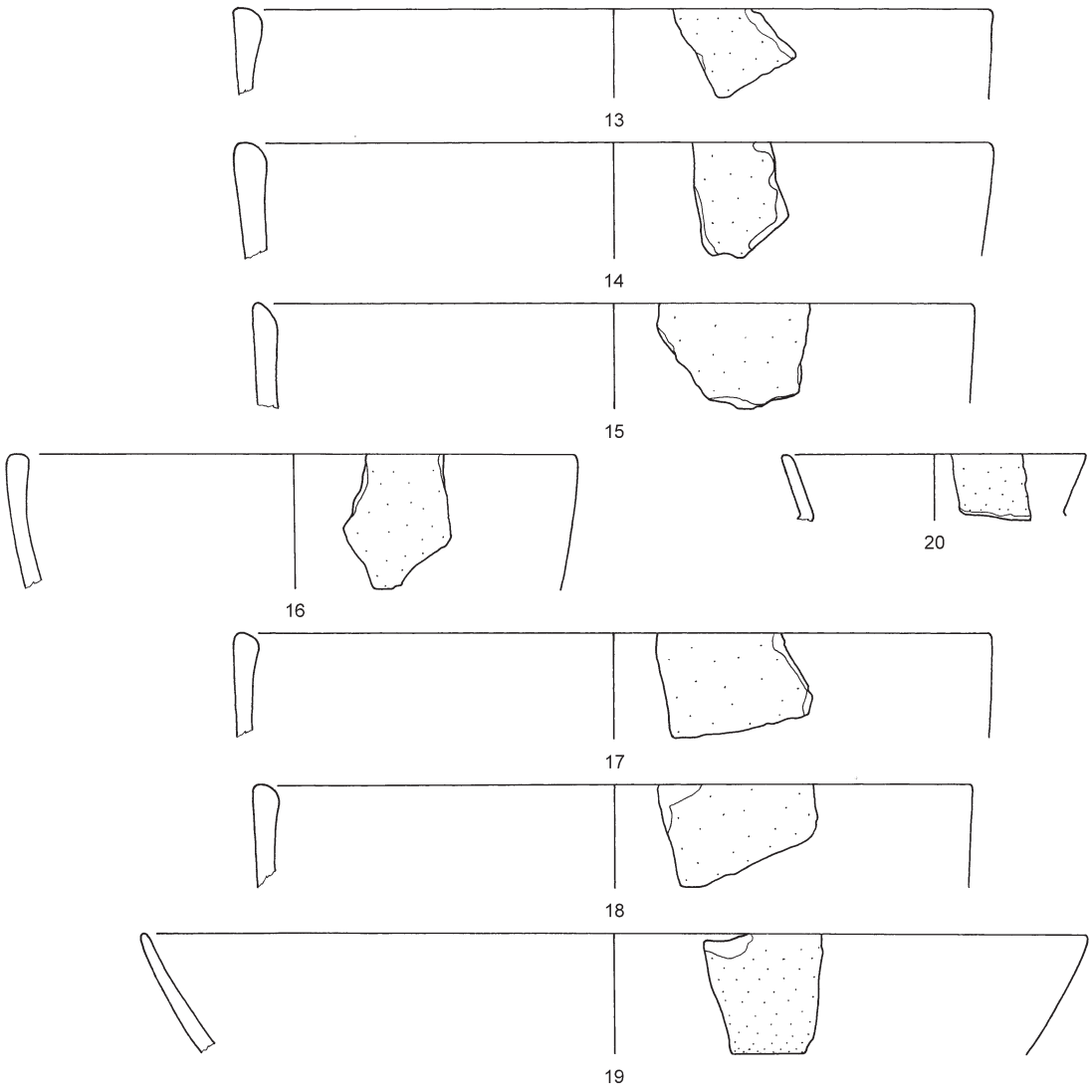
4 5 9 7 6 8

Site 15085-04 cont.

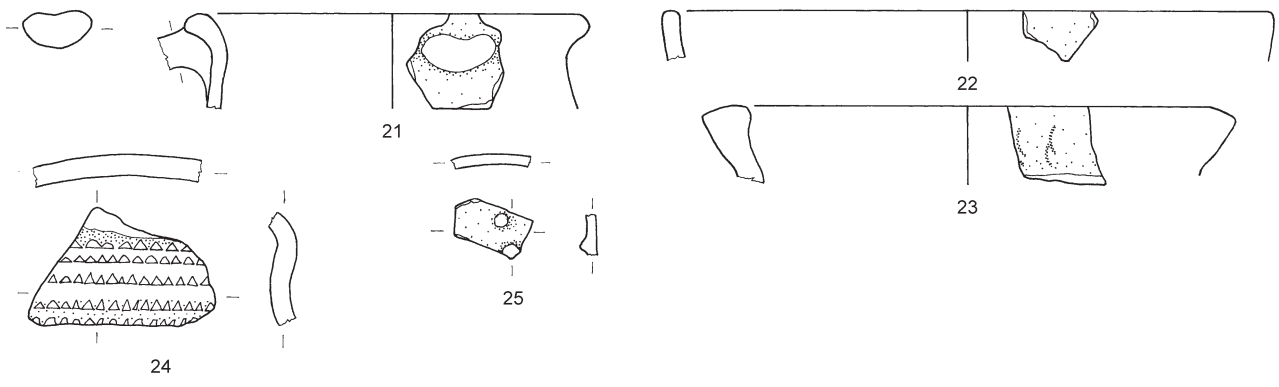
Plate V-XIII



Fine ware - African Red Slip Ware



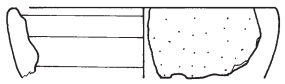
Fine ware - Ceramica a pareti sottili



Site 15085-04 cont.

Plate V-XIV

Glass



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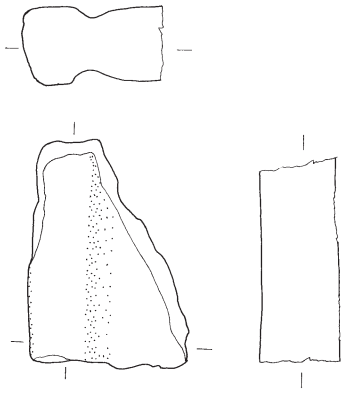
Miscellaneous



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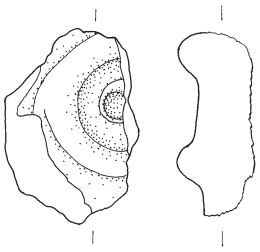

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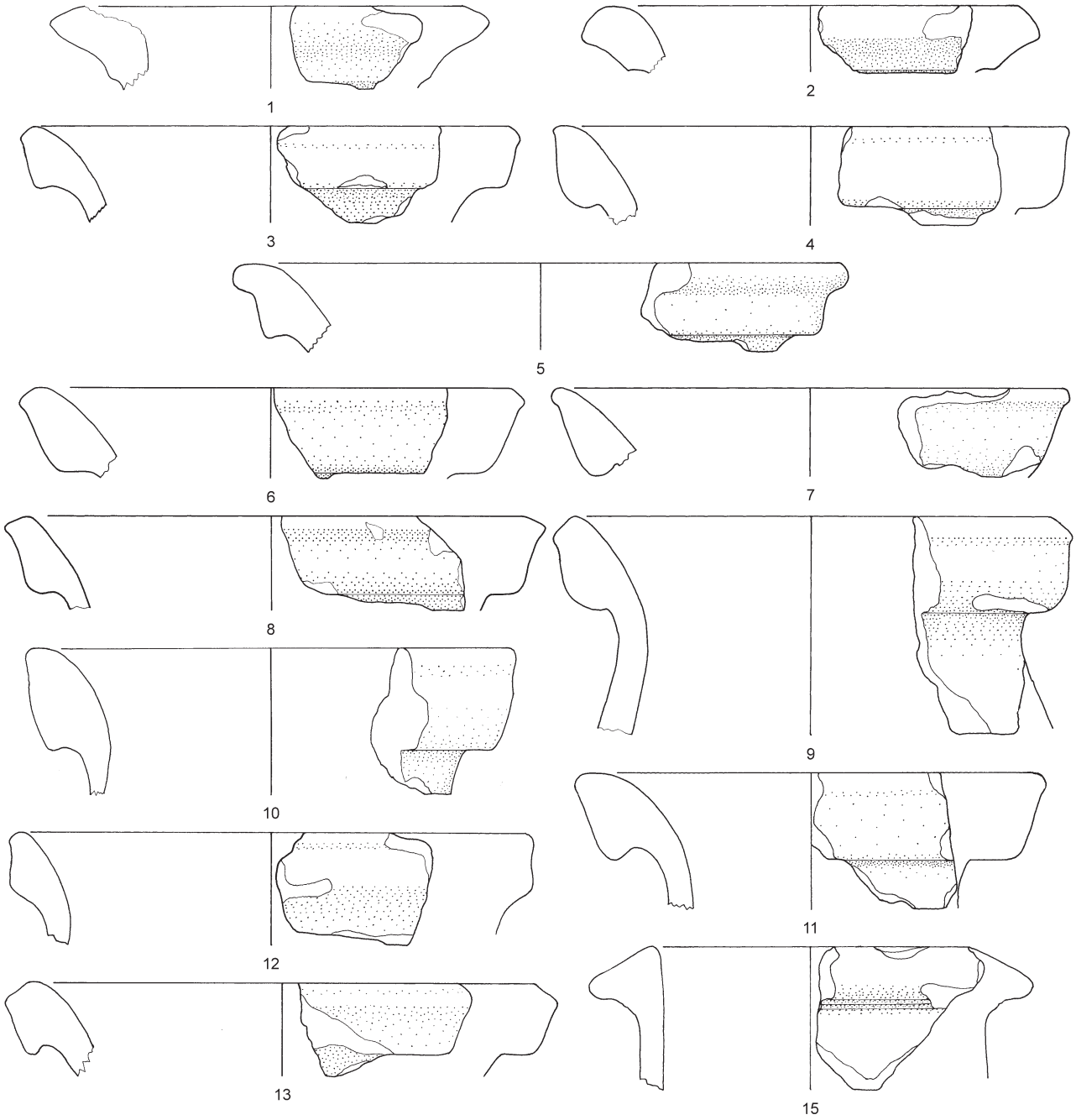
Site 15106

Amphorae



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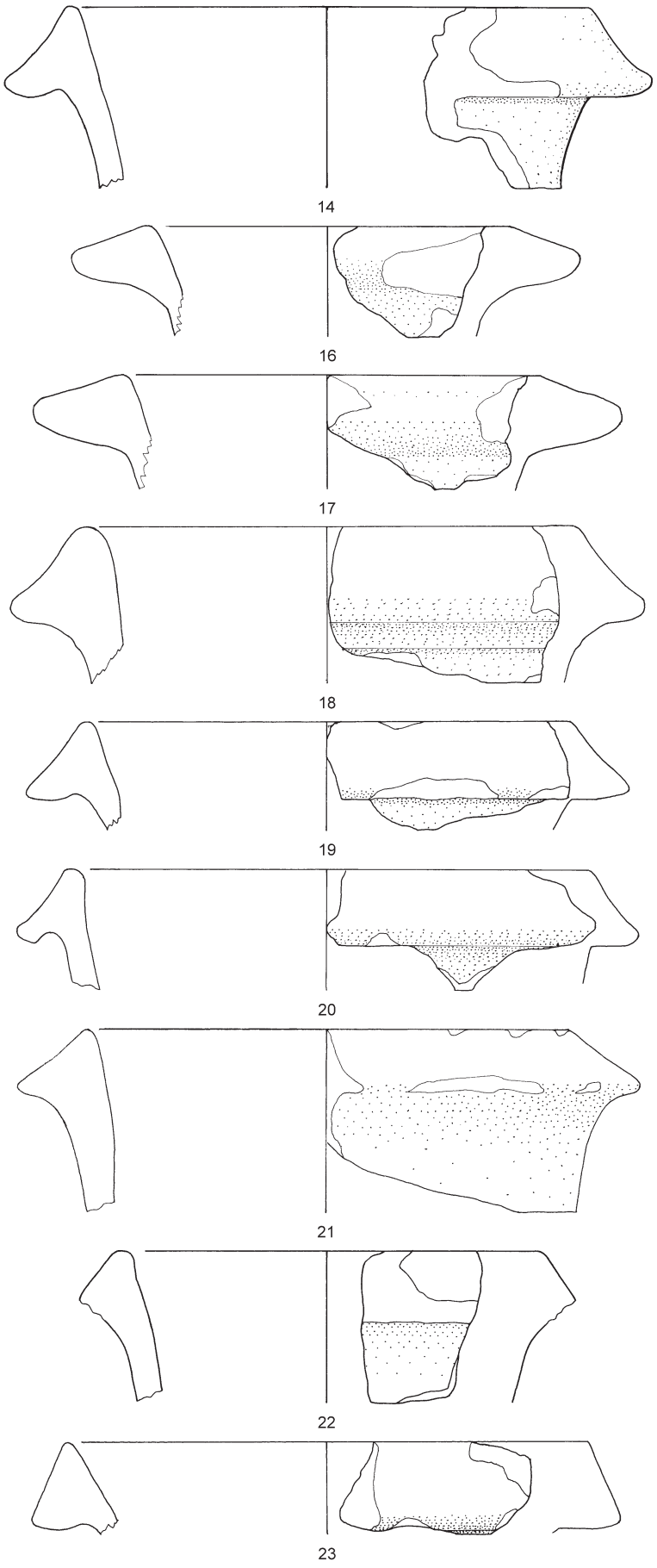
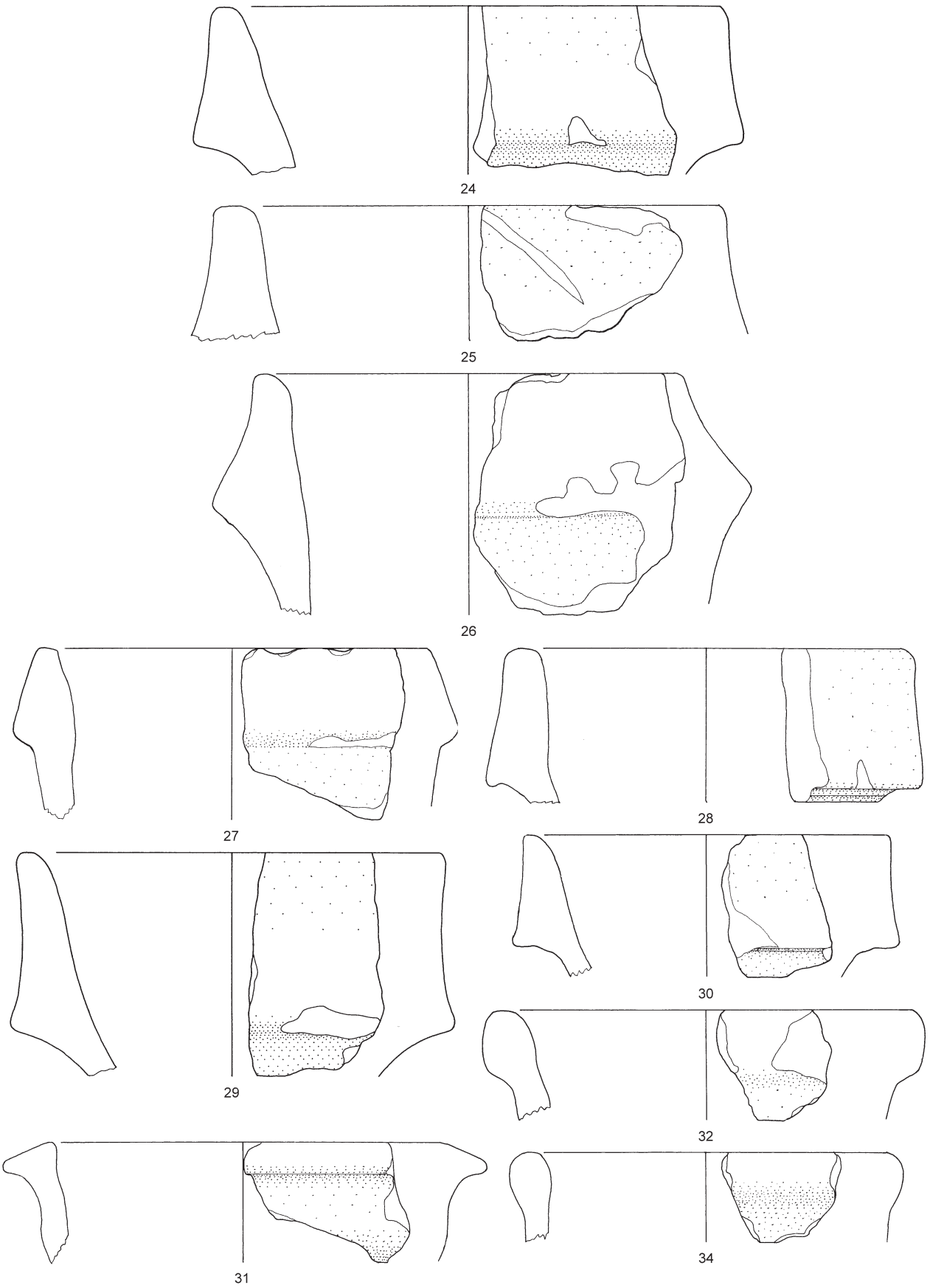
Site 15106 cont.

Plate V-XV



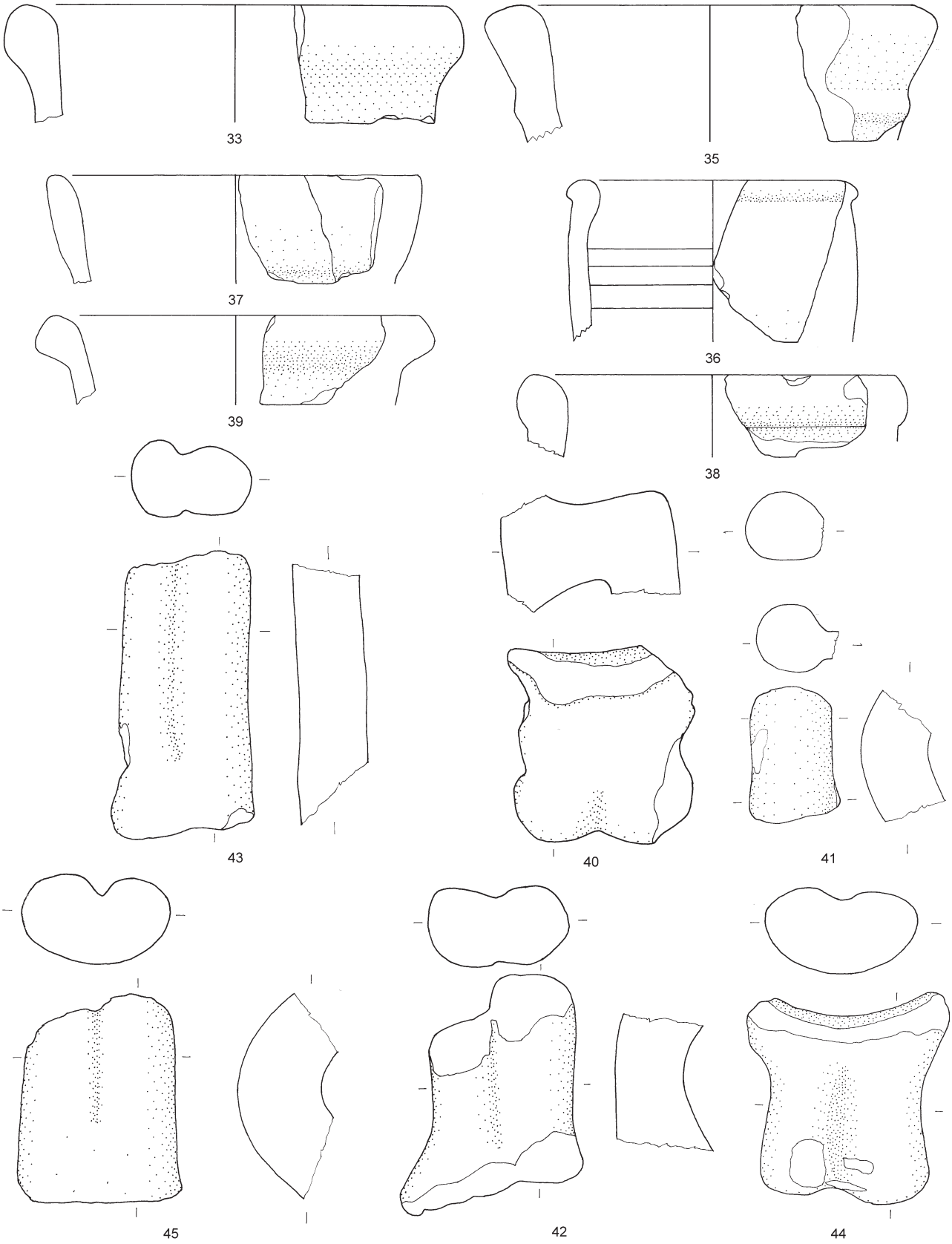
Site 15106 cont.

Plate V-XVI

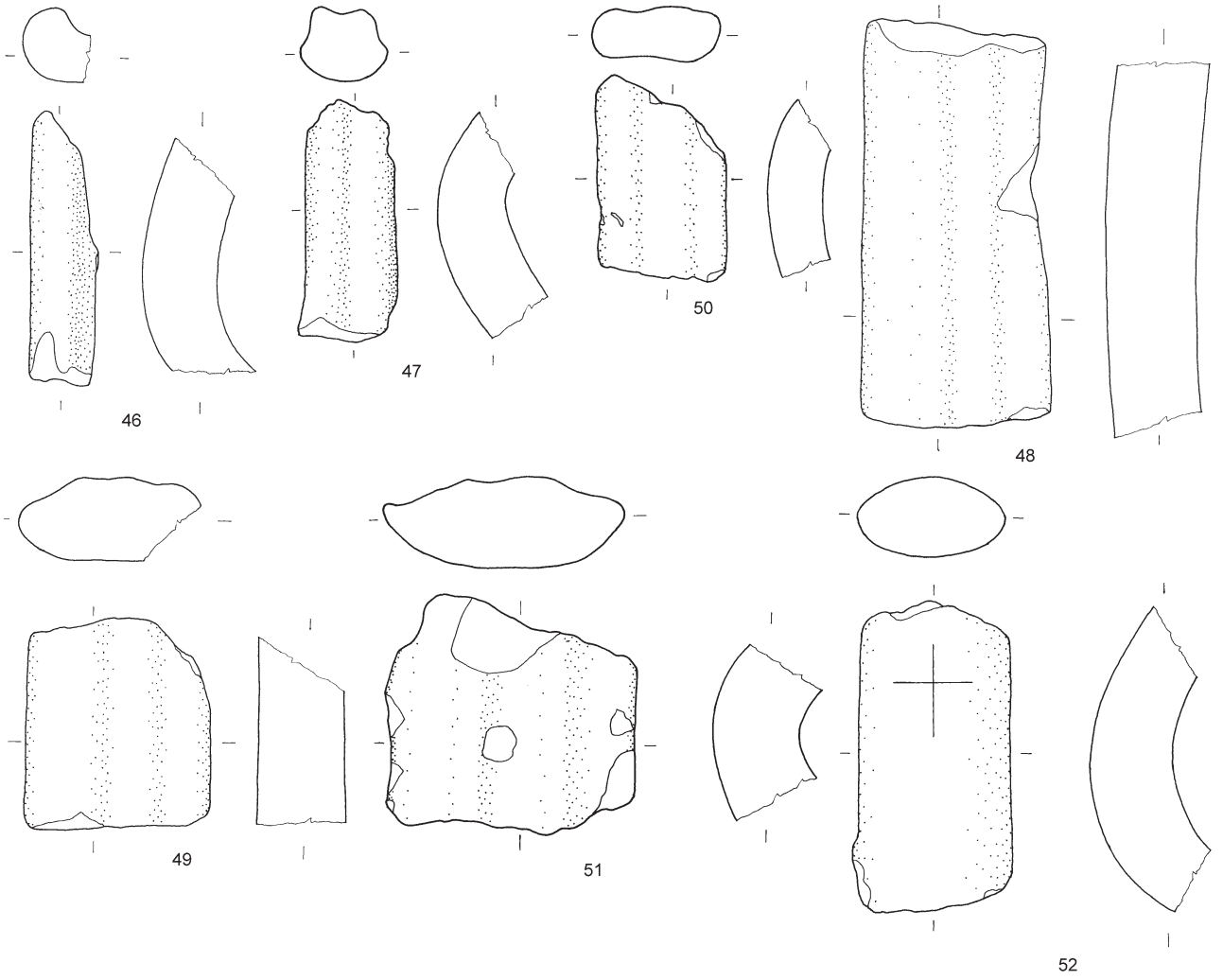


Site 15106 cont.

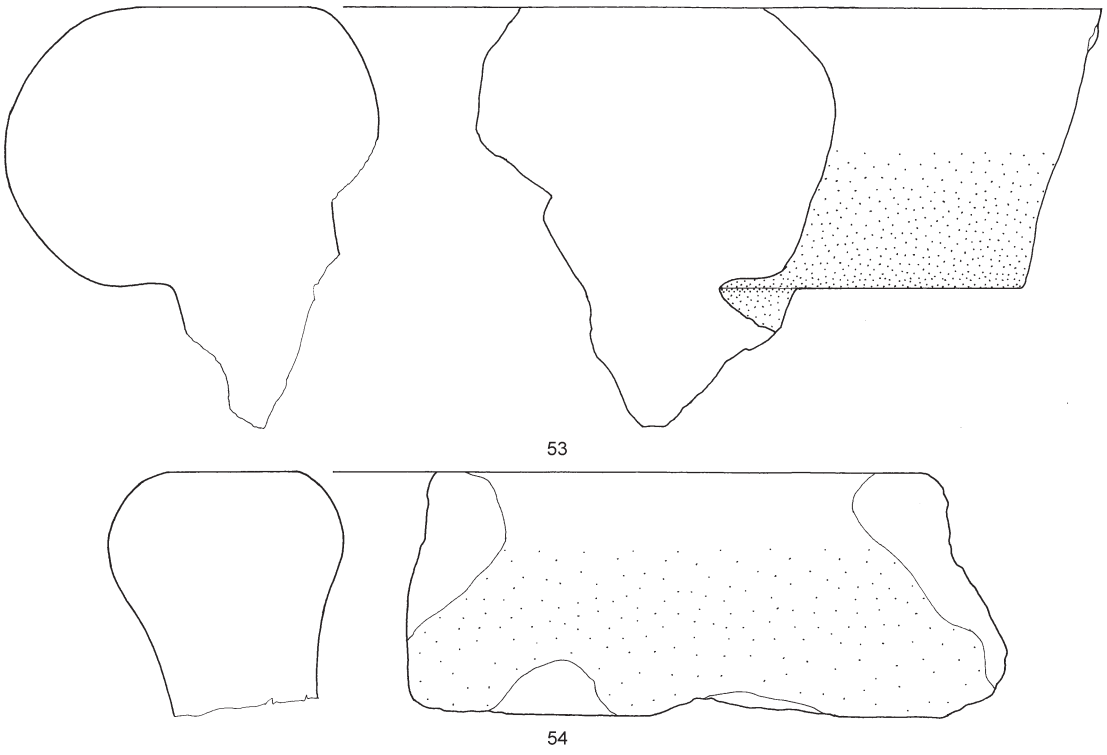
Plate V-XVII



Site 15106 cont. Plate V-XVIII

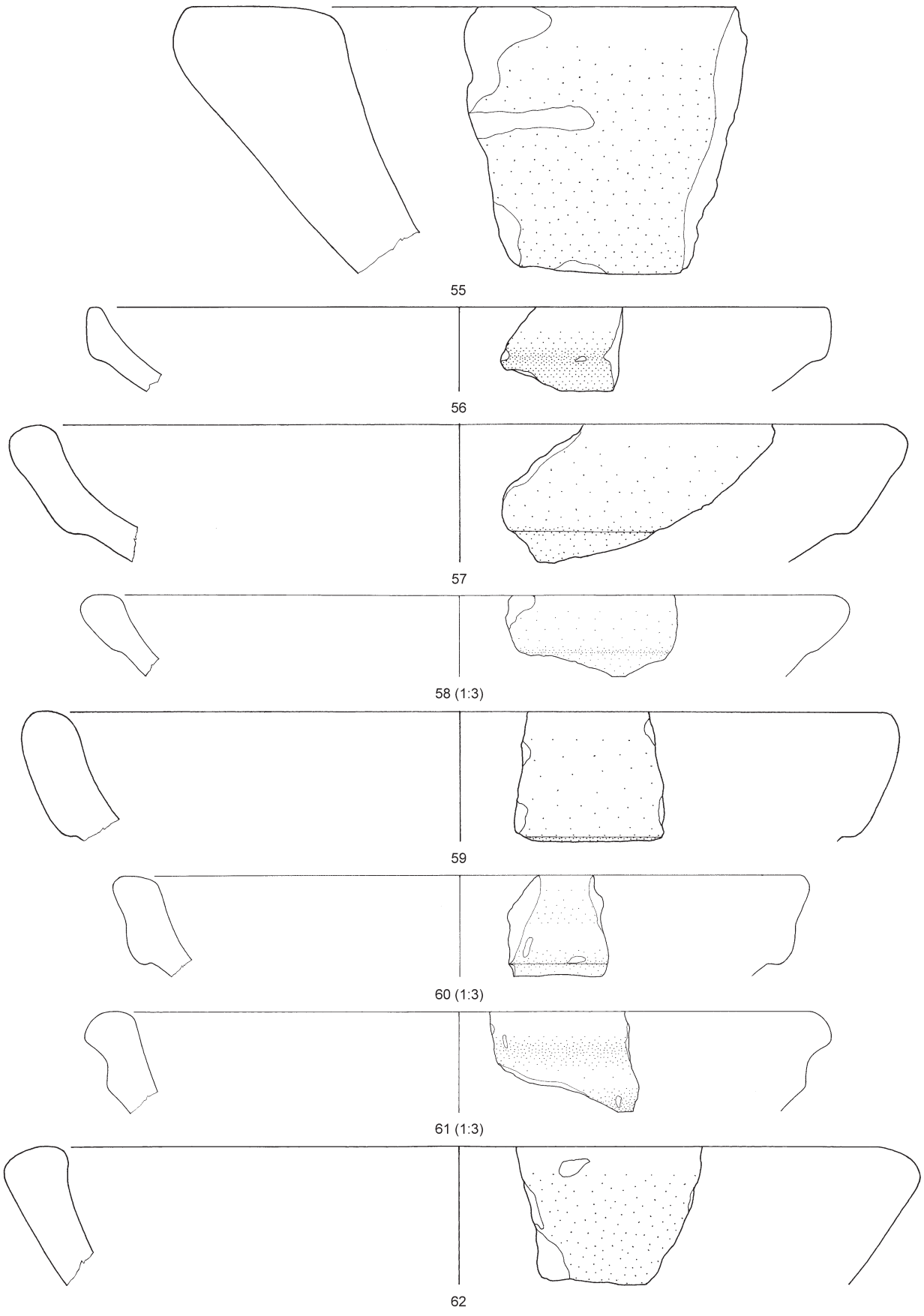


Utilitarian pottery



Site 15106 cont.

Plate V-XIX



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58 (1:3)

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60 (1:3)

61 (1:3)

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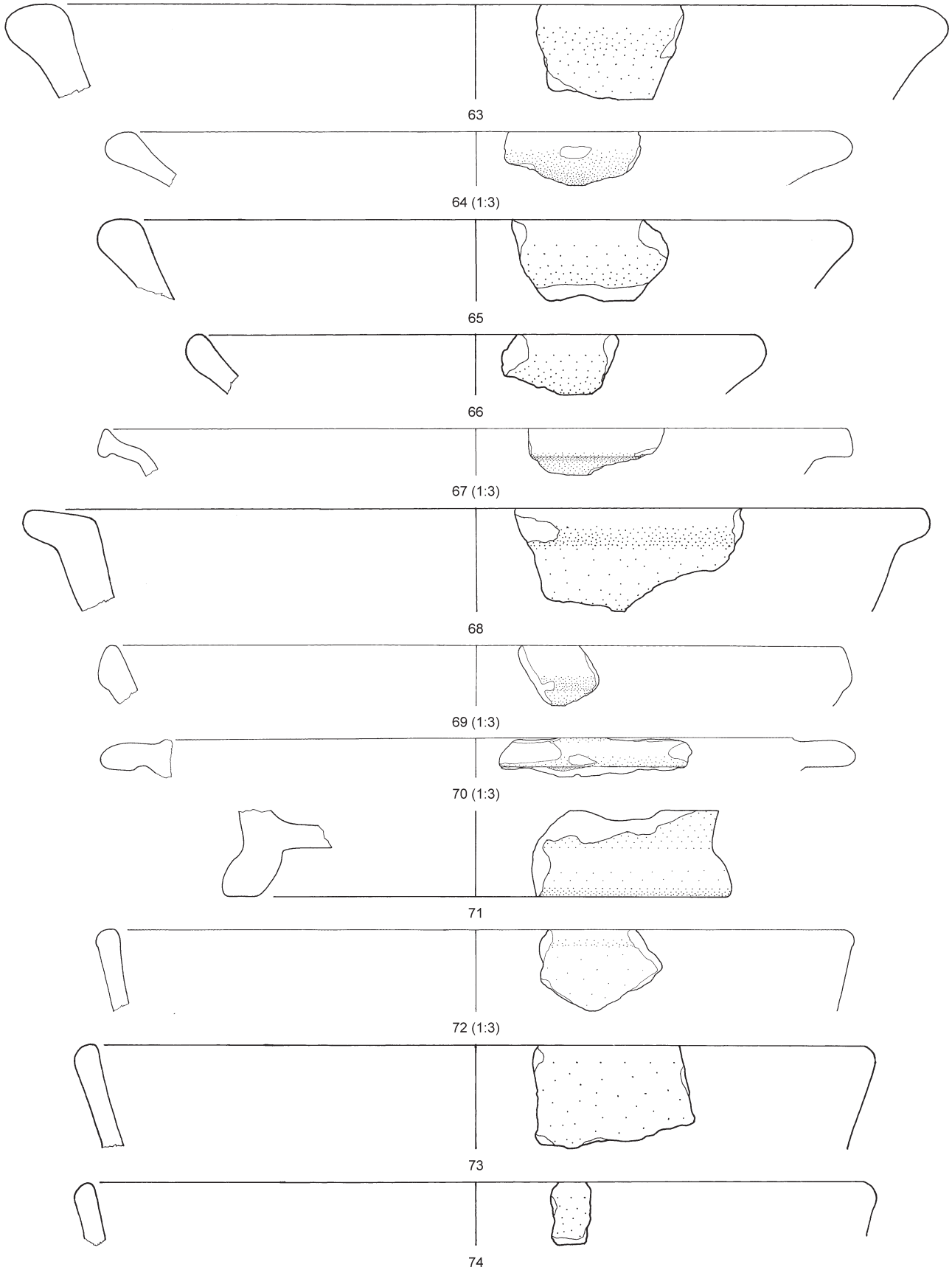
Site 15106 cont. Plate V-XX



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64 (1:3)

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67 (1:3)

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69 (1:3)

70 (1:3)

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72 (1:3)

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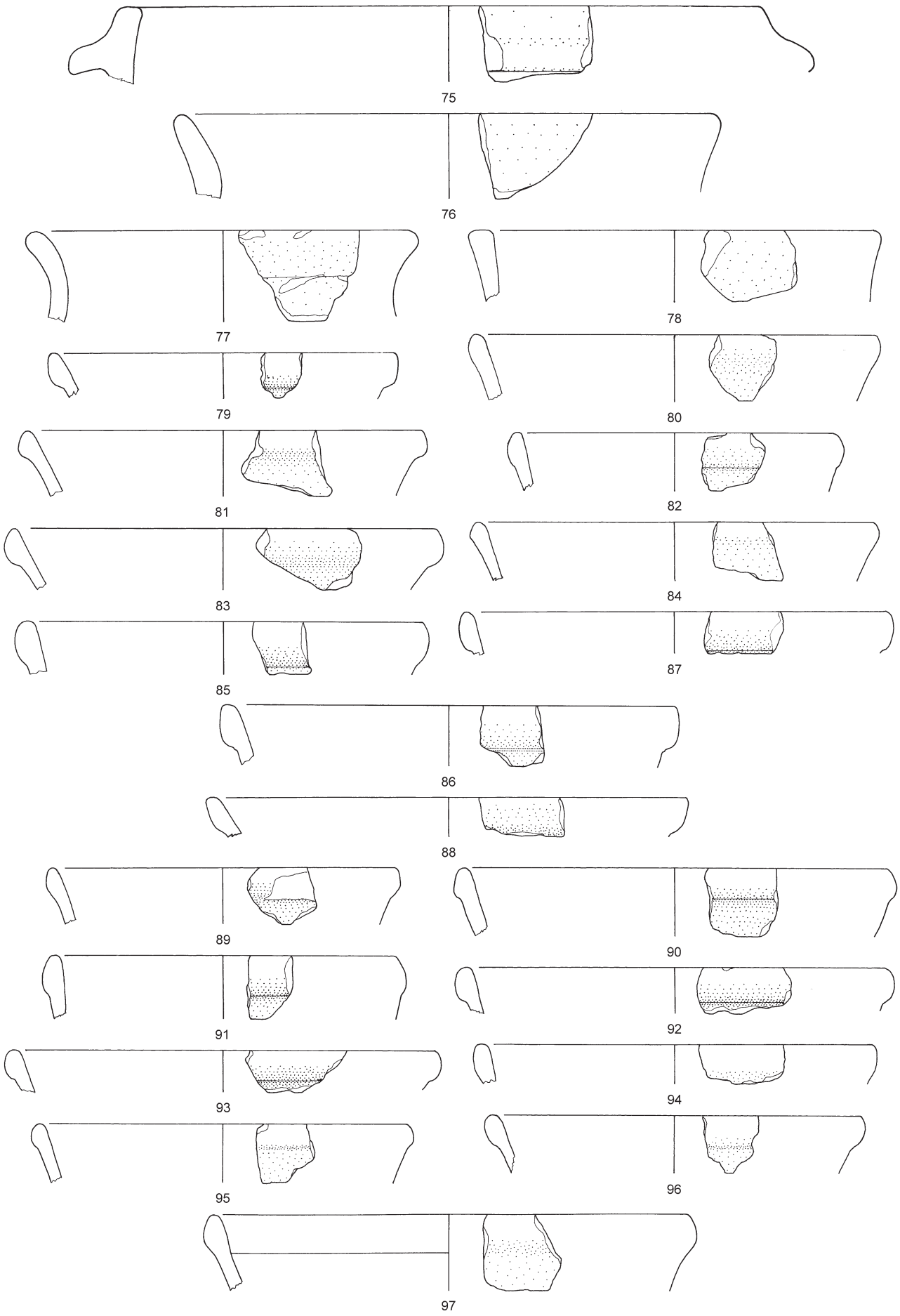
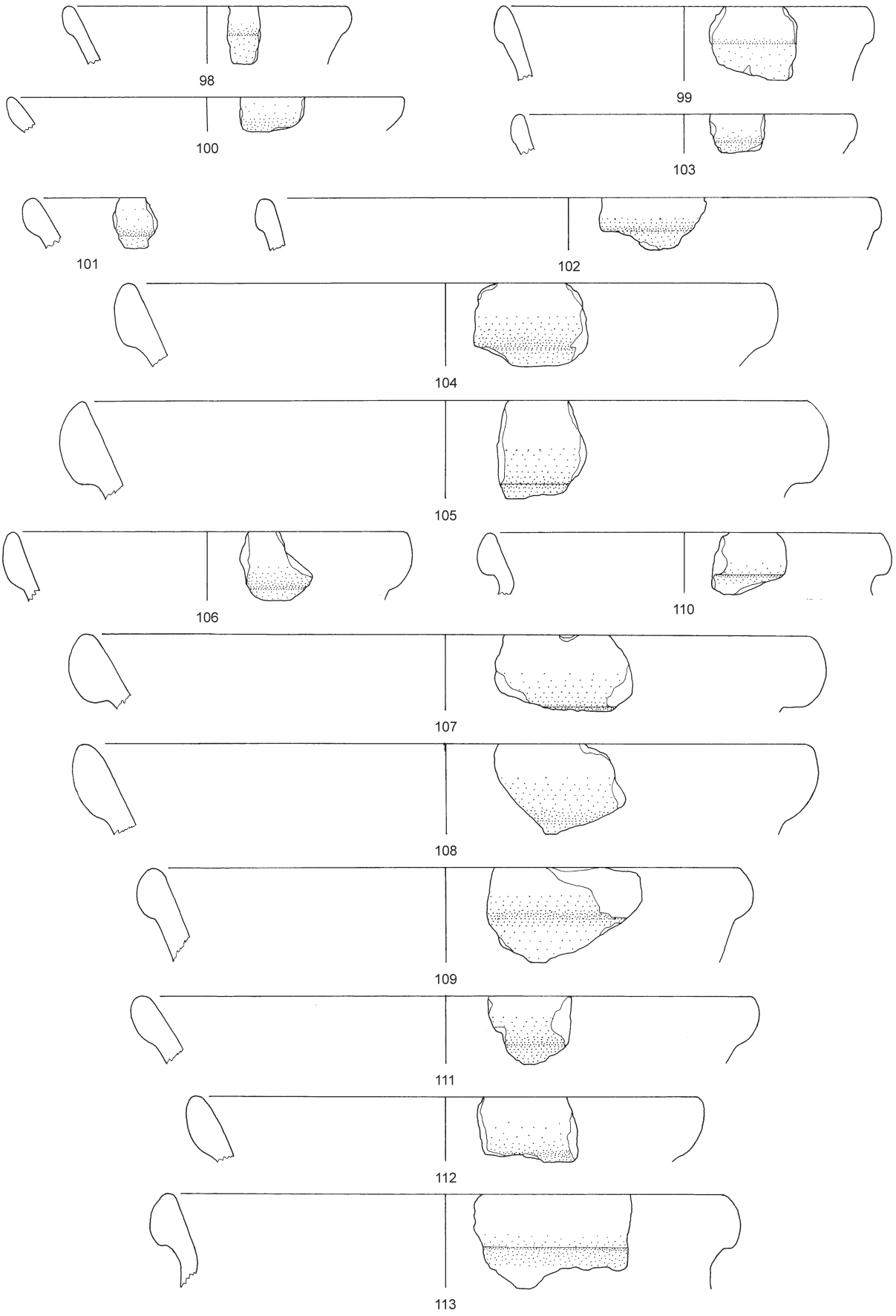
Site 15106 cont.

Plate V-XXI

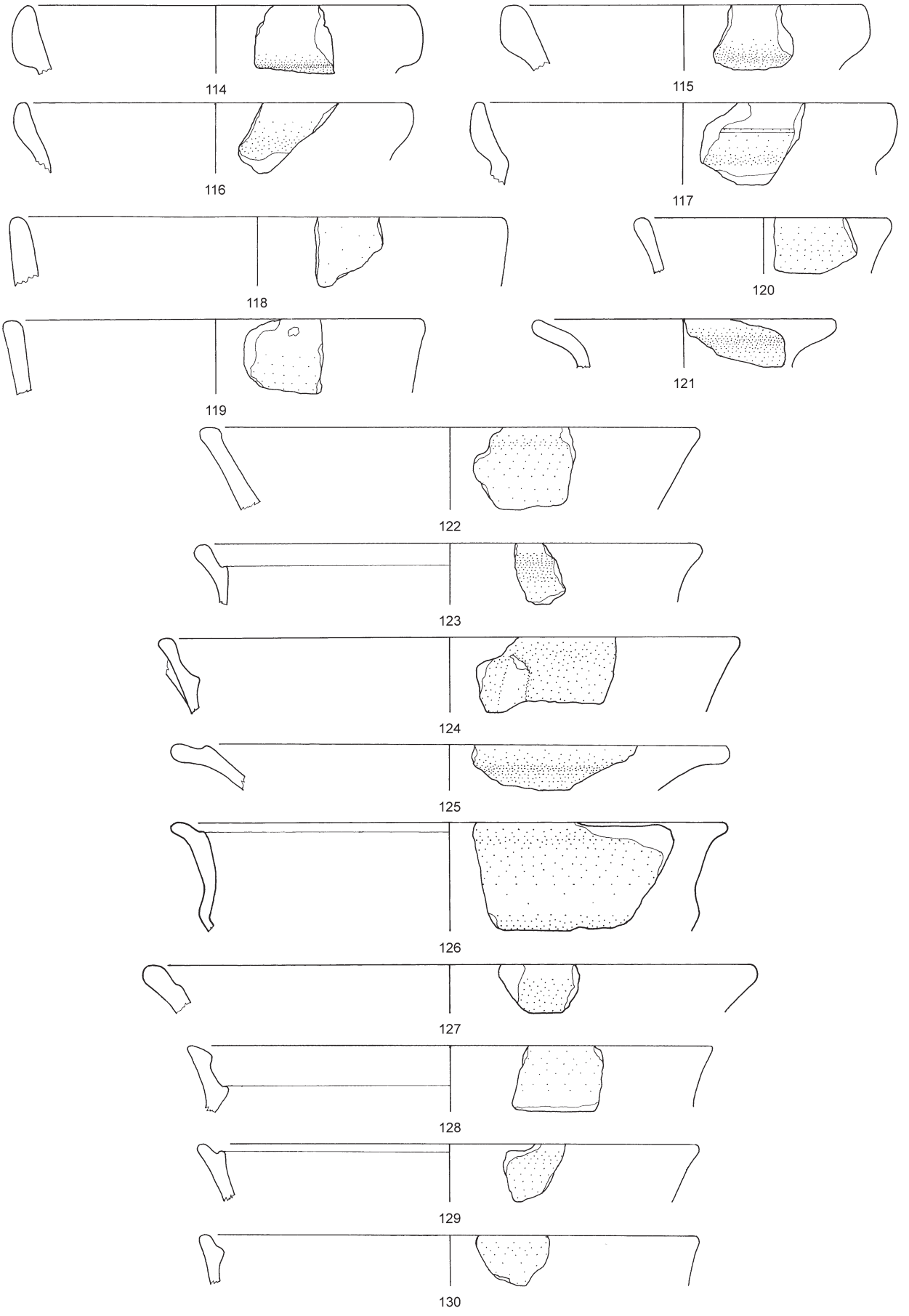


Site 15106 cont. Plate V-XXII

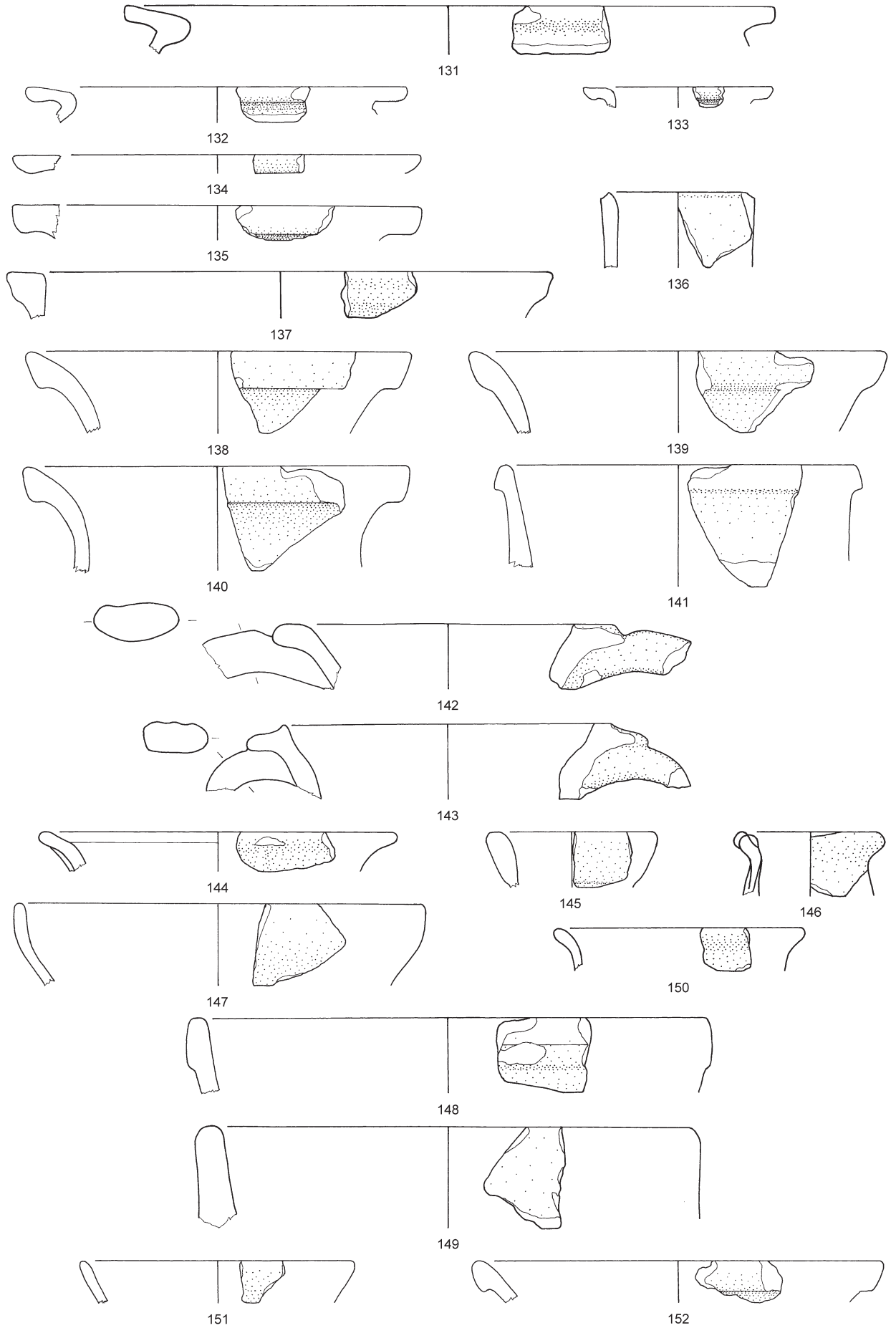


Site 15106 cont.

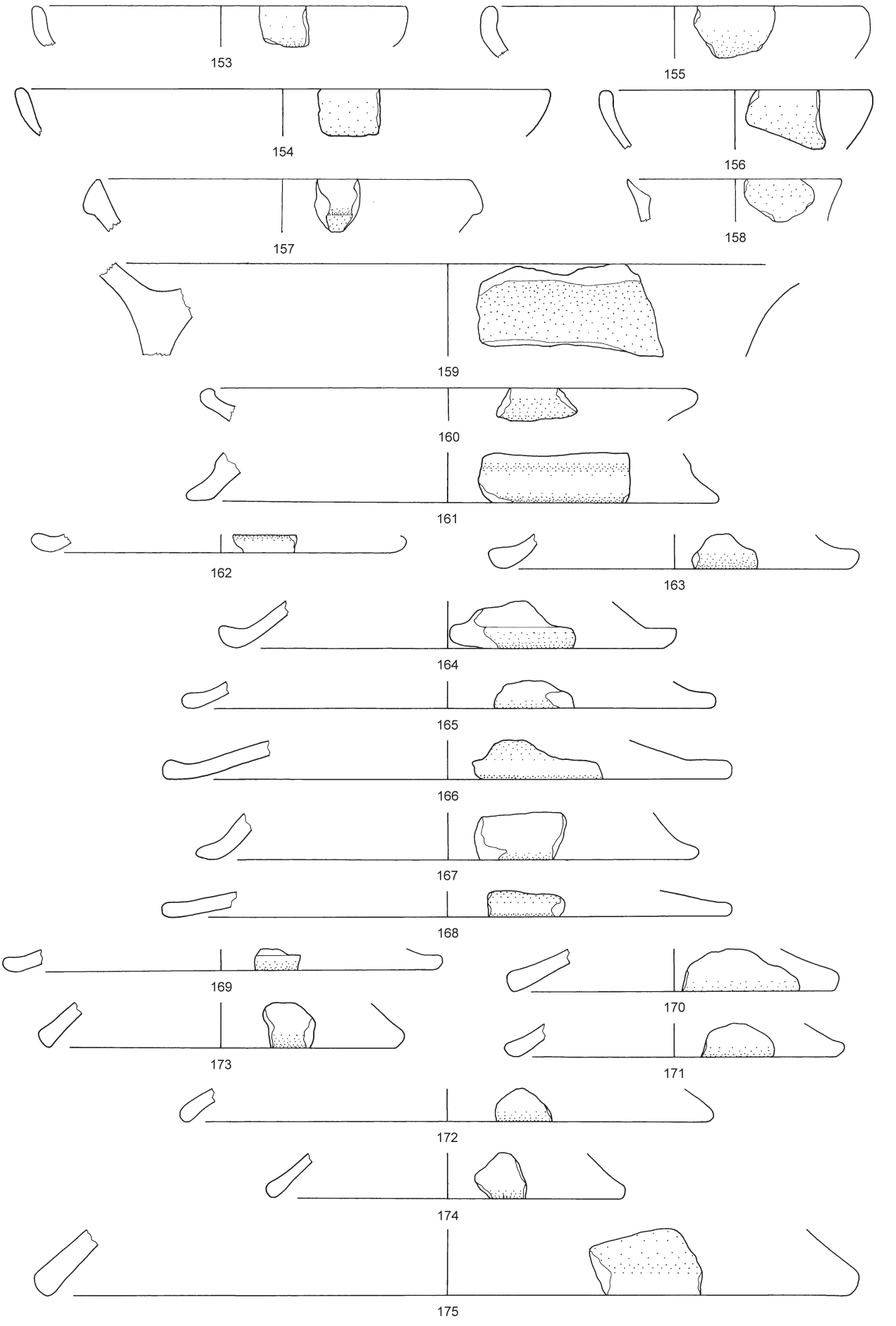
Plate V-XXIII



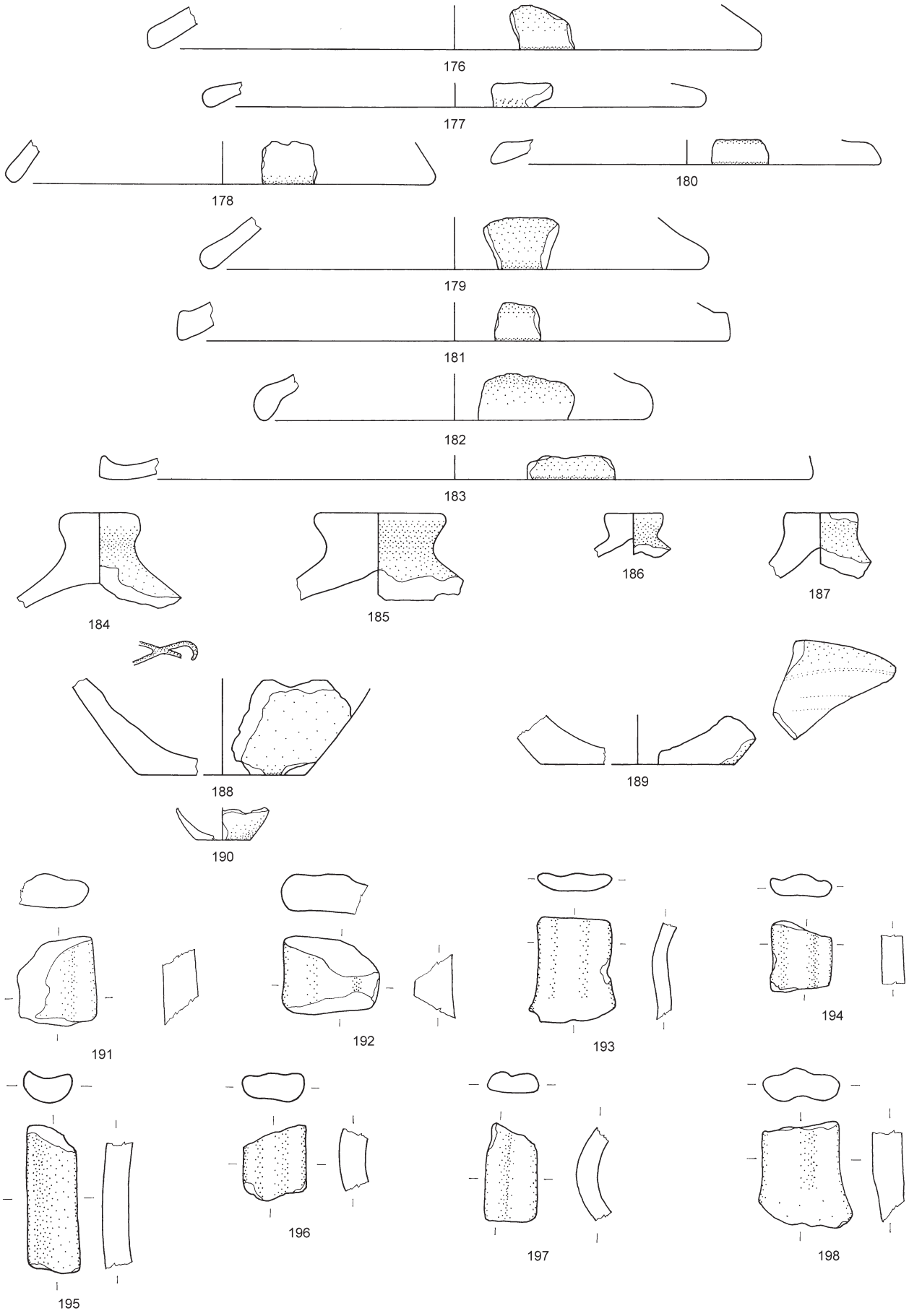
Site 15106 cont. Plate V-XXIV



Site 15106 cont. Plate V-XXV

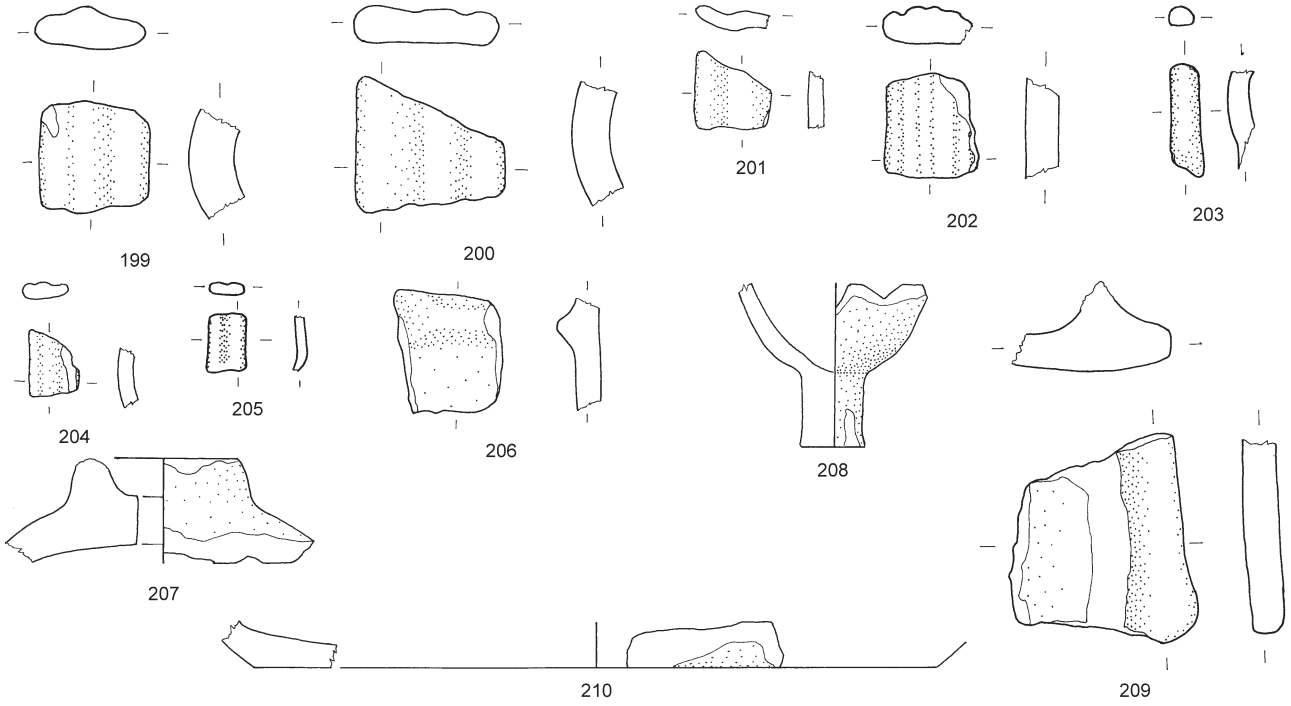


Site 15106 cont. Plate V-XXVI

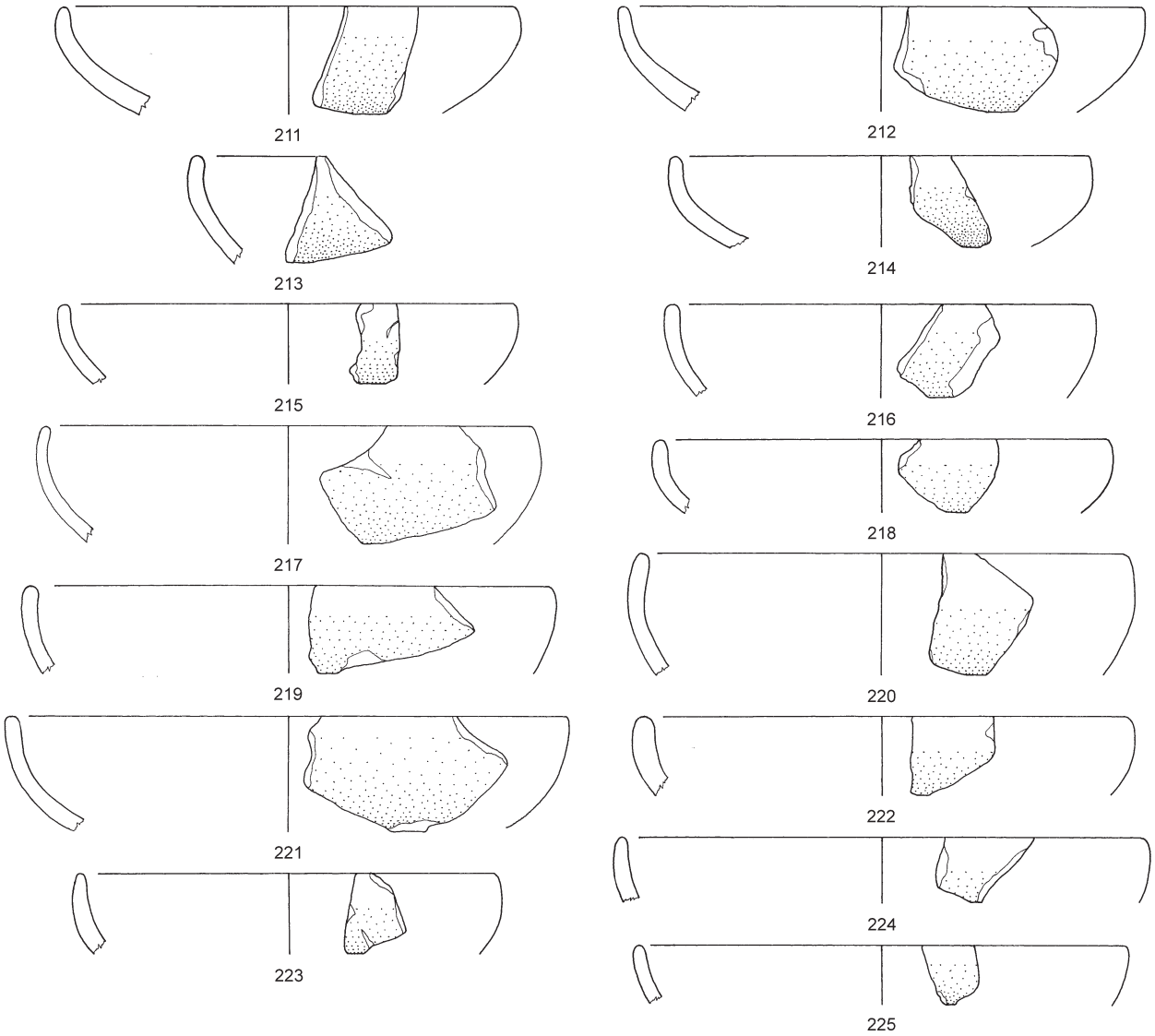


Site 15106 cont.

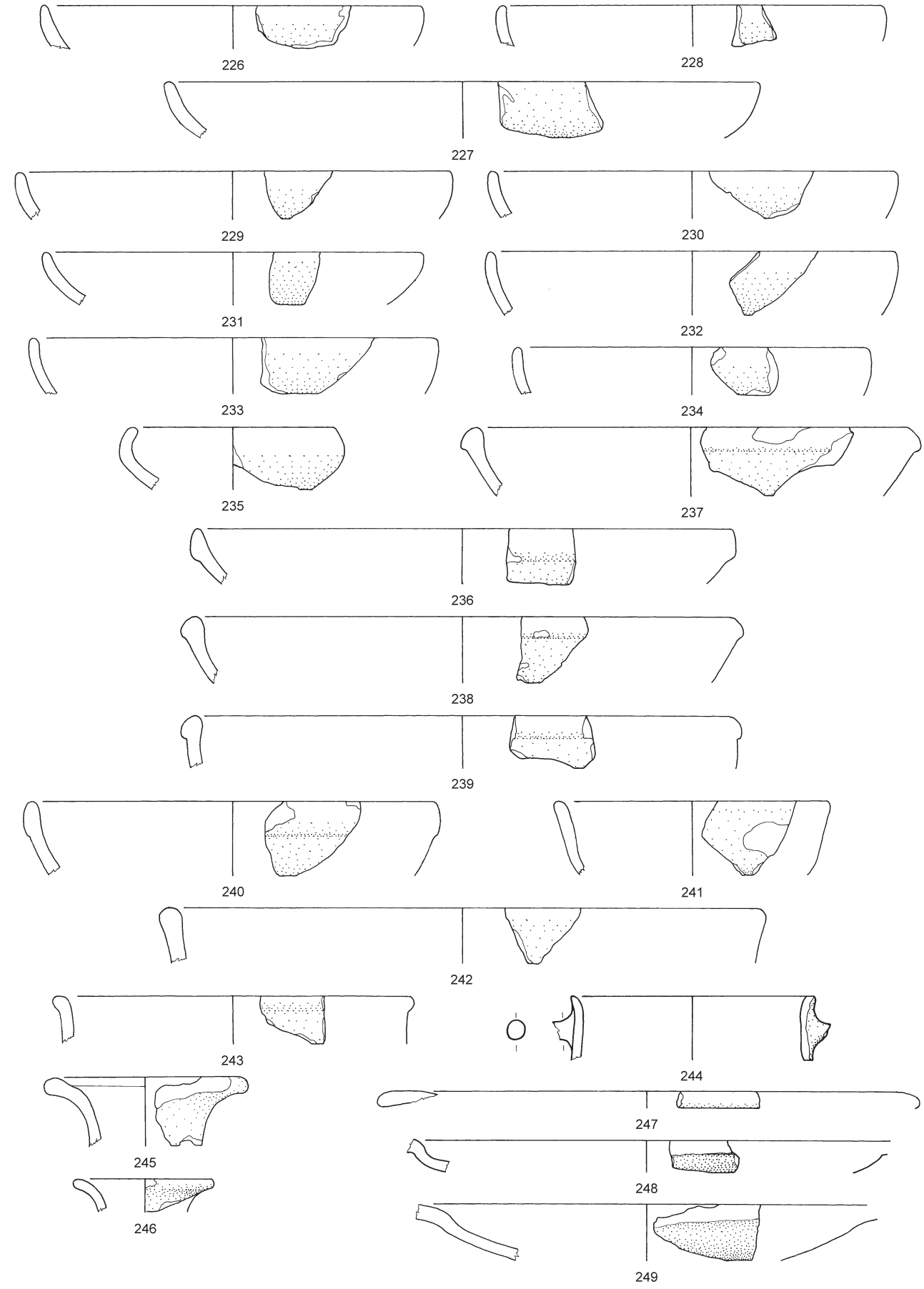
Plate V-XXVII



Fine ware - Black Glazed Ware

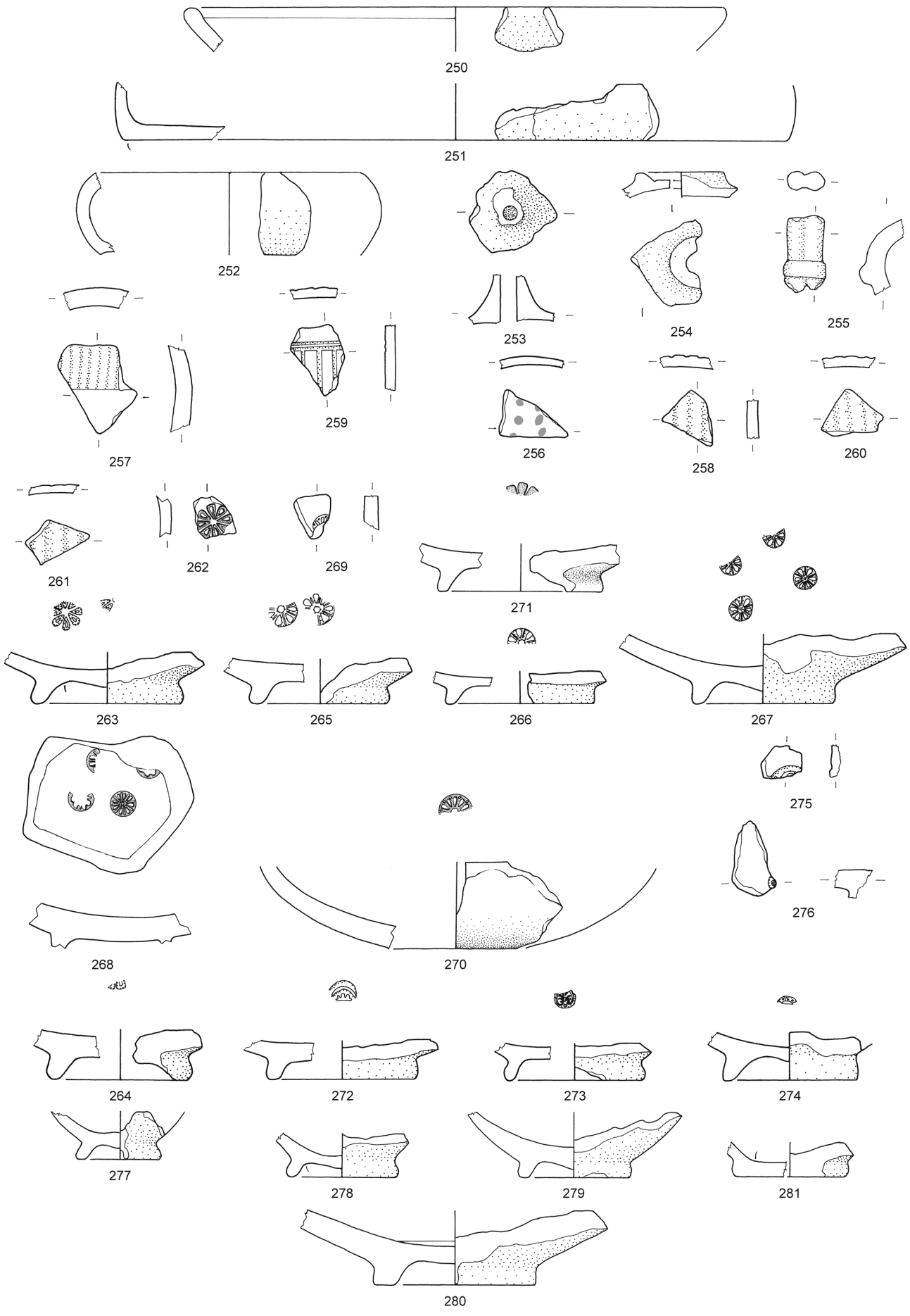


Site 15106 cont. Plate V-XXVIII



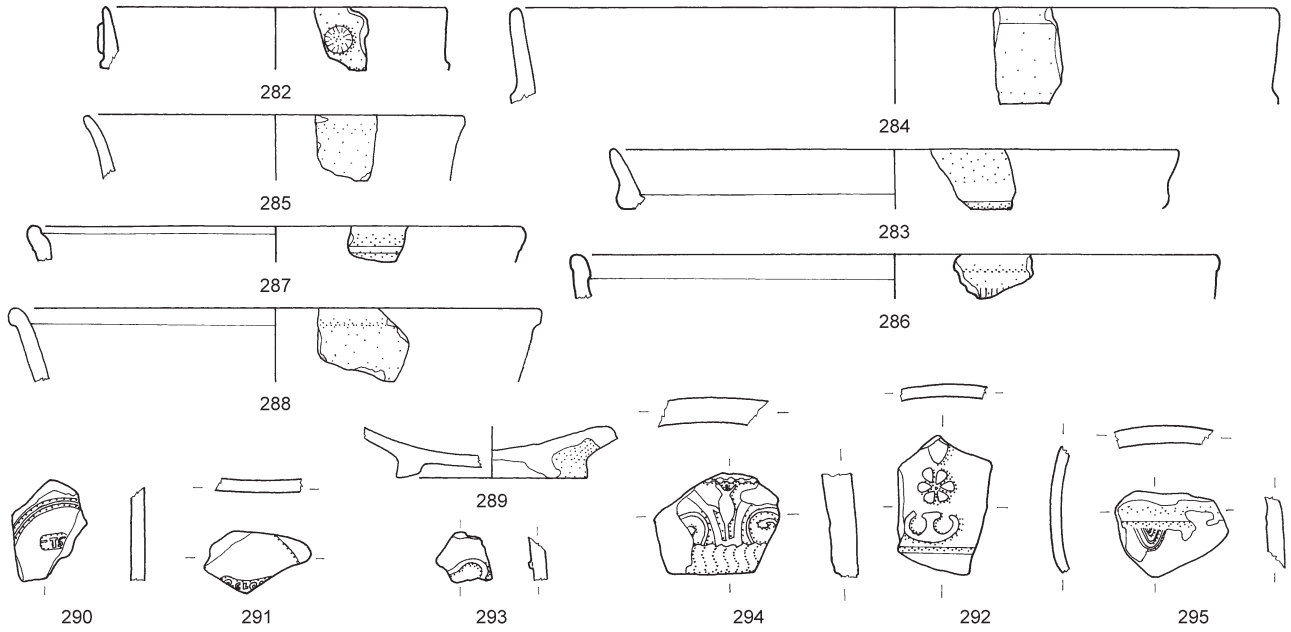
Site 15106 cont.

Plate V-XXIX

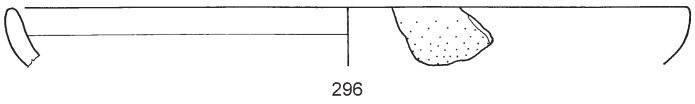


Site 15106 cont. Plate V-XXX

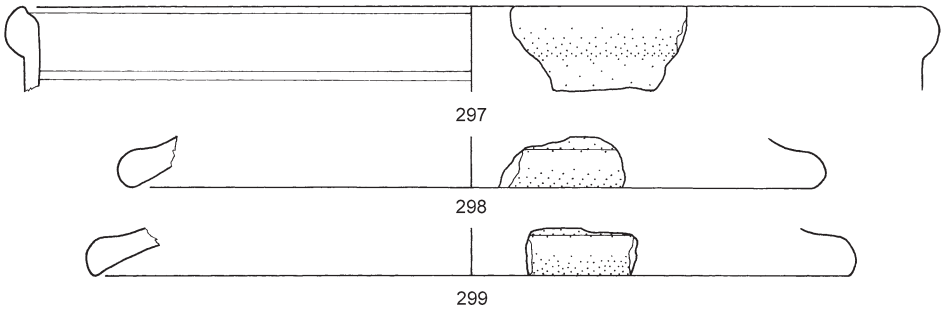
Fine ware - *Terra Sigillata*



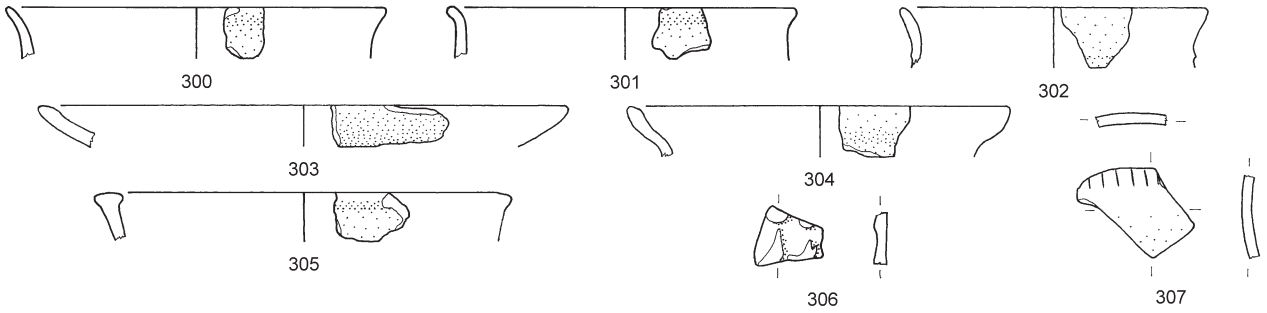
Fine ware - *African Red Slip Ware*



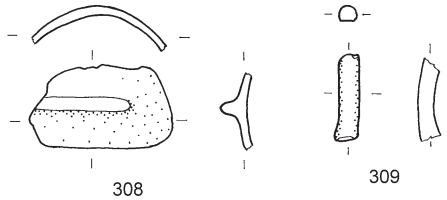
African cookware



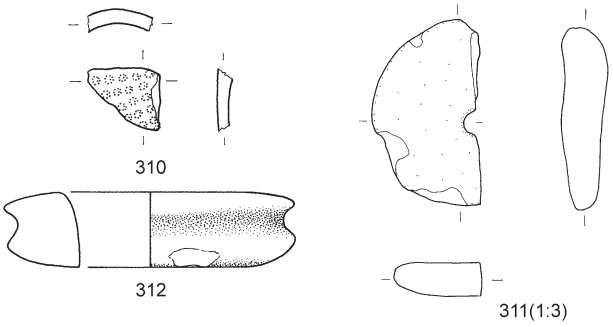
Fine ware - *Other fine ware*



Glass



Miscellaneous



Chapter 6 – Case-study 4:

A road station on the *Tabula Peutingeriana*. Excavations at *Astura*

This chapter presents the results of the mapping and sampling of a section containing archaeological materials situated near the mouth of the Astura river (see fig. 2.2).[419] *The first part of this chapter discusses the background of these investigations and an overview of the work done, including a catalogue presenting all identified materials. To conclude an evaluation of the results and an assessment of the role of the studied site within its local and regional context is given.*

6.1 Background of the study

Knowledge of the material culture of several historical phases is rather limited for the study area (and in fact for the wider Pontine Region), probably affecting our view on settlement in these periods. The most obvious of these are the post-Archaic period and the time interval between the late Imperial and the early Medieval period. Such 'dark ages' generally correspond to periods for which highly indicative materials (i.e. fine wares) are scarce or entirely absent. As the dating of surface pottery is normally based on pottery sequences from well-dated (stratigraphic) contexts, the identification and study of so-called reference sites for these less visible periods is fundamental.[420] The establishment of a datable pottery sequence can subsequently be used for the identification of similar materials in survey assemblages, and as such shed more light on settlement and economy of the period concerned.

In 2004, between the large villa complex of Torre Astura and the mouth of the Astura river, a section exposed by marine erosion was observed by students of the GIA. Its location corresponds to the southernmost edge of a large site that was tentatively identified by Fabio Piccarreta as the settlement *Astura,* depicted on the *Tabula Peutingeriana.*[421] The section contained a thick band of archaeological materials with a substantial late Imperial to early Medieval material component.[422] Following a second visit, during which this observation was confirmed, permission was asked and obtained by the *Soprintendenza per I Beni Archeologici del Lazio* to conduct further investigations. In two consecutive summers, 2007 and 2008, the section was studied with two specific aims in mind:

1) To identify and date all features visible in the section;
2) To establish a local sequence of pottery in circulation in our study area between the late Imperial and the early Medieval periods.

6.2 The excavation

Methodology

In the two campaigns the section was straightened, cleaned and drawn over a length of 95 meters, divided into nineteen sections measuring five meters each (sections A-S; fig. 6.1).[423] From each section a sample of archaeological materials was collected. Two features that were identified in the exposure were studied in more detail. The first of these is formed by the remains of a structure, identified in section I. After cleaning, its extension landinward was measured and the soil in its foundation trench was excavated horizontally. Secondly, a small trench was dug in section J where an agglomeration of large tuff blocks was observed.

The stratigraphy

A total of nine different *strata* were recorded (fig. 6.2). The upper two layers, containing many roots of plants and trees (layers 1 and 2) were topsoil and consisted of sandy humus-rich soil, with layer 2 having a slightly lighter colour. Layer 3 was composed of relatively

419 For an overview of the available historical and archaeological evidence for the site and its wider context see chapter 1.

420 On the importance of the study of such reference sites see for example Patterson 2000, 111; Vermeulen *et al.* 2005, 51.

421 Piccarreta 1977, 21.

422 The sample included mainly coarse ware types, but also fragments of late Imperial and late Antique African red slip ware shapes, fragments of glass and a coin. Furthermore a fragment of *ceramica dipinta a bande rosse* indicated activity at this location during the Medieval period.

423 Each of the sections measured five metres in length. Since the exposure itself was not straight, but somewhat curving, the actual surface comprised in each section slightly varies. The beginning and end of the studied part of the section was determined by the presence/absence of the finds layer.

Figure 6.1 Overview of the excavation.

dense light grey sand of varying thickness, in section A-I and P-R more than a meter thick, but elsewhere measuring no more than 20 cm. The lowest part of this layer contained a band of archaeological materials, generally 10-20cm thick. The disposition of the materials (on top of each other) and the fact that they date from different periods suggests that this 'finds layer' either represents a secondary deposition or is formed by deflation.[424] By deflation the soil that originally separated different archaeological strata is blown away resulting in a single thick matrix of shards. This phenomenon is typical for sandy soils and occurs in environments prone to strong eolic influences (as in coastal areas). In sections K-O and Q a thin layer of similar texture but with a slightly darker colour separated this layer from the two topsoil strata (layers 8 and 9). In sections C and D two small patches of darker soil are enclosed by layer 3 (layers 5 and 6).

Layers 4 and 7 were the so-called *sabbie rosse*, dune sands of Late Pleistocene origin that are characterized by their reddish colour.[425] Layer 4 is somewhat darker in colour and has many iron-manganese concretions. Layer 7, not present in all sections and always positioned below this layer, is paler in colour and contains less iron.[426]

The features

Several features, both natural and anthropogenic, were identified in the exposure. In section A, A-B and F-G small segments could not be cleaned and straightened, because of natural disturbances, mainly tree roots. In both section B and J a small area containing an agglomeration of building materials was mapped. The area in section B contained a row of small limestone blocks. In section J several large tuff blocks were identified, and in this area a small test trench was dug, to a depth of approximately 20 centimetres; although some ceramics were collected no substantial structural remains could be identified. As mentioned earlier part of a structure was found in section I. It was dug into the *sabbie rosse* and its foundation trench was subsequently filled on all sides for consolidation with earth and pottery fragments. The structure, made of cement incorporating many re-used fragments of pottery and tile, measured two metres in width, 1.84 metres in height and at least 2.80 metres in depth (fig. 6.3).[427]

Sampling

In each section a sample area was selected in order to obtain datable materials from the finds layer. In the first 45 metres (sections A-I) this finds layer was in general thick and at least 20cm deep.[428] Large concentrations of materials were collected mainly from the sample areas in sections D, F, H and from the foundation trench of

424 For deflation see Given 2004, 18.

425 Feiken 2011.

426 See also Feiken 2011, 5.

427 The extent of the wall was established by coring.

428 None of the sample areas was excavated beyond this depth.

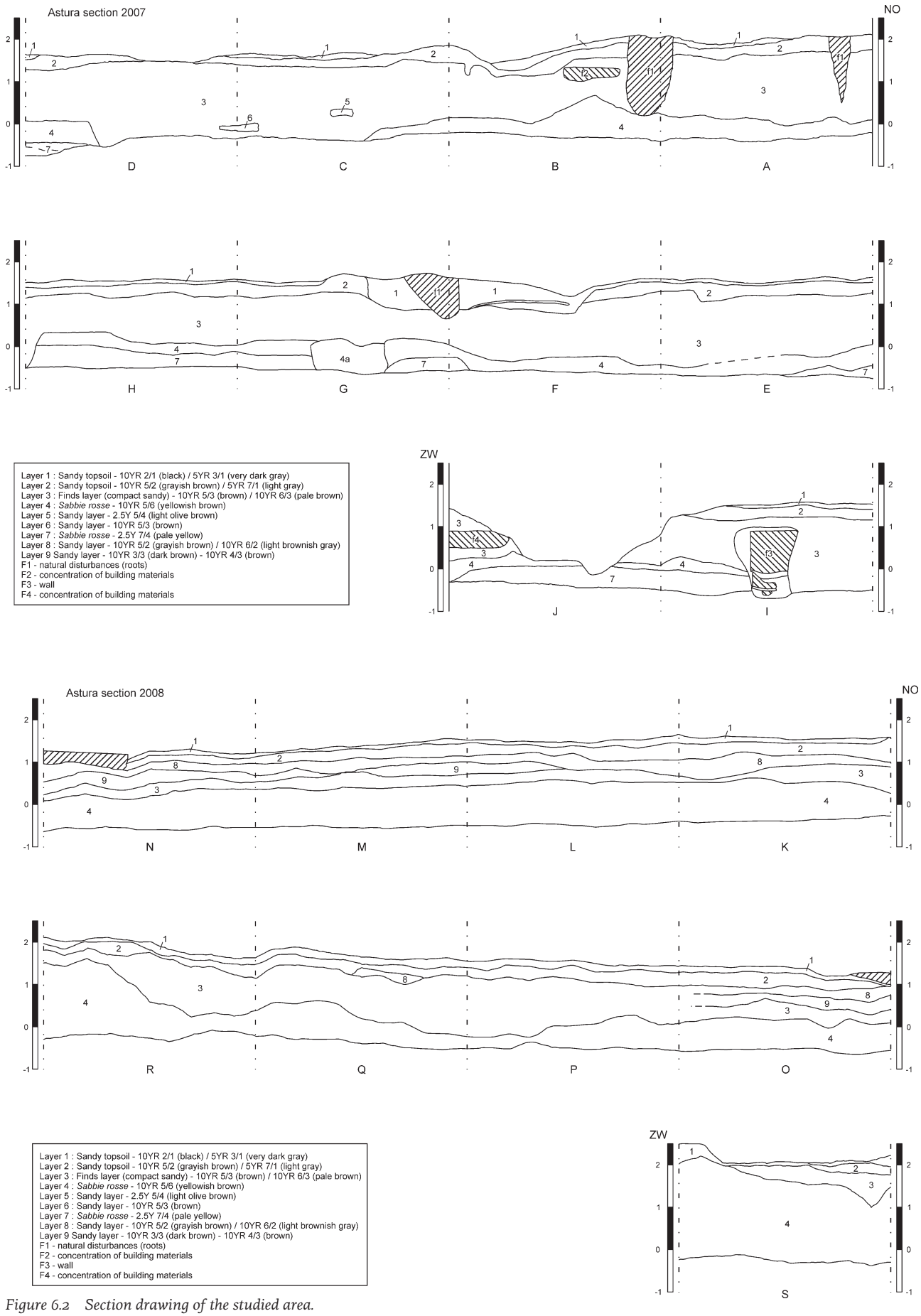


Figure 6.2 Section drawing of the studied area.

Figure 6.3 The structure in section I.

the structure in section I. In the second part of the section (J-S) the finds layer was in general less thick and less deep, continuing landinward for only a few centimetres. From this area less finds were retrieved and no clear concentrations of archaeological materials were observed.

In 2007, the collection of all pottery from the sample areas resulted in massive quantities of undiagnostic pottery. In the subsequent year therefore a different approach was chosen, collecting diagnostic materials only.[429] Since during the 2007 excavations some small coins as well as glass fragments were retrieved the decision was made to sieve all excavated soil during the 2008 campaign. This led to the retrieval of many coins, bones and highly fragile materials like glass (see below).

As mentioned earlier, two features were investigated in more detail. The fill in the foundation trench of the structure in section I was excavated horizontally in 2008 to establish whether the fill was deposited at once or in successive moments. The consistent composition of the fill and the uniform texture of the soil clearly favoured the former. A test trench in section J did not reveal a particular density of archaeological materials.

6.3 The collected materials

This section presents an overview of the materials collected during the *Astura* excavations.[430] These materials comprise fragments of the following classes: Lithics, *impasto*, building materials (tile, marble, other stones and plaster), amphorae, utilitarian pottery (including coarse wares, cooking wares and *ceramica acroma depurata*), *ceramica dipinta a bande rosse*, fine wares, glazed pottery (including *ceramica a vetrina sparsa*), oil lamps, utilities, glass, bone items, metal artefacts (including coins) and faunal material. Every class is

429 However, the term 'diagnostic' is broadly taken and varies between wares. Rims, bases and handles were collected for all wares. Several wares also have diagnostic wall and floor fragments (for example stamped African red slip ware floors, decorated glass and *ceramica dipinta a bande rosse* fragments). Since the colour of the glaze and decoration motives could possibly provide chronological information, all fragments of glazed pottery were collected.

430 For references of identified pottery shapes I refer to the typological table at the end of this chapter.

Table 6.1 Lithics from Astura.

Fragment nr.	Fragment type	Date
Ast'08 S.F./flint/01	Backed bladelet (fractured)	Upper Palaeolithic
Ast'08 S.H./flint/01	Notched bladelet (fractured)	Upper Palaeolithic
Ast'08 S.I./flint/01	Composite tool: Endscraper and burin	Upper Palaeolithic
Ast'08 S.I./flint/02	Retouched blade (fractured)	Upper Palaeolithic
Ast'08 S.L./flint/01	Debris	Cannot be dated

accompanied by a short discussion and a typology of the encountered materials.[431]

Lithics

Five lithic artefacts were found.[432] These include four tools and one fragment of debris (table 6.1). The four tools all date in the Upper Palaeolithic. Tools of such date may be expected since the excavated layers are positioned directly on top of the *sabbie rosse*, thought to be of Late Pleistocene origin.[433]

Impasto

Only one diagnostic fragment is of certain protohistoric origin. This lug, deriving from section H, is common between the Late Iron Age and the Archaic period (Pl. VI-I.1).[434]

Building materials

Tile

In all, 574 fragments of tile and imbrex were found. Most of these are fairly depurated and have powdery surfaces. Fragments occur in different colours, including orange, brown, pale and light red. Several examples have somewhat coarser fabrics with sparse augite inclusions, whereas tiles with a white or grey/black coating on their topside occur in small numbers as well.

Two fragments bearing a stamp were recovered. The first contains a completely preserved closed circular stamp with raised centre and reads SCANTIAE•CONSTANTIS•. A similar fragment is known from Ostia and it dates in the 3rd or 4th century AD on typological grounds.[435] Of the second stamp only a single character is preserved, a 'V'. Furthermore, two fragments bear anepigraphical decoration; one an unrecognisable linear motive and the other an incised wavy pattern. On several examples, the plate and/or the interior of the rim have ribbed surfaces.

Marble

A total of 29 pieces of marble were found. Of these, 24 fragments could be identified as plain marble slabs. Furthermore, two small fragments of an inscription were found in sections A and D respectively. In the foundation trench in section I part of the base of a column and two fragments bearing incised patterns were found. One of these patterns occurs on lids of sarcophagi, although other uses cannot be excluded.[436] No polychrome marbles were found; all fragments were of plain white or grey marbles.

36 tesserae in white marble were also found, mostly of rectangular shape and of relatively large dimensions.

Other stones

The foundation trench in section I contained several fragments of tonalite. Furthermore, in section D a concentration of fragmented lumps of this same stone was found. The principal source of tonalite was *Mons Claudianus*, in modern-day Egypt; it was quarried by the Romans until at least the 3rd century AD.[437]

Furthermore, small quantities of unworked tuff and pumice were found. Formations of these stones surface in various locations in our study area, and their presence therefore does not necessarily indicate their use on this site.

431 Several worn and small diagnostic fragments are considered non-diagnostic and are omitted from the catalogue. If more than one fragment of a single type was collected, only the fragment preserving the largest profile is depicted.

432 The lithic materials were studied by Michelangelo La Rosa (Fondazione 'Marcello Zei', S. Felice Circeo, Latina, Italy).

433 Feiken 2011, 5.

434 The recognition of 'early' materials is somewhat hindered by the macroscopic similarities between local Archaic and late Imperial fabrics. Both have a reddish surface colour with augite inclusions.

435 Steinby, Helen & Solin 1977, no. 34.

436 The pattern occurs for example on the lid of a 3rd-4th century AD sarcophagus in the museum at Fossanova, near *Privernum*.

437 The main quarry used in Roman times was at *Mons Claudianus* in Egypt. Another quarry was located six kilometres northeast of Mons Claudianus at Wadi Umm Huyut (Sidebotham, Hense & Nouwens 2008, 81-82; Harrell, Brown & Lazzarini 1999), where almost identical stone was mined. The use of tonalite from this region is attested in several buildings at Rome, including the Pantheon, the basilica of Trajan, the Flavian Palace on the Palatine and the baths of Caracalla (Sidebotham, Hense & Nouwens 2008, 77). For the analysis of the pulverized fragments from section D I thank Gert van Oortmerssen and Bert Nijboer of the Laboratory for Conservation and Material Studies (LCM) of the Groningen Institute of Archaeology.

Plaster
Twelve fragments of painted plaster were collected, eleven in section D and one in section C. Nine of these fragments show traces of red paint, whereas the other three are white.

Amphorae
The sampling yielded 425 fragments of amphorae; 49 of these could be assigned to a specific type based on their morphological characteristics.[438]

Because of the small amount of diagnostic amphora fragments collected and the generally long date range for each identified type, it is difficult to identify diachronic trends in the consumption of foodstuffs as well as to pinpoint changing (in)direct contacts with producing areas. However, some general observations can be made.

A small number of late Republican to mid-Imperial amphora types was found (Dressel 1 and 2-4, Dressel 20, Africana 1 and 2, Cretoise 2). Most identified types, however, date in the late Imperial period. The most common amphora of this period is the Keay 52 amphora. This small wine container was supposedly produced in the southern part of the Italian peninsula, in an area comprising eastern Sicily and western Calabria. The contemporaneous consumption of North African olive oil is attested by the presence of containers from both *Tripolitania* as well as modern-day Tunisia (Tripolitanian 3, Africana 2d & 3b/c), while a single fragment of a *Spatheion* tentatively indicates that also other commodities from this region found their way to the site. The consumption of North-African olive oil continued at least until the late 5th century, or possibly even later, as is clear from the presence of a Hammamet 3 amphora. Also products from the eastern Mediterranean found their way to the site.[439] For the Kapitän 2 amphora an Aegean origin is assumed. The somewhat later 'Late Roman amphorae', identified on the basis of their typical body rilling, are eastern products as well; the LRA 1 was certainly produced in Cyprus and *Cilicia*; the LRA 2 probably originated in the *Argolid* and the LRA 3 probably derives from Asia Minor.

Several body fragments bearing 'combed' decoration as well as fragments of *fondi ombellicati* can be attributed to globular amphorae, perhaps of the *Castum Perti* type. These containers, probably carrying olive oil, date between the later part of the 6th and the early 8th century AD. The main production region of these vessels is thought to have been modern-day Tunisia, but the production of similar amphorae is attested in the eastern Mediterranean and in southern Italy as well.[440] Furthermore, 14 fragments remain unidentified (Pl. VI-IV.19 till Pl.VI-V.33).

Utilitarian pottery
Altogether, 4716 fragments of utilitarian pottery were found, including 1166 diagnostic fragments. The sample of cooking wares comprises fragments of African cookware, Aegean cookware, Micaceous ware and Pantellerian ware, as well as a large variety of shapes that are thought to be of local or regional production. Among the coarse wares is a small number of Africa imports; the bulk of the collected fragments is, however, of local or regional manufacture. Furthermore, a large collection of *ceramica dipinta a bande rosse* was retrieved.

African cookware
A total of 39 diagnostic fragments of African cookware were collected, comprising both fragments of casseroles and associated lid fragments. The dominant forms are Hayes 197, 23B and 196, products that are extremely common on inland sites as well.[441] These types generally date in the mid-Imperial period, but their production is known to continue into the late Imperial period as well.[442] Some late Imperial African cookware types are attested as well, but no fragments post-date the 5th century. The fragments derive from various parts of the section, mainly from the intensively sampled sections D and H.

Aegean cookware
The sampling yielded two fragments of Aegean cookware. Both belong to a large dish that is not uncommon on coastal settlements in the western Mediterranean and date between the mid-5th and mid-6th century AD. They derive from sections D and H.

438 The typological table accompanying the amphora fragments does not include a bibliography. Most types were identified by using the *USAP*-database (http://ads.ahds.ac.uk/catalogue/resources.html?amphora2005). For the variety in Keay 52 rim and base fragments see Gasparetti & di Giovanni 1991; Pacetti 1998 and Siena, Troiano & Verrocchio 1998. For body fragments of Late Roman Amphorae see for example Ciampoltrini *et al.* 1994; Siena, Troiano & Verrocchio 1998; Villa 1998 and Corti 2005. It must be stressed that amphora types with clear diagnostic features are easier to identify. Certain amphora types are only recognizable by their rims, whereas other types also have distinct handles, bases or bodies.

439 The presence of amphorae of eastern origin is common in contemporaneous contexts at Ostia and Portus (Ciarocchi *et al.* 1993).

440 Murialdo 1995 and 2005; Ardizzone 2000. Morphologically similar amphorae were, for example, produced in the workshops at Otranto (Arthur 1992) and Pescara (Petrone *et al.* 1994), while production along the Campanian coast is also hypothesized (Arthur 1993).

441 See chapters 3-5 of this thesis.

442 See Bonifay 2004, 224. For similar examples from a context of later date see Uscatescu & Garcia Jimenez 2005, 99.

Micaceous ware
Two fragments, belonging to the same type of bowl are in so-called 'micaceous ware'. This ware is thought to have been produced in Sardinia, north-eastern Sicily and/or Calabria and dates between AD 400 and 600.[443] The fragments were found in section F and H respectively.

Pantellerian ware
The sampling yielded seven diagnostic fragments of 'Pantellerian ware'.[444] The presence of this ware has recently been identified on various coastal sites in the western Mediterranean. Its production comprises the period between the mid-4th century and the late 6th century AD. In our sample, five casserole fragments, similar in size and body form, but with variation in the shapes of the rim, belong to this ware, as well as two associated lids. All fragments derive from sections D and H.

Other cookwares
A total of 94 diagnostic fragments, belonging to 59 different types, complete our collection of cookwares. Together they cover a period between the early Imperial period and the 7th century AD, with a clear dominance of products dating in the 4th to 6th century. The shapes discussed comprise cooking pots (casseroles, jars and pans) as well as lids (including knobs).

The dominant pottery shape of local or regional production is the casserole. The most common form attested, well-known from contemporaneous central Italian contexts, is characterized by a marked triangular rim shape and dark red clay containing many augite particles. Various variant of this shape disclose a typo-chronological development of this form, with seventh century examples having a longer rim and a slightly concave rim interior (Pl.VI-VII.1-2 & Pl.VI-VIII.3-6).

Another large group of casseroles is characterised by a pronounced convex thickened rim; this shape is attested at *Castrum Perti* in Liguria and dated between the 4th and the 6th century AD (Pl.VI-VIII.7a-7c). Two casserole fragments have a marked triangular thickening on the exterior of the rim (Pl.VI-VIII.9). This type is frequently found in central Italian contexts of the first half of the 5th century AD, whereas two other fragments are close to a casserole type found during excavations near present-day Seville in Spain and date in the late 5th or early 6th century AD (Pl.VI-IX.15). Considering their absence in contemporaneous central Italian contexts, an Italian manufacture for this shape can be excluded. Five other casserole types are attested by a single specimen. The first (Pl.VI-IX.13) is in the same fabric as the earlier mentioned casseroles with triangular rim and therefore probably of local origin as well. A casserole with a convex thickened rim finds a parallel in a context in Rome, where it was dated between the later 5th and 6th century AD (Pl.VI-VIII.8). Two examples with a stepped rim were retrieved. The first has a parallel at the *Monte Gelato*, whereas a fragment similar to the second (Pl.VI-VIII.10-11) was found during excavations at the *Basilica Hilariana* in Rome. They both date between the later 4th and the mid-6th century AD. A deep casserole with a thickening of the interior lip is identical to a shape of Campanian origin, common between the 4th and the 7th century AD (Pl.VI-IX.14). A casserole with a short overhanging rim is found in various Roman contexts and dates between the second half of the 6th and the 7th century AD (Pl.VI-VIII.12). Furthermore, six casserole types were identified that can not be dated (Pl. VI-IX.16-21).

A large variety of jar types is recorded as well. One of these, with a short triangular rim, dates in the early Imperial period (Pl.VI-IX.22). Three examples with a concave rim interior have analogies with a type that is widely attested in contexts in both Latium and Campania between the 4th and the 6th century AD (Pl. VI-IX.23a-b). Also present are three fragments of a jar with simple plain rim, dated between the 4th and 7th century AD (Pl.VI-X.24). Two fragments of an almost identical jar, with a slightly thickened rim, were collected; this shape is common in Latium between the 4th and the 7th century AD (Pl.VI-X.25a-b).

Six other jar types are attested by a single fragment only. The first has a simple convex shaped rim and dates in the 4th century AD (Pl.VI-X.26), whereas the second dates between the 5th and the 7th century AD and is reportedly common in the territory of Cosa (Pl.VI-X.27). Also identified was a type with a convex rim shape, common between the 4th and 6th century AD (Pl.VI.X.31), one with an elongated triangular rim that finds a parallel in *Privernum* in a context dated between the 4th and the 7th century AD (Pl.VI.X.29) and a specimen with an almond-shaped rim, dating in the late 5th or early 6th century AD (Pl.VI.X.30). Finally, a jar with a heavily thickened folded rim is known from various Roman contexts between the 4th and the first half of the 7th century AD (Pl.VI-X.28). Furthermore, eight different jar types were distinguished that could not be dated (Pl. VI-X.32-39).

The sample includes three different variants of pans. The first (Pl.VI-XI.41) is characterized by an 'orlo bifido', a common characteristic of Republican and early Imperial *tegami*. The fragment might indicate the continued use of this type in later periods. Since no parallels were found for any of the three types, no assessment of their date range can be made.

443 Fulford & Peacock 1984, 12-13, fabrics 1.6/1.7.

444 Fulford & Peacock 1984, 8-10, fabric 1. For a recent publication see Santoro Bianchi, Guiducci & Tusa eds. 2003.

A number of lid fragments are tentatively related to the above described cooking ware types. Based on morphological variation, 15 different types are discerned (Pl.VI-XI.45 till Pl.VI-XII.59). Seven different lid-types, together accounting for twelve fragments, date between the second half of the 4th and the late 6th century AD, based on analogies with fragments from nearby contexts. Seven other types could not be dated with precision.

To conclude, two body fragments belong to *Pompeian Red Ware*. This ware was produced in the 1st century BC and the 1st century AD, and our fragments date within this time-span.[445]

African coarse ware

Six coarse ware fragments can be identified as north-African imports. Five of these belong to basins, whereas the sixth fragment is a twisted handle of a jug. All these shapes are commonly found in (central) Italian contexts and cover a period between the early 3rd and the 7th century AD. The fragments derive from different parts of the section.

Other coarse ware

This section discusses 65 fragments, belonging to 54 different types. Together they cover a period between the 4th and at least the 7th century AD. The following pottery shapes are identified: basins/bowls, *catini*, cups, jugs and *anforette*. Several distinctive decorated body and base fragments will also be presented.

The most commonly attested coarse ware shape of local/regional production is the bowl, having a wide variety of forms. Three of these are flanged bowls, a shape common between the 5th and the 7th century AD (Pl.VI-XII.1-2 & Pl.VI-XIII.4). Another type, characterized by an almost horizontal rim, is found in Lazio as well as Campania in the same period (Pl.VI-XII.3). The sample also includes two fragments of a bowl type that is extremely common in 5th and 6th century contexts in Campania, characterized by a distinct thickening on the interior of the rim (Pl.VI-XIII.7a-7b) and a single fragment of a type bearing a marked ridge on the interior of the rim (Pl.VI-XIV.17). The latter is similar in shape (although not in size) to a mid-Imperial African bowl type. Another bowl is of possible African origin (Pl.VI-XIII.14), while for the other types no parallel was found.

Three different types of basins/*catini* are included in our sample (Pl.VI-XIV.21-23). The first of these, characterized by horizontal rilling on the exterior of the body, is commonly found in contexts in and around Rome between the second half of the 5th and the late 7th century AD. Two other types could, however, not be dated.

Three different types of cups were identified (Pl. VI-XIV.18-20). One of these finds a parallel in the 7th century deposit of the *esedra* at Crypta Balbi. The two other types both have a peculiar form, but could unfortunately not be dated.

The sample of jug types comprises a collection of well-documented central Italian types. Four types, are common between the 4th and the 6th century AD (Pl. VI-XIV.27-28, 30 & 32), whereas another finds a possible parallel in the 7th century (Pl.VI-XIV.33). However, a similar rim shape is also known from the early Medieval globular amphora and an association with this vessel type cannot be excluded. For the other nine jug types, no parallel was found. Among these are three fragments of a type, characterized by a plain outcurving rim with broad band handles attached to the exterior of the lip (Pl.VI-XV.36). Furthermore, two base fragments belong to jugs. The first, the base of a *brocca costolata* dates between the 4th and the 7th century AD (Pl.VI-XIV.31). The second, extremely thin-walled, is known from a late Imperial context in Rome (Pl.VI-XIV.29). A body fragment bears a decorative pattern of parallel horizontal incisions that is common on jugs in and north of Rome between the 5th and the 9th century AD (Pl.VI-XIV.34).

Furthermore, five different types of anforette were unearthed. The first of these, with an upright triangular rim with broad thick handles attached to it, is identical to one of the typical shapes from the 7th century deposit of the *esedra* at the Crypta Balbi (Pl.VI-XV.44). This type was possibly imported from the eastern coastal area of Spain and is also documented in Sicily and Sardinia. The second, characterized by a groove on the interior of the rim and the attachment of a handle on its exterior, is also similar to a fragment from the Crypta Balbi, dating in the 6th century AD (Pl.VI-XV.45). The other three types could not be dated; they are classed here as *anforette*, but it is possible that one or more of them constitute rim fragments of globular amphorae (Pl.VI-XV.46-48).

Also included in this category are a decorated body fragment (Pl.VI-XV.49) and three distinct base shapes (Pl.VI-XV.50-52). The first of these is decorated on the interior with intersecting bands of rouletting; the second bears traces of an incised motive on the interior of the floor and the third has several notches on the exterior of the base. For none of these types a parallel was found.

Ceramica acroma depurata

Eight diagnostic fragments are identified as *ceramica acroma depurata*.[446] They comprise mostly rim fragments of basins/*catini*. These fragments date between

445 Peacock 1977, 147.

446 A large number of *acroma depurata* fragments is classified as *ceramica dipinta a bande rosse* (see below).

the late 5th and the 7th century AD (and possibly even later). Furthermore, a single fragment of a jug, preserving the bridge to the spout, was found (Pl.VI-XVI.6). This shape, also documented in *vetrina sparsa* (see below), dates between the 11th and the 13th century AD. All fragments are considered to be of local origin. Five of the eight fragments derive from the foundation trench in section I, whereas single fragments were retrieved from sections D, M and Q.

Ceramica dipinta a bande rosse

A large number of fragments belonging to so-called *ceramica dipinta a bande rosse* were collected. Considered together with these fragments is a collection of identical unpainted shapes.

The first classification of *ceramica dipinta a bande rosse* was made by Whitehouse in the 1960's, and since then our understanding of the ware has increased considerably.[447] The ware is common in the southern half of the Italian peninsula from the 5th century onwards and appears to be produced uninterruptedly until at least the 14th or 15th century AD.

The occurrence of the ware in Latial contexts appears to be chronologically restricted, and fragments generally occur in small numbers per site.[448] As far as we currently know, *ceramica dipinta a bande rosse* is confined to two separate periods: the 8th/9th century AD and the 11th to 13th century AD.[449] The organization of the production and distribution of the ware is still largely unknown and till now, only a few production sites have been unearthed.[450]

As said, large numbers of this ware have been retrieved during the *Astura*-excavation, among which 430 diagnostic fragments.[451] Within the class of utilitarian pottery, this ware consequently is the one which is most abundantly present. The bulk of these fragments, mainly comprising handle fragments, were found in sections H and I, where they formed part of the fill of the foundation trench of the earlier mentioned structure.[452] The presence of the ware is, however, not restricted to these two sections only; fragments were found in more modest numbers in almost all other sections.

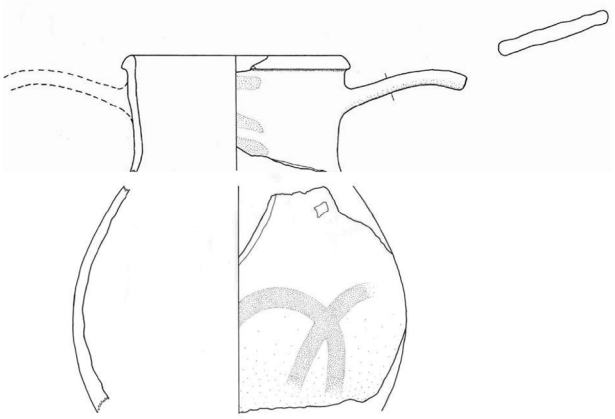


Figure 6.4 Reconstruction of the dominant vessel shape in ceramica dipinta a bande rosse *at Astura.*

Shapes

Most fragments are characterized by a fairly depurated fabric, generally pale or orange/pink in colour, although examples with a somewhat more yellowish or greenish surface colour occur. A few fragments have a sort of whitish slip covering the surface, as has also been observed on fragments from *Privernum*.[453]

The recovered fragments show very little variation in shape and appear to belong to closed vessels, probably *anforette* or jugs. Based on the shape of their rim and lip, five different vessel forms have been distinguished, with 98% of all rim fragments belonging to a single type; the other four shapes are represented by only one or two examples. The dominant shape is characterized by an upright rim and a slightly thickened lip that shows minor morphological variation (Pl. VI-XVII.1a-1f). Two thin and very broad strap handles set off from the exterior of the rim and rejoin the vessel just above the widest part of the globular body. The handles normally bear three to five vertical grooves on their top side and the base of the vessel appears to be either flat or slightly convex (Pl.VI-XVIII.6-10). The rim fragments all have a diameter between nine and twelve centimetres and, when complete, the form stands some 30cm high. Although our sample consists of fragments only, a reconstruction of the complete shape can be proposed (see fig. 6.4). The second shape (Pl.VI-XVII.2) is characterized by a somewhat more spreading rim, as well as handles that are less broad and more oval in shape. These characteristics indicate that the shape was perhaps somewhat smaller compared to form 1. The third type, of which two rim fragments were collected,

447 Whitehouse 1966 and 1969.

448 For a recent overview of find locations in *Latium* see Pannuzzi 2009.

449 8th-century AD materials for example derive from the Crypta Balbi (Sagui & Coletti 2004) and S. Cornelia, possibly to be identified with the *domusculta Capracorum* (Christie 1991, 130).

450 A workshop was identified at *Misenum,* near Naples (De Rossi 2004, 253-264), active in the 7th and 8th century AD. Furthermore, production is attested at *Privernum* in southern Lazio (Pannuzzi 2009). This production is dated in the later 12th or 13th century AD.

451 This includes body fragments bearing traces of paint.

452 The clear dominance of handle fragments over other vessel parts suggests a non-random selection.

453 The presence on some fragments of an *ingobbio bianco* is mentioned by Pannuzzi (2009, 35).

again has an upright rim, but has a much thinner wall, whereas the lip is not thickened (Pl.VI-XVII.3). A single fragment (Pl.VI-XVII.4) has a convex shaped rim with probably raised handles that extend above the lip of the vessel. The fifth type is characterized by a trefoil mouth (Pl.VI-XVII.5). This shape is represented by a single example only.

Decoration

Many fragments bear traces of painted decoration, in general of a dark or bright red colour, although motives in orange/brown and brownish paint also occur.

Within our sample, the repertoire of decoration types appears to be rather restricted, though minor variations occur from one vessel to the other. The application of a single line as well as several parallel-running horizontal lines on the exterior of the rim both frequently occur; on two specimens these two types of decoration are combined. One example has a drop of paint on the exterior of the lip and it is unsure whether this type of decoration was applied intentionally. One rim fragment (Pl.VI-XVII.5) shows faint traces of an oblique painted line.

Several shoulder fragments bear horizontal grooves bordering a wavy incision line (Pl.VI-XX.21-23). These lines and the surface between them are usually filled with red paint as well. There are also fragments on which the transition from rim to shoulder is marked by a small ridge and painted decoration just below and/or above the transition. In all these cases this decoration appears to consist of oval shaped motives (Pl.VI-XX.18-19). Several types of decoration occur on body fragments (Pl.VI-XIX.12-16), comprising separated ovals, interwoven (semi-) circles and possibly arch motives. Some fragments clearly bear more than one horizontal band of painted motives on top of each other. One fragment bears three stripes of paint, each with another orientation just below where the handle attaches to the body.

Three (body) fragments bear divergent motives. The first bears a pattern of at least eleven encircling thin lines (Pl.VI-XX.17). The second also bears 'narrow line' decoration, in an unrecognisable pattern (Pl.VI-XX.20). The third example shows a very chaotic pattern of both narrow and broad painted bands. This piece is considered a practice piece and will be further discussed below (Pl.VI-XX.29).

Several decorated handle fragments were also uncovered (Pl.VI-XX.25-28). Occurring decorative patterns include vertical, horizontal and slightly oblique painted bands. On some pieces, vertical and horizontal painted lines are combined. Furthermore, some examples are decorated with a vertically running wavy line. No base fragments bear traces of decoration.

Figure 6.5a Misfired rim and handle of an anforetta in ceramica dipinta a bande rosse *from Astura.*

Evidence for production

There are several indications that *anforette* in *ceramica dipinta a bande rosse* were produced at – or in the vicinity of – *Astura*. The foundation trench of the structure in section I was, for the larger part, filled with fragments of this ware, indicating that a large amount of a single pottery ware (in fact almost exclusively a single pottery shape) was available on this location. From this fill, at least one waster was collected, showing a heavily deformed rim and a obliquely positioned handle (fig. 6.5a). From section H, the earlier mentioned fragment bearing an unrecognisable decoration pattern was retrieved (Pl.VI-XX.29; fig. 6.5b). It has a large hole on the exterior, running partly through the layer of paint that as a consequence, must have been applied before firing. This hole must have been caused by the presence of too much air in the clay or by a small pebble that must have been stuck in the clay before the vessel was put in the oven. A thickened part on the lower side of the fragment indicates that another imperfection is present in the shard. These deformities, combined with the chaotic decoration patterns on the exterior of the body, identify the fragment as a practice piece, associated with the production of vessels in *ceramica dipinta a bande rosse*.

Date and distribution

The dominant pottery shape in *ceramica dipinta a bande rosse* found at *Astura* finds a parallel on several other sites. The most important of these is *Privernum*, where recent excavations unearthed evidence for the production of morphologically similar vessels, bearing similar

Figure 6.5b Practice piece in ceramica dipinta a bande rosse *from Astura.*

decorations.[454] Based on stratigraphical evidence this production is dated in the later 12th or 13th century AD. Similar fragments were also found in Civitavecchia, at Montegiove (east of Benevento) and at Monte d'Argento near Minturno, all providing 13th century dates as well.[455] On the latter site, fragments similar to our type 2, of the same date, were found as well. From Ostia derive a fragment bearing the same decoration as Pl.VI-XX.17, as well as a rim fragment similar to our type 4 (with convex rim); both date in the 12th or 13th century.[456] No parallels have been found for the other two rim-types; the homogeneity of the sample, however, strongly suggests a similar date.

During GIA's intensive surveys, no fragments of this ware were identified on rural sites. The museum collection, however, contains similar handle fragments in *acroma depurata* (one bearing red paint), collected at the incastellamento site Conka (present-day Borgo Montello) and at Campoverde. Both sites are located along the course of the Astura river. Although the presence of this ware on nearby sites suggests that upstream distribution must have taken place, this can only be ascertained by fabric studies comparing the products from *Astura* (and *Privernum*) with those of possible consumer sites.

Fine wares

The sampling of the section yielded 291 fragments of fine ware pottery, among which 105 of diagnostic value. The bulk of these fragments belong to two different wares; (Italian) terra sigillata and African red slip ware. Furthermore, a small collection of 'other' fine wares was found, comprising fragments that do not fit into any of the large-scale productions of fine ware pottery and probably are of local or regional manufacture.

Terra sigillata

A total of 31 fragments of terra sigillata were found during the excavation, including eight diagnostics. Of these, four rim fragments date in the 1st century AD. The collected fragments were all very small. No clear concentration of fragments could be noted in any part of the section; most fragments were collected from the sections that were most intensively studied.

African red slip ware

The most common fine ware type encountered is African red slip ware. It accounts for 248 fragments, including 85 fragments of diagnostic value. These fragments can roughly be divided into two groups. The first includes mainly 1st-3rd century bowls and plates that were predominantly collected from the foundation trench in section I and during grab sampling. A second group comprises the so-called late African red slip ware products, to be dated between the second half of the 4th and the early 7th century AD. The most common shapes collected are, in line with evidence from other central Italian coastal sites, Hayes forms 67, 91, 99 and 104.[457] However, also several less common shapes occur, such as a stemmed goblet (Hayes form 170). The still relatively low overall numbers for each identified type makes it hard to assess any correlation in types (or dates) with specific parts of the section. It can be noted, however, that all eight fragments of Hayes form 67 were found in section D, while six out of ten fragments of Hayes form 91A/B derive from section H. The sampling yielded ten stamped fragments. Eight of these bear one or two simple motives (*palmettes*, concentric circles, rings and grills). The ninth stamp depicts the body and legs of an animal, probably a horse, whereas one stamp was too fragmentary to allow identification. All these stamps can be dated between the second half of the 4th and the late 5th century AD.

A single fragment of *Tripolitanian Red Slip Ware* was collected during a grab sample in 2006. It belongs to a

454 A description of the identified types is provided by Pannuzzi 2009, 36. Among the fragments are several misfired examples indicating local production. The similarities between the shapes produced at *Privernum* and at *Astura* were confirmed in the summer of 2009 during a visit to the storerooms of the *Privernum* excavations. For the possibility to see the *Privernum* materials I wish to thank dott.ssa Paola Rinaudo.

455 For the fragment from Civitavecchia see Mazzuccato 1976. For the site of Montegiove see Busino 2007a. For the fragments from Monte d'Argento see Ciarrocchi 1998.

456 Pannuzzi 2004, 199 and 2009, 37.

457 For the villa of Tiberius at Sperlonga see Sagui 1986.

dish, probably imitating African red slip ware form Hayes 61, and dates in the later 4th or early 5th century AD.

Other fine wares
Under this heading, eleven fine wares fragments are brought together. Three fragments are in powdery pink fabric covered with a bright red slip that flakes easily (Pl.VI-XXIV.3-5). One of these is a clear (local) imitation of Hayes form 91.

Three other fragments also appear to imitate popular African and Eastern Mediterranean fine ware shapes. These are all in brownish/orange clay and bear traces of a red slip on their interior and/or exterior surface. The first imitates Hayes form 61 (Pl.VI-XXIV.2), the second somewhat resembles Hayes form 85 (Pl.VI-XXIV.1), while the rim shape of the third is common in Phocean Red Slip Ware (Pl.VI-XXV.7).[458]

A single rim fragment of so-called *ceramica ad ingobbio rosso* was found. This shape, common in the late 6th and the 7th century AD, is predominantly known from Campanian contexts (Pl.VI-XXIV.6).[459] A body fragment is decorated with a pattern of dull brownish paint and possibly belongs to the *Venafro* tradition (Pl.VI-XXV.9). This dates the fragment between the 4th and the 7th century AD. The final two fragments comprise a thin-walled fragment bearing parallel lines of decoration (Pl.VI-XXV.10; *ceramica a pareti sottili*?) and a fragment decorated with an incised zigzag motive; a similar fragment derives from Ostia, where it was dated between the 4th and 7th century AD (Pl.VI-XXV.11).

Several body fragments of terra sigillata marmorizzata were found as well; these fragments could not be dated. Several sections yielded red-slipped body fragments, clearly not belonging to the large late Imperial fine ware productions. In the absence of diagnostic features, these fragments could not be dated or assigned to specific forms or productions.

Glazed ware
A total of 184 fragments of glazed pottery were found during the excavation.[460] The largest part of this sample derives from section I (144 fragments). However, fragments were found in modest quantities in almost all other sections as well. In section I, glazed fragments were retrieved from the foundation trench of the structure (36 fragments) as well as from a layer on top of it (108 fragments). In the trial trench in section J nine fragments of glazed pottery were found. A common characteristic of all the glazed fragments is their extreme high fragmentation rate. The sample includes 28 fragments of diagnostic value, mostly handle and base fragments. However, apart from the single fragment of *ceramica a vetrina sparsa* (sparse glazed ware; see below) no fragments could be dated with any precision. The *terminus post quem* provided by the fill of the foundation trench of the structure indicates that at least the fragments collected from the layer on top of it date later than the 12th century AD.

Ceramica a vetrina sparsa
Several joining fragments belonging to a single jug were retrieved from the foundation trench of the structure in section I. The fragments are in a pinkish fabric and bear a thin yellow-coloured glaze on the exterior.[461] The jug has a large spout on the exterior, attached to the rim by a bridge. The shape is similar to the unglazed example discussed in the *acroma depurata* section, and dates between the 11th and the 13th century AD.

Lamps
Only twelve fragments of ceramic lamps were collected during the excavation. Their scarcity is perhaps partly explained by the fact that lamps made of glass were also used on this site (see below).

Most of the identified fragments are of North-African origin. Five of these were identified as *Atlante* I form 8, on the basis of their shoulder, the transition between handle and discus and the decoration of the discus itself (a chi-rho sign). This form appears to be one of the most common exported African types in the late Imperial period.

Furthermore, based on their fabric, four other North-African products were identified, for which no parallel was found. They include part of a figurative lamp, probably representing a boat. Although these fragments could not be dated with precision, a late Imperial origin can be assumed.

Three other fragments, two nozzles and one shoulder fragment are in a different fabric. For these pieces no parallel was found either.

Utilities
In section E, half of a flat and thin circular loomweight with central perforation was found. It belongs to a type that is commonly found in contexts of the late Republican and Imperial period.

Glass
During the excavation, a total of 522 glass fragments were collected, including 135 diagnostic pieces. The bulk of these fragments (app. 80%) derive from the extensively sampled sections D, F and H and their retrieval was greatly facilitated by using a sieve. The

458 See for example Hayes 1972, 323-370.

459 Fragments of this type are known from the Benevento area (Busino 2007b) and Naples (Arthur 1994).

460 Since all glazed fragments were collected (see note 429), the relative share of glazed fragments is comparatively high.

461 This surface treatment is described in Christie 1991, 130-132.

fragments will be discussed per fragment type (rims, bases and handles). Furthermore, a discussion of the decorated fragments (including several rims) will be presented. Finally, several non-utilitarian glass objects will be discussed, comprising *tesserae* in glass paste and fragments of window glass.

Rims

The rim fragments form the largest group of diagnostic materials. Most of them can be attributed to forms of the so-called Roman production of the late Antique and early Medieval period. This production comprises a well-defined homogeneous group of shapes.[462]

By far the commonest shape encountered is the beaker. The collection includes many examples that show minor variation in the shape of their rim. Based on this variety a subdivision in three types can be made: fragments with an outcurving rim, with a straight rim or with an *orlo tagliato* (Pl.VI-XXVII.17-19). All three types probably date in the later 4th or the 5th century AD.

Eight fragments of flasks were found showing minor differences in shape among them. They all have rims that spread or curve outwards. One fragment bears several small horizontal ridges below the heavily thickened rim. The identified fragments date in the 5th (Pl. VI-XXVII.20) or the 5th/6th century AD.

Eight rim fragments belong to cups; this includes the cup in *Nuppenglas* that will be discussed together with the decorated fragments (Pl.VI-XXVII.3). The set of forms in this class is quite heterogeneous in shape (no types occur more than once), but fairly homogeneous in date; all date between the last quarter of the 4th and the end of the 5th century AD.

Another commonly encountered form is the bowl. Three fragments of large bowls with thickened folded rims were found. One of these fragments dates in the 5th or 6th century AD. The two other fragments are not necessarily of late Imperial date as their shape was common in earlier periods as well. Four other types occur only once. One of these dates in the late 4th or 5th century, while no parallel was found for the other fragments.

Four fragments probably belong to plates. Again, there are no shapes that occur more than once. One type dates in the 5th century AD (Pl.VI-XXVIII.40).

Two fragments of glass oil lamps were found as well. They are similar in shape, with a thickened folded lip, and a long thick rim. One of the fragments has a large vertical ring handle attached to the exterior of the rim and lip. This type was produced for a considerable period between the 5th and the first half of the 8th century AD.

Finally, two lid fragments and a single fragment of an *ampolla* were collected. The latter is decorated with a continuous white horizontal thread under the rim and dates in the 5th or 6th century AD.

Bases

Only ten base or foot fragments were found during the excavation. Two of these are simple ring bases that could not be dated. A single fragment of a coil base was found, a common shape in 5th century Latial assemblages. Three concave base fragments, one probably of a small flask and two others belonging to beakers, all date between the 4th and the 6th century AD. Finally, four fragments belong to *calici*, a shape that is thought to represent a fossil type for the transition from the late Antique to the early Medieval period. [463] A date in the 6th century AD is probable for these fragments.

Handles

Two handle fragments were found. These could not be dated with any precision.

Decorated fragments

During the sampling two fragments of so-called mosaic glass were found, at least one of the *millefiori* type. The first fragment (Pl.VI-XXVII.1) is in light blue non-transparent glass. The flowers have an uncoloured or yellow centre, surrounded by three encircling layers. The first consists of a layer in light blue (identical in colour to the surface of the vessel). Around this layer is a dull green layer and the outline is in sparkling dark blue. The second fragment was not drawn, due to its extreme fragility (fig. 6.6). It constitutes the rim of a shallow plate and is of a light blue colour covered in mother of pearl. Several unsystematically placed patches in different shades of yellow are visible. The chronology of mosaic glass has recently been extended into the late Imperial period and one of our fragments can, based on its colour pallet, be assigned to this late phase of production that was probably confined to Egypt at this stage.[464]

A total of five fragments of so-called *Nuppenglas* were found. Three of these could be refitted into an almost complete profile of a cup (Pl.VI-XXVII.3). This ware, characterized by a decoration of prominent blue dots on the exterior surface of the vessel, occurs frequently on late Roman sites in Italy, although normally in small numbers. It dates probably in the 4th century AD and the reconstructed cup appears to be one of the most common shapes in this ware.

462 See Sagui 1993 for a typology of these Roman products. A workshop active between the 4th and 5th century AD was excavated in Rome, on the left bank of the Tiber (Sternini 1989a and b).

463 Sagui 1993, 127.

464 Nenna 2002, 156-157. Fragments of presumably late date, similar to our fragment, were found during the excavations at the Athenian Agora (Weinberg & Stern 2009, 83-84).

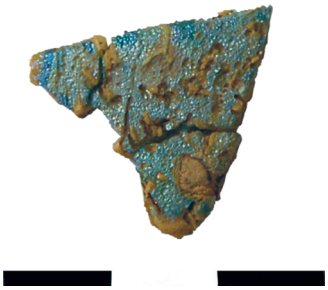


Figure 6.6 Fragment of mosaic glass from Astura.

A single fragment of figurative incised glass was found, depicting probably the head of a female. The applied technique *a rilievo negativo* identifies it as a Roman product, to be dated in the 4th or the first half of the 5th century AD.[465] Similar fragments are sporadically found throughout Tyrrhenian central Italy, for example, in deposits at the Crypta Balbi.[466]

Eight fragments of transparent colourless glass were found decorated with geometric motives. Although these geometric motives could have been used to frame figurative scenes,[467] it is more likely that they were part of a pattern of geometric motives only. The fragments are thought to be of Latial origin, but were exported to sites outside the region as well.[468] They probably date in the 4th or 5th century AD.

Several other decorated fragments could not be identified and dated. They include a neck fragment, decorated with an encircling notched band on the exterior and two cups; one is decorated with an impressed beehive motive and the other with an incised wave-pattern. Furthermore, two fragments decorated with silver inlays and one fragment bearing *cracelure*-decoration were found.

Non-utilitarian objects

A total of 19 *tesserae* in glass paste were collected from sections D (2x), F (5x), G (1x), H (7x), I (3x) and L (1x). They occurred in the following colours: transparent white, transparent green, dark green, light blue and dark blue. A single *tessera* was covered on one side with a sheet of gold. These *tesserae* were probably not used in floor pavements, but in wall decorations.[469]

Furthermore, a single fragment of window glass was found.[470]

Discussion

Mainly thanks to the use of a sieve many glass fragments were found during the *Astura*-excavation. These are mostly in colourless or light green glass, although fragments in darker green and light and dark blue occur as well. The earliest fragments date in the 4th century AD and are often decorated. They are in general of Latial production, but several imported shapes occur as well (the *Nuppenglas*, the mosaic glass). With regard to the undecorated fragments, the bulk of the vessel shapes form a homogeneous group, belonging to the well-known 'Roman' glass production. This production, as was noted by Sagui as well, appears to comprise a set of both morphologically and functionally restricted forms.[471] Such standardization indicates a high degree of organization of the production that still must have been of an industrial character. The fact that until now few workshops have been identified might suggest that Rome was the only centre of production. The main period of glass consumption at *Astura* appears to comprise the later 4th and 5th century AD. However, the presence of a small number of *calici* shows the continued arrival of glass vessels at the site until at least the early 6th century AD.

The many *tesserae* in glass paste probably were part of (wall) mosaics that adorned either public or private buildings at the site.

Metal artefacts

During the excavation, 227 metal objects were recovered. These include 142 coins (140 in bronze and two silver ones). Also, 85 other metal objects were found, comprising fragments in bronze, lead and iron.

Coins

The sampling of the section yielded a total of 142 coins. Their recovery was greatly helped by the use of a sieve during the 2008 campaign, when more than 90% of the coins were found.[472] The coins were generally in a poor state of preservation. This must have been caused by the generally low quality of the alloy used for coins of small denominations in the late Imperial period; however, also environmental conditions appear to have played a part. Approximately 42% of the coins could be ascribed to an emperor (table 6.3).[473] This was not in all cases based on the legend or the emperor's portrait, but

465 De Tommaso 1994, 265; Sagui 1993, 122.

466 Sagui 1993, 121.

467 See De Tomasso 1989 and Harden 1987 for some examples.

468 Similar fragments were for example found during the excavations at the Scuola Praeconum (Whitehouse *et al.* 1985). Outside Latium fragments are known from Luni (Frova & Bertino 1973) and Naples (Miraglia 1994).

469 Christie 1991, 262.

470 Window glass was commonly used from the 2nd century AD onwards (Stiaffini 1991; Keay *et al.* 2005, 207).

471 Sagui 1993.

472 The use of a sieve is even more useful on late Imperial sites compared to sites of other periods, since coins of this period – at least those of small denominations – are very small in size (7 – 13mm).

473 For the determination of the coins the following publications were used: Kampmann 2004; Van Meter 2000 and Sear 1988. Also used was the internet coin database at www.tesorillo.com/aes.

Table 6.2 No. of coins per section.

Section	Nr_coins	Nr_identified (percentage)
B	1	1 (100%)
G.S.	1	1 (100%)
D	68	38 (55.9%)
E	5	3 (60%)
F	13	6 (46,2%)
G	5	1 (20%)
H	38	4 (10,5%)
I	3	2 (66,7%)
K/Q	1	0
L	2	0
M	2	1 (50%)
O	1	1 (100%)
R	1	1 (100%)
X	1	0

Table 6.3 No. of coins per emperor.

Emperor	Reign	Nr_coins	Section
Augustus	27 BC – AD 14	1	R
Crispus	AD 317 – 326	1	G
Constantius II	AD 337 – 361	4	D, F (2x), H
Julianus II	AD 357 – 363	2	F, H
Constantius II/ Julianus II	AD 337 – 363	1	D
Valentinianus I	AD 364 – 375	3	D (3x)
Valens	AD 364 – 378	1	G.S.
Gratianus	AD 367 – 383	1	D
Valentinianus II	AD 375 – 392	16	D (15x), H
Theodosius I	AD 379 – 395	14	D (10x), E (2x), F, H
Arcadius	AD 383 – 408	5	D (4x), F
Eugenius	AD 392 – 394	1	D
Honorius	AD 393 – 423	1	D
Theodosius II	AD 408 – 450	1	B
Valentinianus III	AD 424 – 455	1	F
Leo I	AD 457 – 474	1	D
Libius Severus & Recimer	AD 461 – 465	3	E, I, M
Anthemius	AD 467 – 472	2	I, O

sometimes on the reverse type as well (table 6.4). Of several other coins the reverse was identified, but the high degree of standardization in reverse types in the late Roman period did not allow a very close dating. Most of the coins were collected in sections D, F and H. The preservation of the retrieved pieces varies considerably between the sections. Whereas approximately 50% of all coins from sections D and F could be identified, this was possible for only 10% of the coins retrieved from section H (table 6.2). In this section, I will briefly

Table 6.4 No. of coins per reverse type.

Type	Nr_Coins	Sections
SPES REIPUBLICE	4	D, F, H (2x)
SECURITAS REIPUBLICE	5	D (5x)
VICTORIA AUGGG	12	D (11x), H
VICTORIA AUG	1	F
SALUS REIPUBLICE	18	D (13x), E (3x), F (2x)
Monogram	5	E, I (2x), M, O
VOT/XX/MULT/XXX	2	D, F
VOT/.../MULT/XX	1	D
VOT/XV/MULT/XX	1	D
SPES ROMANORUM	1	D
GLORIA ROMANORUM	4	F (2x), H, G.S.
VICTORIA AUGUSTORUM	1	F
VIRTUS EXERCITUS	1	G
Lion	1	D
S.C.	1	R

Table 6.5 No. of coins per mint.

Mint	Nr_coins (percentage)
Roma	19 (47,5%)
Aquileia	4 (10%)
Siscia	1 (2,5%)
Treveri	2 (5%)
Constantinopolis	2 (5%)
Antiochia	1 (2,5%)
Cyzicus	1 (2,5%)
Lugdunum	1 (2,5%)
Thessalonica	2 (2,5%)
Aquileia/Roma/Thessalonica	4 (10%)
Aquileia/Roma	2 (5%)
Constantinopolis/Nicomedia	1 (2,5%)

summarize the principal results of the study of the collection of coins.[474]

The earliest coin is an AS issued in 15 BC under Emperor Augustus. This coin, found in section R, is pierced and probably re-used as a pendant. All other identified coins were issued between the early 4th and the late third quarter of the 5th century AD, with a clear dominance of issues during the reigns of Valentinianus II and Theodosius I, both governing in the last quarter of the 4th century AD. The latest coins are five so-called monograms of the advanced 5th century, three bearing the monogram of Libius Severus and Recimer and two the monogram of Anthemius.

Of 40 coins (28% of the sample), the mint of issue could be established (see table 6.5).[475] It should be no

474 The coins and the other metal artefacts from *Astura* were studied by Tim Kauling as part of his master thesis (Kauling 2010).

475 These mints were identified either on the abbreviation still legible on the coin or by indicative coin types.

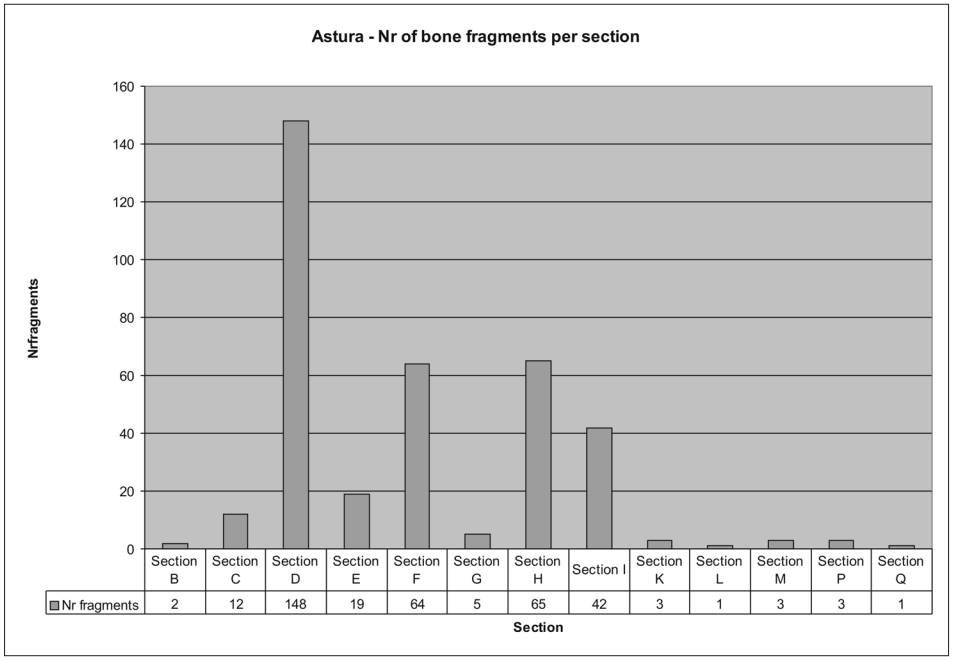


Figure 6.7 No. of bone fragments per section.

surprise that the larger part of the coins – almost 50% – was struck in Rome. As for the rest, it is surprising that many coins issued in the eastern part of the Empire reached our site. The larger part of these derived from *Aquileia* (on the Adriatic coast), *Constantinopolis* and *Thessalonica*. Two coins were struck in modern-day Trier, while another four mints contributed a single coin to our sample. Seven other coins were struck in only two or three mints. Although their provenance is uncertain, they have been included in the table.[476]

Even though the number of identified coins is small, it can be noted that sections D and F yielded predominantly (late) 4th century coins. Four of the five coins bearing monograms were collected from the foundation trench of the structure in section I and from sections O and M, in the northern half of the section.

Bronze artefacts

Apart from the coins, 21 bronze objects were found. Six of these consist of nails; these fragments could not be dated with precision. From section E, two connected rings of a bronze chain were recovered. This chain could have been used for suspension of an oil lamp. Two bronze hooks were found in section H. The first is definitely part of a fishhook, while the second constitutes an instrument used in the sewing, weaving and spinning of textiles. In section D, three connecting fragments of an almost complete bronze bracelet were found. The exterior of the bracelet is decorated with a repetitive pattern of crosses and ovals. The small diameter suggests that it must have been worn by a child. Part of a bracelet bearing similar decoration was found near Hovingham in central-eastern England, dated in the 4th century AD.[477] The rest of the bronze fragments, mainly unrecognisable lumps, could not be dated.

Lead artefacts

Among the metal artefacts are 18 lead fragments. Most of these are lumps in various shapes and sizes. Furthermore, the sample included seven small hollow tubes of unknown function.

Iron artefacts

A total of 44 iron objects were found. The bulk of these (27 fragments) consists of square nails in varying sizes. The other 17 objects were either extremely fragmentary or heavily corroded. Their function and date could therefore not be established.

Finally two small bronze plaques contained within a heavily corroded iron mass were found. No function or date could be established for these either.

Worked bone

An intact die was found in section D. The pips on all sides are regularly aligned, apart from the side depicting number one, where the point is placed out of position. The pips consist of a punctuated centre and an

476 The relatively large percentage of foreign coins – mainly from the eastern Mediterranean – was noted before in the Torre Astura hoard (see Derks 2011). The percentage of foreign mints is, for example, notably higher than in the contemporaneous deposits in the *basilica di Pianabella* at Ostia (Spagnoli 1993).

477 The find from North Yorkshire was done by an amateur archaeologist and is unpublished; see http://finds.org.uk/database/artefacts/record/id/245506.

Table 6.6 Identified species at Astura (%-1: percentage of animal class; %-2: percentage of all bones; BW: bone weight).

Astura, Italy						
Species	NR (n)	%-1	%-2	BW (g)	%-1	%-2
Pig, *Sus domesticus*	91	41,6	35,5	558,5	41,5	40,8
Cattle, *Bos taurus*	31	14,2	12,1	311,7	23,2	22,7
Sheep/goat, *Ovis aries/ Capra hircus*	62	28,3	24,2	243,8	18,2	17,8
Horse, *Equus caballus*	3	1,3	1,2	65,7	4,9	4,8
Dog, *Canis familiaris*	2	0,9	0,8	8,9	0,7	0,6
Size of cattle/horse	11	5,0	4,3	69,8	5,2	5,1
Size of pig/sheep/goat	19	8,7	7,4	83,9	6,3	6,1
TOTAL MAMMALS	219	100,0	85,5	1342,3	100,0	97,9
Chicken, *Gallus gallus domesticus*	28	84,8	10,9	26,7	95,1	1,9
Goose, *Anser sp. dom/wild*	1	3,0	0,4	0,6	2,1	0,0
Non-identified birds	4	12,2	1,6	0,8	2,8	0,1
TOTAL BIRDS	33	100,0	12,9	28,1	100,0	2,0
Non-identified fish	3	100,0	1,2	0,8	100,0	0,1
TOTAL FISH	3	100,0	1,2	0,8	100,0	0,1
Cockle, *Cerastoderma spec.*	1	100,0	0,4	0,2	100,0	0,0
TOTAL MOLLUSCS	1	100,0	0,4	0,2	100,0	0,0
TOTAL	256		100,0	1371,4		100,0
Indet	112			198,6		

encircling lower lying groove. These types of impressions are – apart from dice – common on several other artefacts of late Imperial date.[478]

Faunal remains

A total of 368 pieces of bone were collected.[479] These can provide insight in both the diet of the site's inhabitants and aspects of the settlements subsistence economy. Due to their high fragmentation rate, only 70% of all fragments could be determined. The main part of the sample was collected in 2008, when all excavated soil was sieved.

The largest part of the retrieved fragments (almost 90%) derives from the extensively studied sections D, F, H and I. However, small numbers of bone were found in most other sections as well (fig. 6.7).

Identified animals

The largest share (85,5%) consists of mammals fragments, whereas smaller amounts of bird (12,9%), fish (1,2%) and mollusc (0,4%) were found (tables 6.6 & 6.7).[480] The most frequently encountered animal was the pig, accounting for 42% of all identified bones. The sample furthermore includes relatively large amounts of sheep/goat (28%) and cattle (14%). A few bones of horse and dog were collected as well.

Almost 85% of all bird bones can be ascribed to chicken, both hens and roosters. The only other bird identified with certainty is the goose. Furthermore, three unidentified fish bones and a single fragment of a cockle were retrieved.

478 For an example of similar impressions see Hurst & Roskams 1984, 192, fig.64.89; for similar impressions on other bone items see Arena *et al.* 2001, 403.

479 The faunal sample from *Astura* was studied by Yftinus van Popta, Marco Bakker and Tom Trienen under the supervision of Dr. Wietske Prummel of the Groningen Institute of Archaeology.

480 These figures include a bias, since in 2007 no sieve was used, favouring the retrieval of bones of larger animals.

Table 6.7 Bone distribution at Astura (o8: size of cattle/horse; o6: size of pig/sheep/goat).

Astura										
Bone:	**Cattle**	**Sheep/goat**	**Pig**	**Horse**	**Dog**	**o8**	**o6**	**Chicken**	**Goose (wild/dom)**	**Cockle**
Astragalus			1							
Carpi intermedium		1								
Centrotarsale	1									
Coracoideum								4		
Costae	9	15	6	1						
Cranium			3			1	3			
Femur		2			2		2	2	1	
Fibula			3							
Humerus	2	4	5					3		
Long bone						4	9			
Mandibula (teeth)	4	14	22			6	1			
Mandibula/maxila			10							
Maxila (teeth)	1	2	16							
Metacarpus	2	1	2					1		
Metatarsus		1								
Pelvis	2	2	2					1		
Phalanx I	1	2	2							
Phalanx II	1		1							
Phalanx III	1		1							
Radius	3	5	2				1	3		
Scapula	1	4	4				2	1		
Shell										1
Sternum								1		
Tarsometatarsus								4		
Tibia	1	5	6	1			1			
Tibiotarsus								5		
Ulna	1							3		
Vertebrae cer.	1	3								
Vertebrae lum.			1							
Vertebrae sac.										
Vertebrae tho.		1	4	1						
Total	31	62	91	3	2	11	19	28	1	1

Age of death

The establishment of the age of death (or slaughter) of an animal can provide insight in the function the different animals fulfilled. The age of death could be ascertained for 29 pig fragments, eight fragments of cattle and eleven fragments of sheep/goat (table 6.8).

Approximately two thirds of the pig fragments indicate that the animal was slaughtered before reaching the end of its second year. This indicates that these animals were used predominantly for meat consumption. Animals that lived to be older than two years (one third) could also have been used to keep up an existing flock. However, no animal appeared to have lived over the age of 4.

Although the sample is quite small the age of death for the cattle shows a different pattern. Three of the animals died before the age of two, whereas the other five fragments indicate that the animals died between the age of two and four. Based on this data, we can hypothesize that cattle was used for more than one purpose. The young animals were partly used for meat consumption, whereas older animals could have fulfilled supplementary functions (e.g. supplying milk, for the upkeep of a flock or as pack animal).

The fragments of sheep/goat indicate that all of those animals died before reaching the age of two. This indicates that they were primarily intended for meat consumption as well and less so for secondary products like milk and wool.

Evaluation

The site is located under a pine tree forest in a highly dynamic environment. However, the consistency and nature of the faunal sample excludes large-scale

Table 6.8 Age of death for recorded pigs, cattle and sheep/goat.

Pig, *Sus domesticus*			
Slaughtering age	Number (n):	Percentage (%):	Alive (%):
0-12 months	10	34,5%	65,5%
12-24 months	9	31,0%	34,5%
24-36 months	7	24,1%	10,3%
36-48 months	3	10,3%	0,0%
> 48 months	0	0,0%	
Total	29	100,0%	

Cattle, *Bos taurus*			
Slaughtering age	Number (n):	Percentage (%):	Alive (%):
0-12 months	1	12,5%	87,5%
12-24 months	2	25,0%	62,5%
24-36 months	2	25,0%	37,5%
36-48 months	3	37,5%	0,0%
> 48 months	0	0,0%	
Total	8	10,0%	

Sheep/Goat, *Ovis aries/Capra hircus*			
Slaughtering age	Number (n):	Percentage (%):	Alive (%):
0-12 months	8	72,7%	27,3%
12-24 months	3	27,3%	0,0%
24-36 months	0	0,0%	
Total	11	100,0%	

contamination; the sample of bone fragments collected during the *Astura*-excavation therefore attest to the ancient use of the animals they belong to.

The fact that the age of death of most pigs and sheep/goats, and to a lesser extent cattle, lies before their second year, suggests that most animals were primarily intended for meat consumption. This fact is further manifested by the finding of clear cutting marks on several fragments.[481] The dominance of pig over other types of animals strengthens this hypothesis. In contrast with sheep/goat and cattle, these animals did not provide supplementary products like wool and milk, but were either kept or imported for consumption only. Their somewhat later age of death suggests that cattle may have served other purposes (although no identified individual survived past the age of four). Only limited evidence was found for the consumption of 'sea products'. The share of these products in our sample can, however, be influenced to some extent by the method of excavation or by specific discard practices.[482]

All in all, these observations point to a town/village economy, with little evidence for pastoral activities. This picture complies with that of other late Imperial sites in central and southern (coastal) Italy.[483] In many of these the consumed animals, especially pigs, were not raised locally, but imported from southern Italy. A similar scenario can be hypothesized for the *Astura* settlement.[484]

481 The high fragmentation rate and the poor conditions for conservation at the site make it hard to identify cutting or chopping marks. Several pig vertebras are, however, clearly split.

482 Fish bones are generally much smaller than those of the other animals discussed and therefore hard to identify with the naked eye. Even the use of the 0.5cm sieve in 2008 would probably not have led to an interception of all fish bones.

483 Arthur 2007, 16; Whitehouse *et al.* 1982.

484 For this phenomenon see Barnish 1987 and Belli Pasqua 1995.

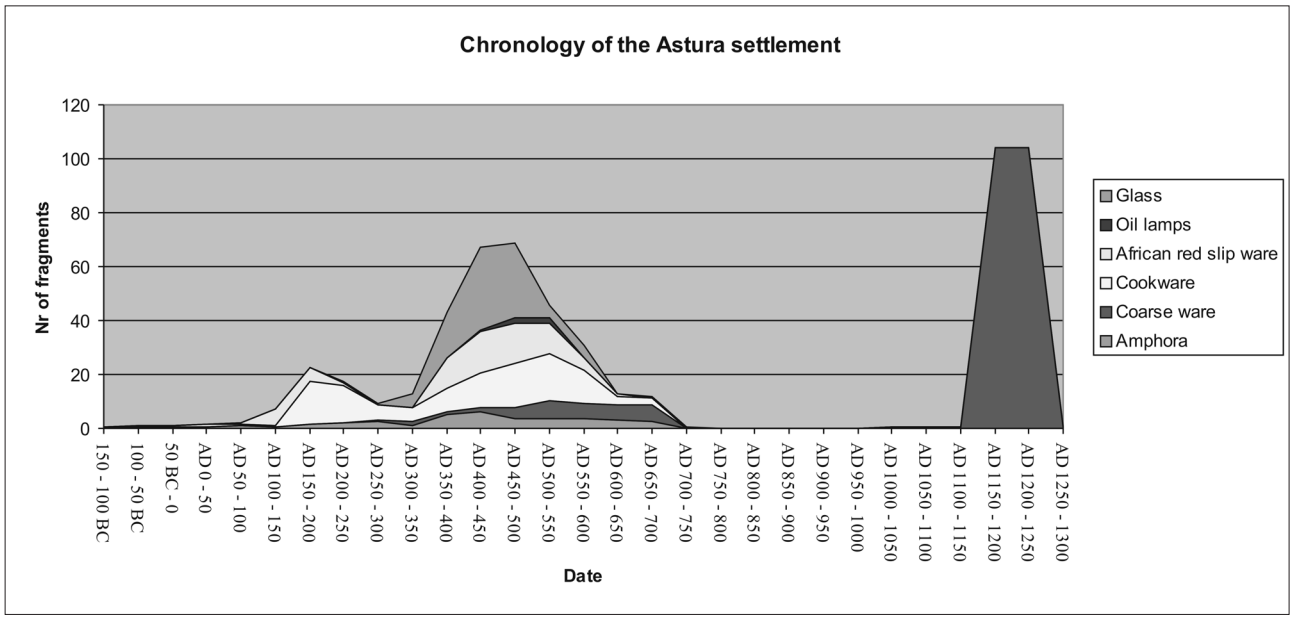


Figure 6.8 Cumulative trend of all dated finds from Astura.

6.4 Discussion of the results

Date and trade

Based on the abovementioned material evidence, an assessment of the chronology of the studied part of the *Astura* settlement can be made (fig. 6.8). Two restrictions in this assessment should be pointed out upfront. Firstly, the absence of a primary stratigraphy evidence makes it difficult to closely study changes within the time-span in which the site was inhabited. Secondly, we must keep in mind that the sampling covered only a small part of the settlement. The discussed chronology for the studied area is therefore not necessarily indicative of the chronology of the settlement as a whole.[485]

Sporadic finds of lithic tools and protohistorical pottery indicate early frequentation of this area. Except for these finds, no fragments pre-date the Imperial period. A considerable quantity of material dates in the 1st to 3rd centuries AD. These, however, comprise predominantly small fragments of a restricted number of wares, mainly terra sigillata, early African (fine and cooking) wares and amphora fragments. The restricted number of wares indicates that these do not constitute *in situ* materials; it is more likely that they represent (residual) pottery associated with earlier activity at a nearby location.

Activity at this location appears to have reached a peak from approximately the mid-4th century AD until at least the late 6th century AD. A large variety of wares belonging to this period attest to the consumption of local products on the one hand and the reliance on products brought in via long-distance trade networks on the other hand. Among the glass fragments we witness the 4th century consumption of elaborately decorated vessels, the larger part of which was probably produced in central Italy. From the late 4th or early 5th century AD, a restricted set of highly standardized forms of the so-called 'Roman production' took over the market. Coarse and cooking wares also show, apart from several shapes of clearly local production (mainly the casseroles with triangular rim) the importation of shapes produced along the Tyrrhenian sea-coast and on the Italian islands. These include a group of casseroles possibly provenient from Liguria, several Campanian forms and products of the recently identified *Pantellerian* and *Micaceous Wares*. As can be expected, a large share of the coarse and cooking wares was produced in North Africa, while two fragments can be identified as Aegean products.

Between the 4th and the 6th century many African fine wares reached the site as well. These include almost exclusively African red slip ware forms, apart from a single Tripolitanian red slip ware fragment. The popularity of these African shapes is also reflected by several (probably local) imitations. The enormous variety of forms that occur is remarkable, at least in comparison with the survey sites discussed in chapters 3 and 4. Although including some local products, most lamps were also of African origin.

The coins – leaving out the Augustan piece – were all minted between the early 4th century and the third quarter of the 5th century AD, with a clear dominance of issues from the last quarter of the 4th century. The noted reduction in the number of coins that were issued after

485 Several of the archaeological remains described by Piccarreta, such as *tombe a cappuccina*, are possibly of earlier date.

Table 6.9 Compositional comparison between samples from sections D, H and I.

Ware\Section	D		H		I	
CW (*a bande rosse*)	90 (9)	54,9% (5,5%)	267 (173)	76,1% (49,3%)	384 (207)	88,5% (47,7%)
Amphora	7	4,3%	16	4,6%	24	5,5%
African red slip ware	25	15,2%	32	9,1%	15	3,4%
Glass	42	25,6%	36	10,3%	11	2,5%
Total	164	100%	351	100%	434	100%

the early 5th century AD and the complete absence of issues later than the third quarter of the 5th century is in accordance with observations elsewhere. Although it indicates that coin supply to the site probably came to a halt, this does not necessarily entail the disappearance of a monetary economy. On contemporaneous sites coin loss continues, sometimes up till the 7th century AD, indicating that 4th and 5th century coins continued to be used as a means of payment.[486]

Evidence for continuity of occupation in the 7th century AD is indicated by fragments that are identical to forms found in the closed deposit of the *esedra* at the Crypta Balbi. Pottery consumption in this period appears to comprise almost exclusively coarse ware types of local manufacture. Although a number of imported fine ware types have a production date that comprises at least part of the 7th century, fossil types for the latest phase of African red slip ware (for example Hayes forms 91C/D, 99D, 109) are absent in our samples. However, the continued importation of foodstuffs to the site is indicated by amphorae belonging to the *Castrum Perti* type, characterized by their *fondi umbellicati*. Although the production date of these amphorae extends in the early 8th century AD, the absence of contemporaneous pottery makes it likely that they date in the 7th century AD as well.

At present there is a complete lack of evidence for activity between the 8th and the 11th century AD, possibly even extending into the 12th century. The typical 'central Italian' pottery wares and shapes for this time interval, such as *testi, olle acquarie, ciabatta*-lamps and the well-known *Forum Ware* (*ceramica a vetrina pesante*) are absent in our samples.[487] The finding of a fragment of Forum Ware at nearby *Satricum* indicates that the absence of this ware at *Astura* should not be explained in terms of the distribution of this ware, but as a confirmation of the absence of features (and ceramics) of this date in the investigated part of the site.[488]

There is ample ceramic evidence for activity in the advanced Middle Ages. The bulk of this evidence is provided by the enormous quantity of *ceramica dipinta a bande rosse*. The quantity of shards, the restricted number of forms and the identification of several wasters identify *Astura* as one of the production locations of this ware as well as for identical vessels in *ceramica acroma depurata*. The bulk of the recorded fragments was found in secondary position, being incorporated in the fill of a foundation trench. This renders the dating of the production activity difficult. Our repertoire of shapes and decorations shows large similarities with the production of this ware at *Privernum* that was dated in the later 12th or early 13th century and a similar date can be proposed for the production at *Astura*. Two fragments of a jug type that is well-known in contexts of the 11th to 13th century in and around Rome were found as well. Although the shapes are similar, one is in plain coarse ware, whereas the other belongs to the *vetrina sparsa* production, bearing a yellowish glaze on the exterior of the shard. It is likely that these fragments belong to the same occupational phase as the *ceramica dipinta a bande rosse* fragments.

A large quantity of glazed fragments indicates an even later phase of frequentation of the site area. Due to the absence of diagnostic pottery shapes, this phase can at present not be dated with precision.

Discussion of the sample areas

Identifying chronological differentiation between the sample areas is difficult in the absence of a primary stratigraphy. However, the large amount of material collected from sections D, H and I make it possible to identify some general differences between them (table 6.9). A direct confrontation between the materials collected from the sample areas in sections D and H appears particularly fruitful in this respect. From both largely similar samples were collected, containing utilitarian pottery, African red slip wares and glass fragments as well as a large number of coins. The utilitarian

486 Reece 2003; Rovelli 2009.

487 These pottery shapes and wares can be taken as indicative for activity between the 8th and the 11th century AD. See for example Arthur & Patterson 1994. They are for example abundantly present at the Crypta Balbi (Sagui & Coletti 2004), at S.Cornelia (Christie 1991), in the Ostia and Portus area (Ciarocchi *et al.* 1993) and at Monte Gelato (Potter & King 1997).

488 A fragment of Forum Ware was identified during the excavation of a villa at ancient *Satricum* (Raaymakers 2007).

pottery types uncovered in both sections generally have long date ranges and therefore are omitted from this discussion; fragments of other wares, however, reveal a possible chronological difference between the samples taken from the two sections.

The most common African red slip ware shape collected from section D was large bowl Hayes 67, whereas the sample contains only few shapes of later date. The dominant African red slip ware shape in section H is the 5th-century flanged bowl Hayes 91A/B. Almost all decorated glass fragments, including the fragments of *Nuppenglas* and those bearing geometric decoration were retrieved from the sample area in section D. These forms are all typical for a 4th- or perhaps early 5th-century date. Section H yielded a large collection of glass fragments as well, but no decorated examples are included in the sample. The collection contains almost exclusively fragments of the late Antique 'Roman' glass production, with forms that are particularly common in 5th-century contexts. The best evidence for a slight difference in the dating of the two sample areas is, however, provided by the numismatic evidence. For section D, the collection of coins is extremely homogeneous with many examples issued in the last quarter of the 4th or the early 5th century. Their good state of conservation makes it probable that they were kept in circulation for only a short time. The coins retrieved from section H, on the other hand, were without exception extremely worn and only a few could be identified with certainty. This is a strong indication for a prolonged use of these coins, provoking a higher degree of surface wear.

Thus, although the pottery samples retrieved from sections D and H show a large chronological overlap, a closer look at the material evidence reveals a difference moment of deposition. Most fragments from section D date in the late 4th or early 5th century, whereas the materials retrieved from section H indicate that the excavated finds were deposited in the advanced 5th century or even the early 6th century AD. Apart from these general observations, a small quantity of earlier and later fragments was found in both sections, reflecting the general chronology of the studied site area.

Section I also yielded a large quantity of material, but its composition is divergent from that noted for sections D and H. The sample contains almost exclusively large fragments of building materials and utilitarian pottery, including only small numbers of coins, glass and fine wares. This suggests that several pottery wares and shapes were selected deliberately to fill the foundation trench of the structure. The secondary nature of this deposit is also evident from the long timespan that these fragments cover, dating between at least the 1st century AD and the 12th/13th century AD. The inclusion in the fill of many *ceramica dipinta a bande rosse* fragments indicates that large amounts of this ware were available in the vicinity of the structure, possibly retrieved from deposits that were connected with the production of the ware. Whereas the materials in sections A-H - apart from the eastern border of the foundation trench, that includes part of the sample area of section H – are predominantly of 4th- to 6th-century date, section I and subsequent sections contained fragments dating in the 7th century AD, albeit only in small quantities. Apart from yielding the principal share of the *ceramica dipinta a bande rosse* fragments, the fill in section I also yielded the two high Medieval jug fragments. These fragments provide a *terminus post quem* in the late 12th or early 13th century AD for the building of the structure. The absence of later wares in the fill indicates that its construction must have occurred shortly after this date.

Astura *and other coastal towns*

The intensive study of the exposure has resulted in the identification of a settlement with a large late Antique and early Medieval component (4th-7th century AD). A second phase of activity, connected with the building of a structure of unknown function can be placed in the later 12th or early 13th century AD.

Based on the material evidence, the site was well-connected to maritime trade networks. Although a direct quantitative comparison with contexts elsewhere is not possible in the absence of a primary stratigraphy, important observations can still be made on a more general level. The different identified productions and/or their relative share reflect patterns that are noted for other contemporaneous coastal sites, as for instance Naples, Ostia and Portus. The same is true for several contexts at Rome, a city that obviously depended heavily on its harbours for her pottery supply. Many of the shapes and wares found at *Astura* also occur on more distant coastal centres like *Marsiglia* (Marseille) and S. Antonino (Liguria).[489] This suggests that these different centres were all part of the same trade network(s) and indicates the existence of firmly established routes, on- and offloading cargo at different intermediate stops.[490] Some scholars have even gone so far as to assume ceramic trade along the Tyrrhenian coast being 'institutionalized traffic' in the late Imperial and late Antique periods.[491] At least, the similarities in consumed pottery wares and shapes with other coastal towns indicate that our site can be considered a settlement of considerable importance. It was part of established supply routes, probably using the harbour at Torre Astura as a landing point.

489 For S. Antonino see Bonora 1984 and Bonora *et al.* 1988. For materials from Marseille see CATHMA 1991.

490 Our casserole Pl.VI-VIII.7a-c is abundantly present at S. Antonino, suggesting its production in Liguria; see Bonora 1988 and Murialdo *et al.* 1998.

491 Ciarocchi *et al.* 1993, 212.

There is also ample evidence for the consumption of wares that were regionally manufactured. This is most evident for the utilitarian pottery, predominantly the casseroles with triangular rims, of which similar fragments have been found north and south of Rome.[492] Their fabric with many augite inclusions possibly indicates a local origin of these pieces. Furthermore, the bulk of the glass fragments can be ascribed to the 'Roman' repertoire of the late Antique period.

Around the late 6th century, the large-scale importation of pottery appears to come to a halt. Several of the most indicative shapes for 7th-century contexts (the latest African red slip ware forms, Spatheion 3 amphorae) are absent in our samples. However, the fill of the structure as well as the northern part of the section yielded coarse ware fragments that do indicate continuity into this period. These fragments, thought to be of local or regional origin, attest to a transition towards a more regionally orientated economy.

Based on the location of the site, its extension and the dating of the materials the site can indeed – as Piccarreta already suggested – be identified as the road station of *Astura*. This site is mentioned on the *Tabula Peutingeriana*, located near the sea, close to *Antium*. It is generally accepted that on this map, originally from the 4th century, contemporaneous road connections are depicted. The identification of this settlement can therefore help in establishing the exact course of a coastal road.

The site thus prospers from the 4th century AD onwards. In the same period we notice a distinct decline in activity in our study area as a whole, including the urban centre of *Antium*. The development of the settlement of *Astura* can be indicative of a shift in the local economy. From Paul Arthur's works in Campania derives a picture of decreasing importance of traditional urban centres in favour of (newly founded) *vici* (road stations); the same phenomenon is recorded in coastal Tuscany.[493] These *vici* were often equipped with or closely connected to small harbours, and the situation at *Astura* with the harbour of Torre Astura at close distance recalls a similar situation.[494] In these newly founded (or transformed) local centres, trade was concentrated and they controlled the supply of imported goods towards inland areas. With the gradual weakening of Roman state control, land (and estates) was increasingly owned by the church or by aristocratic families. [495]

Astura *in the high Medieval period*

A second upsurge of activity comprises the late 12th and 13th century AD. Activity in this period is indicated by a large quantity of *ceramica dipinta a bande rosse* with evidence for local manufacture. Morphologically similar fragments were produced in *Privernum*, demonstrating the existence in this period of a regional pottery 'industry'. Morphologically similar fragments are found on the *incastellamento* site *Conka* and near present-day Campoverde, both located up the Astura river, as well as on coastal sites to the north (Ostia, Civitavecchia) and south (Minturno) of our study area. However, the distributional range of the pottery produced at *Astura* (and as a consequence the potential continued use of the harbour at Torre Astura) is at present unclear and can only be resolved by fabric studies, focusing on both production and consumption sites.

Following the foundation of the Medieval centre of Nettuno in the course of the 10th century, the area around the mouth of the Astura river appears to form a second major settlement location in our study area. Many references attest to alternating ecclesiastical and/or aristocratic ownership of the area. From the sources it is clear that these possessions included a large piece of terrain, probably comprising a settlement of some sort.[496] However, no documentation on the degree of dependency of its inhabitants towards the estate owners is known. The archaeological data provided by the excavations here presented indicates that they were involved in the production of pottery in the late 12th or early 13th century AD. Apart from being an economic activity in itself, this production indicates that in the area around the settlement a commodity of some sort was produced in large quantities.[497] The tentative exportation of this commodity, and thus the participation of the site in supra-local systems of trade/exchange, using the harbour at Torre Astura, suggests that this entire area, whether in ecclesiastical or seigniorial possession, was part of the same administrative (and productive) system.

492 These casseroles are now identified on other sites in the study area as well, evidencing the persistence (or restart) in the late Antique period of a local cookware tradition. These sites are 15004 (see *infra* Pl.III-XXI.44 and Attema, de Haas & Tol 2010, 303, Pl.VII.31), 15085-03 (see *infra* Pls.IV-XVII.19 and V-V.37) and 11202 (see *infra* Pl.IV-XXXVIII.43).

493 Arthur 2004, 104-105. In coastal Tuscany, many of the maritime villas were structurally re-organized and transformed into sheltered maritime settlements in the late 5th or early 6th century AD (Francovich & Hodges 2003, 57).

494 Arthur also mentions that these smaller harbours were preferred over the larger ones of Roman origin (Arthur 2004, 109-110).

495 Arthur 2004, 105.

496 Piccarreta 1977, 11-12; Galeazzi 2008, 76-78. For a more extensive discussion of the historical and archaeological evidence for the site see chapter 1 of this thesis.

497 Based on the morphology of the vessels the most plausible content was wine.

6.5 Concluding remarks

The principal aim of the study of the exposure was to obtain better knowledge of late Imperial to early Medieval pottery circulating in our study area. Indeed, a number of coarse ware types, known from *Astura,* have now been identified on inland rural sites as well.[498]

Although the aim has therefore been achieved, stratigraphical excavations (preferably in combination with detailed fabric studies) are essential in the further development of our knowledge of late Antique material culture. In the meantime, the investigations at *Astura* have identified a rare case of site continuity from the Roman period to the early Medieval period and provides us with important information for the higher Middle Ages as well. Future works on this site must focus on establishing the extent and topography of the site in various periods, for example by combining large-scale geophysical surveys with dedicated small-scale excavations. Furthermore, a study of the direct hinterland of the site can possibly help us to understand the functioning of the site in the wider settlement system.

498 Apart from the earlier discussed casseroles with triangular rims (see note 492) the identification of other pottery shapes was also facilitated by our work at *Astura.* These include a fragment of a Keay 52 amphora (site 15085-03 – Pl.V-III.14), a casserole with a triangular thickening on the exterior of the rim (sites 15004 and 15085-03, see *infra* Pl.III-XXI.43) as well as several (African) coarse wares (sites 11202 and 15014 – Pls.III-XXVIII.1-3 (African coarse ware); III-XXVIII.1-3 (Pantellerian ware); IV-XXXVIII.44 and V-XII.4. For a fragment that was collected earlier during the regular block survey see Attema, de Haas & Tol 2011, 155, no.59.

Chapter 6 Typological table

Plate	Shape	Date	Parallel/literature	Section
		Impasto		
VI-I.1	Lug fragment	6th c. BC?	Attema *et al.* 2001/2002, 349 (Class XIII-13)	H
		Building materials - Tile		
VI-I.1	Stamped tile	3rd century AD?	Steinby, Helen & Solin 1977, no. 34	Grab Sample
VI-I.2	Stamped tile	-	-	I
VI-I.3	Decorated tile	-	-	Grab Sample
VI-I.4	Decorated tile	-	-	I
		Marble		
VI-II.1	Fragment of an inscription	-	-	A
VI-II.2	Fragment of an inscription	-	-	D
VI-II.3	Base of a column	-	-	I
VI-II.4	Worked fragment	-	-	I
VI-II.5	Worked fragment	-	-	I
		Amphorae		
VI-II.1	Handle of an amphora	140 – 10 BC	Dressel 1C	H
VI-II.2	Handle of an amphora	75 BC – AD 100	Dressel 2-4	G, I, N
VI-II.3	Handle of an amphora	75 BC – AD 200	Haltern 70	Grab Sample
VI-II.4	Handle of an amphora	AD 25 – 225	Cretoise 2	C
VI-III.5	Rim of an amphora	AD 75 – 275	Dressel 20	D
VI-III.6	Rim of an amphora	AD 150 – 300	Africana IIA con gradino	H, Grab Sample
VI-III.7	Rim of an amphora	AD 150 – 300	Africana Ib	I
VI-III.8	Rim of an amphora	AD 200 – 400	Tripolitana III	Grab Sample
VI-III.9	Handle of an amphora	AD 200 – 400	Kapitän II	C
VI-III.10	Rim of an amphora	AD 250 – 300	Africana IId	D
VI-III.11	Rim of an amphora	AD 300 – 400	Africana IIIb	Grab Sample
VI-III.12	Body of an amphora	AD 325 – 650	Late Roman Amphora II	F, I (2x)
VI-III.13	Body of an amphora	AD 350 – 650	Late Roman Amphora 1	H
VI-III.14a-14c	Rim and base of an amphora	AD 350 – 700	Keay 52	B, F (3x), G (2x), H (9x), I, Q
VI-III.15	Rim of an amphora	AD 375 – 450	Africana IIIc	I, Grab Sample
VI-III.16	Rim of an amphora	AD 375 – 450	Spatheion 1	I
VI-IV.17	Body of an amphora	AD 375 – 600	Late Roman Amphora 3	F (2x)
VI-IV.18	Rim of an amphora	AD 475 – 675	Hammamet 3	I
VI-IV.19	Rim of an amphora	-	-	Grab Sample
VI-IV.20	Rim of an amphora	-	-	Grab Sample
VI-IV.21	Rim of an amphora	-	-	C

Chapter 6 Typological table continued

Amphorae				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-IV.22	Rim of an amphora	-	-	C
VI-IV.23	Rim of an amphora	-	-	D
VI-IV.24	Rim of an amphora	-	-	F
VI-IV.25	Rim of an amphora	-	-	I
VI-IV.26	Rim of an amphora	-	-	F
VI-IV.27	Rim of an amphora	-	-	H
VI-IV.28	Rim of an amphora	-	-	I
VI-V.29	Rim of an amphora	-	-	I
VI-V.30	Rim of an amphora	-	-	M
VI-V.31	Rim of an amphora	-	-	Grab Sample
VI-V.32	Rim of an amphora	-	-	Grab Sample
VI-V.33	Rim of an amphora?	-	-	I
VI-V.34a-34c	Body and base of an amphora	AD 575 – 725	Globular amphora ('Castrum Perti' type)	F, H (2x), I (4x), Grab Sample
Utilitarian pottery – African cookware				
VI-V.1	Rim of a casserole	AD 250 - 400	Hayes 1972, 202, form 183	Grab Sample
VI-V.2	Rim of a casserole	AD 150 – 300+	Hayes 1972, 206, form 197	D, F, H (6x), J, K (2x), P (2x), Grab Sample (2x)
VI-V.3	Rim of a casserole	AD 150 – 225+	Hayes 1972, 46, form 23B	D (2x), F, H (2x), I, L, N
VI-V.4	Rim of a casserole	AD 350 – 450	Atlante I 1981, TAV.CVI.5/6	H
VI-V.5	Rim of a casserole	AD 375 – 475	Atlante I 1981, TAV.CVII.9 (Type Michigan 1)	I
VI-V.6	Rim of a lid	AD 300 – 400	Bonifay 2004, 216, fig.115 (=Hayes 1972, 202, form 182D)	G
VI-VI.7	Rim of a lid	AD 150 – 250+	Hayes 1972, 206, form 196	D (2x), E (3x), F, H (2x), M, Grab Sample (3x)
VI-VI.8	Rim of a lid	AD 200 – 400	Atlante I 1981, TAV.CIV.5 (Type Ostia 1)	A
VI-VI.9a-9b	Rim of a lid	AD 200 – 400	Atlante I 1981, TAV.CV.7/8 (Type Ostia 1)	H (2x)
Utilitarian pottery – African coarse ware				
VI-VI.1	Rim of a basin	AD 650 – 700	Bonifay 2004, 254 (Carthage class 2, variant D)	Grab Sample
VI-VI.2a-2b	Rim of a basin	AD 400 – 500	Fulford & Peacock 1984, 172 (Bowl Type 22); Bonifay 2004, 256, fig.139 (Variant C); Ciarrocchi *et al.* 1998, 410, fig.11.7; Whitehouse *et al.* 1982, 79, fig.13.182-184	D, F
VI-VI.3a-3b	Rim and base of a basin	AD 200 – 400	Bonifay 2004, 262, fig.143; Arthur 1994, 198, type 75.3	K, Grab Sample
VI-VI.4	Handle fragment	AD 475 – 550	Fulford & Peacock 1984, 204, fig.79.6; CATHMA 1991, 32, type 8; Arthur 1994, 213, fig.100, type 154; Fulford & Peacock 1994, 87, fig.5.6, no. CF72	H
Utilitarian pottery – Aegean coarse ware				
VI-VII.1	Rim of a dish	AD 450 – 550	Fulford & Peacock 1994, 188, fig.71.5.4; Waksman & Tréglia 2007, 651, fig.1.14	D, H

Chapter 6 Typological table continued

Plate	Shape	Date	Parallel/literature	Section
			Utilitarian pottery – Micaceous ware	
VI-VII.1	Rim of a large bowl	AD 400 – 600	Santoro 2007, 374; Fogagnolo 2004, 591, TAV.VII.54; Ciarrocchi *et al.* 1998, 408, fig.10.8	F, H
			Utilitarian pottery – Pantellerian ware	
VI-VII.1	Rim of a casserole	AD 300 – 600	Arthur 1994, 253, fig.121.112	D
VI-VII.2	Rim of a casserole	AD 350 – 450	Ribera i Lacomba & Roselló Mesquida 2007, 195, fig.3.26; Carsana, D'Amico & Del Vecchio 2007, 437, fig.9.23	D
VI-VII.3	Rim of a casserole	AD 450 – 600	Arthur 1994, 253, fig.121.113/114; Carsana, D'Amico & Del Vecchio 2007, 437, fig.9.23	H
VI-VII.4	Rim of a casserole	AD 350 – 550	Arthur 1994, 253, fig.121.112/113	D (2x)
VI-VII.5	Rim of a lid	AD 350 – 550	Santoro Bianchi 2005, fig.4; Potter & King 1997, 357, fig.236.182	D, H
			Utilitarian pottery – Other cookware	
VI-VII.1	Rim of a casserole	AD 400 – 600	Munzi *et al.* 2004, 105, TAV.IV.35; Calabria & Patilli 2005, 302, fig.8.7	F, I, Grab Sample (2x)
VI-VII.2	Rim of a casserole	AD 300 – 600	Calabria & Patilli 2005, 302, fig.8.5; Munzi *et al.* 2004, 109, TAV.V.40; Patilli 2007, 404, fig.7.4-5; Ikäheimo 2010, 414, fig.3.7; Bertoldi & Pacetti 2010, 440-441, types 6 and 7.	D, H, I (4x), Q
VI-VIII.3	Rim of a casserole	AD 475 – 600	Fogagnolo 2004, 594, TAV.IX.71	B, D, H (2x)
VI-VIII.4	Rim of a casserole	AD 500 – 650	Pacetti 2004, 456, TAV.XI.79 & 447, TAV.V.32; Patterson & Roberts 1998, 429, fig.6.1	D
VI-VIII.5	Rim of a casserole	AD 475 – 600	Munzi *et al.* 2004, 105, TAV.IV.37; Fogagnolo 2004, 594, TAV.IX.76	E, I, Grab Sample
VI-VIII.6	Rim of a casserole	AD 500 – 700	Close to Fontana *et al.* 2004, 554, TAV.IV.35; Ricci 1998, 354, fig.2.3; Santangeli Valenzani *et al.* 2002, 137, fig.7.5; Ciarrocchi *et al.* 1998, 406, fig.9.6	D, E, I, Grab Sample
VI-VIII.7a-7c	Rim of a casserole	AD 300 – 600	Murialdo *et al.* 1998, 247, fig.8.9-10; Bonora *et al.* 1988, 370, TAV.XIV.1-8	D, F (2x), I (4x)
VI-VIII.8	Rim of a casserole	AD 475 – 600	Fogagnolo 2004, 594, TAV.IX.76	B
VI-VIII.9	Rim of a casserole	AD 400 – 450	Whitehouse *et al.* 1982, 74, fig.8.99; Ciceroni *et al.* 2004, 144, TAV.II.10; Tommasi 2004, 319, TAV.I.12	C, I
VI-VIII.10	Rim of a casserole	AD 575 – 625	Pacetti 2004, 456, TAV.XI.86	H
VI-VIII.11	Rim of a casserole	AD 375 – 550	Potter & King 1997, 357, fig.236.179	D
VI-VIII.12	Rim of a casserole	AD 550 – 700	Ricci 1998, 353, fig.1.3-4; Ciarrocchi *et al.* 1998, 405, fig.8.3; Paganelli 2004, 189, TAV.III.33	D
VI-IX.13	Rim of a casserole	Unknown	Of local origin based on fabric (similar to VI-VII.1-2)	I
VI-IX.14	Rim of a casserole	AD 400 – 700	Arthur 1994, 223, fig.103, type 2 (Campanian origin).	F
VI-IX.15	Rim of a casserole	AD 475 – 525	Amores *et al.* 2007, 159, fig.3 (Type Lebrillo 12)	D, I
VI-IX.16	Rim of a casserole	Unknown	Of African origin?	F
VI-IX.17	Rim of a casserole	Unknown	Of African origin?	F
VI-IX.18	Rim of a casserole	Unknown	Of African origin?	H
VI-IX.19	Rim of a casserole	-	-	D
VI-IX.20	Rim of a casserole	-	-	F
VI-IX.21	Rim of a casserole	-	-	L
VI-IX.22	Rim of a jar	AD 0 – 200	Olcese 2003, TAV. XI (Olla Type 8)	Grab Sample

Chapter 6 Typological table continued

Utilitarian pottery – Other cookware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-IX.23a-23b	Rim of a jar	AD 300 – 600+	Arthur 1994, 237, fig.112, type 32; Tommasi 2004, 323, TAV.II.21-22; Pacetti 2004, 456, TAV.XI.92; Vatta & Bertoldi 2004, 467, TAV.VII.60	G, H, Grab Sample
VI-X.24	Rim of a jar	AD 400 – 700	Dyson 1976, fig.68, no. FC32; Ciarrocchi *et al.* 1998, 406, fig.9.5	D, H (2x)
VI-X.25a-25b	Rim of a jar	AD 400 – 700	Ricci 1998, 354, fig.2.8-9; Ciarrocchi *et al.* 1998, 412, fig.12.31; Pannuzzi 1998, 720, fig.3.4; Filippi *et al.* 2004, 170, TAV.II.16; Vatta & Bertoldi 2004, 465, TAV.V.39; Fogagnolo 2004, 593, TAV.VIII.60	H (2x)
VI-X.26	Rim of a jar	AD 300 – 400+	Arthur 1994, 235, fig.111, type 31; Patterson & Roberts 1998, 426, fig.4.3	H
VI-X.27	Rim of a jar	AD 500 – 700	Ciampoltrini 1998, 300, fig.6.3	F
VI-X.28	Rim of a jar	AD 400 – 650	Arena *et al.* 2001, 573, fig.V.3.8; Munzi *et al.* 2004, 108, TAV.VI.50; Ciceroni *et al.* 2004, 144, TAV.II.10; Pacetti 2004, 456, TAV.XI.90; Vatta & Bertoldi 2004, 467, TAV. VII.54 & 594, TAV.IX.70	S
VI-X.29	Rim of a jar	AD 400 – 700	Pannuzzi 1998, 720, fig.3.5	I
VI-X.30	Rim of a jar	AD 475 – 525	Munzi *et al.* 2004, 107, TAV.V.39	I
VI-X.31	Rim of a jar	AD 400 – 600	Pannuzzi 1998, 720, fig.3.7-10; Patterson & Roberts 1998, 426, fig.4.3; Munzi *et al.* 2004, 109, TAV.VII.65	G
VI-X.32	Rim of a jar	-	-	H (3x)
VI-X.33	Rim of a jar	-	-	Grab Sample
VI-X.34	Rim of a jar	-	-	S
VI-X.35	Rim of a jar	-	-	D
VI-X.36	Rim of a jar	-	-	I
VI-XI.37	Rim of a jar	-	-	E
VI-XI.38	Rim of a jar	-	-	H
VI-XI.39	Rim of a jar	-	-	R
VI-XI.40	Rim of a pan	-	-	I
VI-XI.41	Rim of a pan	-	-	C
VI-XI.42	Rim of a pan	-	-	F
VI-XI.43	Knob of a lid	AD 500 – 600	Ciampoltrini *et al.* 1994, 618, nrs.17/18	D
VI-XI.44	Knob of a lid	-	-	E
VI-XI.45	Rim of a lid	AD 450 – 550	Arthur 1994, 244, fig.116, type 72.1	G
VI-XI.46	Rim of a lid	AD 350 – 600	Potter & King 1997, 348, fig.231.141	Grab Sample
VI-XI.47	Rim of a lid	AD 450 – 550?	Arthur 1994, 244, fig.116, type 78	B, F, P
VI-XI.48	Rim of a lid	AD 475 – 525	Munzi *et al.* 2004, 107, TAV.V.44	D, H
VI-XII.49	Rim of a lid	AD 350 – 500?	Sagui & Coletti 2004, 252, TAV.VII.41; Aylwin Cotton 1979, 171, fig.10.6	D, E, H
VI-XII.50	Rim of a lid	Late Imperial	Calabria & Patilli 2005, 303, fig.10.6	E
VI-XII.51	Rim of a lid	AD 450 – 600	Whitehouse *et al.* 1982, 75, no.124; Arthur 1994, 244, fig.116, type 80; Munzi *et al.* 2004, 108, TAV.VI.55	F, H
VI-XII.52	Rim of a lid			F
VI-XII.53	Rim of a lid	-	-	D
VI-XII.54	Rim of a lid	-	-	D

Chapter 6 Typological table continued

Plate	Shape	Date	Parallel/literature	Section
		Utilitarian pottery – Other cookware		
VI-XII.55	Rim of a lid	-	-	D
VI-XII.56	Rim of a lid	-	-	D, E
VI-XII.57	Rim of a lid	-	-	D, E
VI-XII.58	Rim of a lid	-	-	H
VI-XII.59	Rim of a lid	-	-	I
		Utilitarian pottery – Other coarse ware		
VI-XII.1	Rim of a basin	AD 500 – 700	Aggregate date of the shape, no exact parallel	F
VI-XII.2	Rim of a basin	AD 500 – 700	Sagui & Coletti 2004, 271, TAV.XIX.106; Pacetti 2004, 453, TAV.IX.69	I
VI-XII.3	Rim of a basin	AD 475 – 700	Saguì & Coletti 2004, 266, TAV.XV.82; Ciarocchi *et al.* 1998, 405, fig.8.3; Ricci 1998, 353, fig.1.1; Whitehouse *et al.* 1985, 183, fig.7.31; Arthur 1994, 196, fig.89, type 67	D
VI-XIII.4	Rim of a flanged bowl	-	-	E
VI-XIII.5	Rim of a flanged bowl	-	-	F
VI-XIII.6	Rim of a flanged bowl	-	-	H
VI-XIII.7a-7b	Rim of a bowl	AD 450 – 625	Arthur 1994, 192-193, figs.86-7, types 61-62; Sagui & Coletti 1998, 275, TAV. XXIII.138; Aylwin Cotton 1979, 185; De Carolis & Soricelli 2005, TAV.519; Aoyagi, Mukai & Sugiyama 2007, 448-449, fig.6.43 & 7.44-7.45 (Of Campanian origin)	F (2x)
VI-XIII.8	Rim of a large bowl	-	-	D, F
VI-XIII.9	Rim of a bowl	-	-	H (4x), I
VI-XIII.10	Rim of a bowl	-	-	D (2x)
VI-XIII.11	Rim of a bowl	-	-	D
VI-XIII.12	Rim of a bowl	-	-	I
VI-XIII.13	Rim of a bowl	-	-	D
VI-XIII.14	Rim of a bowl	5th century AD?	Possibly Bonifay 2004, 236	H
VI-XIII.15	Rim of a bowl	-	-	H
VI-XIV.16	Rim of a bowl	-	-	H
VI-XIV.17	Rim of a bowl	-	Although this form is much larger, the fragment is quite similar in shape to Fontana, Ben Tahar & Capelli 2009, 301, fig.16.28 (Type 3.7.3) that is of possible Mid Roman date	H
VI-XIV.18	Rim of a small bowl	-	-	I
VI-XIV.19	Rim of a small bowl	-	-	I
VI-XIV.20	Rim of a small bowl	-	-	J
VI-XIV.21	Rim of a catino	AD 450 – 700	Sagui & Coletti 2004, 271, TAV.XIX.105, 262, TAV.XIII.65, 249, TAV.IV.18 & 250, TAV.V.19-21; Pacetti 2004, 443, TAV.II.6-7 & 453, TAV.IX.67; Fontana *et al.* 2004, 549, TAV.II-18-19; Whitehouse *et al.* 1985, 180, fig.6.9; Ricci 1998, 364, fig.7.1, Ciarrocchi *et al.* 1998, 412, fig.12.8	B
VI-XIV.22	Rim of a catino	-	-	I
VI-XIV.23	Rim of a catino	-	-	D
VI-XIV.24	Rim of a cup	AD 600 – 700+	Fontana *et al.* 2004, 552, TAV.III.24; Ricci 1998, 361, fig.5.9-12	I
VI-XIV.25	Rim of a cup/scodella	AD 600 – 700+	Ricci 1998, 365, fig.8.8	I

Chapter 6 Typological table continued

Utilitarian pottery – Other coarse ware				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-XIV.26	Rim of a cup	-	-	F
VI-XIV.27	Rim of a jug	Late Roman	Dyson 1976, fig.60.63; Aylwin Cotton 1979, 169, fig.53.37	D
VI-XIV.28	Rim of a jug	AD 475 – 550	Fogagnolo 2004, 588, TAV.V.28 (Campanian origin)	H
VI-XIV.29	Base of a jug	Late Roman	Morselli & Tortorici 1989, 390, fig.286.525	D
VI-XIV.30	Rim of a jug	AD 550 – 600	Sagui & Coletti 2004, 262, TAV.XIII.71	D
VI-XIV.31	Base of a jug	AD 400 – 700	Martorelli & Mureddu 2002, 313, TAV.X.12; Morselli & Tortorici 1989, 387, fig.283.491; Whitehouse *et al.* 1985, 180, fig.6.20	D
VI-XIV.32	Rim of a jug	AD 500 – 700	Arthur 1994, 204, fig.95, type 95; Arena *et al.* 2001, 197, fig.I.5.8a; Filippi *et al.* 2004, 170, TAV.II.12-13	F
VI-XIV.33	Rim of a jug	AD 600 – 700	Ricci 1998, 370-372, figs.11 & 12	I
VI-XIV.34	Decorated body of a jug	AD 500 – 900	Ciampoltrini 1998, 298, fig.5.1; Patterson & Roberts 1998, 430, fig.7.7; Siena *et al.* 1998, 693, fig.25.15; Potter & King 1997, 378, fig.245.75; Milanese 1995, 53, fig.9; Romei 2004, 303, TAV.XIII.79-81	I
VI-XIV.35	Rim of a jug	-	-	E
VI-XV.36	Rim of a jug	-	-	I (3x)
VI-XV.37	Rim of a jug	-	-	I
VI-XV.38	Rim of a jug	-	-	D
VI-XV.39	Rim of a jug	-	-	F
VI-XV.40	Rim of a jug	-	-	H
VI-XV.41	Rim of a jug	-	-	I
VI-XV.42	Rim of a jug	-	-	I
VI-XV.43	Rim of a jug	-	-	I
VI-XV.44	Rim of an amforette	AD 600 – 700	Ricci 1998, 373, fig.13.5; see also Arena *et al.* 2001, 572, fig.V.3.6 (possibly imported from Spain)	I (2x), R
VI-XV.45	Rim of an amforette	AD 500 – 600	Arena *et al.* 2001, 198, fig.1.5.12a	H
VI-XV.46	Rim of an amforette	Unknown	Possibly related to globular amphorae?	I (2x)
VI-XV.47	Rim of an amforette	Unknown	Possibly related to globular amphorae?	I (2x)
VI-XV.48	Rim of an amforette	Unknown	Possibly related to globular amphorae?	I
VI-XV.49	Decorated body fragment	-	-	H (2x)
VI-XV.50	Base fragment	-	-	D
VI-XV.51	Base fragment	-	-	I
VI-XV.52	Base fragment	-	-	Grab Sample
Ceramica acroma depurata				
VI-XVI.1	Rim of a basin	AD 550 – 700	Sagui & Coletti 2004, 267, TAV.XVI.87/89; Vatta & Bertoldi 2004, 467, TAV.VI.48	I
VI-XVI.2	Rim of a catino	AD 500 – 700+	Munzi *et al.* 2004, 108, TAV.VI.59; Paganelli 2004, 197, TAV.VII.108; Pacetti 2004, 447, TAV.V.34	I
VI-XVI.3a-3b	Rim of a catino	AD 500 – 700	Fontana *et al.* 2004, 549, TAV.II.18-19; Fogagnolo 2004, 586, TAV.III.12-15 ; Ciarrocchi *et al.* 1998, 412, fig.12.8; Arthur 1994, 197, type 67.8	D, Q

Chapter 6 Typological table continued

Ceramica acroma depurata				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-XVI.4	Rim of a catino	AD 475 – 525	Munzi *et al.* 2004, 103, TAV.II.11	I (2x)
VI-XVI.5	Rim of a catino	AD 500 – 600	Ciarrocchi *et al.* 1998, 408, fig.10.3	M
VI-XVI.6	Rim of a jug	AD 1000 – 1300	Christie 1991, 132, fig.29.108-9 ; Manacorda *et al.* 1985, 220, TAV.XVII. 180; Luttazzi 1995, 229, fig.7.1; Beolchini 2006, 333 & 337.	I
Ceramica dipinta a bande rosse				
VI-XVII.1a-1f	Rim of an *anforetta*	AD 1150 – 1250	Pannuzzi 2009, 36; Mazzuccato 1976; Busino 2007a; Ciarocchi 1998.	-
VI-XVII.2	Rim of an *anforetta*	AD 1150 – 1250	-	I
VI-XVII.3	Rim of an *anforetta*	AD 1150 – 1250	Ciarocchi 1998	I (2x)
VI-XVII.4	Rim of an *anforetta*	AD 1150 – 1250	Pannuzzi 2004, 199 & 2009, 37	I
VI-XVII.5	Rim of an *anforetta*	AD 1150 – 1250	-	I
VI-XVIII.6	Body and handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XVIII.7	Handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XVIII.8	Handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XVIII.9	Base of an *anforetta*	AD 1150 – 1250	-	-
VI-XVIII.10	Base of an *anforetta*	AD 1150 – 1250	-	-
VI-XVIII.11	Rim and handle of an *anforetta*	AD 1150 – 1250	-	H
VI-XIX.12	Decorated body fof an *anforetta*	AD 1150 – 1250	-	-
VI-XIX.13	Decorated body of an *anforetta*	AD 1150 – 1250	-	-
VI-XIX.14	Decorated body of an *anforetta*	AD 1150 – 1250	-	-
VI-XIX.15	Decorated body of an *anforetta*	AD 1150 – 1250	-	-
VI-XIX.16	Decorated body of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.17	Decorated body of an *anforetta*	AD 1150 – 1250	Pannuzzi 2004, 199 & 2009, 37	H
VI-XX.18	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.19	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.20	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.21	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-

Chapter 6 Typological table continued

Ceramica dipinta a bande rosse				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-XX.22	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.23	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.24	Decorated neck of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.25	Decorated handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.26	Decorated handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.27	Decorated handle of an *anforetta*	AD 1150 – 1250	-	-
VI-XX.28	Decorated handle of an *anforetta*	AD 1150 – 125	-	-
VI-XX.29	Decorated body of an *anforetta*	AD 1150 – 1250	-	H
Fine ware - terra sigillata				
VI-XXI.1 - Not drawn	Rim of a ?	AD 50 – 100	Probably Ettlinger *et al.* 1990, 57, form 3	Grab Sample
VI-XXI.2	Rim of a cup/bowl?	AD 0 – 15	Ettlinger *et al.* 1990, 79, form 15	Grab Sample
VI-XXI.3 - Not drawn	Rim of a cup	-	-	F
VI-XXI.4	Rim of a cup	AD 0 – 50	Ettlinger *et al.* 1990, 99, form 26.1	H
VI-XXI.5	Rim of a cup	AD 30 – 100	Ettlinger *et al.* 1990, 115, form 36	I
VI-XXI.6 - Not drawn	Rim of a bowl	-	-	R
VI-XXI.7	Rim of a plate	AD 25 – 75	Ettlinger *et al.* 1990, 87, form 20.4	F
VI-XXI.8	Base fragment	-	-	E
Fine ware - African red slip ware				
VI-XXI.1	Rim of a dish	AD 75 – 175	Hayes 1972, 28, form 6	Grab Sample
VI-XXI.2	Rim of a carenated bowl	AD 100 – 175	Hayes 1972, 32, form 8A/B	H, I (2x), Grab Sample
VI-XXI.3	Rim of a bowl	AD 100 – 200	Hayes 1972, 32, form 9A	B, I, Grab Sample (3x)
VI-XXI.4	Rim of a bowl	AD 100 – 200	Hayes 1972, 32, form 9B	H
VI-XXI.5	Rim of a bowl	AD 175 – 225	Hayes 1972, 40, form 14A	H, L
VI-XXI.6	Rim of a dish	AD 200 – 250	Variant of Hayes 1972, 50, form 27	I
VI-XXI.7	Rim of a bowl	AD 350 – 400+	Hayes 1972, 68, form 50B; Atlante I 1981 TAV.XXVIII.14	Grab Sample
VI-XXI.8	Rim and base of a bowl	AD 350 – 450	Hayes 1972, 74, form 53A/B	D, H
VI-XXI.9	Rim of a dish	AD 450 – 500	Hayes 1972, 102-104, form 61B; Bonifay 2004, 168-169	Grab Sample
VI-XXII.10	Rim of a dish	AD 425 – 500	Hayes 1972, 102-104, form 61C	H, Grab Sample
VI-XXII.11	Rim of a dish	AD 375 – 425	Atlante I 1981, TAV.XXXVII.5-7 (=Hayes 1972, 110, form 64)	F, H (2x)
VI-XXII.12	Rim of a large bowl	AD 360 – 470	Hayes 1972, 114, form 67	D (8x)

Chapter 6 Typological table continued

Plate	Shape	Date	Parallel/literature	Section
		Fine ware - African red slip ware		
VI-XXII.13	Rim of a dish	AD 425 – 475	Hayes 1972, 122, form 76	G
VI-XXII.14	Rim of a bowl	AD 475 – 525	Hayes 1972, 126, form 80A; Atlante I 1981, TAV.XLVIII	A, I
VI-XXII.15	Rim of a bowl	AD 350 – 500	Hayes 1972, 126, form 81	D, H
VI-XXII.16	Base of a dish	AD 400 – 500	Hayes 1972, 130, form 84	Grab Sample
VI-XXII.17	Rim of a dish	AD 500 – 550	Hayes 1972, 134, form 87B	D, I
VI-XXII.18	Rim of a dish	AD 525 – 600	Hayes 1972, 134, form 88	C, H
VI-XXII.19	Rim- and base of a bowl	AD 400 – 500	Hayes 1972, 142, form 91A/B	F (2x), H (6x), I, Grab Sample
VI-XXII.20	Rim of a bowl	AD 475 – 550	Hayes 1972, 154, form 99A	C, Grab Sample
VI-XXII.21a-21b	Rim of a bowl	AD 525 – 625	Hayes 1972, 154, form 99B/C	D (2x), E, I (2x)
VI-XXII.22	Rim of a dish	AD 550 – 600	Hayes 1972, 154, form 101	P
VI-XXII.23a-23b	Rim of a dish/bowl?	AD 450 – 550?	Hayes 1972, 158, form 103	E, F, H, I
VI-XXIII.24	Rim of a dish/bowl?	AD 475 – 550	Hayes 1972, 158-162, form 104A	E, G (2x), I, Grab Sample
VI-XXIII.25	Rim of a large bowl	AD 500 – 600	Hayes 1972, 170, form 107	I
VI-XXIII.26	Rim of a stemmed goblet	AD 450 – 525	Hayes 1972, 192, form 170	C
VI-XXIII.27	Rim of a dish	AD 350 – 450	Hayes 1972, 306, form 3 (Tripolitanian Red Slip Ware)	Grab Sample
VI-XXIII.28	Rim of a bowl	-	-	B
VI-XXIII.29	Rim of a bowl	-	-	B
VI-XXIII.30	Rim of a bowl	-	-	E
VI-XXIII.31	Rim of a bowl	-	-	H
VI-XXIII.32	Rim of a bowl/casserole?	-	-	H (2x)
VI-XXIII.33	Rim of a dish	-	-	H
VI-XXIII.34	Rim of a dish	-	-	H
VI-XXIV.35	Stamped base	AD 350 – 425	Hayes 1972, 230, stamp type 4 (with double-central rib)	D
VI-XXIV.36	Stamped base	AD 350 – 400	Hayes 1972, 230, stamp type 3?	D
VI-XXIV.37	Stamped base	AD 350 – 450?	-	D
VI-XXIV.38	Stamped base	AD 350 – 450	Hayes 1972, 238, stamp type 44 & 230, stamp type 4k?	Grab Sample
VI-XXIV.39	Stamped base	AD 350 – 450	Hayes 1972, 234, stamp type 28	D, F, Grab Sample
VI-XXIV.40	Stamped base	AD 375 – 425	Hayes 1972, 234, stamp type 35 & 241, stamp type 69	H
VI-XXIV.41	Stamped base	AD 350 – 450	Hayes 1972, 242, stamp type 69	H
VI-XXIV.42	Stamped base	AD 440 – 500?	-	H
VI-XXIV.43	Decorated body	AD 320 – 420	Decoration occurs on Atlante I 1981, TAV.XXXIII.1 (= Lamboglia 51/51a; Hayes 1972, 98, form 59)	Grab Sample
		Fine ware – Other		
VI-XXIV.1	Rim of a cup/bowl	-	-	B
VI-XXIV.2	Rim of a dish	AD 350 – 500	Local imitation of Hayes 1972, 102, form 61	I
VI-XXIV.3	Rim of a bowl	-	-	D

Chapter 6 Typological table continued

Plate	Shape	Date	Parallel/literature	Section
			Fine ware – Other	
VI-XXIV.4	Floor of a dish	-	-	H
VI-XXIV.5	Rim of a flanged bowl	AD 400 – 500	Local imitation of Hayes 1972, 142, form 91	H
VI-XXIV.6	Rim of a bowl	AD 550 – 700	Arthur 1994, 189, fig.84.36; Busino 2007b	I
VI-XXV.7	Rim of a cup	-	Rim shape possibly imitates Phocean Ware	I
VI-XXV.8	Rim of a cup/bowl	-	-	G
VI-XXV.9	Decorated body fragment	AD 400 – 700	Genito 1984 and 1998	D
VI-XXV.10	Decorated body fragment	-	Probably *ceramica a pareti sottili*	D
VI-XXV.11	Decorated body fragment	AD 400 – 700	Ciarrocchi *et al.* 1998, 397, fig.4.11	D
			Glazed Ware – Ceramica a vetrina sparsa	
VI-XXV.1	Rim of a jug	AD 1000 – 1300	Christie 1991, 132, fig.29.109; Paroli & Sagui 1990, 220, TAV.XVII.180; Luttazzi 1995, 229, fig.7.1; Beolchini 2006, 333 & 337	I
			Glazed Ware – Other	
VI-XXV.1	Rim of a cup	-	-	G
VI-XXV.2	Rim of a cup	-	-	I
VI-XXV.3	Rim of a cup	-	-	I
VI-XXV.4	Rim of a cup	-	-	J
VI-XXV.5	Rim of a bowl	-	-	L
VI-XXV.6	Handle fragment	-	-	I
VI-XXV.7	Handle fragment	-	-	I
VI-XXV.8	Base fragment	-	-	D
VI-XXV.9	Base fragment	-	-	I
			Oil lamps	
VI-XXVI.1	Fragment of an oil lamp	-	Of African origin?	D
VI-XXVI.2	Fragment of an oil lamp	-	Of African origin?	Grab Sample
VI-XXVI.3	Fragment of an oil lamp	-	Of African origin?	F
VI-XXVI.4	Fragment of an oil lamp	-	Of African origin?	D
VI-XXVI.5	Fragment of an oil lamp	-	-	H
VI-XXVI.6	Fragment of an oil lamp	AD 450 – 550	Atlante 1981, TAV.XCVI-II.8; Decoration as on Barbera & Petriaggi 1993, 69-71	D
VI-XXVI.7	Fragment of an oil lamp	AD 450 – 550	Atlante 1981, TAV. XCVI-II.8; Discus as on Barbera & Petriaggi 1993, 77, no.54	D
VI-XXVI.8	Fragment of an oil lamp	AD 450 – 525	Atlante 1981, TAV.XCVI-II.8; Decoration on shoulder: Barbera & Petriaggi 1993, TAV.II, type 1B	F
VI-XXVI.9	Fragment of an oil lamp	AD 350 – 550	Atlante 1981, TAV.XCVI-II.8; Barbera & Petriaggi 1993, type 4.1	D
VI-XXVI.10	Fragment of an oil lamp	AD 450 – 550	Atlante 1981, TAV.XCVI-II.8; Decoration on shoulder Barbera & Petriaggi 1993, TAV.II, types 1A & 18	H

Chapter 6 Typological table continued

Plate	Shape	Date	Parallel/literature	Section
		Oil lamps		
VI-XXVI.11	Fragment of an oil lamp	-	-	D
VI-XXVI.12	Fragment of an oil lamp	-	-	D
		Utilities		
VI-XXVI.1	Fragment of a loomweight	Early Imperial?	Soren & Soren 1999; see also *infra*, Pl.V-XXX.311	E
		Glass – Decorated fragments		
VI-XXVII.1	Decorated body fragment	AD 200 – 400?	Mosaic Glass (Millefiori)	D
VI-XXVII.2 - Not drawn (see fig. 6.6)	Decorated body fragment	AD 200 – 400?	Mosaic Glass	D
VI-XXVII.3	Rim of a cup	AD 300 – 400	Marcenaro 2003, 275, 57; Basile *et al.* 2004, TAV.LIX, 226; Isings 1957, form 96; Frova & Bertino 1973, TAV.81.17-18; Whitehouse *et al.* 1985, fig.4.39; Potter & King 1997, 277, no.85	D (4x), L
VI-XXVII.4	Decorated body fragment	AD 300 – 400	For similar fragments see Tomei 2006, 79-82; De Tommaso 1989 & 1994	G
VI-XXVII.5a-5h	Decorated body fragment	AD 300 – 500	As supplement to figurative decoration see Tomei 2006, 79, fig.I.44. For plates with geometric decoration only see Whitehouse *et al.* 1985, 168, fig.4.36-37; Frova & Bertino 1973, TAV.83.4 & Miraglia 1994	C, D (5x), E (2x)
VI-XXVII.6	Decorated neck fragment	-	-	D
VI-XXVII.7	Decorated body fragment	-	-	D, H
VI-XXVII.8	Rim of a cup	-	-	D
VI-XXVII.9	Body fragment of a cup	-	-	D
VI-XXVII.10	Decorated body fragment	-	-	I
		Glass – Base fragments		
VI-XXVII.11	Fragment of a coil base	AD 400 – 500	Sagui 1993, 120, fig.5.21-24; Sternini 1989, 43, TAV.10.61; Whitehouse *et al.* 1985, 169, fig.5.55-58; Cotton, Wheeler and Whitehouse 1991, 258, fig.65.10	D
VI-XXVII.12	Base of a flask	AD 300 – 600	Sagui 1993, 116, fig.3; Fontana *et al.* 2004, 561, TAV.VII.72	D
VI-XXVII.13	Base of a flask	AD 300 – 600	Sagui 1993, 116, fig.3	D, H
VI-XXVII.14a-14b	Foot of a *calice*	AD 500 – 600	Sagui 1993, 128, nos. 69-80; Fontana *et al.* 2004, 561, TAV.VII.65-70; Bonora *et al.* 1988, 374, TAV.15, nos. 14-20	F, H, I (2x)
VI-XXVII.15	Base fragment	-	-	Grab Sample
VI-XXVII.16	Base fragment	-	-	Q
		Glass – Rim fragments		
VI-XXVII.17a-17c	Rim of a beaker	AD 375 – 500	**A)** Sagui 1993, 119, fig.4.8/9; Whitehouse *et al.* 1985, 167, fig.3.20; Miraglia 1994, 332, fig.145.34/35; Sternini 1989, 32, TAV.5.29; **B**) Sagui 1993, 119, fig.4.6; Sternini 1989, 32, TAV.5.26; Miraglia 1994, 332, fig.145.33; **C**): Sagui 1993, 119, fig.4.4; Whitehouse *et al.* 1985, fig.3.17; Sternini 1989, 32, TAV.5.25; Miraglia 1994, fig.145.29-32 (types V and VI)	**A**) D (4x), E, H (2x), I, Grab Sample; **B)** D, H (2x), Grab Sample, **C)** H (2x), I, P

Chapter 6 Typological table continued

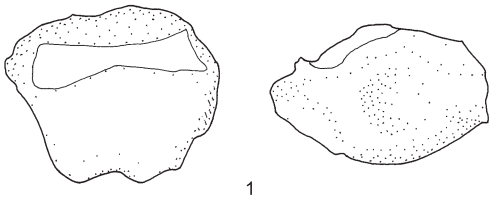
Plate	Shape	Date	Parallel/literature	Section
			Glass – Rim fragments	
VI-XXVII.18a-18c	Rim of a beaker	AD 375 – 500	**A)** Sternini 1989, 32, TAV.5.27 ; **B)** Sagui 1993, 119, fig.4.1; Miraglia 1994, 330, 332, figs.144.24/25 & 145.26-28; **C)** Sagui 1993, 119, fig.4.1	**A)** D (2x), **B)** D (4x), H; **C)** D
VI-XXVII.19	Rim of a beaker	AD 375 – 500	Sagui 1993, 119, fig.4.5; Whitehouse *et al.* 1985, 167, fig.3.21; Miraglia 1994, 334, fig.64-68 (type 19)	D (7x), F, G, H (9x), I (2x), P, Q
VI-XXVII.20	Rim of a flask	AD 400 – 500	Sagui 1993, 123, fig.7.38	C
VI-XXVII.21	Rim of a flask	AD 400 – 600	Sagui 1993, 123, fig.7.34; Miraglia 1994, 336, fig.147.83; Whitehouse *et al.* 1985, 167, fig.3.24	H
VI-XXVII.22	Rim of a flask	AD 400 – 600	Sagui 1993, 123, fig.7.35-36; Fontana *et al.* 2004, 561, TAV.VII.73	F
VI-XXVII.23	Rim of a flask	AD 400 – 500	Sagui 1993, 123, fig.7.42; Whitehouse *et al.* 1985, 168, fig.4.27/4.30	D
VI-XXVII.24	Rim of a flask	AD 400 – 600	Sagui 1993, 123, fig.7.33/34; Whitehouse *et al.* 1985, 167, fig.3.23-25; Miraglia 1994, 336, fig.147.78-88	D (2x), F, H
VI-XXVII.25	Rim of a cup	AD 400 – 500	Sagui 1993, 119, fig.4.12-13 (=Isings 1957, form 109)	D
VI-XXVII.26	Rim of a cup	AD 375 – 425	Sternini 1989, 25, TAV.2.7	G
VI-XXVII.27	Rim of a cup	-	-	H
VI-XXVII.28	Rim of a cup	AD 375 – 450	Sternini 1989, 27, TAV.3.9	H
VI-XXVIII.29	Rim of a cup	-	-	H
VI-XXVIII.30	Rim of a cup	AD 400 – 500	Sagui 1993, 119, fig.4.15	H
VI-XXVIII.31	Rim of a cup	AD 375 – 425	Sternini 1989, 27, TAV.3.10	I
VI-XXVIII.32	Rim of a large bowl	AD 400 – 600	Sagui 1993, 122, fig.6.32	C
VI-XXVIII.33	Rim of a large bowl	AD 400 – 450	Sternini 1989, 25, TAV.II.5	D
VI-XXVIII.34	Rim of a large bowl	AD 400 – 500?	Whitehouse *et al.* 1985, 167, fig.3.13	I
VI-XXVIII.35	Rim of a bowl	-	-	F
VI-XXVIII.36	Rim of a bowl	-	-	I
VI-XXVIII.37	Rim of a bowl	-	-	H
VI-XXVIII.38	Rim of a bowl	AD 375 – 500	Frova 1977, TAV.156.20	H
VI-XXVIII.39	Rim of a plate	-	Resembles Frova 1977, TAV.198.4	H
VI-XXVIII.40	Rim of a plate	AD 400 – 500	Sagui 1993, fig.3	G
VI-XXVIII.41	Rim of a plate	-	-	H
VI-XXVIII.42	Rim of a plate	-	-	H
VI-XXVIII.43a-43b	Rim of an oil lamp	AD 400 – 750	Sagui 1993, 123, fig.7.46-53; Isings 1957, form 134; Fontana *et al.* 2004, 561, TAV.VII.76	D (2x)
VI-XXVIII.44	Rim of an *ampolla*	AD 400 – 600	Considering diameter Sagui 1993, 128, fig.9.90	H
VI-XXVIII.45	Rim of a lid	-	-	H, R
			Glass – Handle fragments	
VI-XXVIII.46	Handle fragment	-	-	D
VI-XXVIII.47	Handle fragment	-	-	Grab Sample

Chapter 6 Typological table continued

Metal artefacts				
Plate	**Shape**	**Date**	**Parallel/literature**	**Section**
VI-XXVIII.1	Fragment of a chain	-	For similar chains see Arena *et al.* 2001, 425, fig.II.4.1033-1045	E
VI-XXVIII.2	Fragment of an *uncinotto*	-	Arena *et al.* 2001, 345, fig.II.4.196-215	H
VI-XXVIII.3	Fragment of a fishhook	-	Arena *et al.* 2001, 349, fig.II.4.299-301; Bonora *et al.* 1988, 387, TAV.XX.15-19	H
VI-XXVIII.4	Fragment of a bracelet	AD 300 – 400	Unpublished parallel found in North Yorkshire: http://finds.org.uk/database/artefacts/record/id/245506	D
Bone items				
VI-XXVIII.1	Complete die	AD 200 – 400	Hurst & Roskams 1984, 192, fig.64.89; Tomei 2006, 64, fig.I.19, second row, 2nd from the left & third row on the right	D

Astura
Impasto

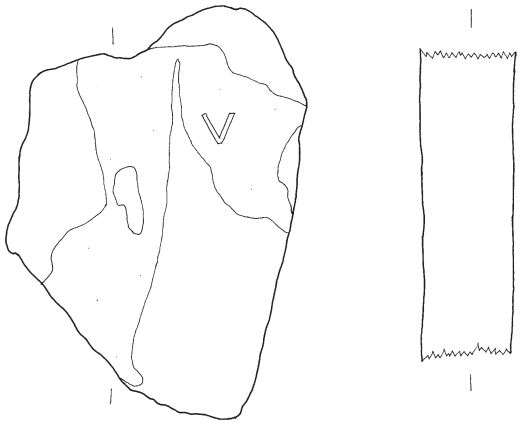
Plate VI-I



1

Building materials - Tile

1



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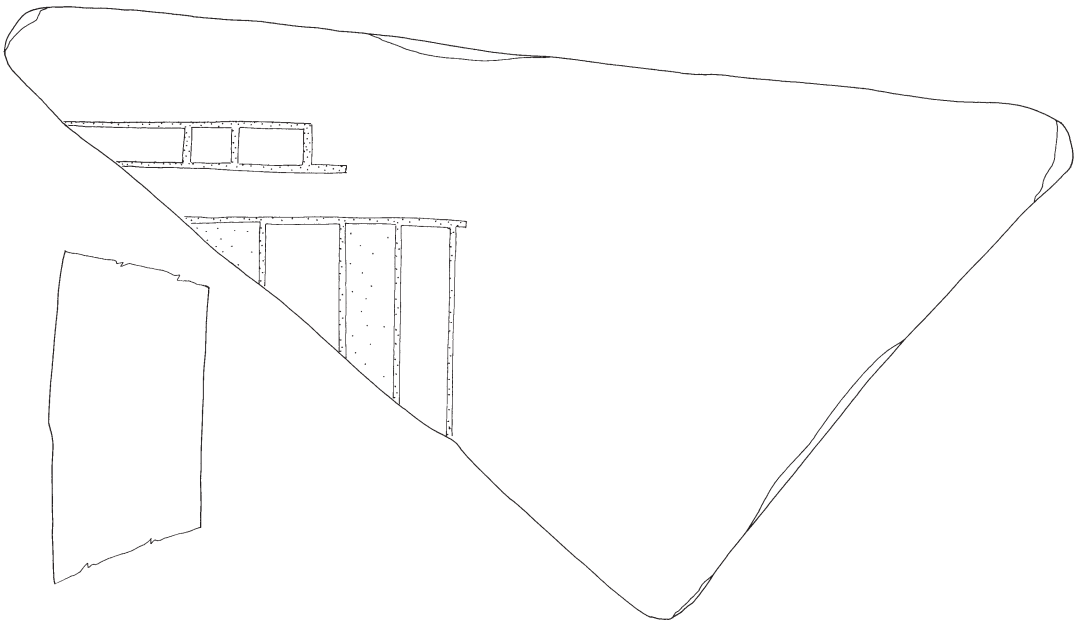

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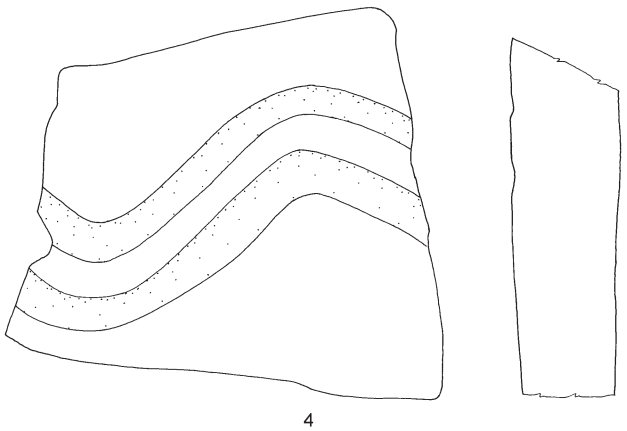
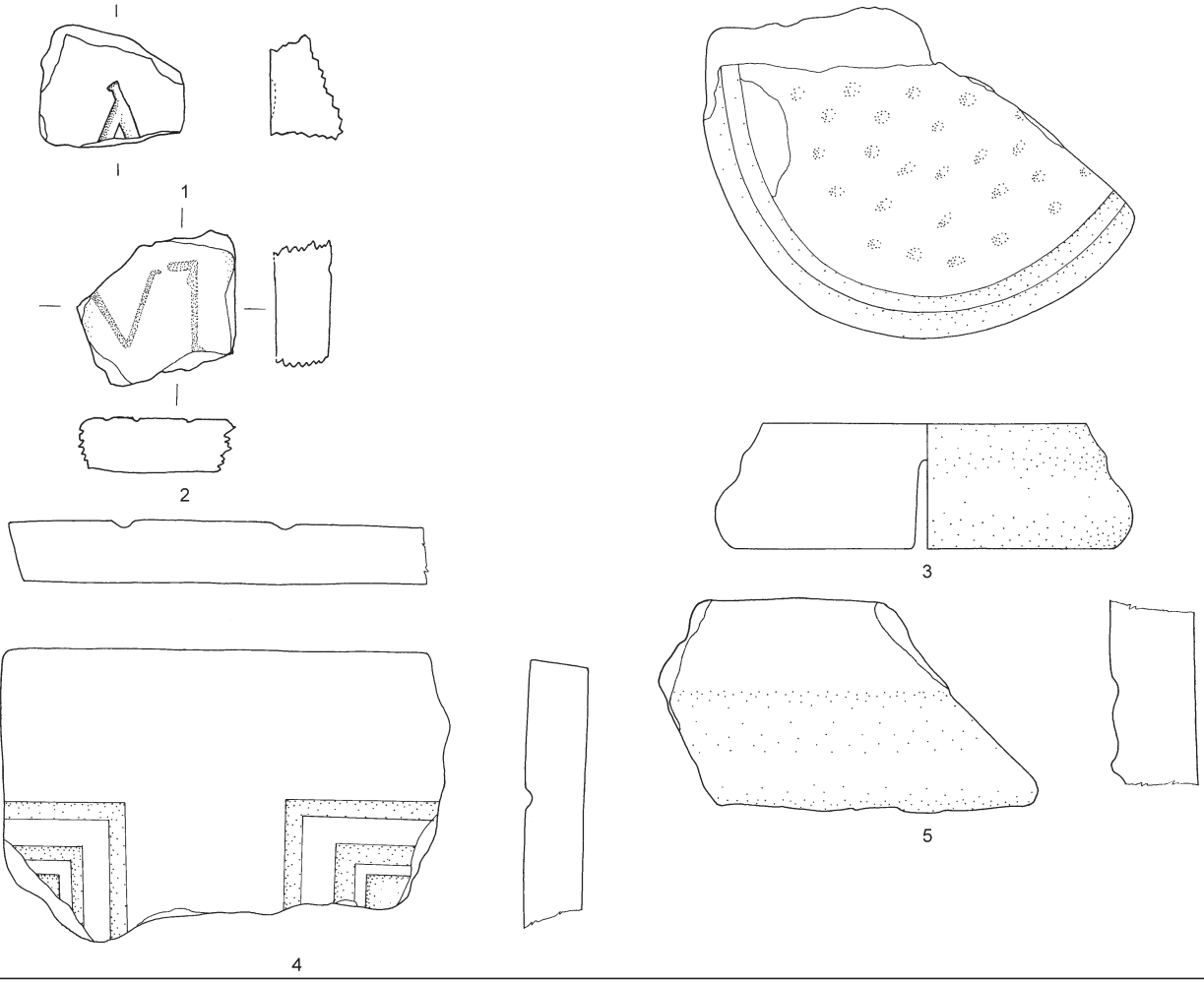


4

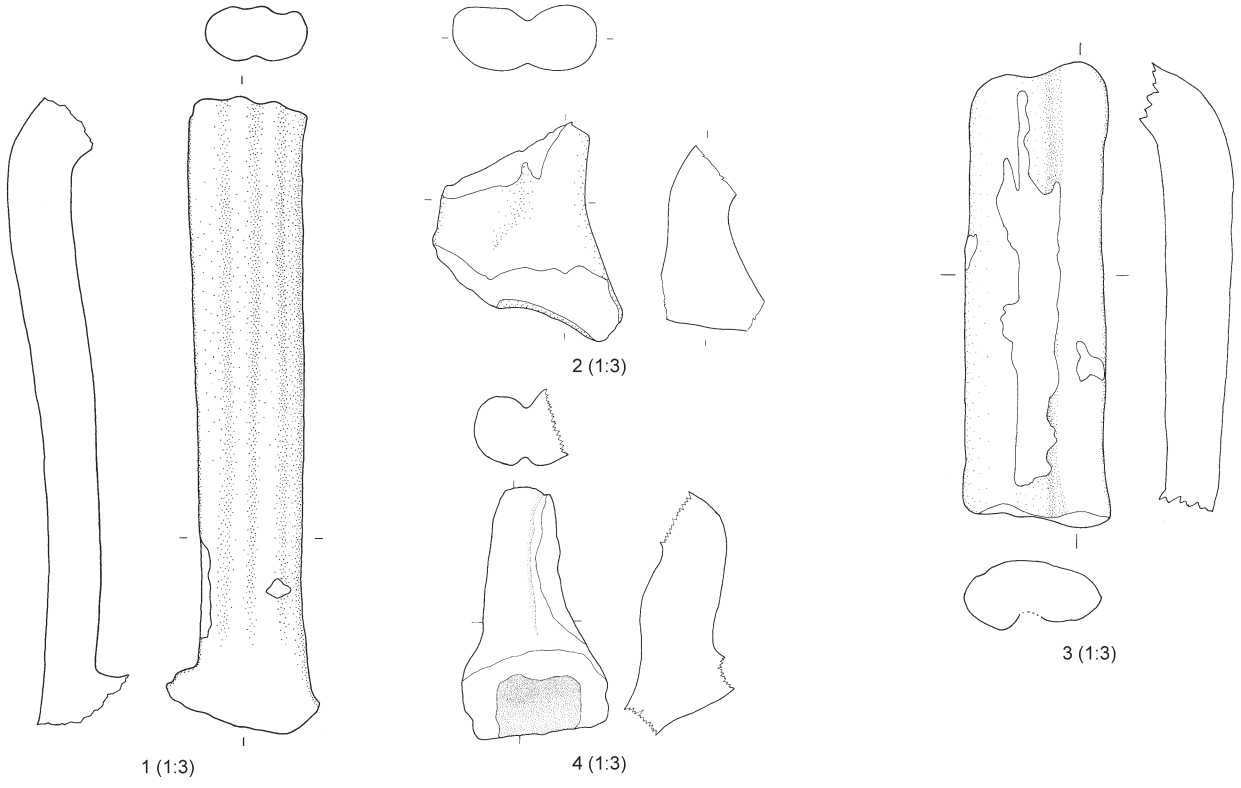
Astura cont.

Plate VI-II

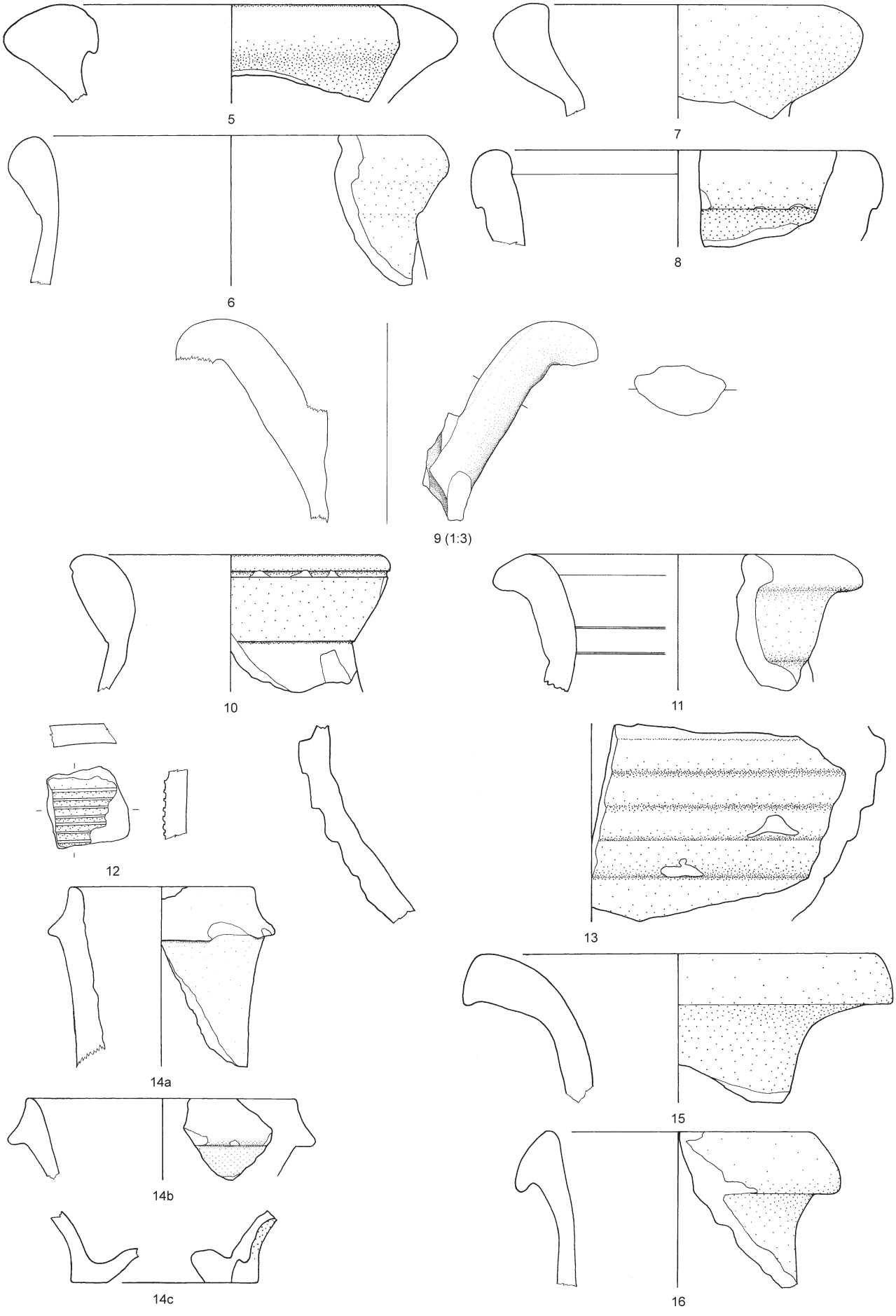
Marble



Amphorae

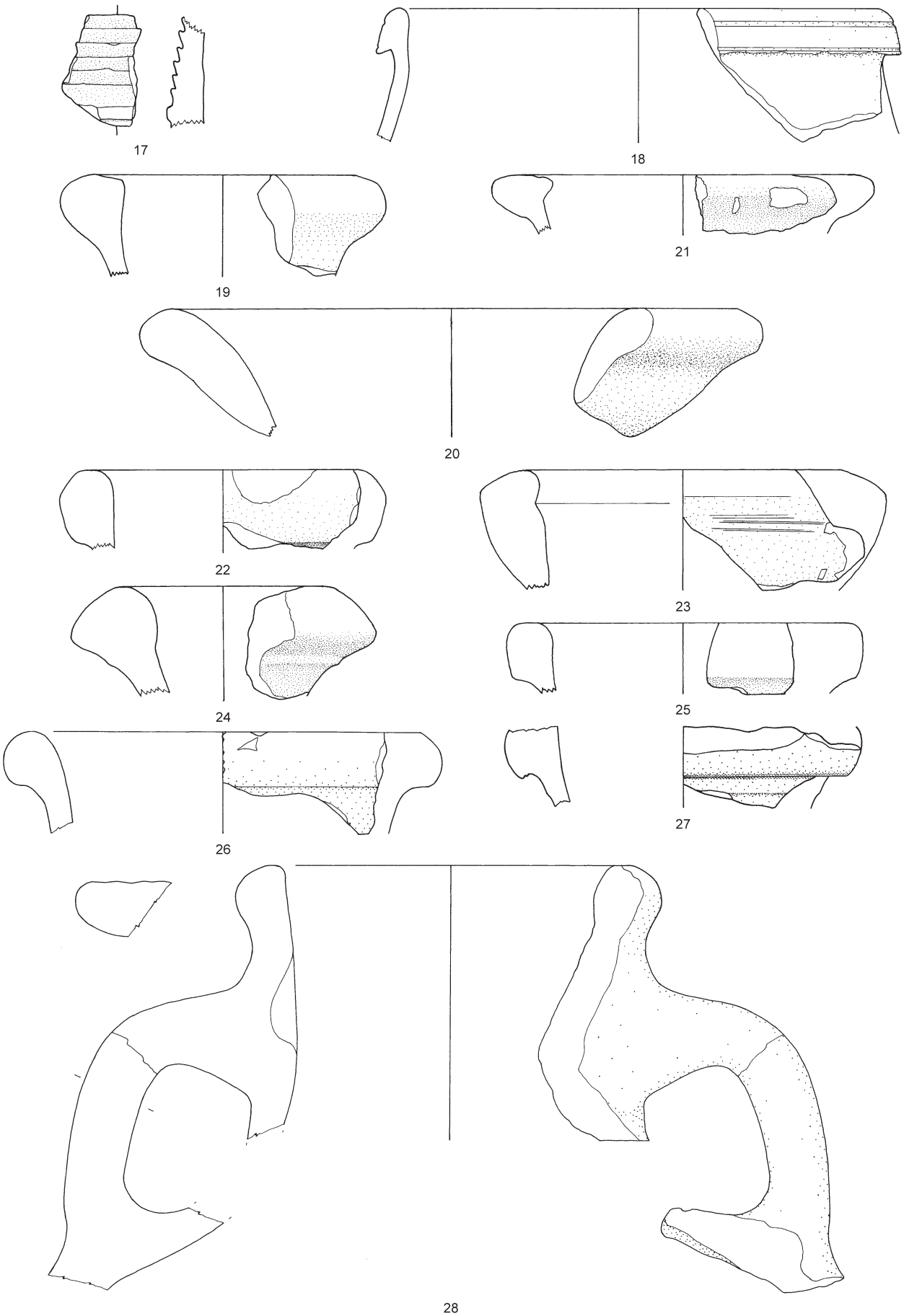


Astura cont. Plate VI-III

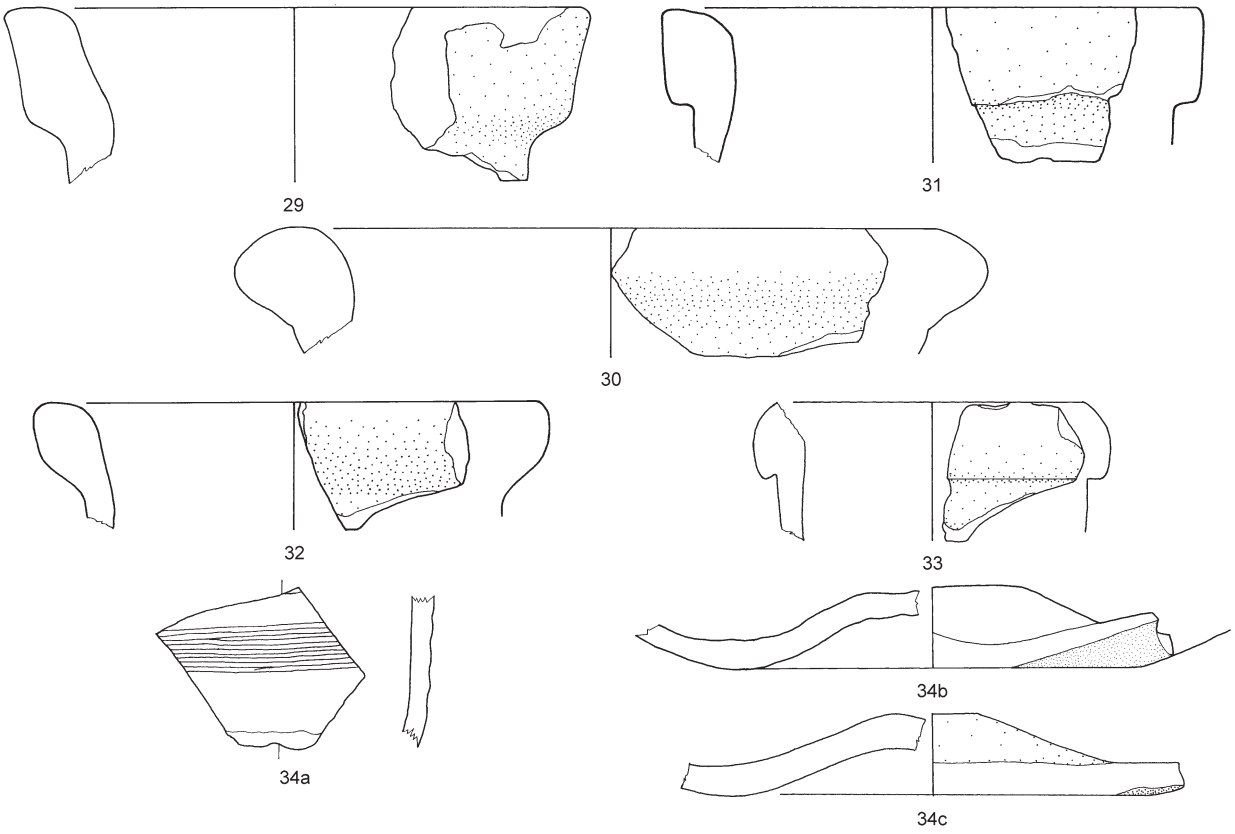


Astura cont.

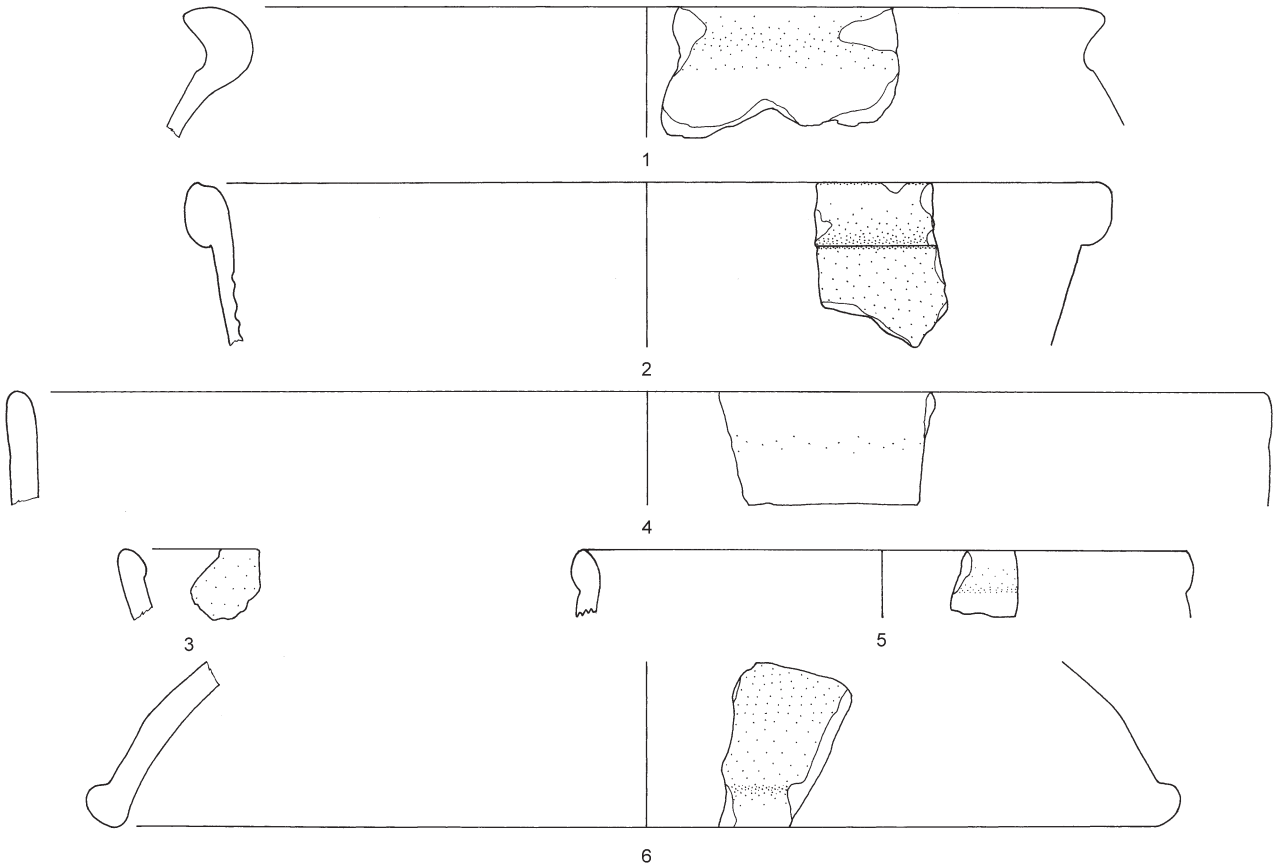
Plate VI-IV



Astura cont. Plate VI-V

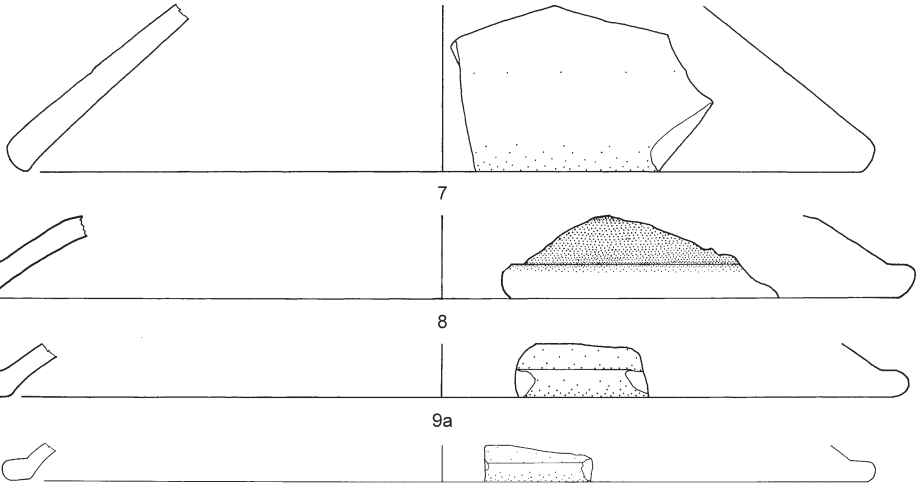


Utilitarian pottery - African Cookware



Astura cont.

Plate VI-VI



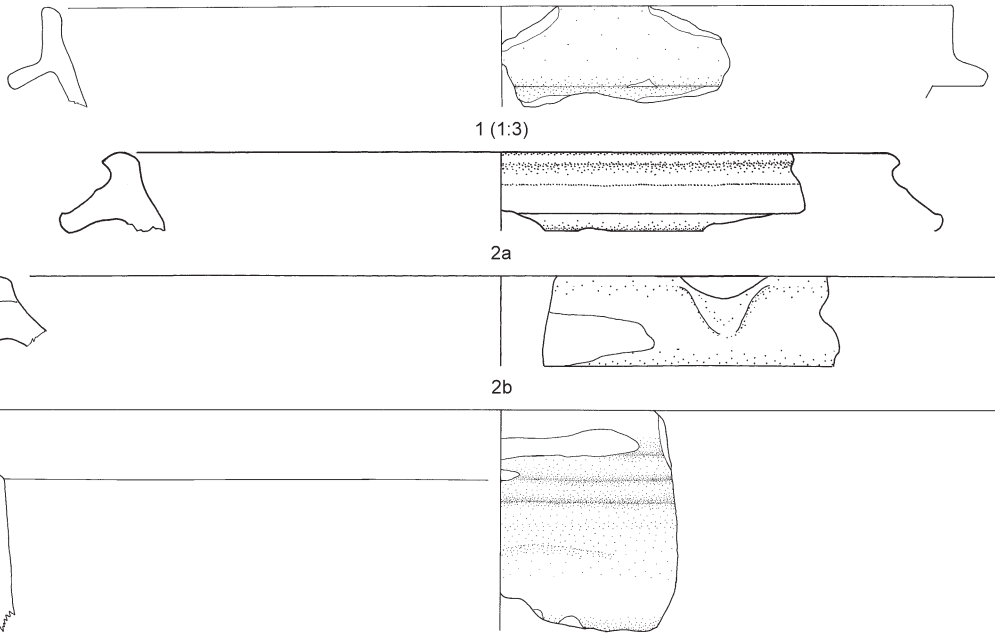
7

8

9a

9b (1:3)

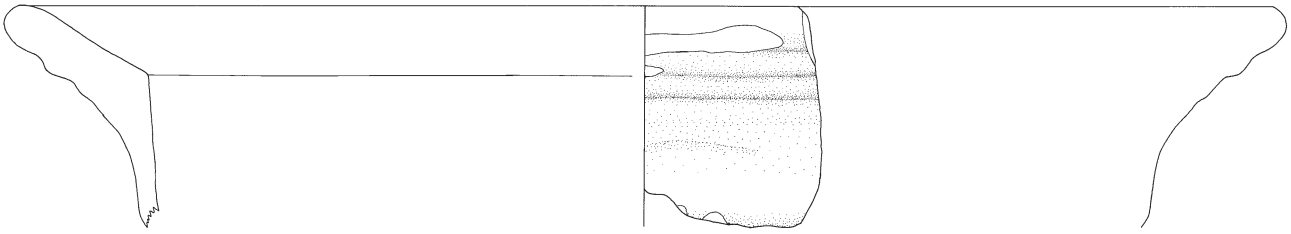
Utilitarian pottery - African Coarse Ware



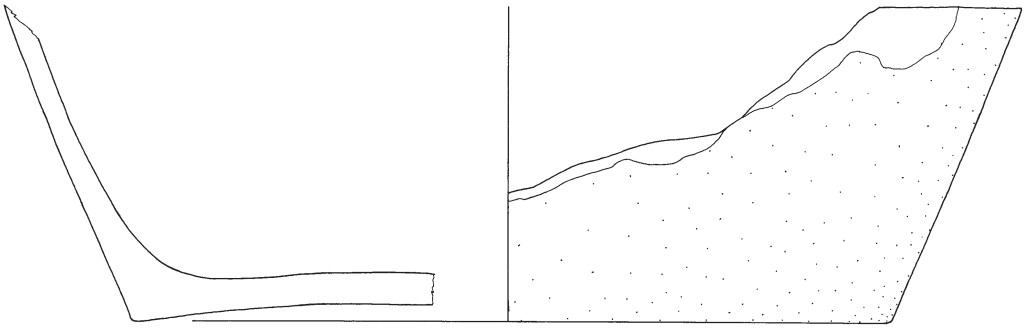
1 (1:3)

2a

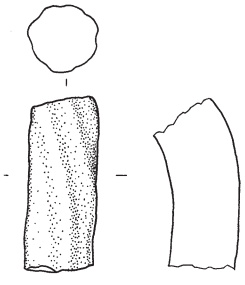
2b



3a (1:3)



3b



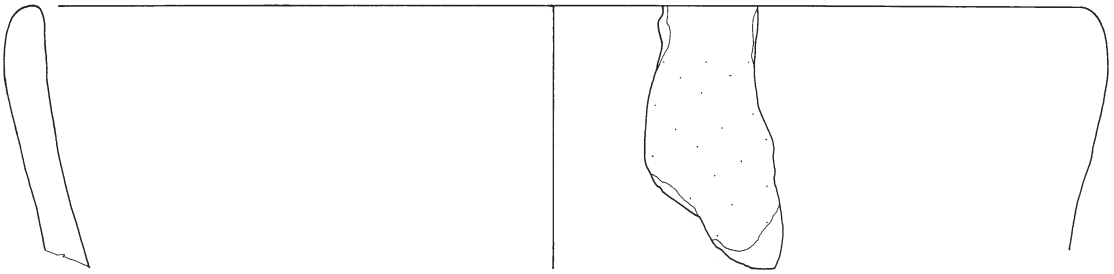
4

Astura cont. Plate VI-VII

Utilitarian pottery - Aegean Coarse Ware

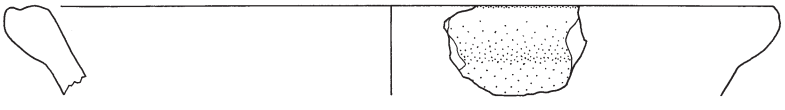
1 (1:3)

Utilitarian pottery - Micaceous Ware



1

Utilitarian pottery - Pantellerian Ware



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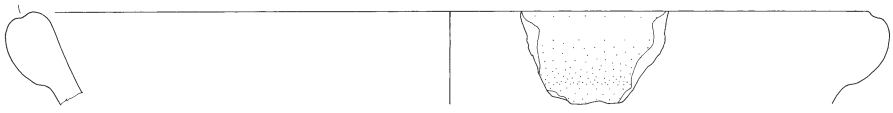
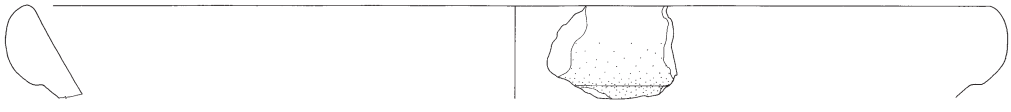
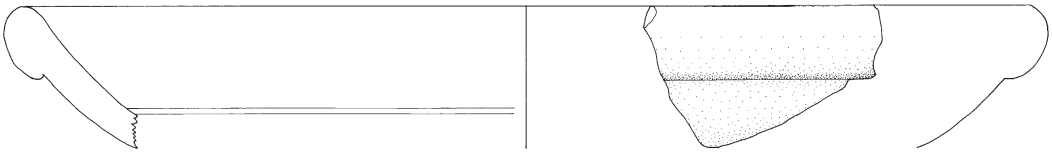


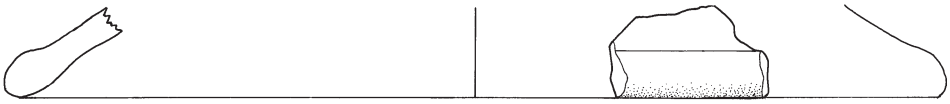
2 (1:3)



3 (1:3)

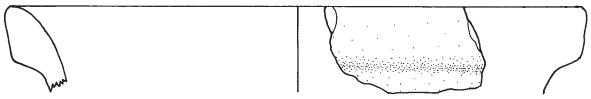


4 (1:3)

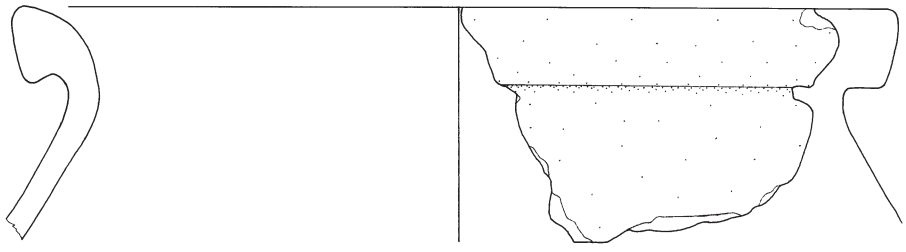


5

Utilitarian pottery - Other Cookware



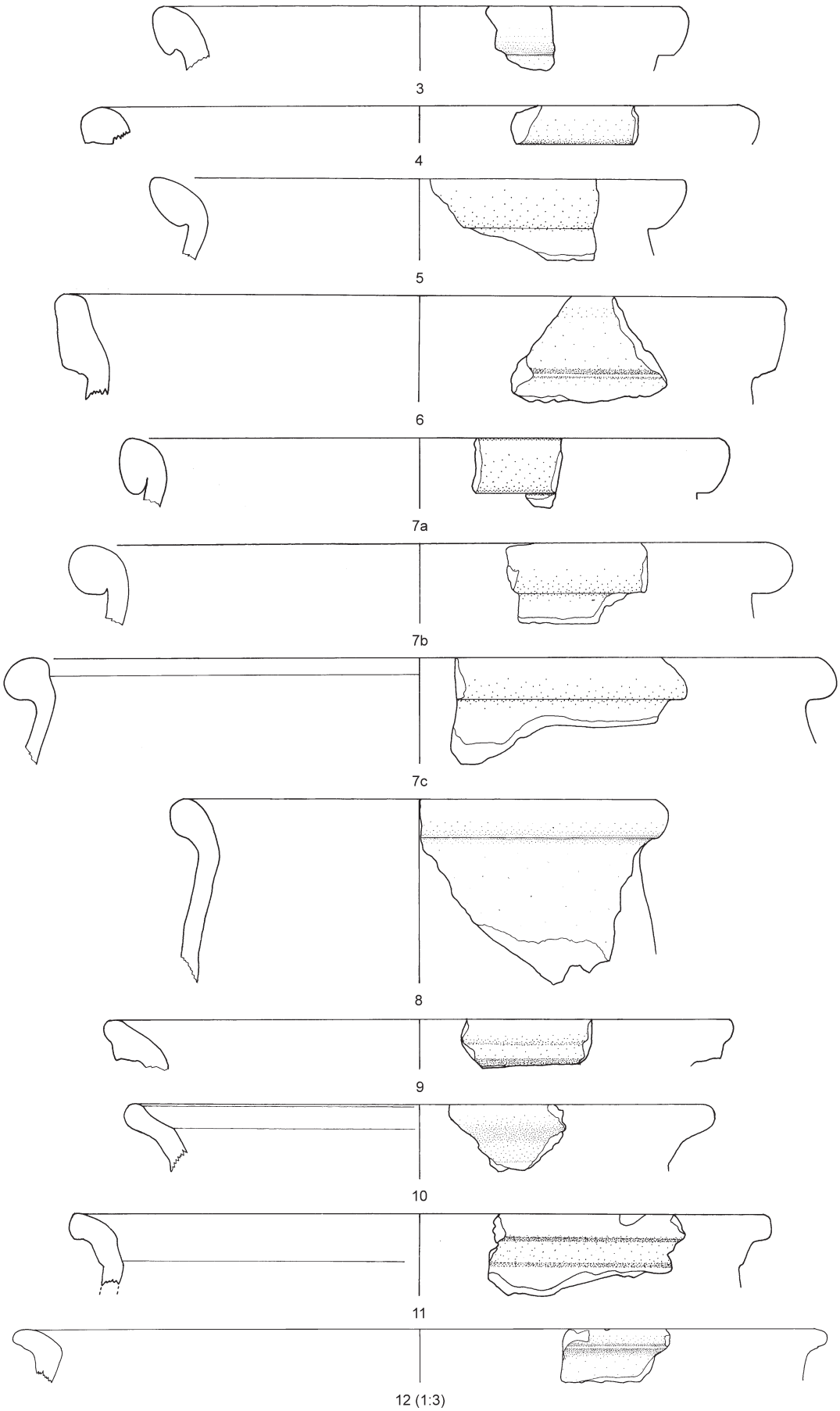
1



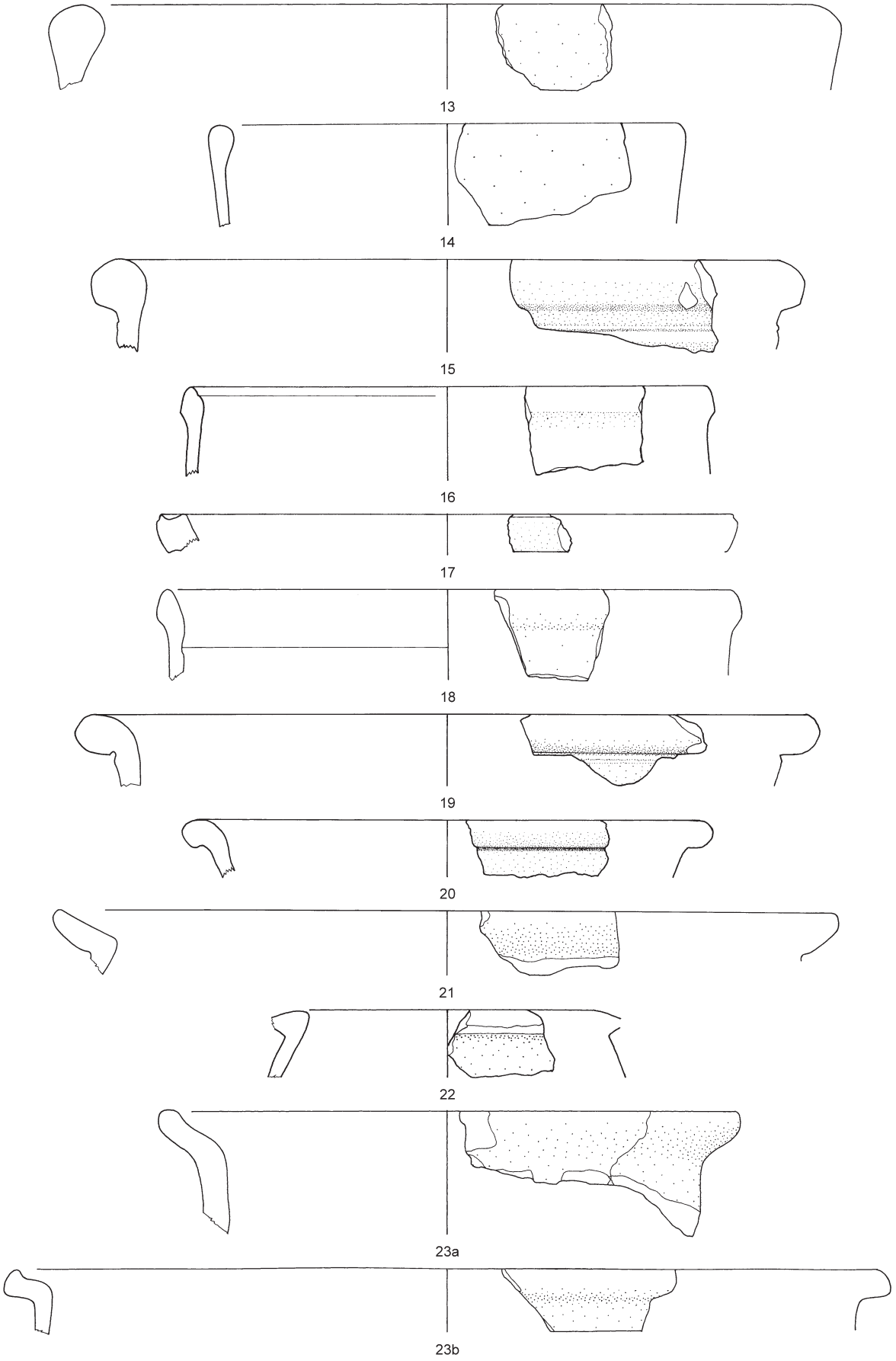
2

Astura cont.

Plate VI-VIII

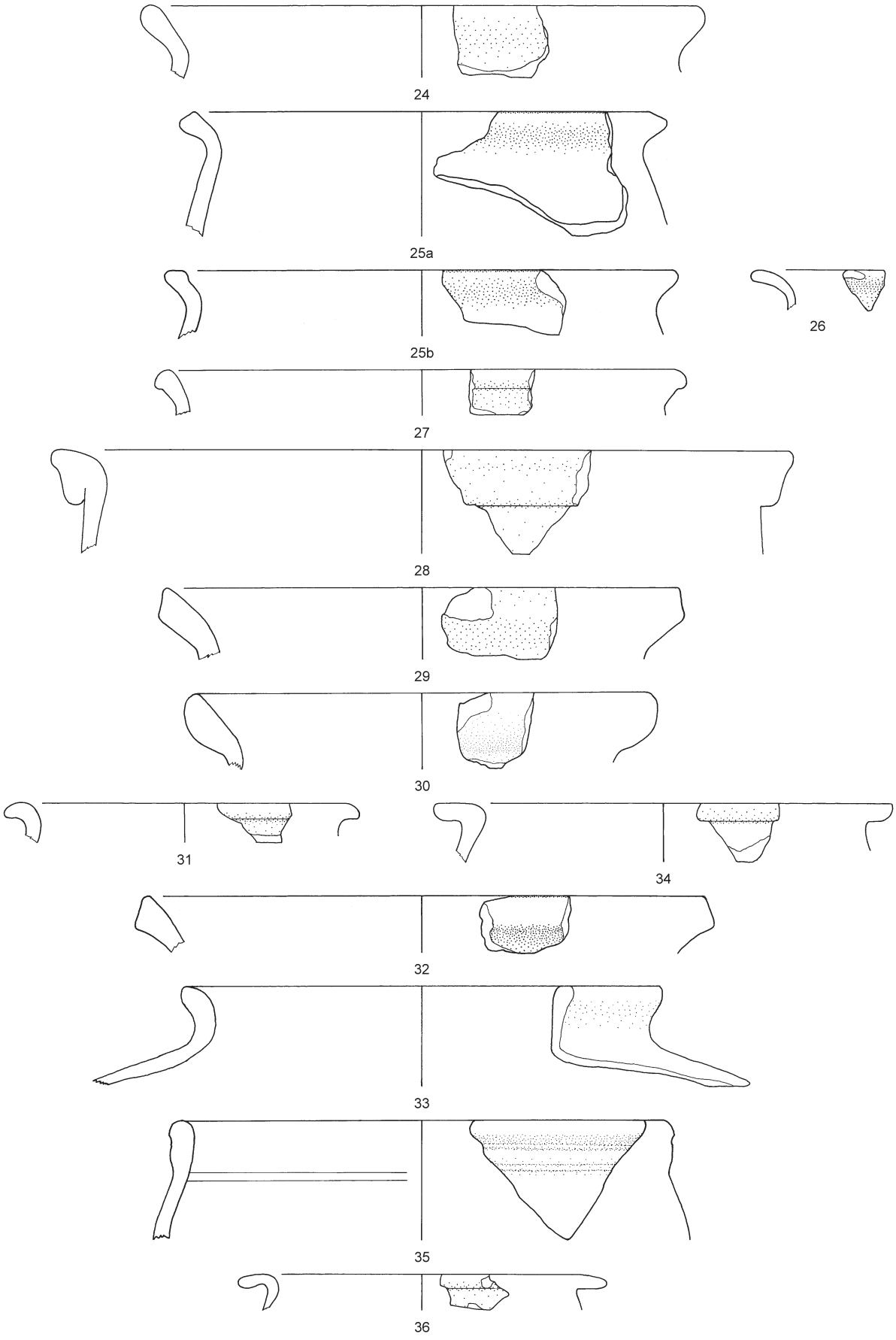


Astura cont. Plate VI-IX

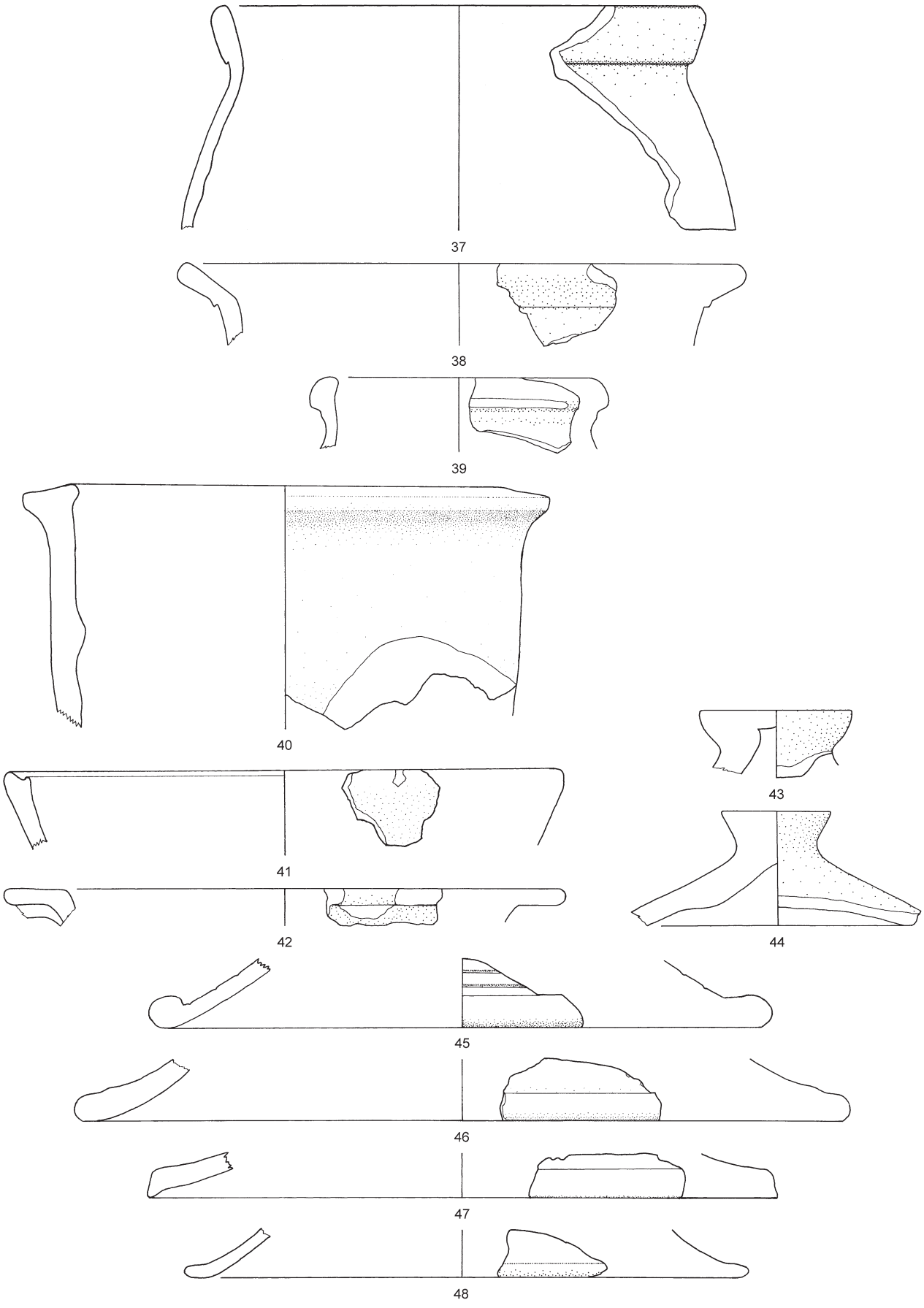


Astura cont.

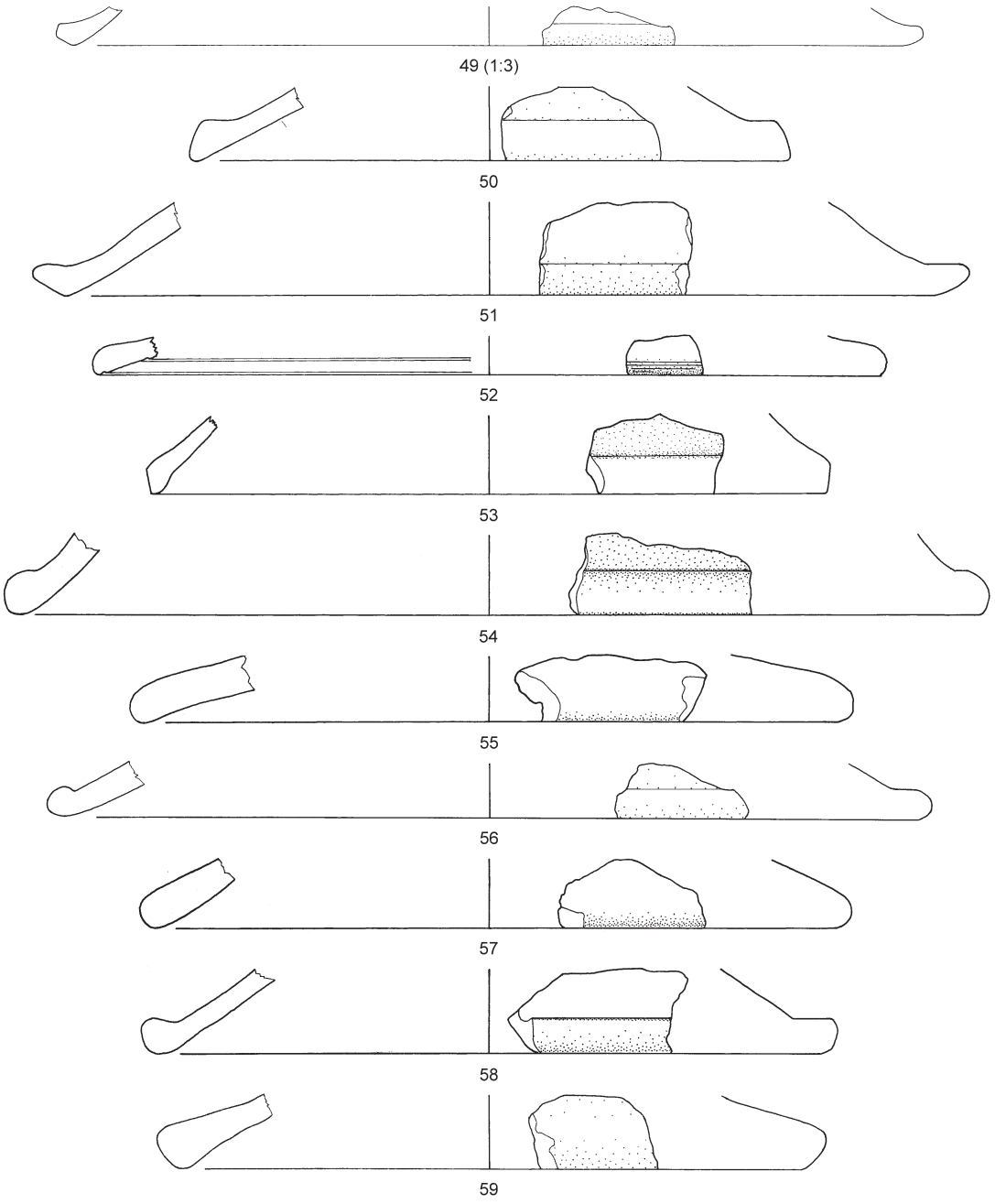
Plate VI-X



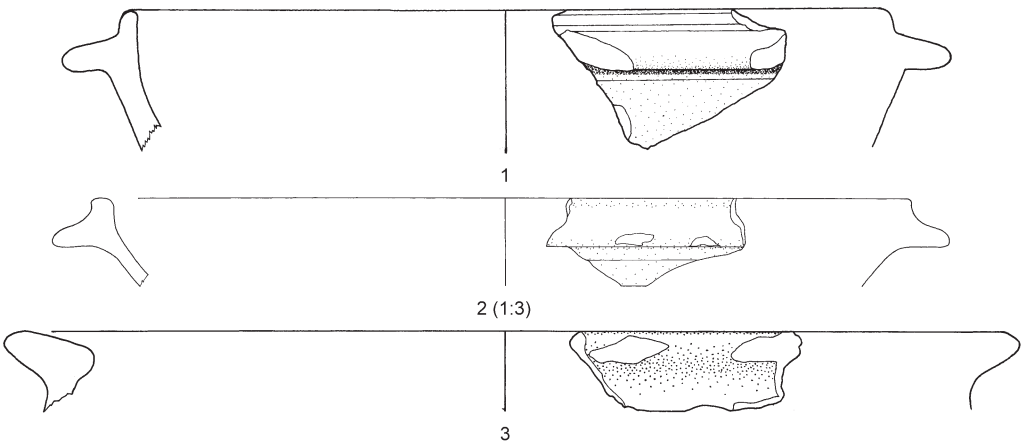
Astura cont. Plate VI-XI



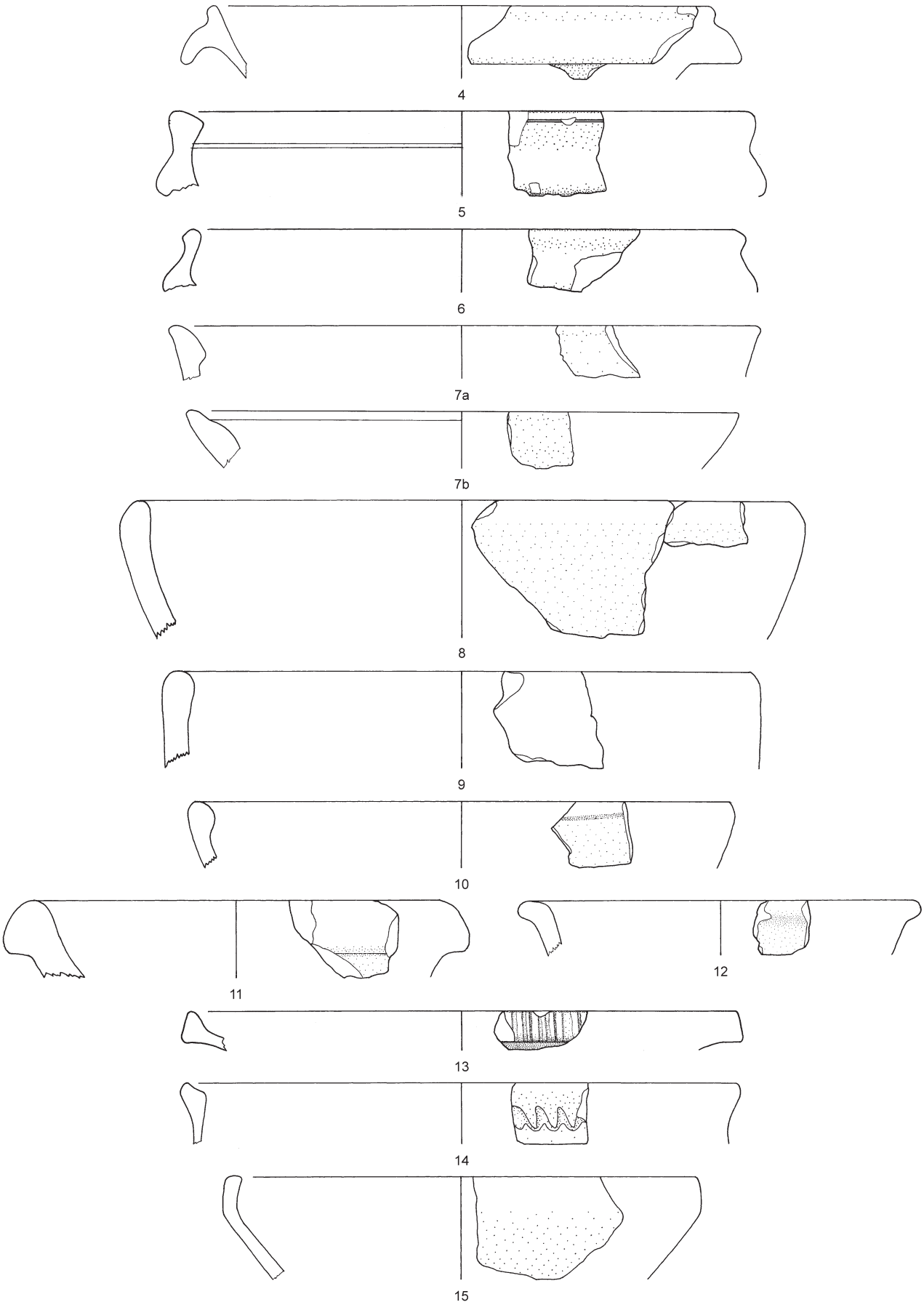
Astura cont. Plate VI-XII



Utilitarian pottery - Other Coarse Ware

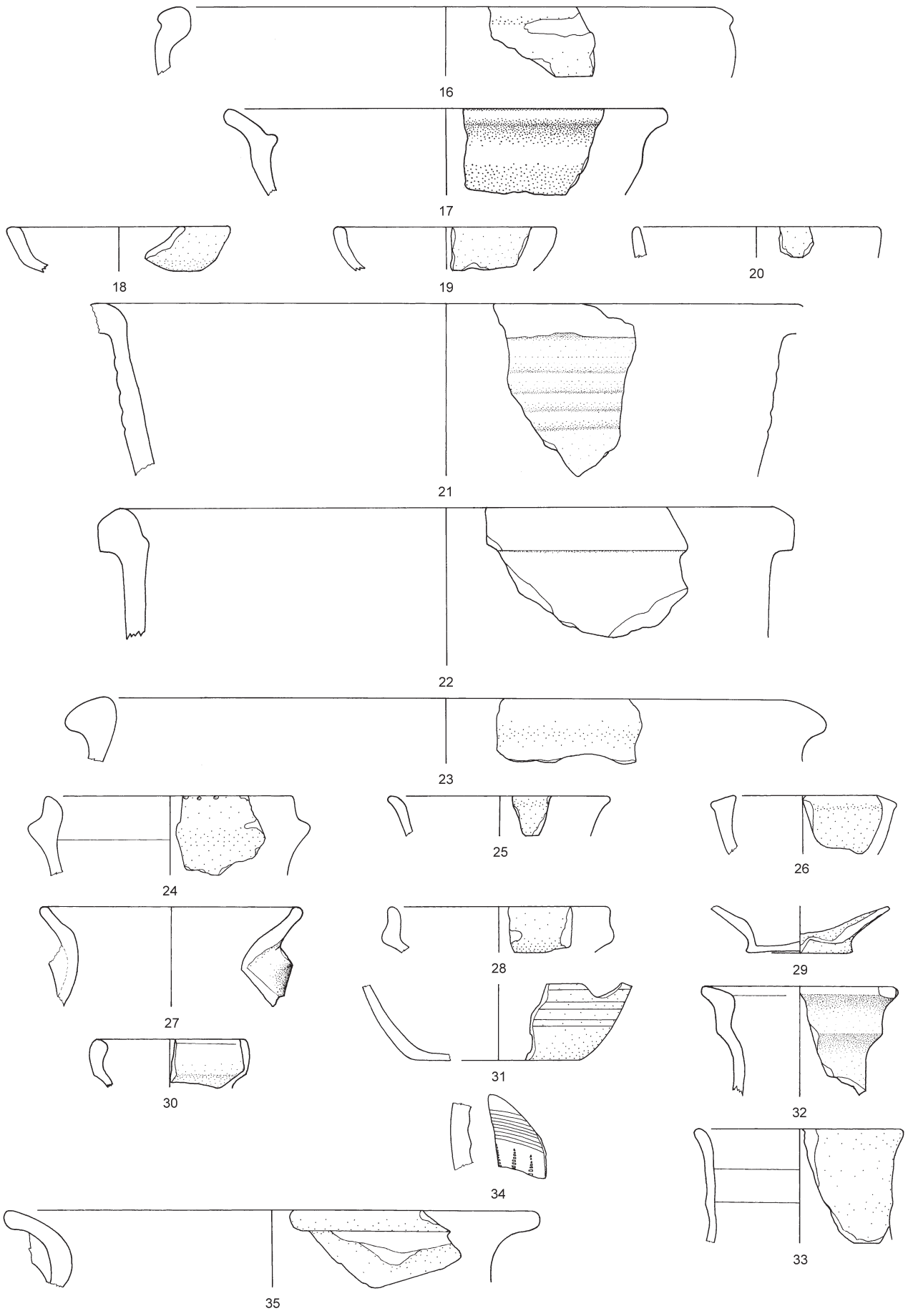


Astura cont. Plate VI-XIII



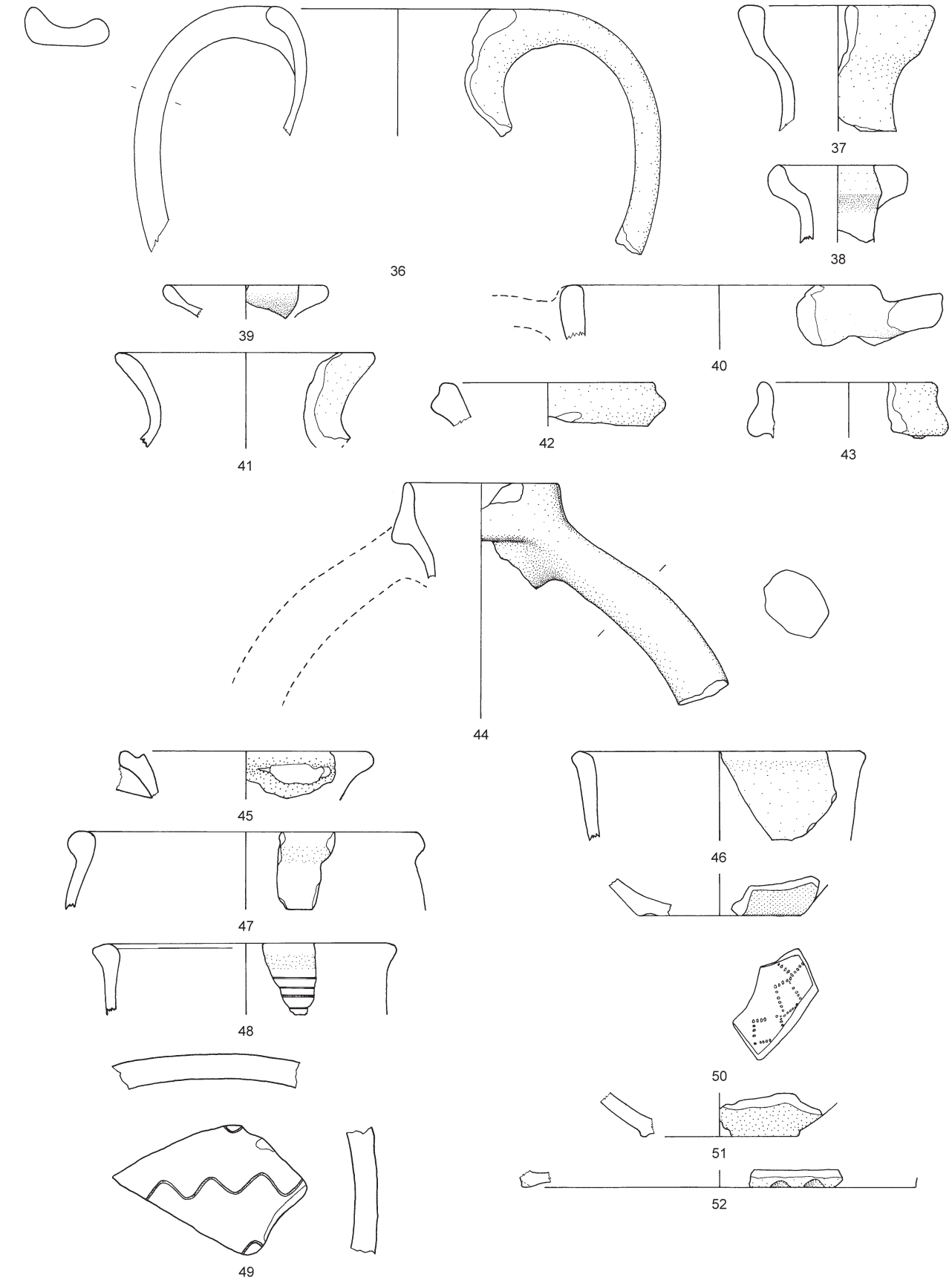
Astura cont.

Plate VI-XIV



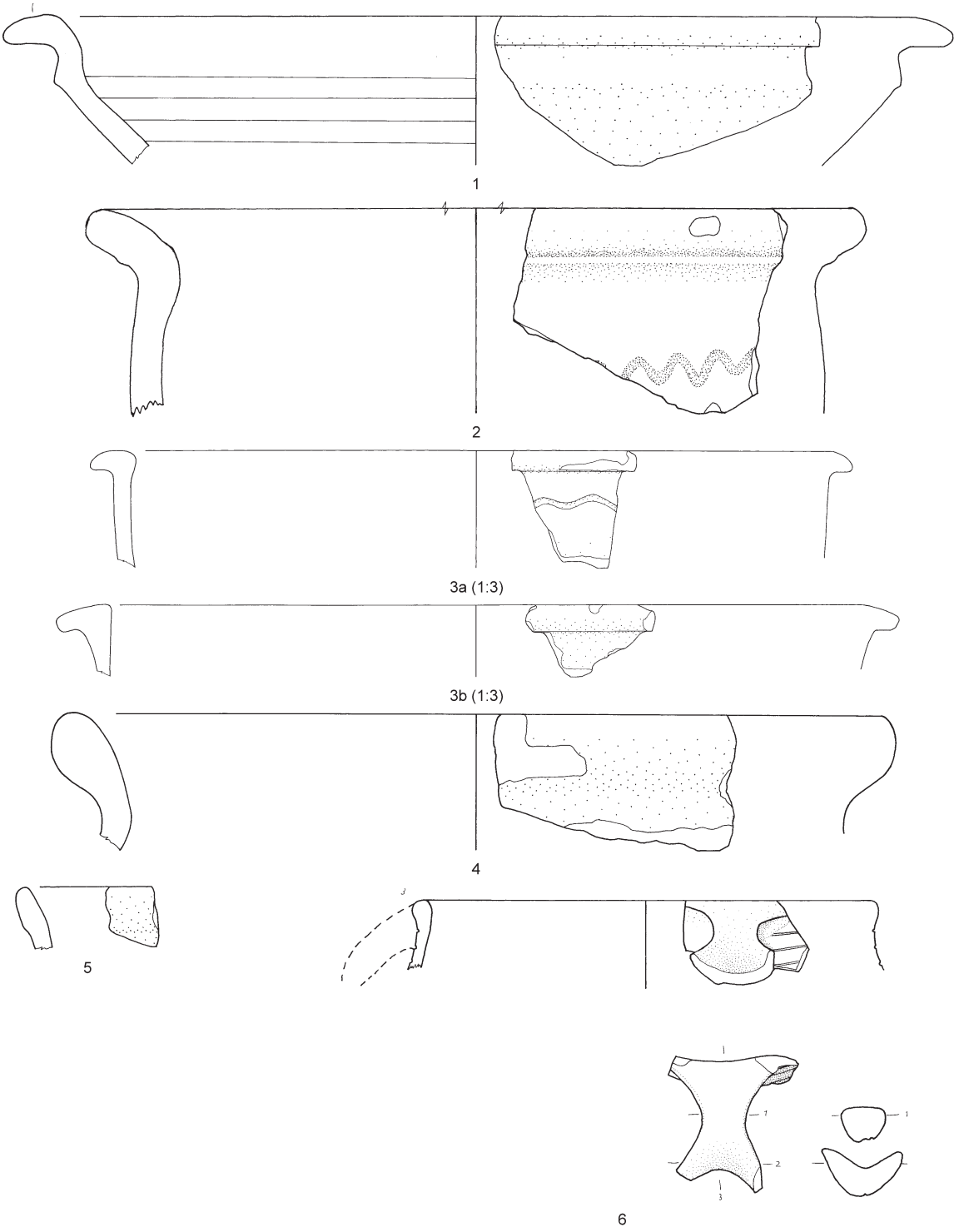
Astura cont.

Plate VI-XV



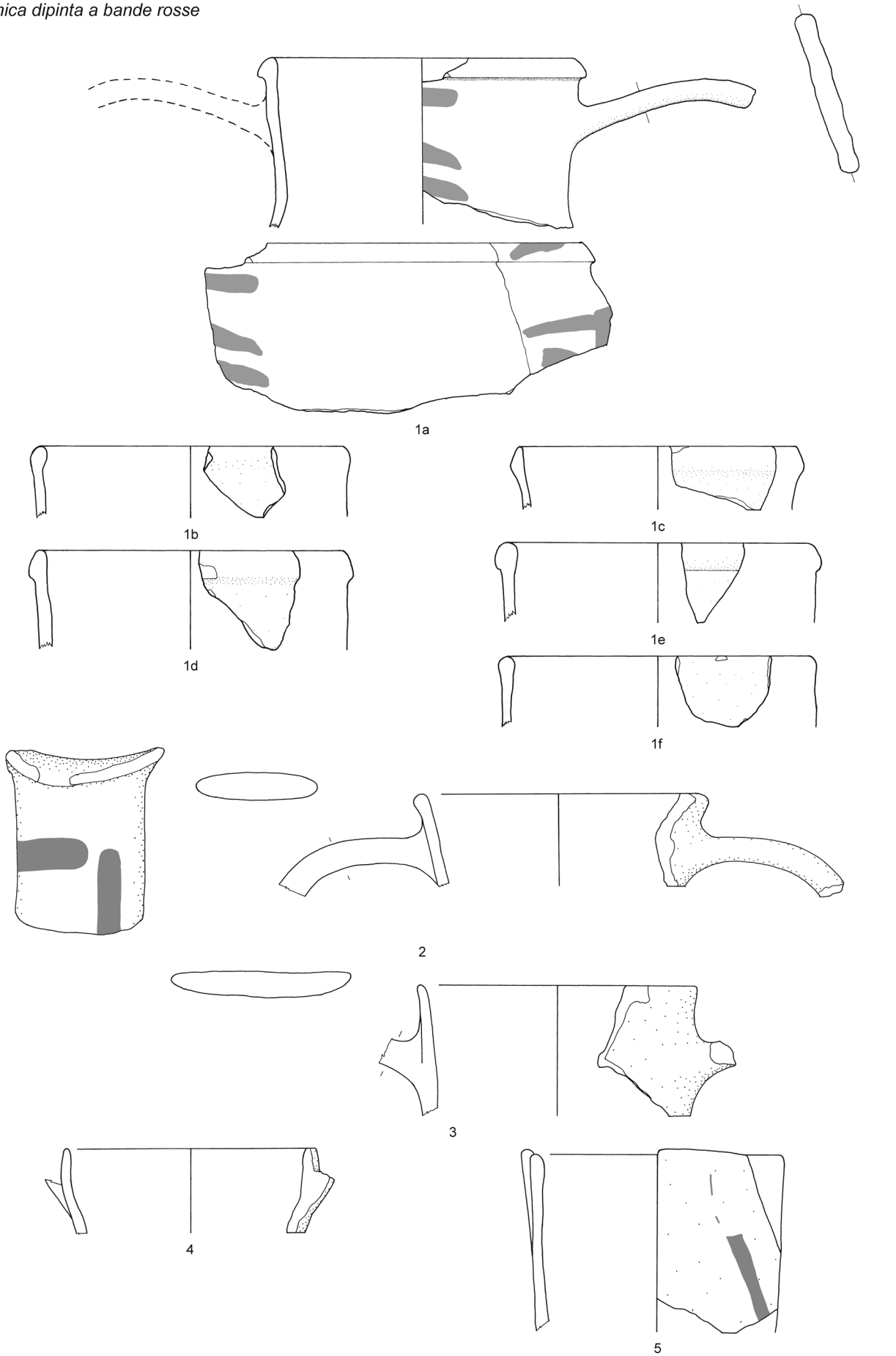
Astura cont.
Ceramica acroma depurata

Plate VI-XVI



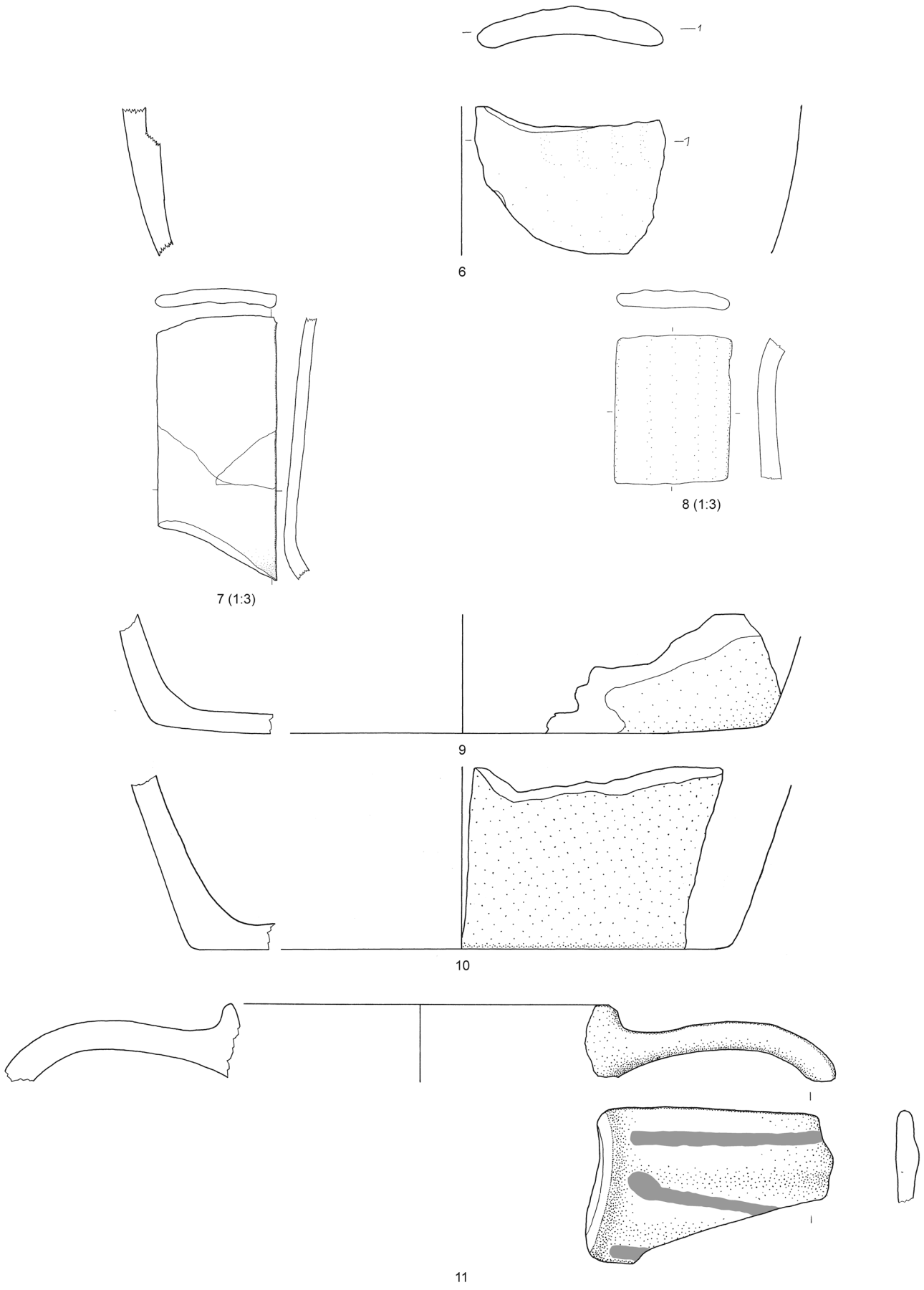
Astura cont.
Ceramica dipinta a bande rosse

Plate VI-XVII



Astura cont.

Plate VI-XVIII



6

7 (1:3)

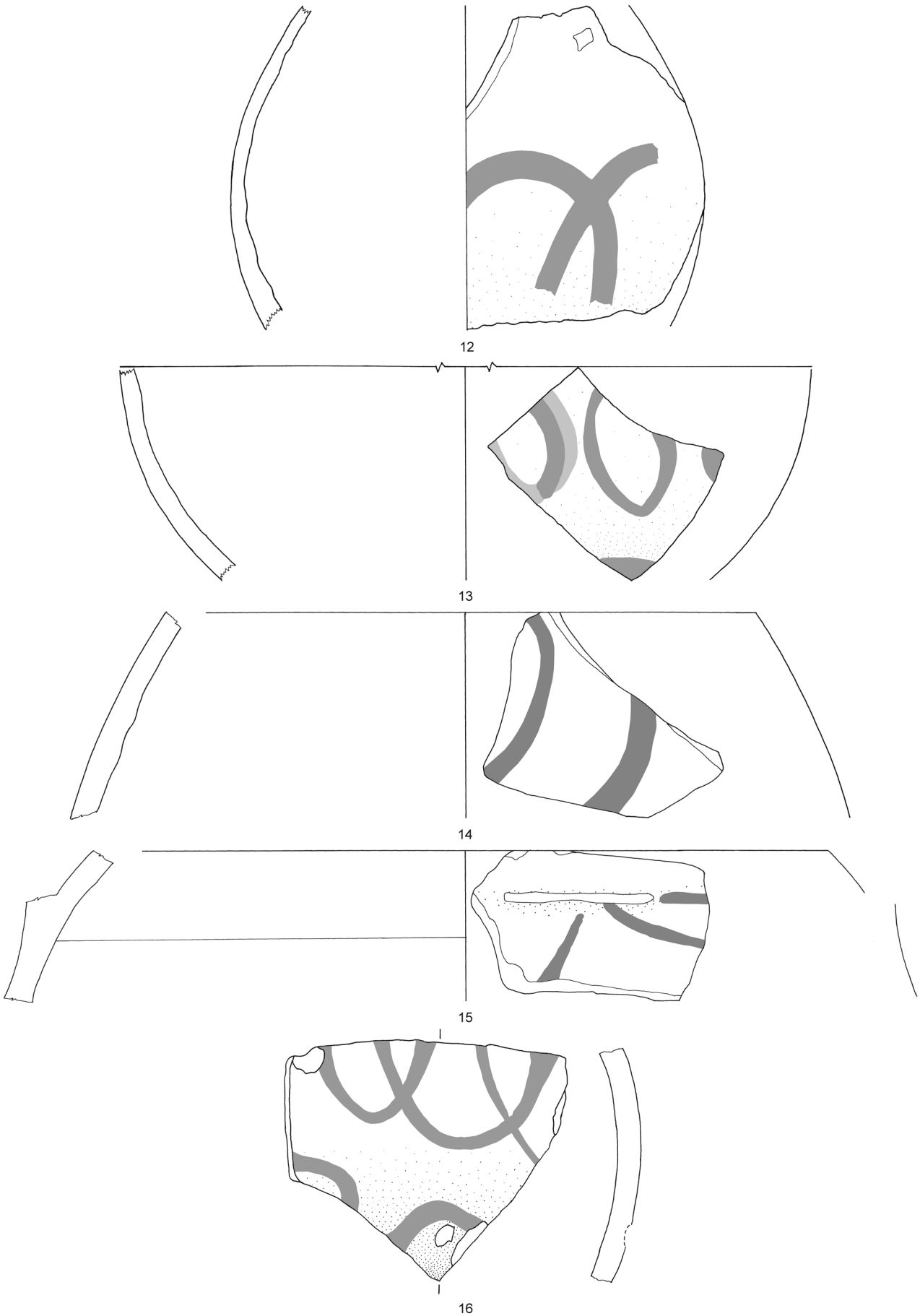
8 (1:3)

9

10

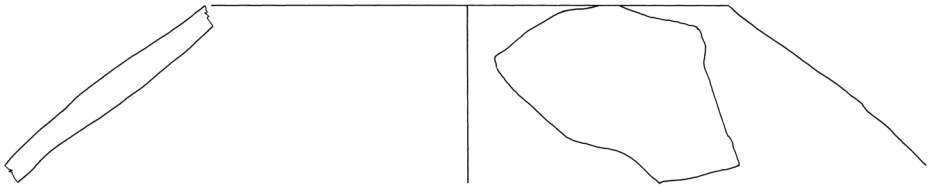
11

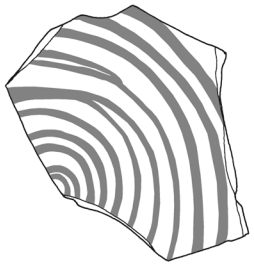
Astura cont. Plate VI-XIX



Astura cont.

Plate VI-XX





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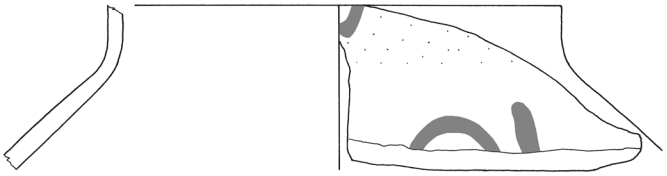

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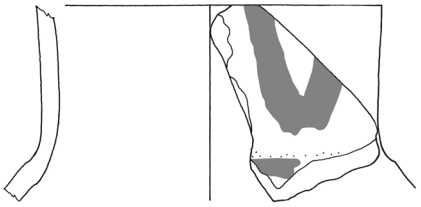

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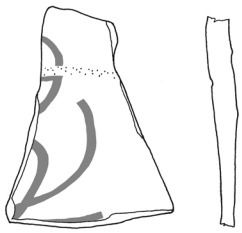

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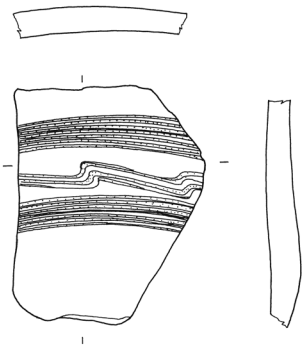

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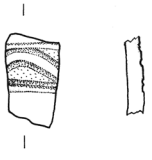

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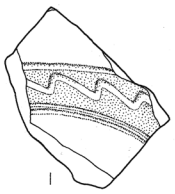

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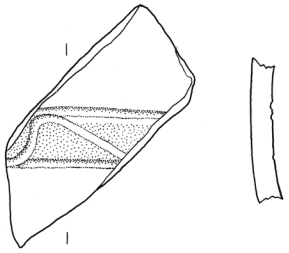

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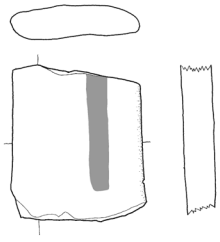
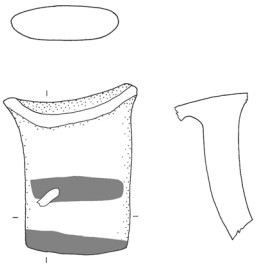
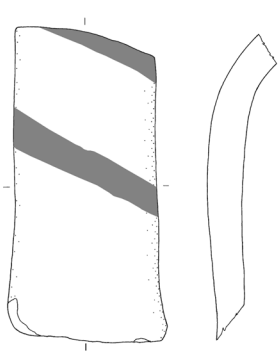


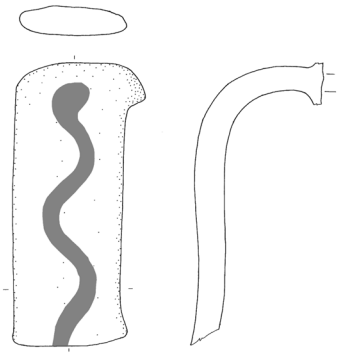
25 (1:3)



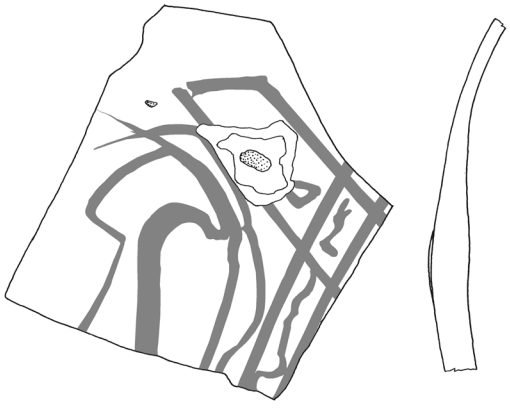
27 (1:3)



26 (1:3)



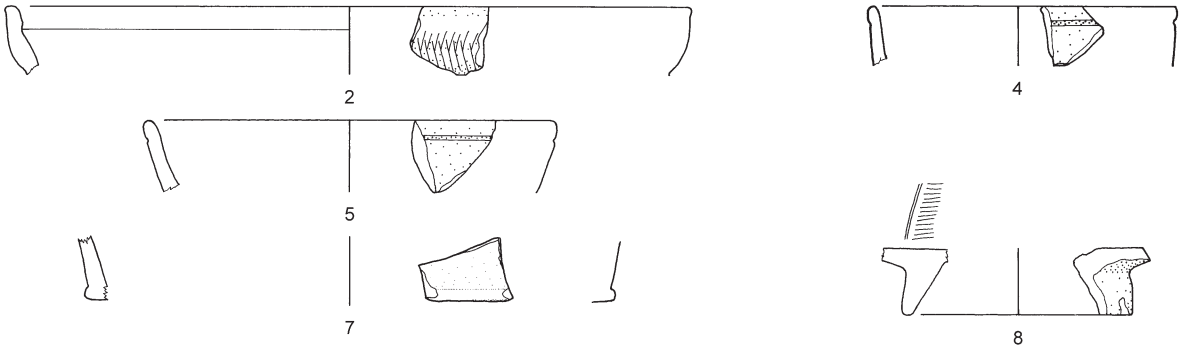
28 (1:3)



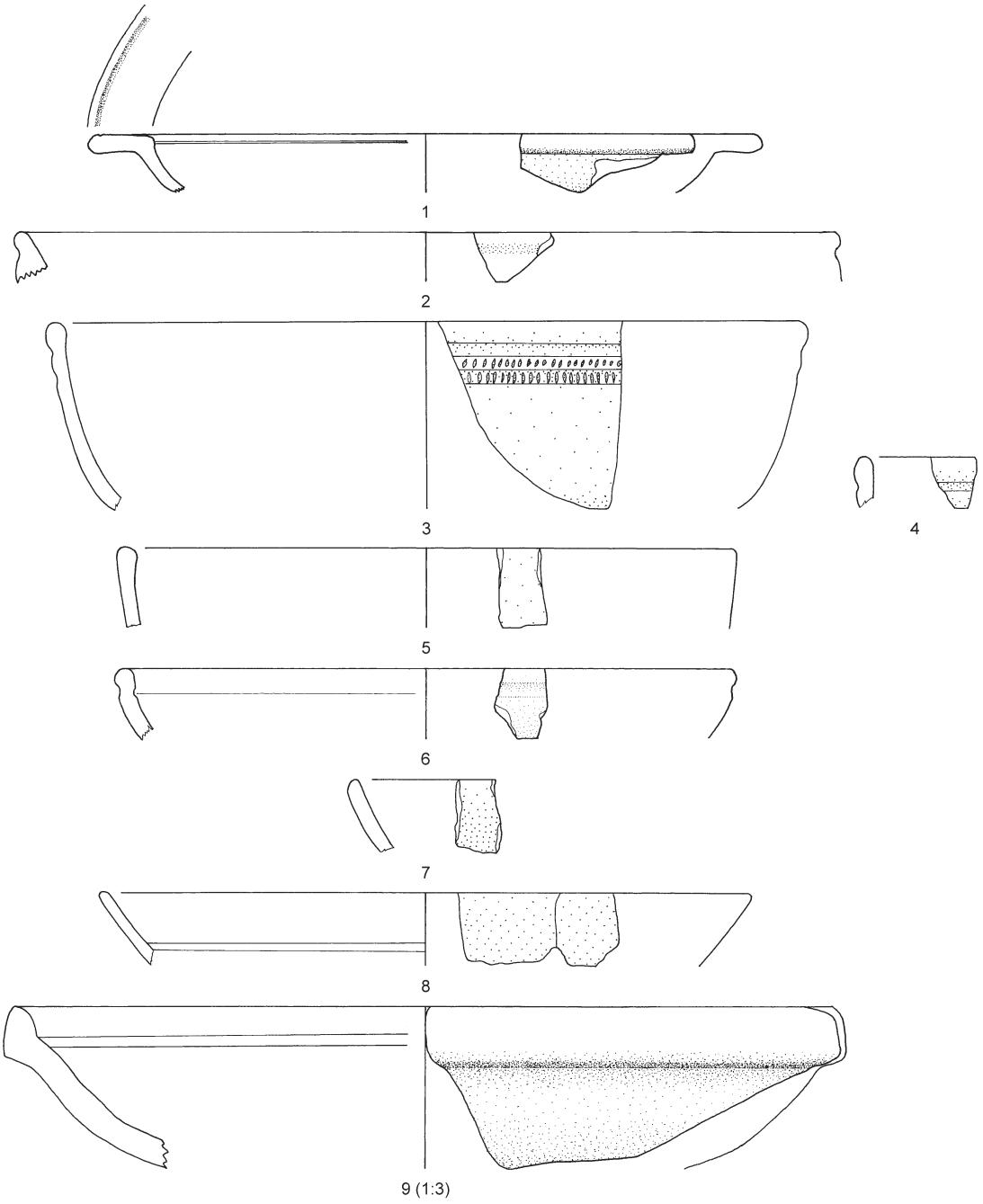
29

Astura cont. Plate VI-XXI

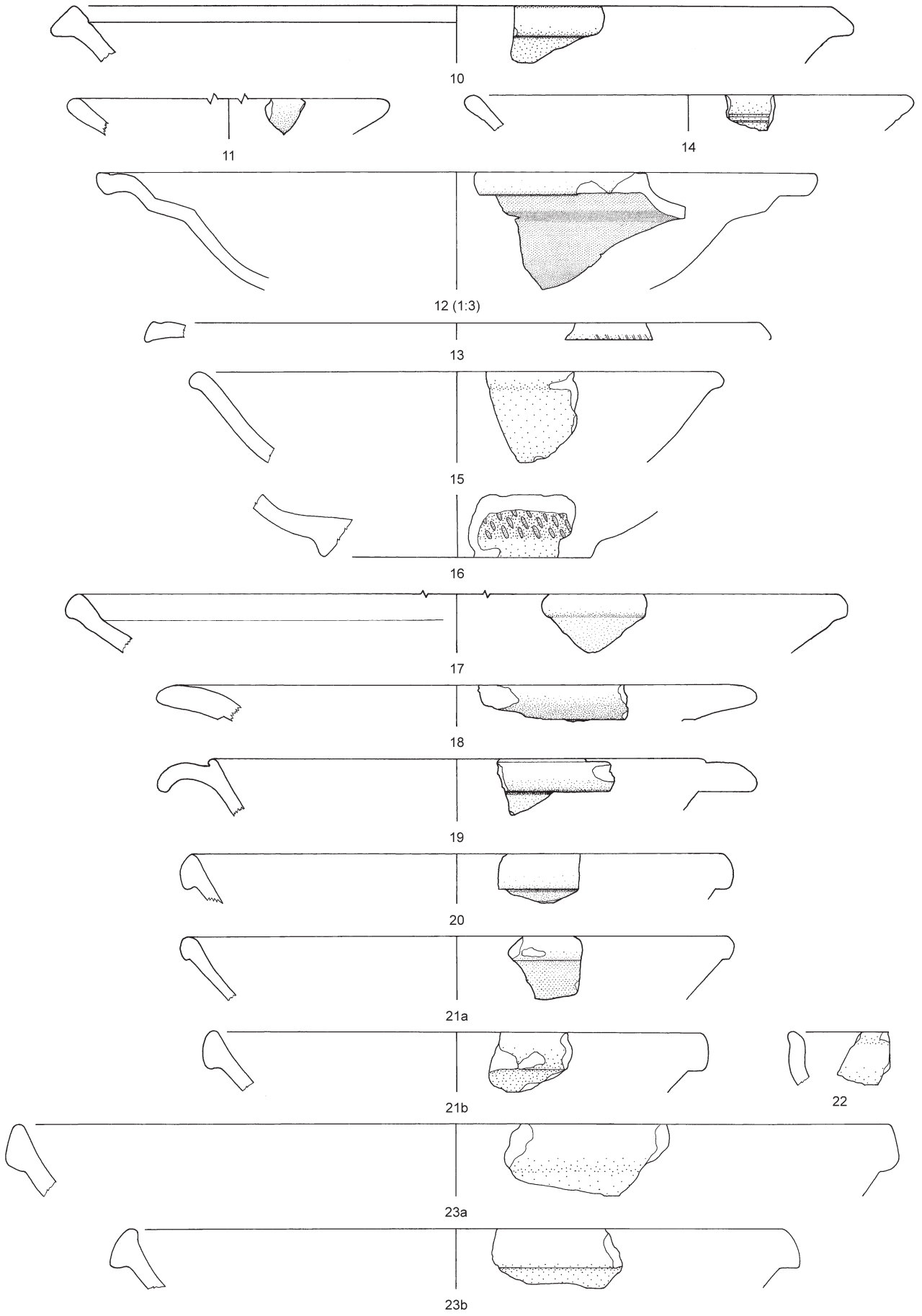
Fine ware - Terra Sigillata



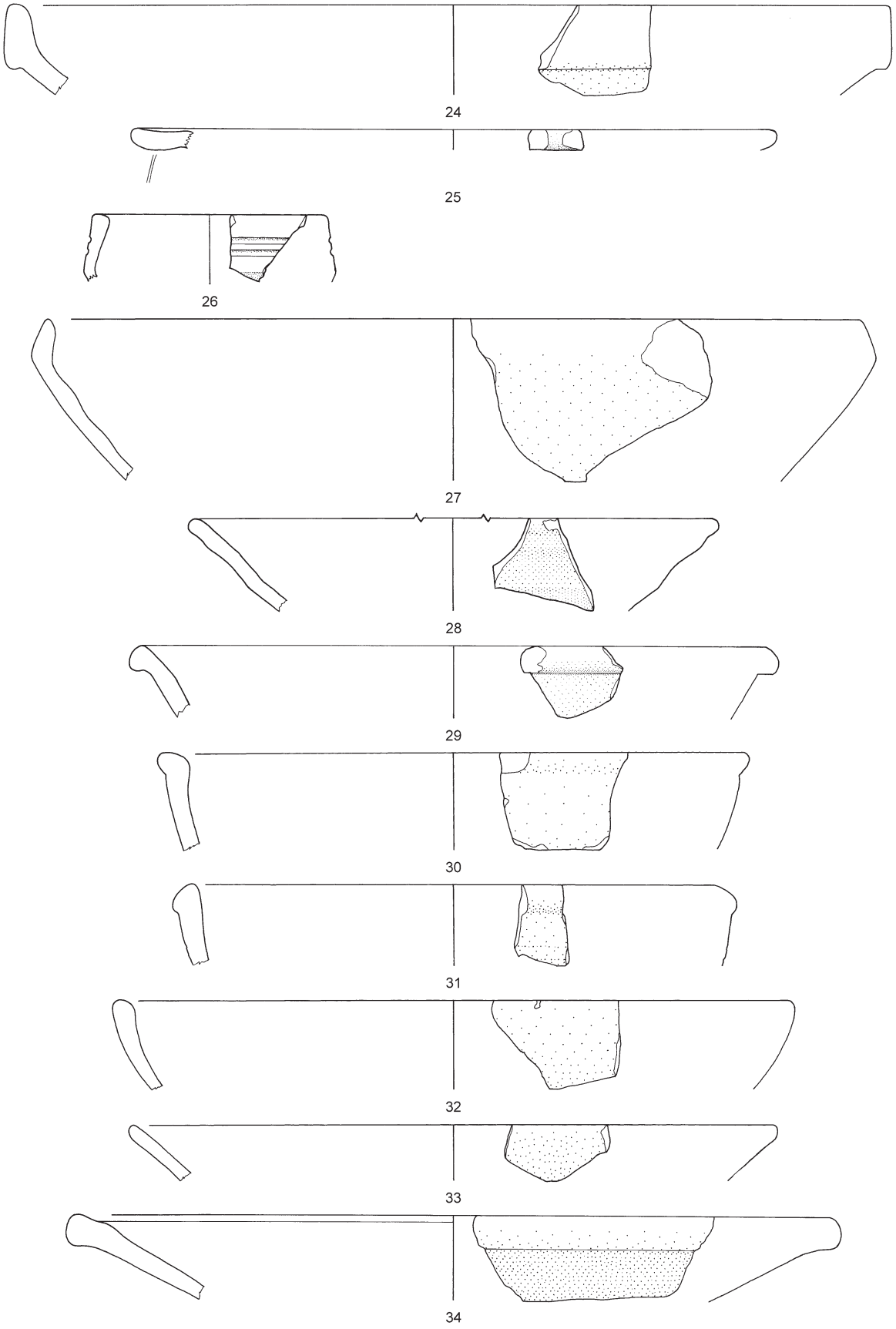
Fine ware - African Red Slip Ware



Astura cont. Plate VI-XXII

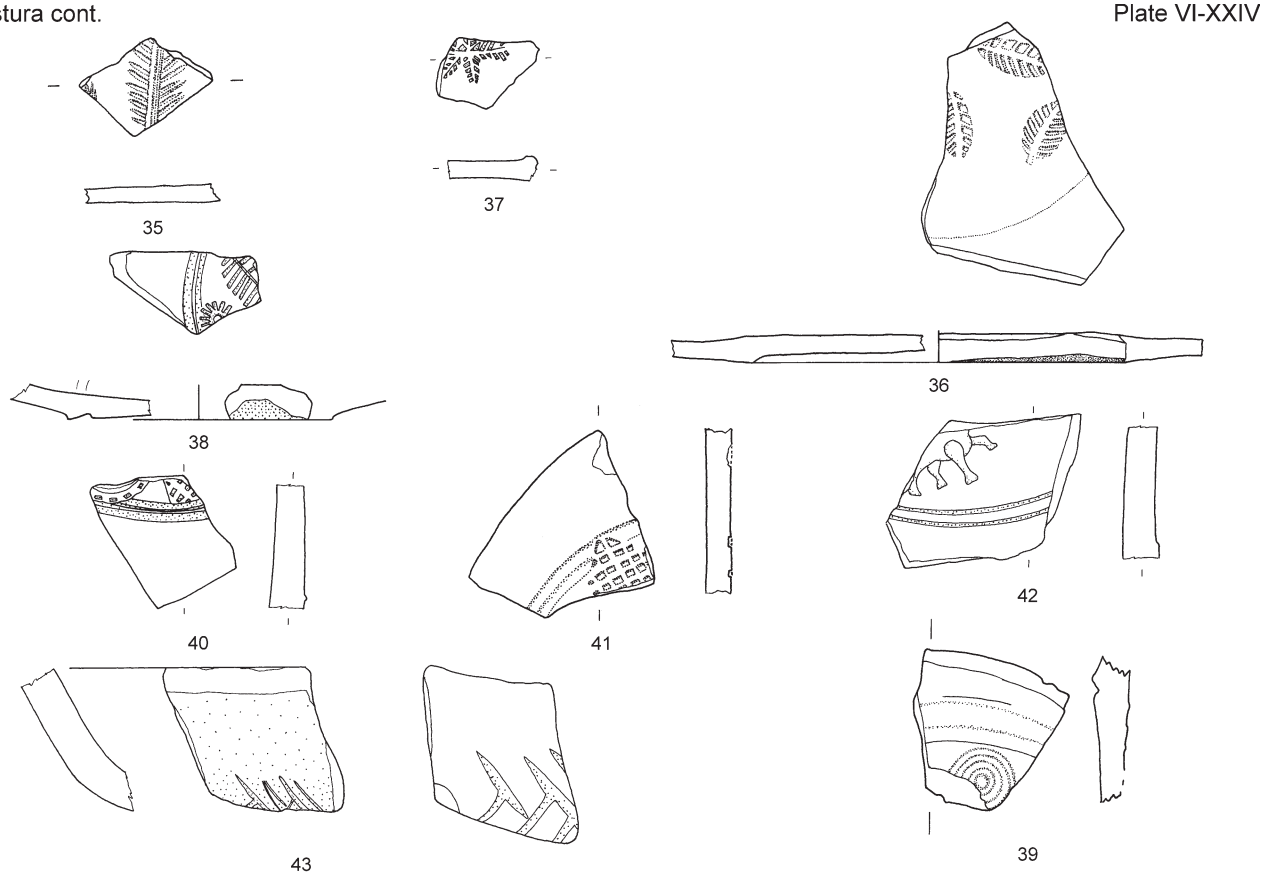


Astura cont. Plate VI-XXIII

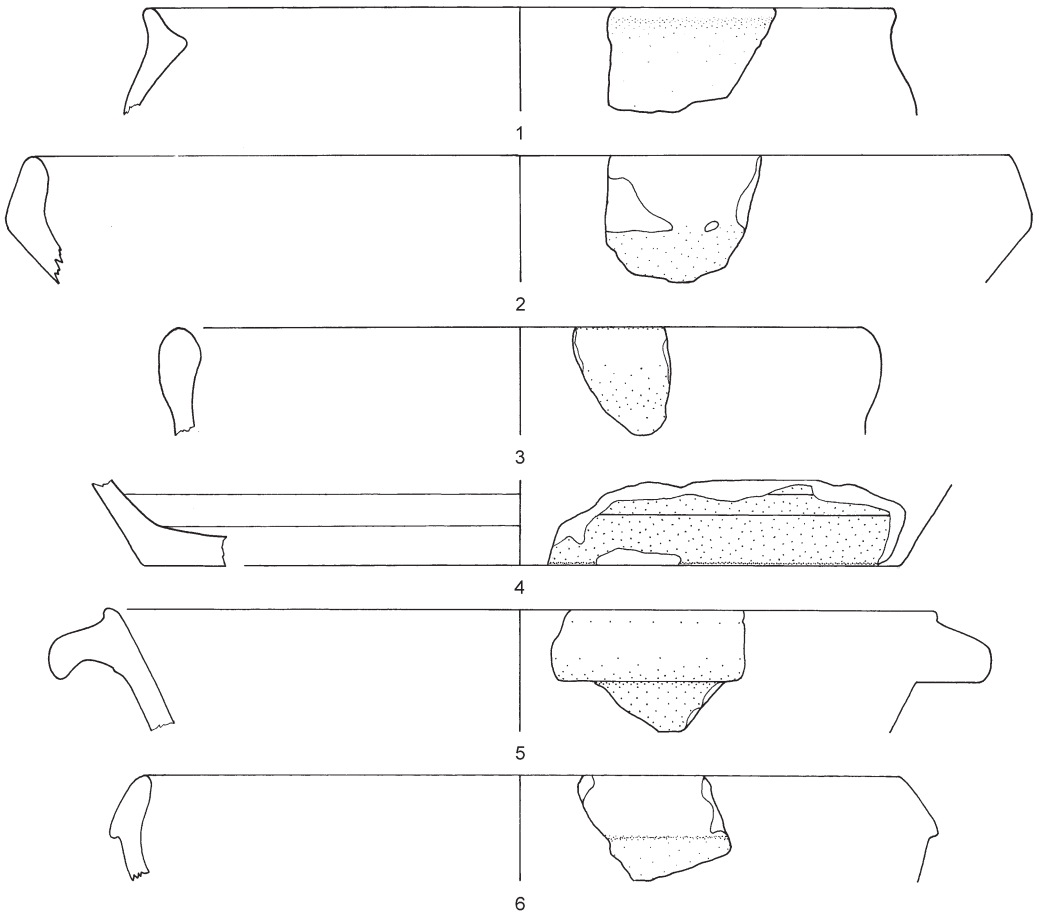


Astura cont.

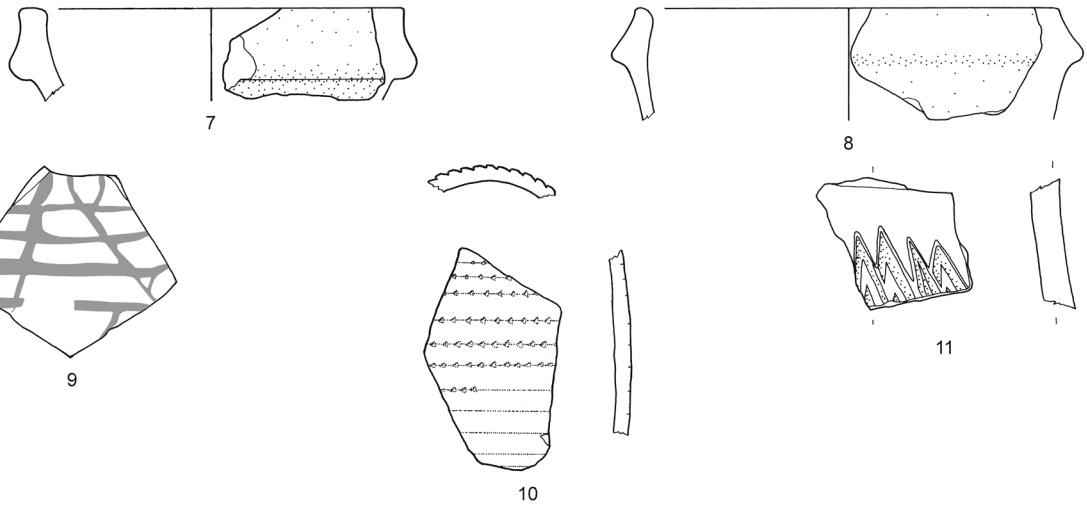
Plate VI-XXIV



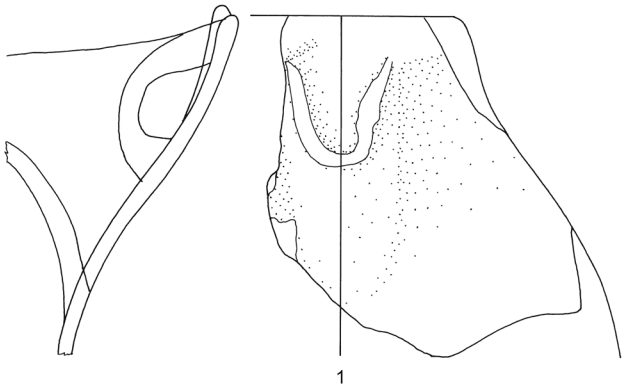
Fine ware - Other



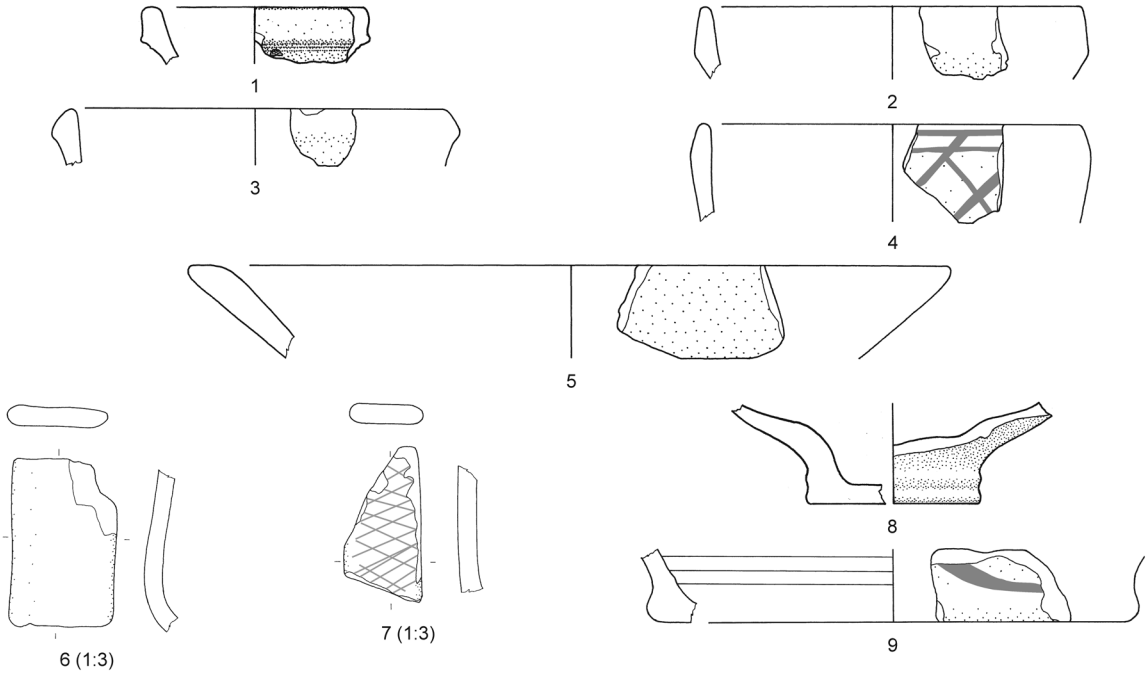
Astura cont. Plate VI-XXV



Glazed Ware - Ceramica a vetrina sparsa

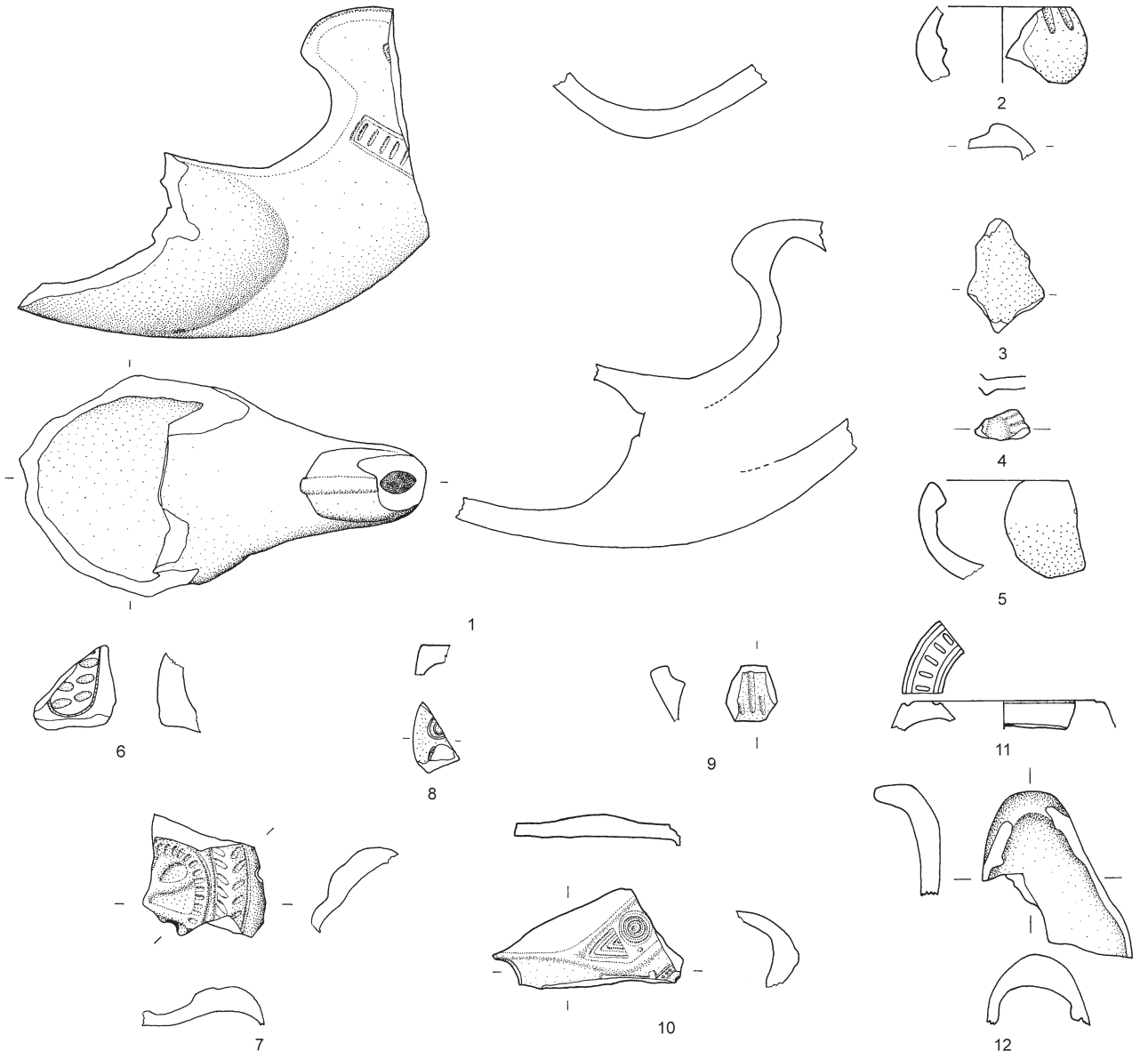


Glazed Ware - Other

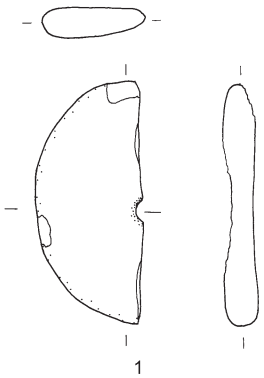


Astura cont.
Oil lamps

Plate VI-XXVI

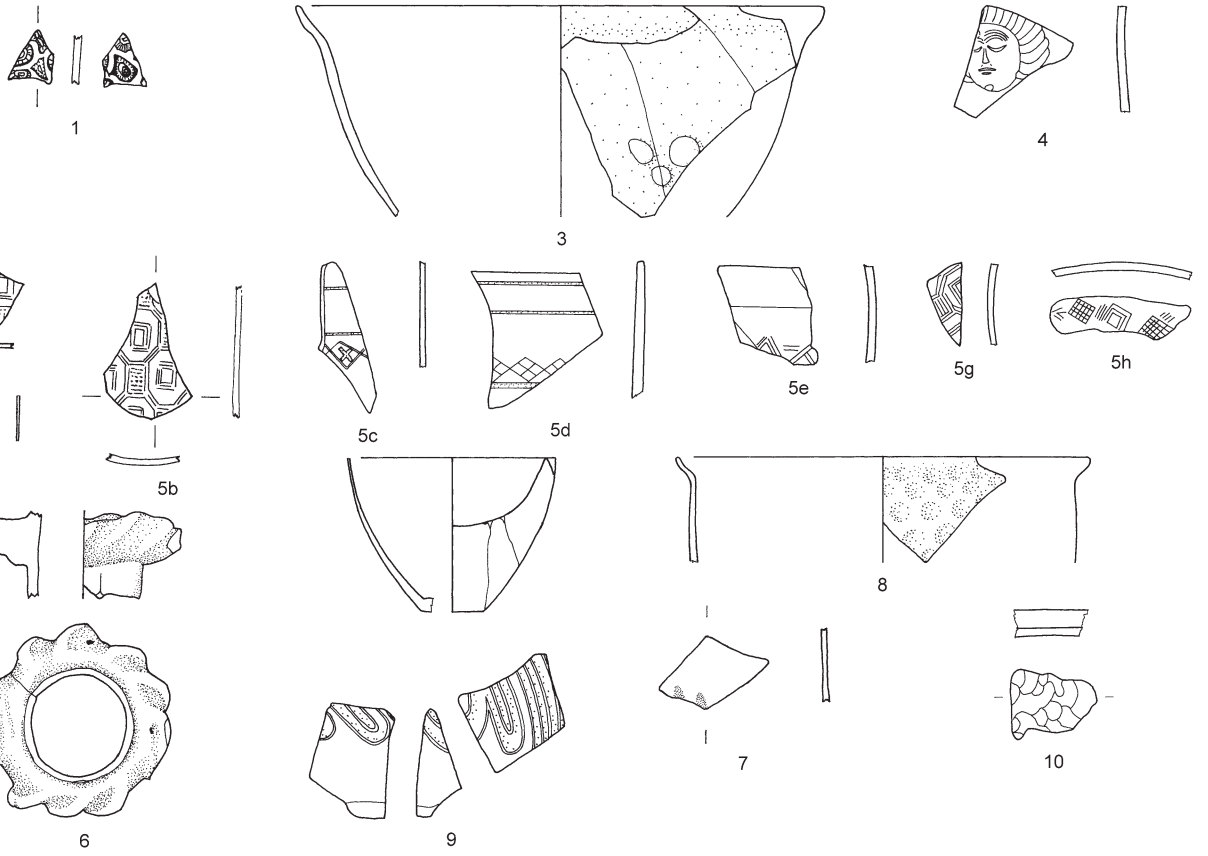


Utilities

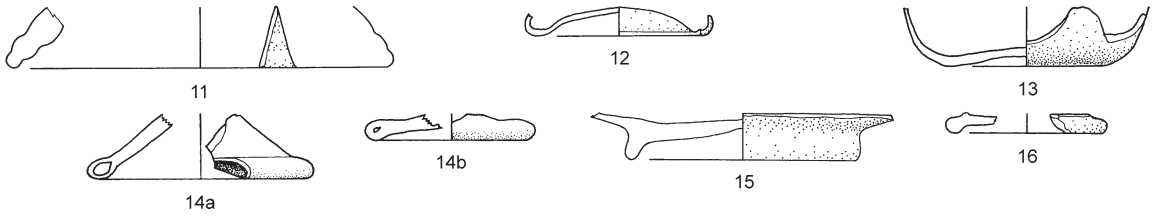


Astura cont. Plate VI-XXVII

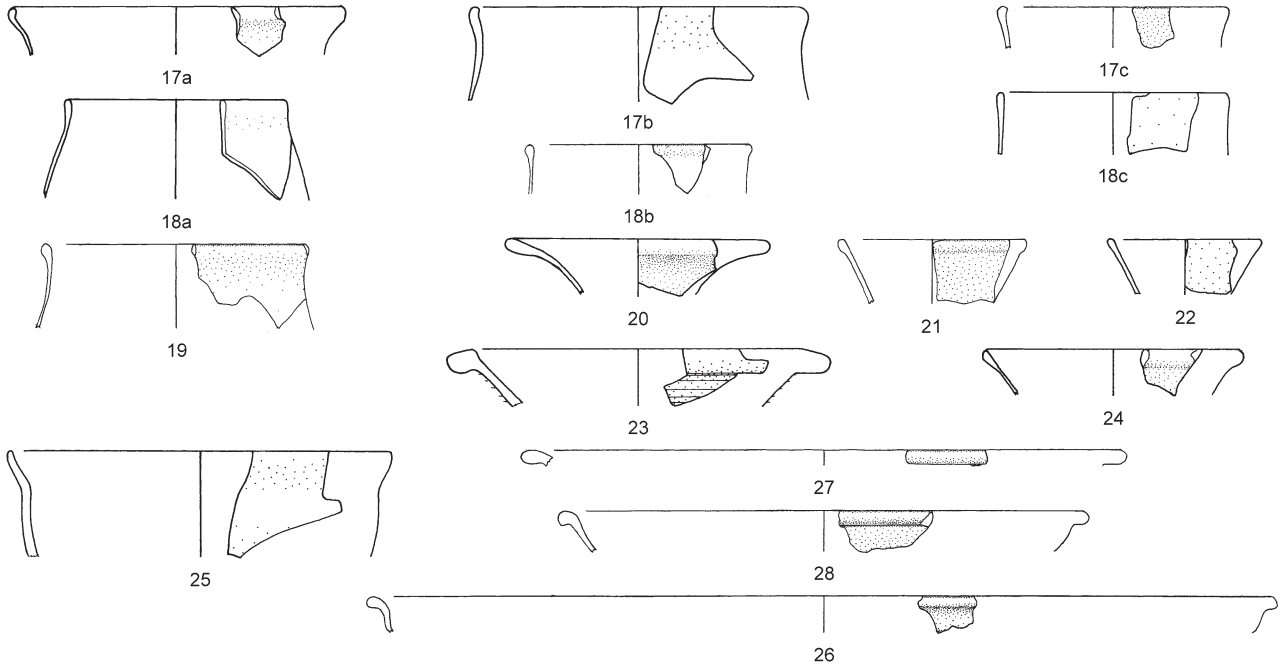
Glass - Decorated fragments



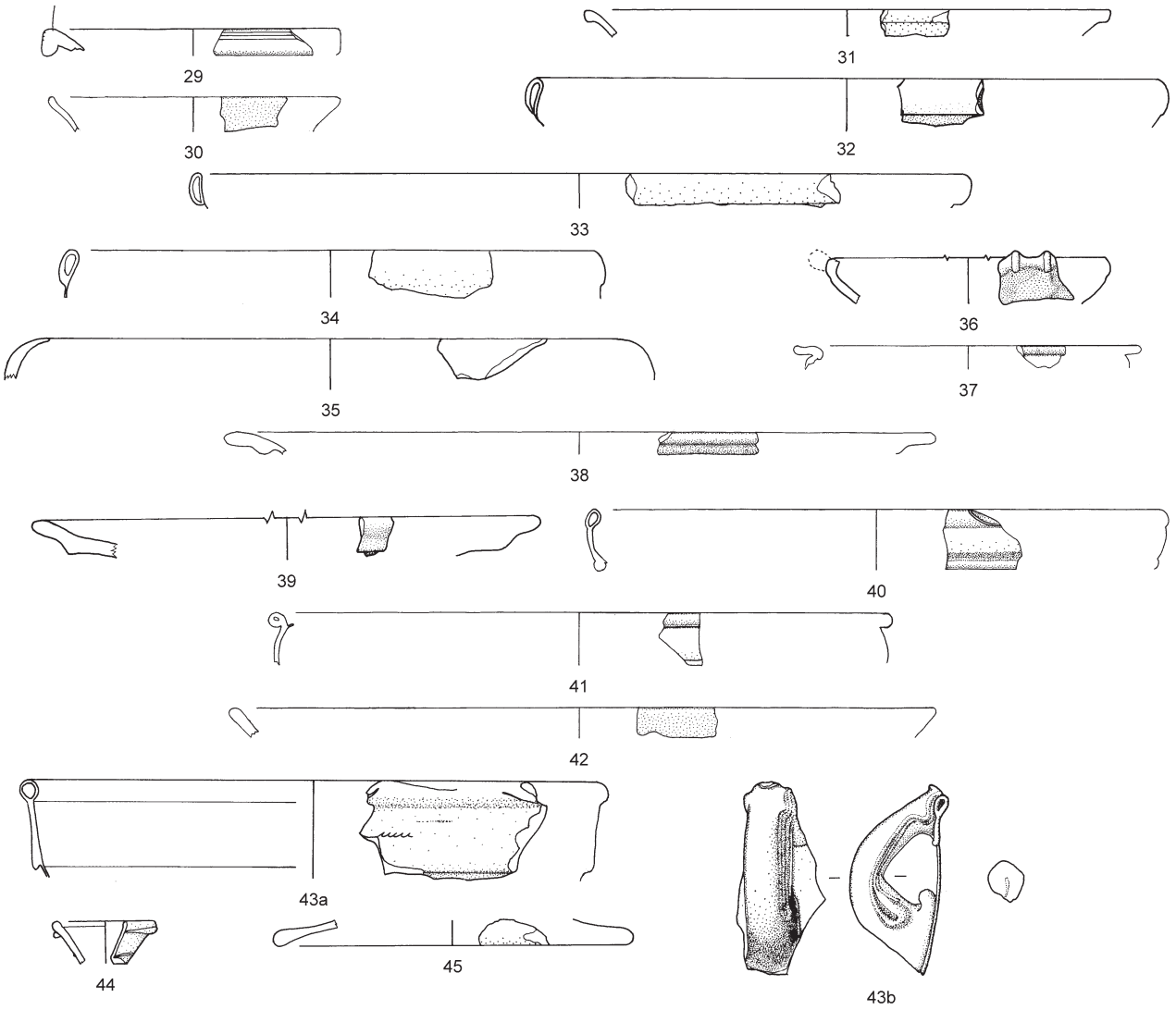
Glass - Base fragments



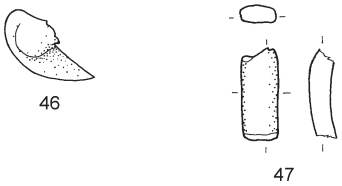
Glass - Rim fragments



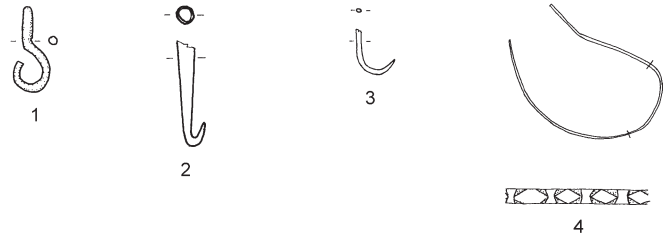
Astura cont. Plate VI-XXVIII



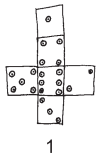
Glass - Handle fragments



Metal artefacts



Bone items



Chapter 7 - Synthesis

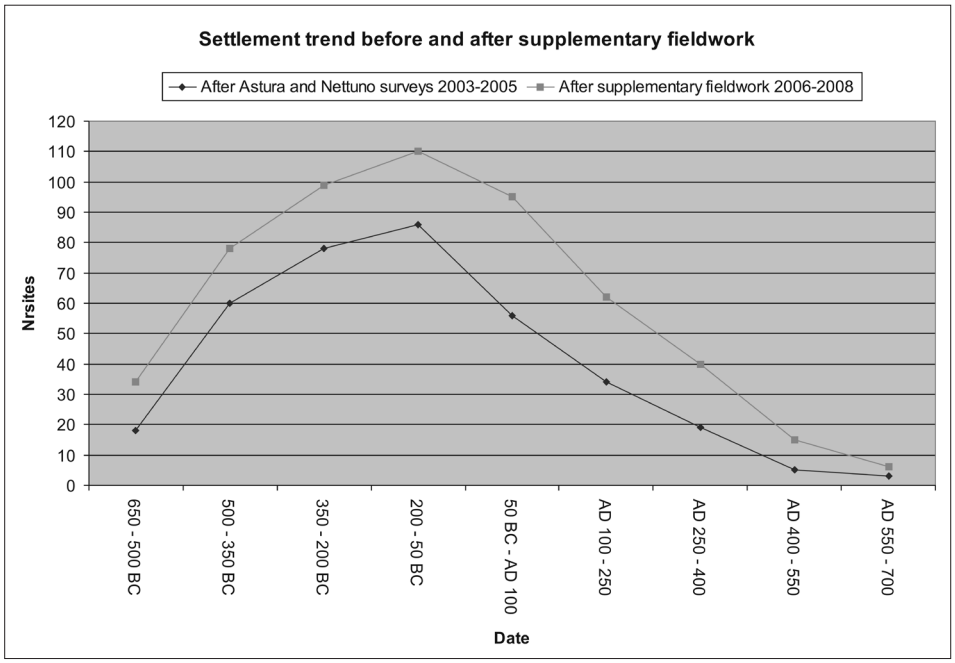


Figure 7.1 Settlement trend for the study area before and after the four case studies.

As formulated in the introduction to this dissertation, its main aim was to probe various supplementary fieldwork methods in order to improve our insight in the overall settlement history of the study area. The contribution of each case study towards this principal aim was presented in chapters 3-6. In the present chapter the data for the four individual cases are integrated in order to define the added value of this study.

This chapter is divided into four sections. In the first section, the quantitative contribution of the four case studies combined will be assessed. This is followed by a detailed diachronic discussion of the spatial distribution of identified sites and an in-depth discussion of the material evidence on which this identification is based. The third section discusses insights obtained regarding the main problems with our dataset, as formulated in chapter 2. It focuses on site dating, site function and site development. Based on these insights I will evaluate their (possible) impact on 1) survey methodology and 2) the present debate on the Roman economy. The final part of the chapter provides a summary of the principal results of the study and suggestions and recommendations for future field surveys by the GIA.

7.1 Integrating previous and current results

Figure 7.1 shows the number of (possible and certain) sites recorded for each period before and after the execution of the four case studies presented in this thesis. A clear increase in the number of sites can be noted for each historical period, ranging from 1.27 times as much for the mid-Republican period to a tripling for the Late Antique period.[499] These increases comprise a combination of new sites (the main contributor, see tables 3.4 and 4.2) and a better understanding of the chronology of earlier mapped locations. Despite the rather strong differences in increases per period, the overall trend still largely conforms to that based on the Astura and Nettuno surveys; the most conspicuous difference is a more gradual fall-off in settlement numbers following the peak in the late Republican period. Yet, this overall trend hides rather strong differences in the degree of certain occupation for each period (fig. 7.2). Four periods still stand out negatively; the post-Archaic period, the mid- and late Republican periods and the late Imperial period. However, despite the still relatively low degree of certain occupation noted for these periods, the graph also indicates that of all of the studied periods, our knowledge of settlement in these four periods has benefited most from the various methodological approaches probed in this thesis. Additional information on settlement in the post-Archaic and late Republican periods was predominantly based on the larger ceramic samples collected during the systematic revisits (chapter 3;

499 The increase in the total number of recorded settlements is: Archaic period 88%; post-Archaic period 30%; mid-Republican period 27%, late Republican period 28%; early Imperial period 70%; mid-Imperial period 82%; late Imperial period 111%; late Antique period 200%; early Medieval period 100%.

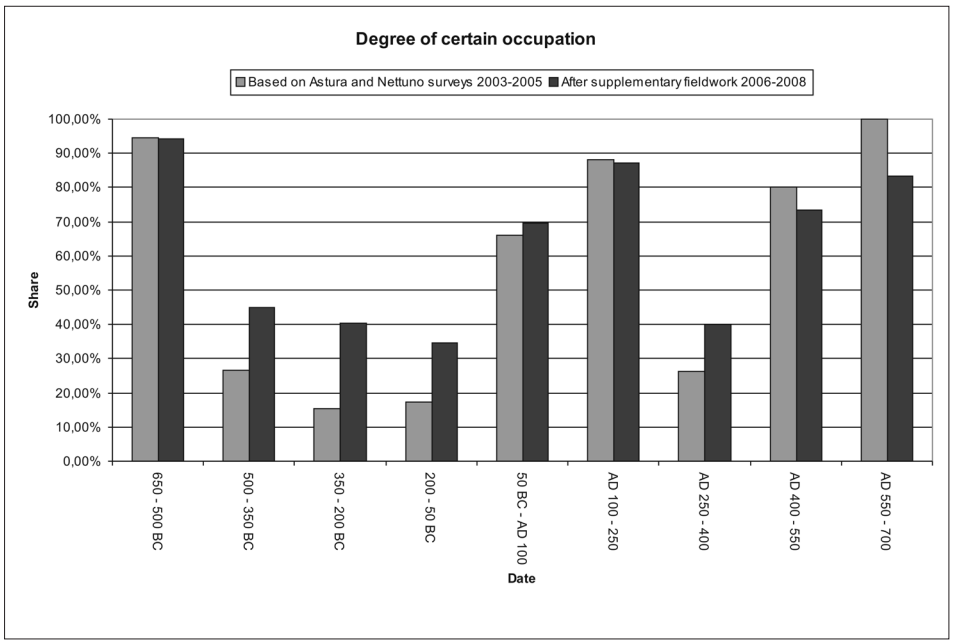


Figure 7.2 Degree of certain occupation before and after the four case studies.

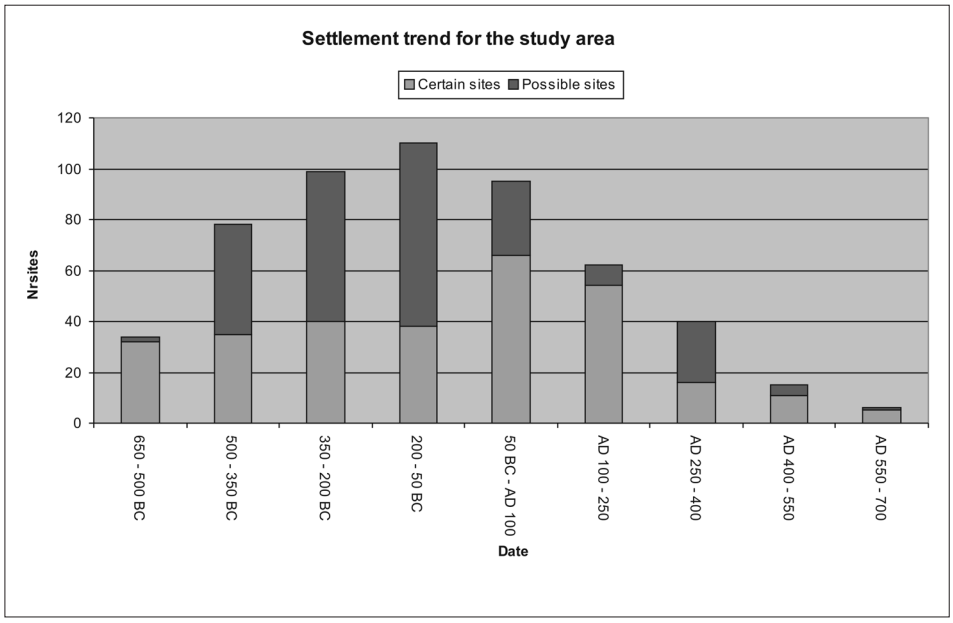
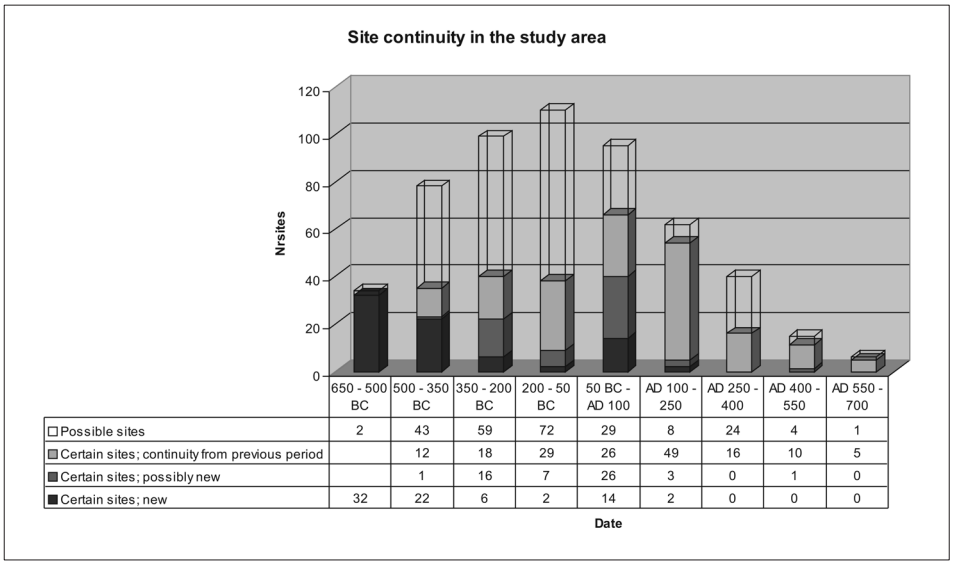


Figure 7.3 Settlement trend for the study area after the four case studies.



	650 - 500 BC	500 - 350 BC	350 - 200 BC	200 - 50 BC	50 BC - AD 100	AD 100 - 250	AD 250 - 400	AD 400 - 550	AD 550 - 700
Possible sites	2	43	59	72	29	8	24	4	1
Certain sites; continuity from previous period		12	18	29	26	49	16	10	5
Certain sites; possibly new		1	16	7	26	3	0	1	0
Certain sites; new	32	22	6	2	14	2	0	0	0

Figure 7.4 Site continuity for the study area after the four case studies.

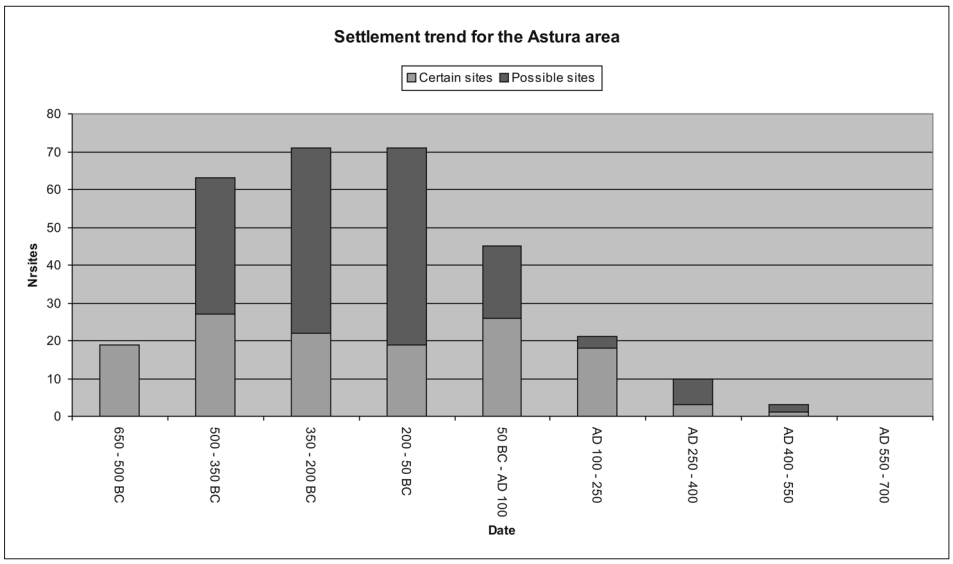


Figure 7.5a Settlement trend for the Astura area after the four case studies.

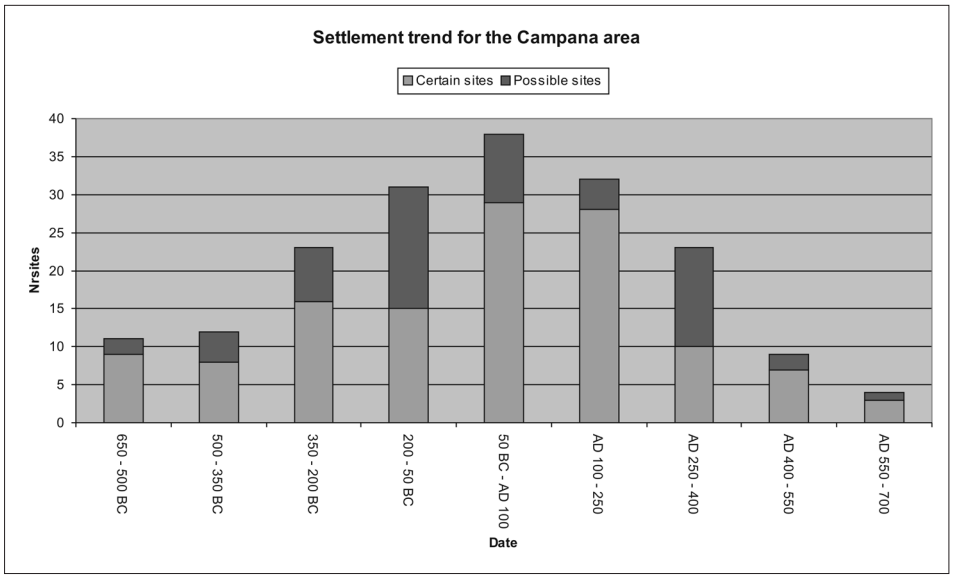


Figure 7.5b Settlement trend for the Campana area after the four case studies.

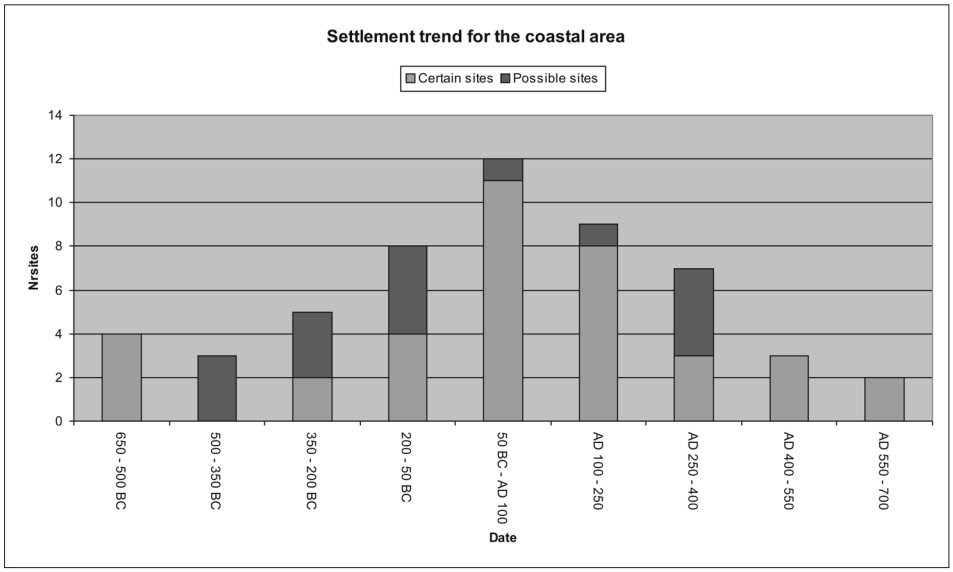


Figure 7.5c Settlement trend for the coastal area after the four case studies.

see table 3.3), whereas our knowledge of settlement in the mid-Republican and late Imperial period was above all improved by the systematic revisits and the study of the museum collection (see tables 3.3 & 4.1).

For all other periods a relatively high level of certain occupation is maintained after the supplementary revisits. Ironically, the slightly lower degree of certain occupation noted for the Late Antique and Early Medieval period is the consequence of better knowledge of the materials circulating in our study area based on the excavations at *Astura* (chapter 6).[500] The long date ranges of these fragments do not allow attributing them with certainty to a single period.

7.2 Settlement history between the Archaic (650 – 500 BC) and the early Medieval period (AD 550 – 700)

This section presents a diachronic overview of the settlement history for the study area, based on an integration of previous acquired data from GIA-surveys and the four case studies presented in this thesis, elaborating on this previous research. The discussion of each period comprises the following elements:

- An introduction providing a frame of reference for the rural settlement data (relevant historical events, developments in the major settlements *Antium* and *Satricum*, infrastructural works);
- *The settlement evidence*: including a presentation of the aggregate data (fig. 7.3 shows the number of certain and uncertain sites; fig. 7.4 depicts the degree of site continuity) as well as any relevant spatial differentiation (figs. 7.5a-c);
- *The material evidence*;
- *Concluding remarks.*

The Archaic period (650 – 500 BC; fig. 7.6)

In the Archaic period, both *Satricum* and *Antium* are thought to have developed into proper urban centres. However, the available archaeological evidence for the two towns varies considerably. At *Satricum*, owing to more than 30 years of continuous archaeological research by Dutch universities, many of the 'urban' features have been mapped, including the first monumental temple and a defensive *agger*.[501] Although a defensive wall-and-ditch system is known at *Antium* as well, until now no substantial remains of the Archaic town have been uncovered within it. Its status as one of the major Latin towns of this period is, however, amply attested by the ancient sources.[502] A road system, connecting the principal urban centres of this period, is thought to have developed.[503]

The settlement evidence

The results of survey projects in Tyrrhenian central Italy invariably attest to an expansion in rural settlement in this period. This is often explained as the result of strong demographic growth. The same phenomenon has been noted throughout the Pontine Region, although recent advances in the knowledge of the ceramics of this period suggests that – at least in some areas – the number of Archaic sites recorded by the PRP has probably been overestimated in the past.[504] But, even taking this overestimation into account, the period still attests to considerable rural infill compared to the last phase of the Iron Age.[505]

In the Archaic period, an expansion in rural settlement is noted in both the territories of *Antium* and *Satricum*. Most Archaic sites, both in the Astura and the Campana area, consist of small scatters of tile, sometimes in association with coarse ware pottery and fragments of *bucchero*. Our knowledge of dispersed Archaic rural settlement is admittedly rather poor, in the absence of many excavated examples. However, we should probably envisage such sites as even smaller than the structure excavated at *Podere Tartuchino*.[506]

Although such small sites form the largest part of the Archaic sites recorded, other types of settlement existed as well. In the area of Castelverde, just south of *Satricum*, a spread of Archaic tile and ceramics comprising an area of approximately 1.5 ha was interpreted as the remains of a hamlet.[507] On site 11330, visited during the systematic revisits (chapter 3), two circular features were found containing fragments of Archaic tile and dolia, as well as possible remnants of a pit lining. Although further research on this site is certainly necessary, it is tentatively interpreted as a rural pottery workshop.[508] Several *bucchero* fragments in the collection of the *antiquarium di Nettuno* from site 15262, point to the presence of either a votive context or graves.

An impressive Archaic site is *Depuratore* (site 15125), situated directly on the coast between Nettuno and

500 Since few early Medieval sites were found overall, finding an additional 'uncertain' site has a relatively strong impact on the recorded degree of certain occupation.

501 For a more detailed description of the archaeological remains of *Satricum* see chapter 1.

502 For a more detailed description of the archaeological remains of *Antium* see chapter 1.

503 Maaskant-Kleibrink 1987, 12, fig. 6.

504 Attema, de Haas & Tol 2011, 81.

505 For a discussion of Iron Age occupation in the study area see Attema, de Haas & Tol 2011, chapter 7.

506 Perkins & Attolini 1992.

507 This site is described in more detail in Attema *et al.* 2008, 432-433.

508 This site is also discussed in Tol & de Haas forthcoming.

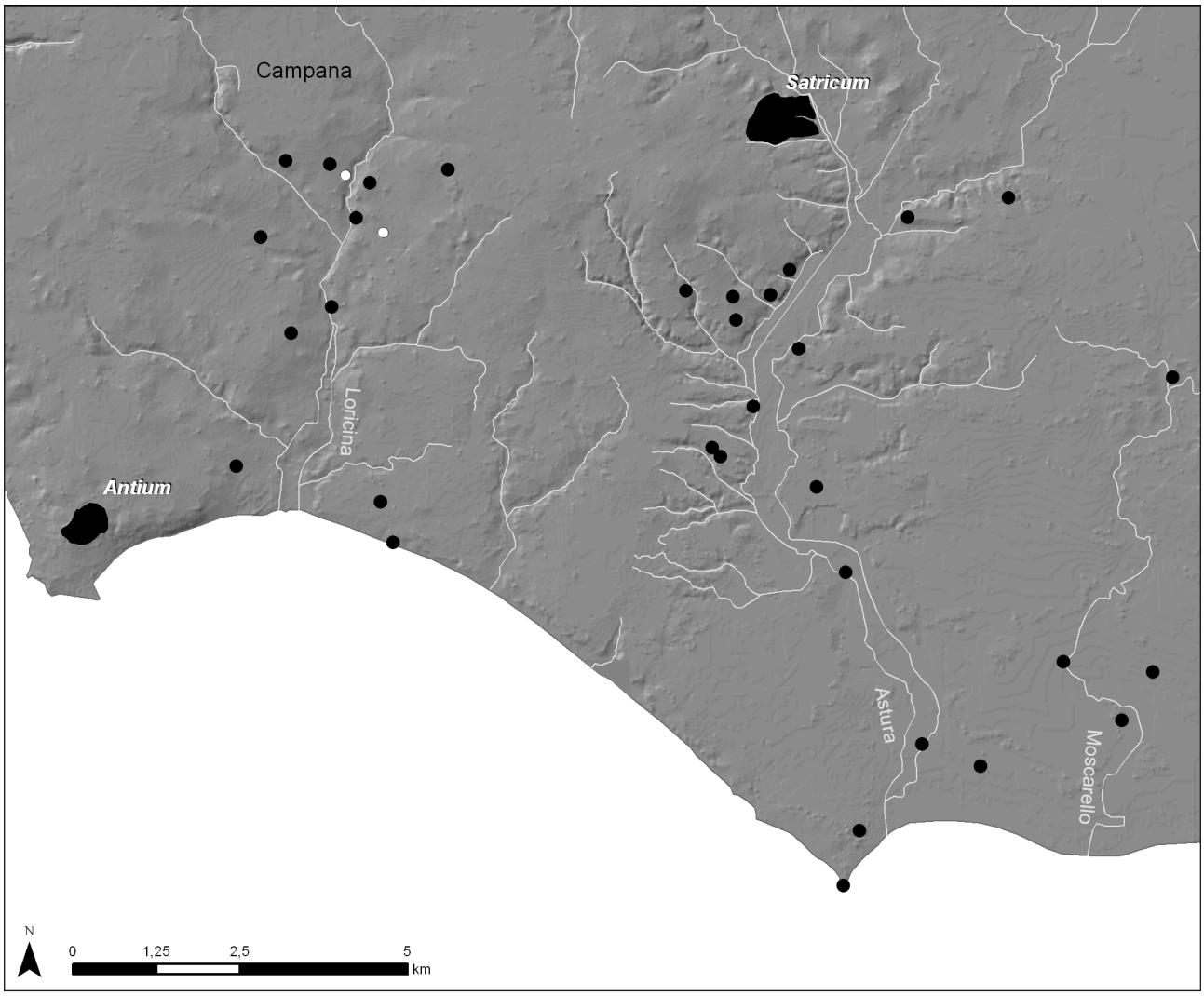


Figure 7.6 Distribution of Archaic (650 – 500 BC) sites (black dots: certain sites; white dots: uncertain sites).

Torre Astura.[509] In 2002 the GIA recorded a section of more than 100 meters, containing materials that can be dated between the Late Iron Age (8th century) and the Archaic period. The assemblage consists exclusively of crudely made dolia, jars and basins. Based on the assemblage, the frequent finding of tuff fragments and discolorations on the bases of the recovered fragments, the practice of salt extraction has been hypothesized for this site.[510] If site 15125 was a salt extraction site, it would certainly have been controlled from a nearby settlement, possibly located somewhat more inland.[511]

An *emporion* of Archaic (and even earlier date) is suggested near the mouth of the Astura river by many scholars. Here, cargo was supposedly transferred onto smaller boats that could navigate the river and provide *Satricum* with goods. Although the Astura river must have been an important connection between the coast and inland areas, recent investigations in this area have failed to produce substantial evidence for such a settlement. Only a handful of fragments of Archaic date, both from the area of the Torre Astura villa (site 11202; see chapters 3 and 4) and that of the *Astura* settlement (site 11201; see chapter 6), have been recorded so far. At present, these sparse fragments can only be viewed as an indication of occasional frequentation of this location.

509 For the site of Depuratore see Cardarelli *et al.* 1980, 103, no.322 and Attema, de Haas & Nijboer 2003. Selections of finds from this site have been published in Alessandri & Tol 2007; Alessandri 2009, 241-243 and Attema, de Haas & Tol 2011, 138-139. A full publication of the GIA investigations at this site is foreseen (Tol *et al.* forthcoming).

510 The same activity has been attested on a nearby site, dating to the Late Bronze Age (Attema, de Haas & Nijboer 2003; Nijboer, Attema & van Oortmerssen 2006; Alessandri 2009, 243-245).

511 Lane & Morris (2001, 385-388) suggest that salt extraction sites were controlled from a permanent settlement that was normally located within a 2km radius.

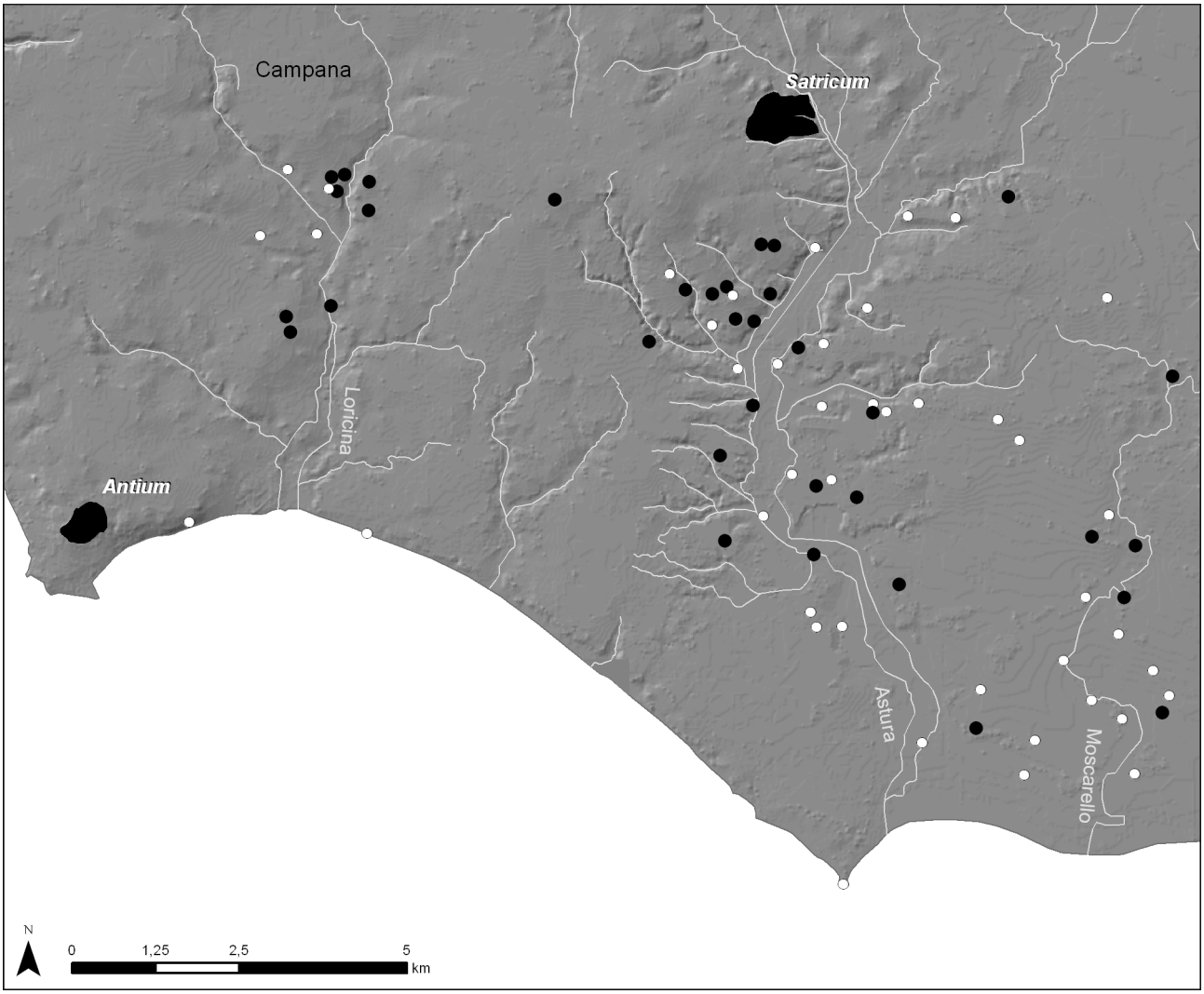


Figure 7.7 Distribution of post-Archaic (500 – 350 BC) sites (black dots: certain sites; white dots: uncertain sites).

The material evidence

On most Archaic sites the material evidence for occupation is rather restricted. The frequent finding of tiles is indicative for permanent structures, although the occasional presence of hut loam suggests that these were still partly erected in perishable materials. On some sites, the material assemblage also included coarse pottery, whereas ten sites yielded fragments of *bucchero*. The available evidence suggests that the amount of pottery consumed per site was rather low in this period; this is corroborated by the few diagnostic 'Archaic' pottery shapes recorded in the Astura and Nettuno surveys. This relatively modest level of pottery consumption per site finds clear analogies in other areas of Tyrrhenian central Italy.[512]

Both the tiles and the coarse ware pottery must have been produced locally. Pottery production, at least in this period, has traditionally been considered an urban activity and indeed a kiln for the production of Archaic coarse pottery, along with roof tiles, has been identified at *Satricum*.[513] However, if site 11330 represents the remains of a pottery workshop, this suggests that part of the production took place in rural areas as well.

As mentioned before, fragments of *bucchero* were recorded on ten sites in our study area. The production of this ware at *Satricum* has been hypothesized, but is until now not substantiated by archaeological evidence.[514] However, the relatively frequent occurrence of the ware on small sites in both the Astura and Campana area indicates that it must have been rather easily accessible. Whether produced locally or imported from elsewhere, the (re-) distribution of the ware most

512 See for example Capanna & Carafa 2009, 37, fig. 11.

513 Nijboer 1998, 121-129.

514 The local production at *Satricum* of thin-walled *impasto* pottery (Beijer 1991) and by extension *bucchero* (Gran-Aymerich 1993) has been proposed based on the finding of some thin-walled fragments among the wasters from the 7th-century BC kiln on the acropolis.

likely took place at the major sites in our study area, *Satricum* and *Antium*.

Concluding remarks
In this period the territories around the urban centres of *Antium* and *Satricum* show a clear increase in the number of rural sites. This process of rural infill is further evidence of the development of these two sites into proper urban centres. These rural sites are predominantly to be interpreted as modest structures; the identification of a supposed hamlet at Castelverde, however, indicates that some degree of site differentiation existed. The large temple at *Satricum* and the (although admittedly small numbers of) votive pottery uncovered at *Antium* indicate that both towns functioned as religious centres. Although both sites must have constituted the principal *loci* for craft production and the (re)distribution of goods, the identification of two industrial sites (15125 and 11330) indicates that specialized craft activities did take place in rural areas as well. Based on the available evidence the relationship between town and countryside seems to have been tight in this period.

The post-Archaic period (500 – 350 BC; fig. 7.7)

The two urban centres in the study area, *Antium* and *Satricum*, both underwent significant changes in this period. At *Antium*, the defensive wall around the acropolis was reinforced and possibly extended towards the sea; evidence for occupation is, however, scarce and limited to some vague reports of votive finds and chamber tombs.[515] In contrast, the large-scale excavations at *Satricum* make it one of the best documented central Italian towns of this period.

The town kept its role as a religious centre, as can be inferred from the presence of two votive deposits.[516] Although there is at present no *in situ* evidence for habitation, the continuity of funerary activity (as is evidenced by at least three burial grounds), restorations to a road in the lower part of the town and secondary depositions of habitation material are clear evidence for the continuity of the settlement.[517] However, it is likely that the settlement had become split up in several smaller nuclei.[518]

Historically, this period is characterized by repeated skirmishes over control of the area between Rome and the Volscians. Within this framework, we must envisage the foundation of two, unsuccessful, colonies by Rome at both *Antium* (467 BC) and *Satricum* (385 BC).

The settlement evidence
In this period, we see an increase of rural settlement in our study area, although its exact extent is hard to establish due to the high number of uncertain sites.[519] Of the certain sites, little over a third shows continuity from the previous Archaic period, whereas little under two thirds is newly founded. The distribution of sites over the study area shows a strong rural infill in the Astura area, where more than 80% of all recorded sites attest to a (certain or uncertain) post-Archaic phase. In the Campana area there is a slight increase in the number of settlements recorded (although consisting of more uncertain sites compared to the previous period), whereas in the coastal area only few sites are identified.

We possess little information on the nature of these post-Archaic sites and, in contrast with the previous period, there is little evidence for settlement differentiation. There is, however, evidence for some form of clustering of rural sites. One such cluster can be identified in the *Campana* area, where at least five sites are situated at close proximity. Another cluster can be found just south of *Satricum*, in the area of *Quarto delle Cinfonare*. Here, at least seven sites located within 1km of each other yielded fragments of post-Archaic tile. On three of these sites (11297, 11298 and 15152) tile wasters were recovered, whereas one of them (site 15152) yielded a misfired loomweight (in *impasto chiaro sabbioso*) as well. A similar situation of different settlement *nuclei* can be hypothesized in the former settlement area of *Satricum*, whereas another small hamlet was identified north of *Satricum*, during previous GIA-surveys.[520]

On the other hand, isolated post-Archaic sites also appear. One such site, 15106, was studied in detail during the intensive on-site surveys (see chapter 5) and provides us with an idea of how we should envisage such a settlement. Amidst a large quantity of mid-Republican pottery, small quantities of post-Archaic tile and pottery (mainly mortars/basins) suggest the presence of a small structure in this period.

The material evidence
Occupation of this period is in almost all cases ascertained by the find of yellow- and white-firing tile fragments containing much augite particles (*impasto chiaro sabbioso*). Pottery shapes that are indicative

515 Brandizzi-Vittucci 2000, 83.

516 Bouma 1996; Ginge 1996, 94.

517 For the southwest necropolis see Gnade 2002; for the graves within the former acropolis area Gnade 2007a. For the burial ground in the *Poggio dei Cavalleri* area and the post-Archaic road see Gnade 2004, 2006, 2007b, 2009 and 2010.

518 Maaskant-Kleibrink 1987; Gnade 2007a.

519 However, as noted before, the actual number of sites is unlikely to be much larger than the number of 'certain' sites recorded for this period, as the pottery shapes that are indicative for 'uncertain' activity are, on most sites, found in association with Graeco-Italic amphorae and 3rd century BC black glazed ware.

520 See Drost 1997, as well as De Haas 2011, chapter 3.

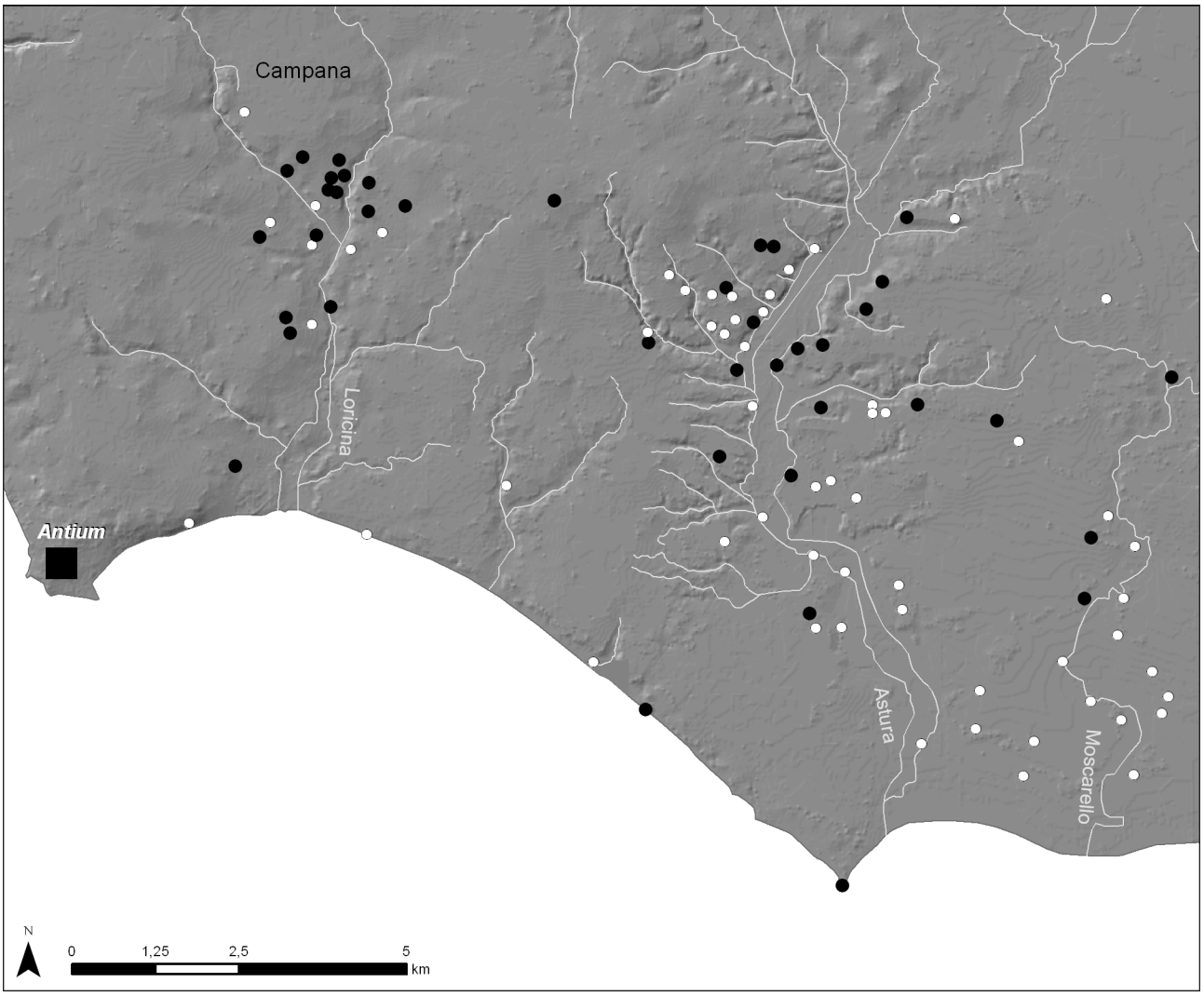


Figure 7.8 Distribution of mid-Republican (350 – 200 BC) sites (black dots: certain sites; white dots: uncertain sites).

for post-Archaic activity only are rare, whereas distinctive fine wares are restricted to votive and funerary contexts.[521] The production of post-Archaic tile is attested at *Satricum*, whereas production of tiles (and loomweights) is evidenced in the area of Quarto delle Cinfonare as well. The frequent occurrence of similar tiles and loomweights on sites in the Astura area suggests that these were primarily distributed locally.

Concluding remarks

Almost invariably, previous surveys of the Pontine Region Project recorded either a partial or a more substantial abandonment of the countryside in the post-Archaic period, indicative for a period of crisis.[522] Based on a recent increase in the knowledge of the material culture of this period (mainly tile fabrics) this picture must now be somewhat adjusted. The number of rural sites appears to remain rather stable or even increases (although to an unknown extent). On few of these sites, however, distinctive post-Archaic pottery shapes were found and the overall level of pottery consumption appears to be rather low.

In this period, the town of *Satricum* appears to contract, whereas at *Antium* the defensive *aggere* was possibly extended. At the same time, there are clear signs of a socio-economic transformation of the countryside. Sites cluster to form hamlets, one of which yielded evidence for the production of tiles and loomweights. The combined evidence points to a period of economic

521 The post-Archaic graves in the *Poggio dei Cavallari* area at *Satricum*, for example, yield distinctive black glazed ware shapes and amphorae (Gnade 2006, 2007b, 2009 and 2010). The general lack of diagnostic pottery and the fact that distinctive fine wares only occur in graves and votive contexts is mirrored by the results of the Tiber Valley Project (Patterson, di Giuseppe & Witcher 2004).

522 See for example Van Leusen *et al.* 2004; Attema & de Haas 2005. The period is mentioned as one of the 'periods of crisis' in the Tiber Valley area (Patterson, di Giuseppe & Witcher 2004).

stagnation and material impoverishment, during which the ties between the towns of *Antium* and *Satricum* and their territories loosened.

The mid-Republican period (350 – 200 BC; fig. 7.8)

After deciding the long-lasting scuffles with the Volscians in their favour, Roman rule was established over large parts of the Pontine Region in the course of the 4th century BC. Both the historical and archaeological sources indicate that the two urban centres, *Antium* and *Satricum*, met different fates in this period. At *Antium*, one of the principal strongholds of the Volscians, a Roman colony was founded in 338 BC. Although evidence for habitation of this period is lacking, several votive and funerary contexts provide firm archaeological evidence for the foundation of the colony.[523] On the other hand, evidence for mid-Republican activity at *Satricum* is scarce and predominantly related to the temple, whereas after the mid-4th century BC, the town is only incidentally referred to in the ancient sources.[524]

The settlement evidence

An overall increase in the number of certain and uncertain sites is recorded for this period. The scale of this increase in rural occupation is hard to establish due to the high number of uncertain sites; however, the pottery evidence suggests that it may have been considerable.[525] Of the certain sites, only a handful constitute new foundations; most of the sites show (possible) continuity from the post-Archaic period. The increase in certain sites is mainly accounted for by the Campana area, north of *Antium*. The linear alignment of sites in this area suggests an earlier phase of the paved road that in later phases connected the town of *Antium* with the *via Appia*. In the Astura area the overall number of sites increases slightly, but the degree of certain occupation is somewhat lower than in the previous post-Archaic period. Along the coast there is evidence for activity on at least two, and possibly more, sites that in later periods develop into large coastal villae.

Although many of these mid-Republican sites again yielded small samples revealing little on their function and appearance, additional evidence is provided by the revisits and intensive on-site surveys performed for this thesis. Both in the Astura area (e.g. 11316, 11318, and 11323) and in the Campana area (e.g. 15036, 15106, and 15150) large sites dating to this period (measuring up to 5000m²) were recorded. These all yielded roughly comparable material samples, comprising amphorae, utilitarian pottery, dolia and fine wares. One of these sites (15106), studied during an intensive on-site survey, revealed the presence of a *villa rustica*, consisting of a residential structure and a separate 'industrial' building. Furthermore, around the middle of the 3rd century BC, the site appeared to be involved in the production of black glazed ware. Based on the recorded finds, all of these larger sites continued to exist until the mid-Imperial period.

Both in the Astura area (e.g. 11317) and in the Campana area (e.g. 15034, 15068) sites of smaller dimensions were found as well. Based on the collected fragments, these have a much shorter life-span. Again, one of these sites (15034) was studied in detail during an intensive on-site survey. This revealed the presence of a roofed structure measuring approximately 250m². Based on the materials collected, the site can be dated between the early 3rd century BC and the second quarter of the 2nd century BC. The varied nature of the assemblage identifies it as a habitation site.

The material evidence

Although still many 'uncertain' sites are documented for the mid-Republican period, several sites did yield substantial and varied assemblages. These often consist of a number of shapes of utilitarian (*teglie*, jars, mortars/basins, *tegami*) and fine ware pottery (black glazed ware). The earliest fragments of black glazed ware on rural sites date in the later 4th century BC, and the consumption of this ware reaches a peak in the course of the 3rd century BC. On site 15106, located just north of *Antium*, evidence was found for the production of 3rd century BC black glazed ware of the Etrusco-Latial tradition. The town of *Antium* is likely to have functioned both as a consumer market and as a centre of redistribution for its products. The characteristic plain bowls and stamped bases belonging to the *Gruppo dei Piccoli Stampigli* are found throughout the study area, indicating the degree of participation of these rural sites in wider networks of exchange. Relatively few mid-Republican amphorae were identified, a phenomenon that appears to be typical for (other parts of) the *Suburbium* as well.[526] Volpe sees this as a heavy reliance on locally made wines that were transported in other sorts of containers.[527] There is, however, some evidence for the importation of wine from Campania and North-Africa.

523 For an overview of mid-Republican votive contexts at *Antium* see Jaia 2004, for funerary evidence of the same period see Morpurgo 1944-45 (with later additions by Di Renzoni & Schiapelli 2007) and Brandizzi-Vittucci 2000, 81-83.

524 Three different votive deposits remained in use during this period; see Bouma 1996; Ginge 1996; Heldring 2007.

525 On many sites undiagnostic black glazed ware fragments were collected. Since among the diagnostic fragments mid-Republican shapes are dominant, most of these undiagnostic fragments probably belong to mid-Republican shapes as well.

526 See for example Volpe 2009 and Olcese 2009, 146.

527 The same is suggested by Purcell (1995).

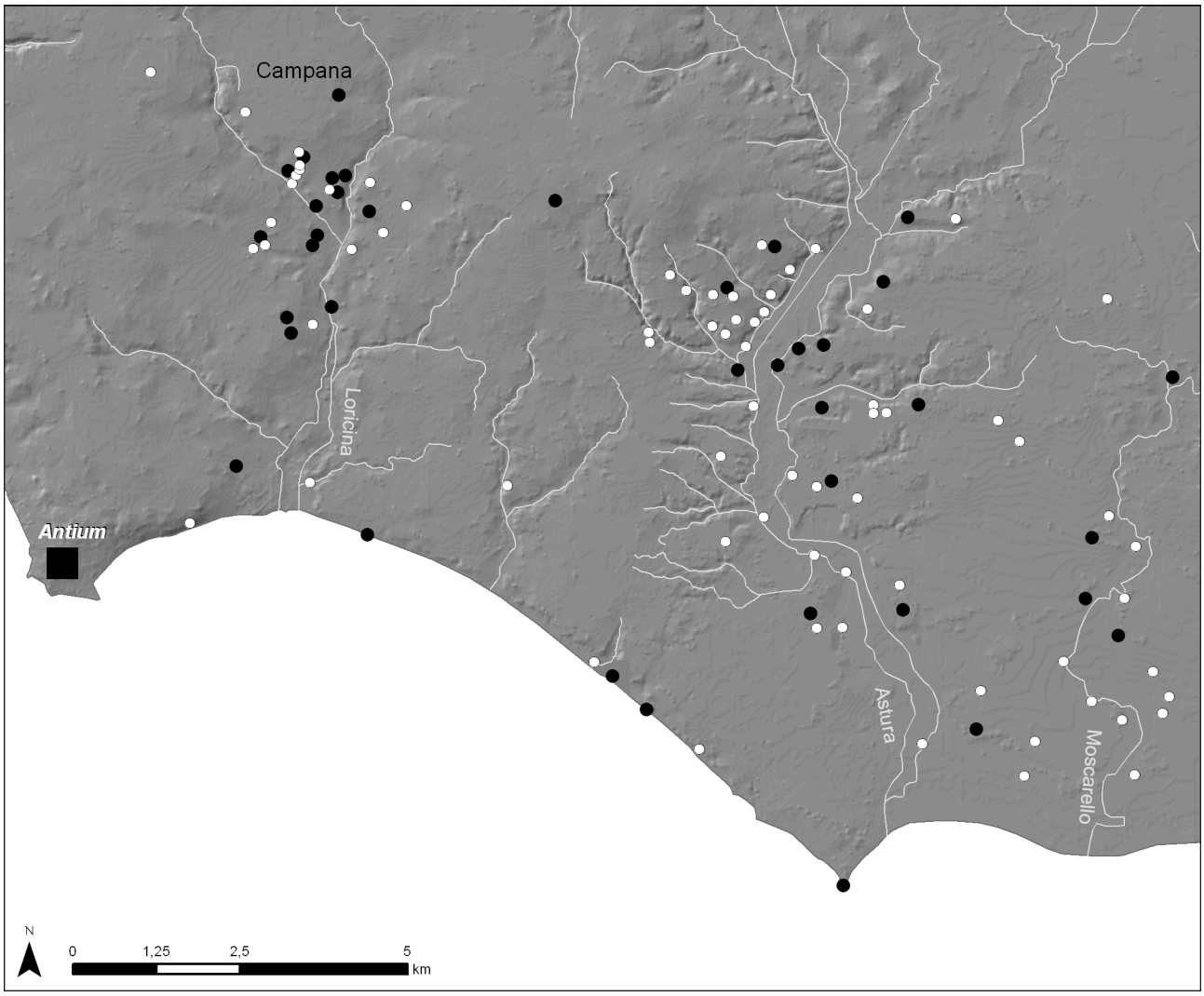


Figure 7.9 Distribution of late Republican (200 – 50 BC) sites (black dots: certain sites; white dots: uncertain sites).

Concluding remarks

Although both archaeological and historical sources indicate that the urban centres of *Antium* and *Satricum* suffered different fates in this period, their respective hinterlands both exhibit a further rural infill, whereby many sites show continuity from the preceding post-Archaic period. In the Campana area, the linear alignment of a number of sites suggests the presence of an early road, furnishing a direct connection to *Antium*. Both in the Astura and in the Campana area a certain degree of site differentiation exists. Several sites yielded substantial material samples dating to this period. These show a dependence on regionally produced utilitarian and fine ware pottery, supplemented by small numbers of imported amphorae. On one site, the production of black glazed ware was attested. The common access to these fine wares indicates that many sites participated in wider networks of exchange.

The late Republican period (200 – 50 BC; fig. 7.9)

Documentation on late Republican *Antium* is rather fragmentary. The centre of settlement shifted towards the coast and the finding of a calendar and *fasti* are evidence for the presence of public buildings in this area. There is also evidence for the continued use of a number of votive deposits and one burial ground. Furthermore, in this period at least four *villae maritimae* were constructed along *Antium*'s coast. The former town of *Satricum* appears to be almost completely abandoned, although in some isolated spots 2nd-century BC materials are reported.[528]

528 These include a building of Archaic origin on the acropolis that shows continuity into the 2nd century BC (Louwaard 2007, 75-77). Furthermore, one of the votive deposits contains 2nd century materials (Ginge 1996), whereas near the former *aggere* a stratum containing 3rd- and 2nd-century BC materials was found.

The settlement evidence

The archaeological data for rural settlement is hard to interpret for the late Republican period. Although the overall number of sites increases compared to the preceding period, this is caused exclusively by the uncertain sites. If, as is suggested above, the majority of the undiagnostic black glazed ware fragments is of mid-Republican and not of late Republican date, this period could actually see a rather substantial decrease in settlement.[529] The lion's share of the late Republican sites shows continuity from the preceding period; only two sites are newly founded.

Settlement in both the Astura and the Campana area is characterized by a large degree of stability. Site 15106, studied in the course of the intensive on-site surveys, is one of the many sites that continues to exist. Although the production of pottery on this site was confined to the mid-Republican period, the residential part continued to be inhabited. The excavation of a small farmhouse on the acropolis of *Satricum* (see chapter 1) provides us with an idea of the lay-out of such a structure. The farmhouse has a simple rectangular ground plan with a central courtyard, covering 130m^2. One of the few inland sites that was (possibly) newly founded in this period is 15116, interpreted as a necropolis based on the conspicuous large share of fine ware fragments among the collected materials.[530] Activity in the coastal area is of a more dynamic nature. There is an increase in both the overall number of sites and the degree of certain occupation, whilst there is evidence for late Republican occupation on several of the later *villae maritimae*. At one of these complexes, the villa of *Le Grottacce* (site 11215; see chapter 1), the production of amphorae and tiles is attested in this period.[531] The conspicuous quantity of similar amphorae from the site of *Cretarossa* (site 15059), suggests the existence of another workshop. The existence of close economic ties between the coastal area and sites along the Astura river is suggested by the frequent occurrence of amphora fragments of the same fabric in the latter area.

The material evidence

As in the previous period, a high number of uncertain sites is recorded. The main cause is the almost complete absence of distinctive fine wares for this period circulating in our study area. When black glazed ware of the *Gruppo dei Piccoli Stampigli* was no longer produced, it was apparently not replaced to the same extent by its Campanian successors (mainly Campana A and B).[532] Despite this decrease in the amount of fine ware pottery recorded, there is a slight increase in overall pottery consumption (see fig. 3.14). This is mainly caused by a marked rise in the supply of imported amphorae, reaching a peak in the first half of the first century BC. The most common types are Graeco-Italic and Dressel 1 amphorae, wine containers of predominantly Campanian origin (characterized by their black sand fabric). However, smaller amounts of North-African wine amphorae are also attested on a number of sites.[533] When accepting that the lack of amphorae in the mid-Republican period was indicative for the local production and transportation of wine, the large-scale importation of these vessels in the late Republican period perhaps indicates the opposite. However, the production of amphorae at Le Grottacce, and the frequent occurrence of these amphorae on sites along the Astura river suggests a certain persistence in the local production of wine (and perhaps olive oil).[534] Utilitarian pottery is, as in the previous period, characterized by a wide variety of regionally produced shapes.

Concluding remarks

Settlement in both the Astura and the Campana area is characterized by a large degree of continuity. With the definitive abandonment of *Satricum*, both areas must have fallen in the territory of *Antium*. In the direct surroundings of the town, as well as along the coast between Nettuno and Torre Astura, several large *villae maritimae* were built. One of these sites, the villa at Le Grottacce, yielded evidence for the production of amphorae and tiles. Based on the distribution of amphorae produced here, a close tie between this site and settlements in the Astura area is suggested. Notwithstanding the large degree of site continuity, several changes in the consumption of pottery are apparent. In this period, access to fine ware pottery is limited to only a handful of sites. Simultaneously, a substantial increase in the number of imported wine amphorae throughout the study area indicates the participation in trade networks.

529 In the Tiber Valley Project, the period between the mid 3rd- and mid-2nd century indeed is identified as a period of contraction of rural settlement; see Patterson, di Giuseppe & Witcher 2004; Di Giuseppe & Patterson 2009.

530 For a more detailed discussion of this site see Attema *et al.* 2008, 496.

531 This production comprises Graeco-Italic and Dressel 1A amphorae, as well as a local cylindrical type.

532 The same phenomenon was observed during the Tiber Valley Project (Patterson, di Giuseppe & Witcher 2004).

533 The large collection of late Republican amphorae from site 15106 confirms this overall trend. Large amounts of 3rd-century black glazed ware were found on this site, whereas late Republican fine wares were almost completely absent. The collection of amphorae, however, comprises for the largest part types of late Republican date.

534 See De Haas, Attema & Pape 2008 and De Haas, Tol & Attema 2011.

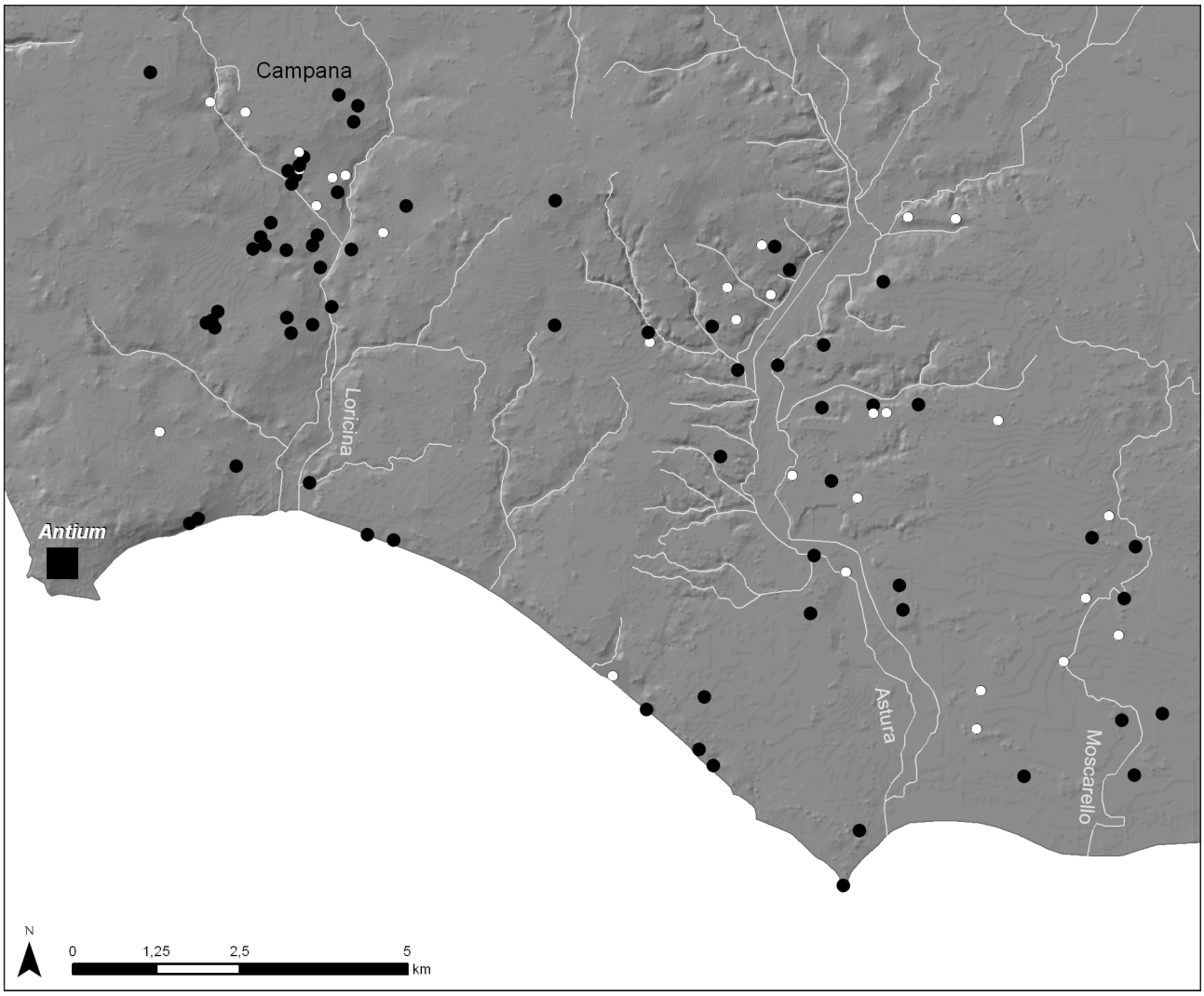


Figure 7.10 Distribution of early Imperial (50 BC – AD 100) sites (black dots: certain sites; white dots: uncertain sites).

The early Imperial period (50 BC – AD 100; fig. 7.10)

The early (and mid-) Imperial period constitutes the heyday of ancient *Antium*. At the natural promontory of the town a harbour was constructed, presumably ordered by Emperor Nero himself. Although archaeological research in the lower part of the town has been limited, at least one building here dates to the 1st century AD, whereas the presence of public buildings in this area is suggested by the finding of consular *fasti*. Around the town several of the large coastal villae were restored and/or enlarged, among which the famous *villa di Nerone*. The road connecting the town with the *via Appia* was paved in this period; at least two monumental tombs were erected along its course. The intensity of public and private building activities in and around the town is also demonstrated by the large body of inscriptions, tile stamps and stamps on *fistulae*.[535]

The settlement evidence

Although the total number of sites slightly decreases, we witness a strong increase in the number of 'certain' sites. This is mainly due to the highly visible material remains of this period. Concomitant with a large degree of site continuity from the preceding period is the foundation of at least 14 new sites. As already noted elsewhere, we observe clear spatial differentiation as well as differences in site typology in our study area.[536] The slight decrease in the overall number of recorded settlements is caused by a considerable contraction of rural settlement in the Astura area. However, several of the earlier mentioned larger sites that had their origin in the mid-Republican period, continue to exist (see above). In the Campana area, on the other hand, both an increase in the total number of sites and an increase in the number of certain sites is recorded. Along the now

535 For an overview see De Haas, Tol & Attema 2011.

536 Attema, de Haas & Tol 2010, 177, see also Attema, de Haas & Tol 2011, chapter 13.

paved road, several large sites are founded that, based on the presence of luxury architecture (the use of marble, evidence for the presence of mosaic floors and walls covered with painted plaster) were identified as proper villas. To study the nature and appearance of such complexes, one of these sites, 15085-03, was subjected to an intensive on-site survey (see chapter 5). This site, situated right next to the track of the *via Selciatella*, was constructed shortly after the mid-1st century AD. A large rectangular building (at least 400m²) forms the centre of the site, that is, however, likely to have comprised other structures as well. Furthermore, the site suggests various phases of restructuring of its lay-out. The surface of a second, nearby site (site 15085-04) was intensively studied as well. It yielded evidence for the presence of a small, but elaborately decorated building that originates in the last quarter of the 1st century AD and was identified as a rural shrine/chapel. Furthermore, also less elaborate sites, such as site 15106, continue to exist in the Campana area.

The number of recorded sites along the coast also increases. At least two other coastal villae were occupied in this period, whereas already existing sites were considerably enlarged and embellished. The intensity of building activity along this part of the coast is further corroborated by a collection of tile stamps from this area.[537] Many of these villae bear evidence for industrial/commercial activity in the form of fish raising.[538] The villa at Torre Astura illustrates the sometimes extreme nature of the investments made to these complexes. The villa itself was constructed on an artificial island in the second half of the 1st century BC.[539] Probably somewhere in the 1st century AD, an enormous fishpond covering 22.000m² was constructed in front of the villa and supplied with fresh water by means of an aqueduct. In the late 1st century AD (or the beginning of the 2nd century AD), the site was equipped with a small harbour.

The material evidence

A high number of easily recognizable wares date in the Early Imperial period, contributing towards the high degree of certain occupation. These include terra sigillata, *ceramica a pareti sottili* and several well-known types of amphorae and utilitarian pottery. In all three parts of the study area we witness a gradual increase in the volume of consumed pottery during the early Imperial period, although there is considerable variety between areas in assemblage composition, indicating an unequal access to specific products. In all areas, the consumption of fine wares increases from the second half of the 1st century BC onwards, reaching a stable level in the 1st century AD. Especially fragments of terra sigillata occur in relatively large quantities. The dominant vessel types (Ettlinger forms 3 and 34), as well as the array of stamps, indicate the dominance of the later Pisan over earlier Arretine products. In the Campana area the consumption of amphorae reaches an overall peak in this period, attesting the consumption of commodities (mainly wine) of different origin. For the Astura area, however, we note a strong decline in the number of amphorae during this period (relatively much stronger than the decline in the number of settlements), demonstrating that the area became progressively cut off from the supply systems of amphora-borne commodities.[540] Consumption levels of utilitarian pottery remain rather stable in all parts of the study area. Compared to the previous period, however, a much more varied repertoire of shapes is attested, most of which are thought to be of local or regional production.

Concluding remarks

In the early Imperial period the town of *Antium* flourished; there is ample evidence for the construction of both public and private buildings and a new harbour was constructed. A paved road, passing though the Campana area, connected the town to the *via Appia* and several large rural villas were constructed along its course. The importance of these infrastructural improvements is reflected by the large numbers of imported pottery found on these sites. In the coastal area there is evidence for the construction of a number of *villae maritimae* in this period, some with fishponds. In contrast, a clear contraction of settlement is recorded in the Astura valley. The limited number of amphorae consumed on the remaining sites indicates that the latter area was, at least partly, cut off from trade networks.

The mid-Imperial period (AD 100 - 250; fig. 7.11)

Antium continued to thrive during the 2nd century AD, as is attested by both public and private building activities in various parts of the town (see chapter 1).[541] Based on epigraphical evidence, it is clear that on several occasions members of the imperial court and the Roman and local elite were involved in these construction activities. After the turn of the 3rd century the available archaeological, historical and epigraphical evidence for the town rapidly declines.

537 De Haas, Tol & Attema 2011.

538 Also, one villa north of *Antium* is also associated with the extraction of sulphur (Quilici & Quilici-Gigli 1984a).

539 The area of the later villa was without a doubt already frequented in previous periods (Alessandri 2007, 106-108; see also chapter 4 of this thesis).

540 An alternative scenario is that the area, as hypothesized for the mid-Republican period as well, became self-sufficient.

541 The intensity of building activity is indicated by the many stamped tiles and *fistulae* that date in this period (De Haas, Tol & Attema 2011).

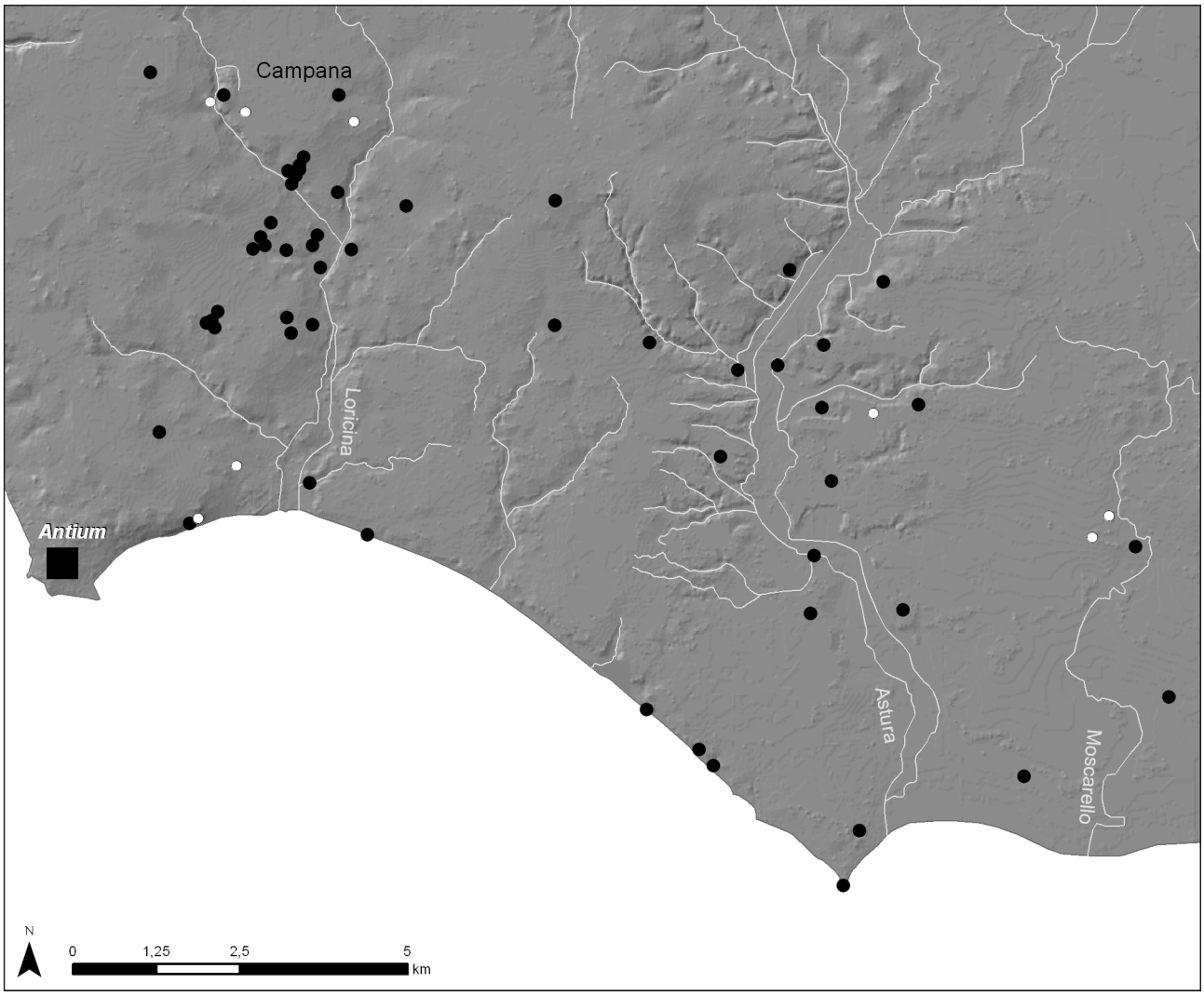


Figure 7.11 Distribution of mid-Imperial (AD 100 – 250) sites (black dots: certain sites; white dots: uncertain sites).

The settlement evidence

Figure 7.11 shows a clear reduction in the overall number of sites and a much less marked decline in the number of certain sites for this period. Only two sites are new foundations; all other sites were already inhabited in the previous early Imperial period. All three areas contribute towards the observed contraction in rural settlement, although each to a different extent. The situation in the *Campana* area is the most stable. Here, all certain sites show continuity and only the number of uncertain sites is somewhat reduced. There is, however, evidence that a number of sites were abandoned in the late 2nd or early 3rd century AD. Remarkably, this only concerns several large sites that originated in the Archaic to mid-Imperial period (15036, 15106, and 15153). The intensive on-site survey carried out on site 15106 allows us to pinpoint the moment of abandonment in the third quarter of the 2nd century AD. Based on the large assemblages of sites 15036 and 15153, these sites were abandoned in the third quarter of the 2nd and the early years of the 3rd century AD respectively.

In the Astura area, there is a further substantial contraction in rural settlement, both in the overall number of sites and in the number of certain sites. Furthermore, it is likely that the larger sites of Archaic to mid-Republican origin (e.g. sites 11312, 11316, 11318, 11323) were abandoned in the course of this period as well. Based on a close study of their respective assemblages (see fig. 3.30), it is likely that these sites ceased to exist in the third quarter (11312, 11316) or last quarter (11318, 11323) of the 2nd century AD. In the coastal area, the number of sites recorded for this period is somewhat lower as well. This mostly concerns the smaller sites; all *villae maritimae* sampled show continuity of occupation.

The material evidence

We have a wide variety of materials at our disposal for the identification of mid-Imperial occupation, comprising fine wares, utilitarian pottery and amphorae. In spite of the slight contraction in rural occupation recorded, the overall volume of pottery consumption reaches an absolute high during the mid-Imperial

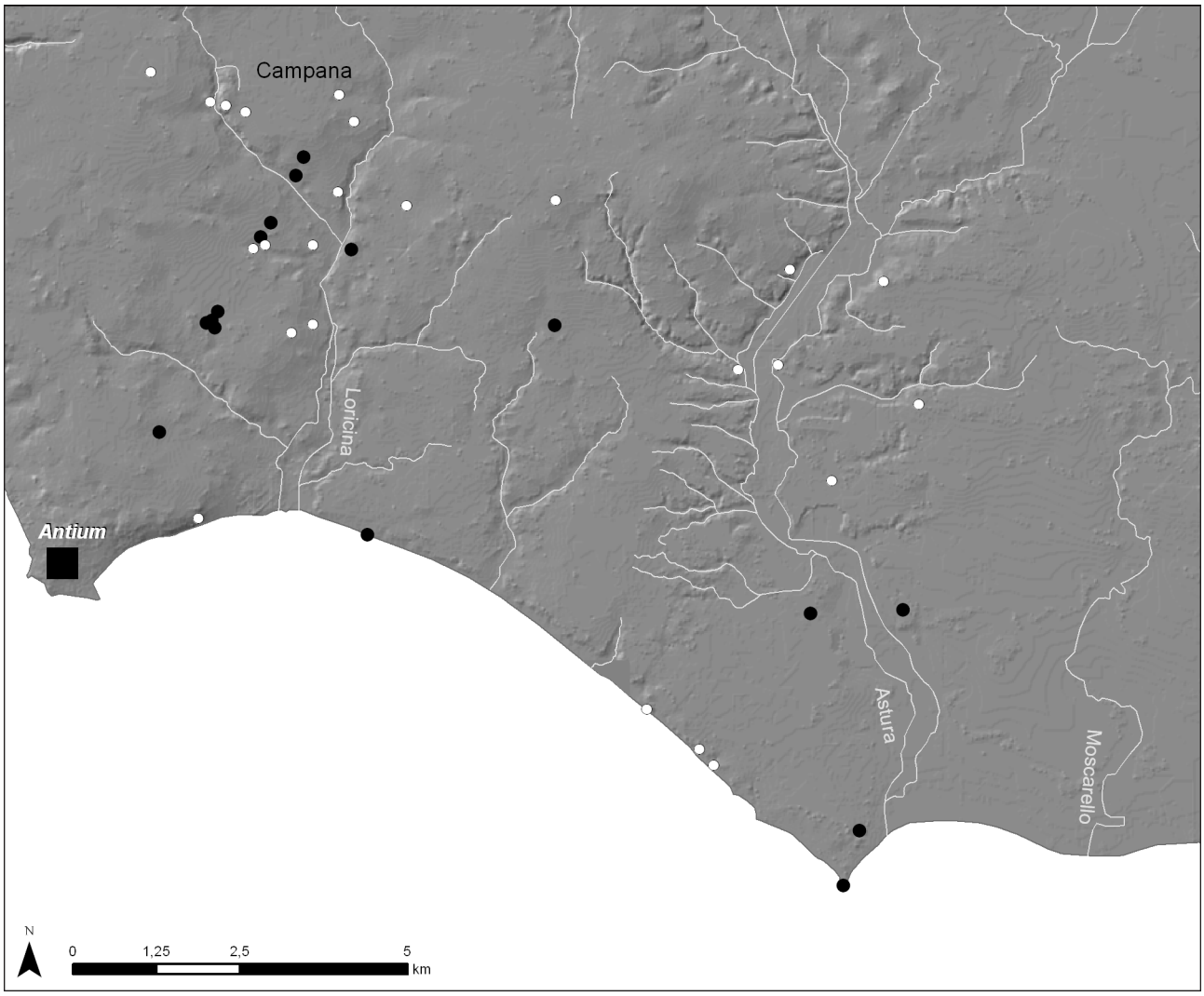


Figure 7.12 Distribution of late Imperial (AD 250 – 400) sites (black dots: certain sites; white dots: uncertain sites).

period. An ubiquitous peak in the consumption of fine wares is registered for the period between AD 100 and 250, almost exclusively accounted for by African red slip ware shapes. In both the Campana and the Astura area, the number of consumed amphorae shows a small decline at the beginning of the 2nd century AD, followed by a gradual increase resulting in a second peak in the first half of the 3rd century AD. This second peak illustrates the large-scale consumption of North-African olive oil (and possibly wine/fish-sauce). The consumption of utilitarian pottery shows a spectacular increase (for the Campana area, for example, an increase of almost 2000% is noted for the early 2nd century AD), almost exclusively caused by the massive consumption of North African casserole types and their associated lids. Easy access to these products appears to have had severe consequences for the local/regional production of utilitarian pottery.

Concluding remarks

In the first half of the 2nd century AD both the town of *Antium* and its direct surroundings continue to flourish. Several of the long-lived sites in the Campana area are, however, abandoned in the later part of the 2nd and the early 3rd century AD and the focus of settlement shifts more and more towards the area along the Roman road. Evidence for building activity in the town of *Antium* itself decreases notably after the 2nd century AD as well. In the Astura area the abandonment of sites continues, and, as in the Campana area, several of the larger long-lived sites cease to exist between the second half of the 2nd and the early 3rd century AD. Along the coast the large coastal villas continue to exist. As far as pottery is concerned, the Mid-Imperial period is characterized by the large-scale importation of pottery (fine wares, utilitarian pottery and amphorae). Although the consumption levels for sites in the Campana area are much higher, sites in the Astura valley also had continuing access to these products.

The late-Imperial period (AD 250 - 400; fig. 7.12)

In contrast with preceding periods, the evidence for Late Imperial activity at *Antium* is scarce. A single tile stamp probably dates to the 3rd century AD, and a 4th century inscription commemorates the restoration/renovation of the town's baths with state finances. Furthermore, 3rd-century tombs were found on two locations. The available evidence thus indicates that the town continued to exist, although it is probable that it decreased in size and importance.

The settlement evidence

The archaeological data for rural settlement demonstrates a marked decline in both the total number of sites and the number of certainly occupied sites. All but one of the remaining sites were already occupied in the previous period; the only new foundation is a large settlement at the mouth of the Astura river. Part of this location, tentatively identified as the settlement *Astura* that is depicted on the Peutinger map, was studied by the GIA (see chapter 6).[542] Several other coastal sites yielded evidence for continuity of occupation (sites 11202 and 15059), whereas occupation on other coastal sites is 'uncertain' in this period. Reported restorations to two other coastal villas, dated in the 4th century AD, are further evidence for the persistent vitality of settlement in the coastal area.[543] Moreover, there is evidence for the upkeep of existing, as well as the starting of new commercial initiatives. At one of the villas, restorations to the fishpond are dated to the 4th century AD, while a die in the museum collection indicates the presence of a tile workshop in the area, possibly also in connection with one of the coastal villas. The frequent attestation of another type of tile stamp, at present unknown outside our study area, suggests its local production.

In the Campana area, a large part of the pre-existing sites is abandoned; furthermore, activity on many remaining locations is uncertain. Certain sites mainly comprise the large villas situated along the *via Selciatella*. The intensive on-site survey carried out on 15085-03 gives us an idea of the nature of occupation in this period, revealing a contraction of inhabited space.[544] Site 15085-04 also remained in use during the later third and first half of the 4th century AD; the site was subsequently abandoned around the mid 4th century. In the Astura area only very few sites show continuity of occupation. Certain activity is only attested on two locations, including site 15116, interpreted as a necropolis.

The material evidence

The knowledge of the pottery wares and shapes circulating in this period has significantly been increased by the small-scale excavations at *Astura*. A rich collection of both regionally made and imported products, such as amphorae, glass, fine wares, oil lamps and utilitarian pottery was recorded for the 4th century AD. On rural sites, however, a marked decrease in the total volume of consumed pottery is evident. This decrease by far supersedes the reduction in the number of settlements, suggesting that much less pottery was consumed per site. Occupation on rural sites is indeed in most cases attested by only a handful of fragments. The intensive survey on site 15085-03 provides further evidence for the low level of pottery consumption. It was occupied uninterruptedly until the late 5th century, but yielded only 22 fragments that could be dated with certainty after AD 300. The varied and rich assemblage recorded on this site, comprising imported fine wares, amphorae and utilitarian pottery, indicates that this lower level of consumption should not necessarily be interpreted as a sign of social downturn.[545] Furthermore, it favours the continuing occupation of the structure above other 'occupational' scenarios (such as squatter occupation) or functional transformation (for example graves) of the site. On sites 15085-03 and 15085-04, as well as on 15085-02, 4th-century coins are a further indication that these sites still participated in exchange networks.

Although the level of consumed fine wares is significantly reduced, fragments of African red slip ware, because of their high chronological resolution, remain the prime indicator for certain occupation. Attested types on inland sites are normally common African red slip ware shapes (e.g. Hayes forms 50A/B and 61A); this is in contrast with the *Astura* settlement that shows a much more varied repertoire of shapes. Amphorae are attested in small numbers in the Campana area, indicating occasional consumption of commodities from North-Africa; for the Astura area no fragments date with certainty in this period. Both the Astura and the Campana area witnessed a substantial decline in the consumption of utilitarian pottery in the second half of the 3rd century and a further decrease in the first half of the next century. This phenomenon can be directly linked to a downfall in the supply of North-African cookwares.

Concluding remarks

A decline in both settlement and economy is evident for both the town of *Antium* and its surroundings. However,

542 This was already suggested by Piccarreta (1977) as well.

543 See De Haas, Tol & Attema 2011.

544 This contraction and/or reorganization of inhabited space on larger villas is a well-documented phenomenon throughout central Italy; see for example Lewitt 2003.

545 This low consumption of pottery on the 'most visible' sites suggests the widespread use of other (non-ceramic) materials. This leaves open the existence of lower rank sites that were completely dependent on such - archaeologically less visible - materials.

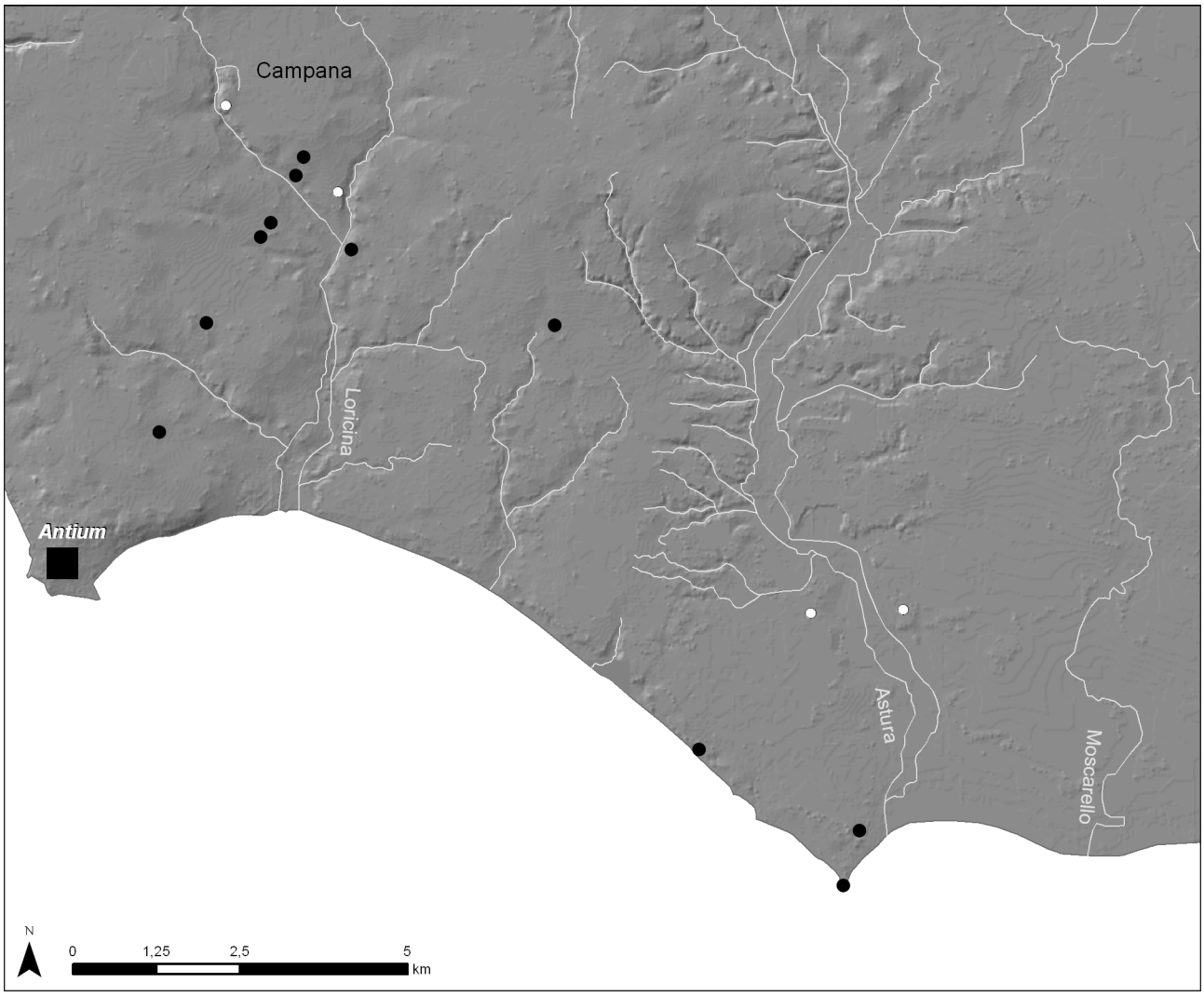


Figure 7.13 Distribution of late Antique (AD 400 – 550) sites (black dots: certain sites; white dots: uncertain sites).

the exact scale of this decline varies between the different parts of the study area. Many of the coastal villas show continuity in this period and there is evidence for restorations to existing buildings as well as new commercial initiatives. Near the mouth of the Astura river a large settlement was founded that was tentatively identified as the *statio Astura*. The Campana area witnessed a general contraction of rural settlement; however, occupation continued on several of the larger villas aligned along the Roman road. In contrast, settlement in the area of Astura is reduced to only a handful of sites.

The late Antique period (AD 400 - 550; fig. 7.13)

The identification of late Antique settlement has been problematic in the Pontine Region, fitting in nicely with the general view of this period as one of an abatement of state control, urban decline and an abandonment of the countryside.[546] Fuelled by a recent increase in knowledge of the materials circulating after the Imperial period (which was the principal aim of the investigations at *Astura*), a certain degree of site continuity into the Late Antique and Early Medieval period has, however, been documented during the more recent GIA surveys.[547]

At present there is no archaeological evidence for activity of this period at *Antium*, although historical sources mention that an Episcopal see was founded here in AD 465. The continued use of the harbour is attested in AD 537 by Prokopius. Recent research

546 For an overview see Wickham 2003.

547 See for example recent surveys within the framework of the Hidden Landscapes Project, under the direction of dr. P.M. van Leusen (Van Leusen, Tol & Anastasia 2009/2010) in the Lepini mountains; surveys in the foothills of the Lepine Mountains and the Pontine plain (De Haas 2011; De Haas, Attema & Tol forthcoming), as well as the second report of the Astura and Nettuno surveys (Attema, de Haas & Tol 2010).

on construction techniques used at the villa of Torre Astura indicates the continuous use of the site in this period.[548] Within the former settlement area of *Satricum* an Imperial villa yielded evidence for occupation up till the late 5th century AD. Three child burials date to this period.[549]

The settlement evidence

In this period we see a further contraction of rural settlement in the study area. Among the 15 recorded (certain and uncertain) sites, there are no new foundations. Although this contraction concerns all three parts of the study area, there is some degree of differentiation. The Astura area is almost completely abandoned; activity is only certain on one of the three remaining locations. In the Campana area, several of the large villas along the Roman road are still occupied, as well as a single site that is probably located along one of its branches. The on-site survey carried out on site 15085-03 suggests that it was abandoned in the early 6th century AD, although an even later date is suggested by a fragment in the museum collection. The large samples available for sites 15019, 15083 and 15111 also indicate that they were abandoned between the late 5th and early 6th century AD. This date is in line with the latest villa occupation in other parts of central Italy. Furthermore, three 'uncertain' sites are recorded in the Campana area. These sites yielded single fragments of late Antique pottery amidst an otherwise Republican/early Imperial assemblage, possibly representing squatter occupation. There is continuity of occupation on three sites in the coastal area. Two of these locations are coastal villas, the site of Saracca (site 11209) and Torre Astura (site 11202). A large material sample from the latter site further corroborates the structural evidence for this period. The third site that continues to exist is the settlement of *Astura*. With the decline of *Antium* and the contraction of rural settlement this large site probably became the most important (economic) centre of the study area. The increasing importance of nucleated coastal settlements within local settlement systems is mirrored in other parts of coastal central Italy.[550]

The material evidence

As in the previous period, certain occupation on rural sites was often identified on the basis of a small number of pottery fragments. The main source of information on the supply and distribution of pottery in our study area is provided by the *Astura* settlement. The site continues to be well-connected to Mediterranean-wide trade networks, as is evident by the many imported amphorae, fine wares and utilitarian pottery. This suggests that the harbour at Torre Astura was used as a landing stage. Although it is not unreasonable to think that the *Astura* settlement formed the prime centre of (re)distribution of outside products, many of the classes of pottery consumed on this site evidently were restricted to this part of the study area and not transported to inland sites. Taking African red slip ware as an example, the *Astura* settlement attests to the consumption of a wide variety of shapes, some of which were also identified at the Torre Astura villa. In contrast, African red slip ware fragments that were found on inland sites are restricted to small numbers of very common shapes (Hayes forms 61, 67, 91, 99). Apart from these imported products, the *Astura* settlement also provides ample information on locally or regionally produced glass and utilitarian pottery. Several of the casserole types that frequently occur at *Astura* have now been identified on inland sites as well.

Concluding remarks

Although we witness an overall contraction of settlement, several *foci* of activity persist in our study area. With the decline of *Antium*, the *Astura* settlement is likely to have developed into the principal centre of settlement and economy during this period. The many imported goods attested on this site suggest that it used the harbour at Torre Astura as a landing stage. Furthermore, several of the larger villas north of *Antium* continued to be occupied, although most of these were probably abandoned during the late 5th or early 6th century AD.

The early Medieval period (AD 550 - 700; fig. 7.14)

The period between the definitive abandonment of the Roman villas and the period of *incastellamento* has often been described as a *dark age*.[551] Recently, this dramatic view has been somewhat adjusted, mainly thanks to an increase in the knowledge of the pottery circulating in this period. In this respect, important knowledge was acquired by the excavation of key deposits of this period, such as the 7th century *esedra* at the Crypta Balbi at Rome. Indeed, archaeological and historical data for this period is extremely scanty for our study area. The complete lack of references to *Antium* for this period must be taken as an indication that the former town was deserted by now. At Torre Astura, substructures of the Medieval tower have been dated to the 6th and 7th century AD, perhaps already serving a defensive function.

548 Galeazzi 2008.

549 Raaymakers 2007.

550 Such as northern Campania (Arthur 2004) and Tuscany (Francovich & Hodges 2003).

551 See for example Patterson, di Giuseppe & Witcher 2004.

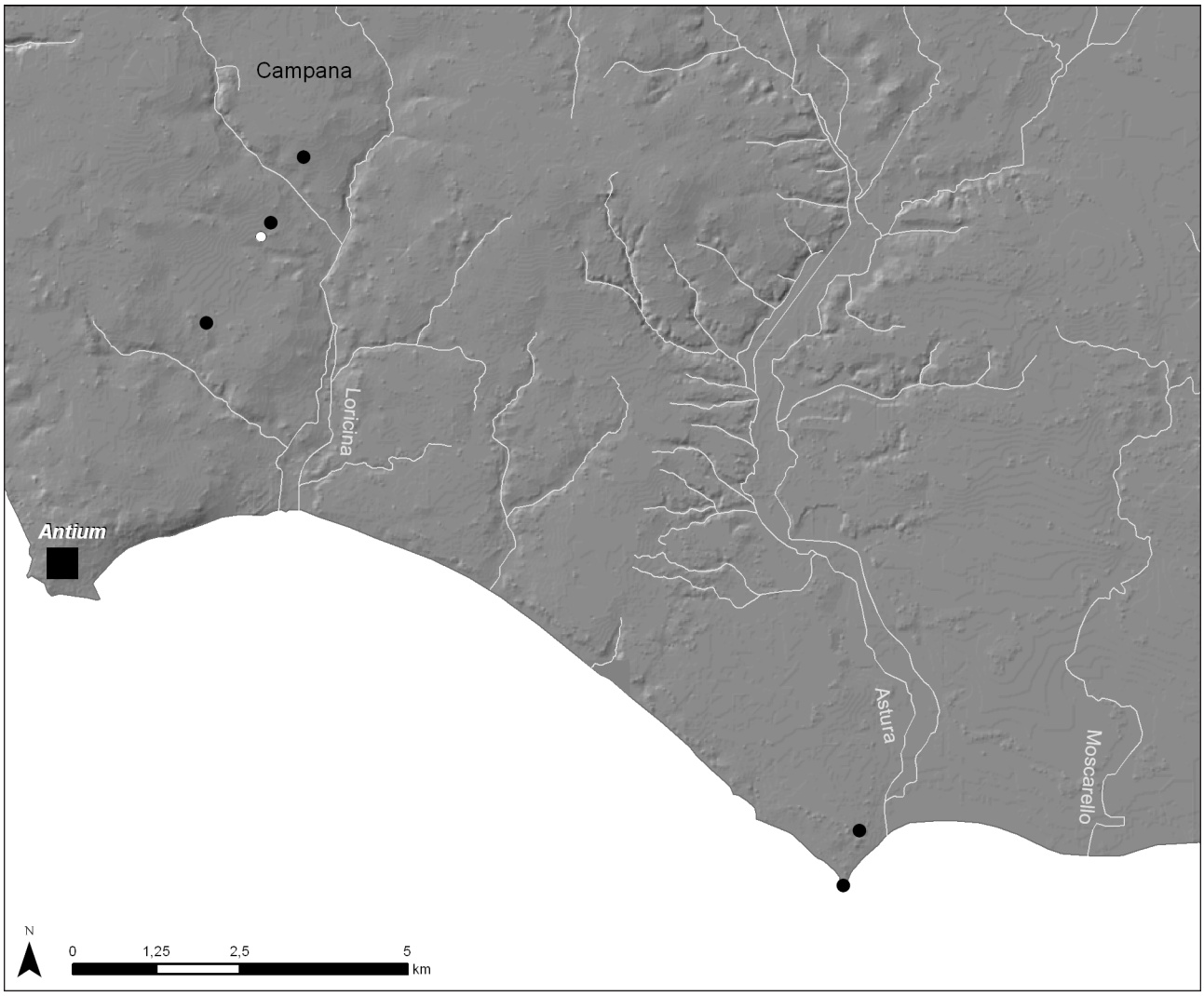


Figure 7.14 Distribution of early Medieval (AD 550 – 700) sites (black dots: certain sites; white dots: uncertain sites).

The settlement evidence

A further contraction in rural settlement leaves us with only five certain and two uncertain sites for this period. With the definitive abandonment of the Astura valley, settlement is restricted to only two parts of the study area. In the Campana area, four sites along the Roman road are still (possibly) occupied. A possible fifth site is 15106, where the finding of a 6th century flanged bowl indicates squatter occupation. In the south-western part of our study area, the sites of Torre Astura and *Astura* remain occupied. At the former, the structural evidence for activity in 6th and 7th century is corroborated by the retrieval of pottery of the same period, whereas the latter yielded ample evidence for continuity up till the advanced 7th century AD.

The material evidence

Overall, we have very little pottery data for this period for our study area; the available evidence derives for the largest part from the excavations at *Astura* and hints at several drastic changes in systems of supply and distribution. The data suggests a further decrease in the volume of consumed pottery and a strong reliance on regional production (and exchange). The identified shapes almost exclusively belong to utilitarian pottery and find close parallels at the Crypta Balbi and other Early Medieval contexts in Rome.[552] African red slip ware shapes continued to arrive at the site, but the absence of the latest commonly exported African red slip ware shapes indicates that the site at some point (probably in the last quarter of the 6th century AD) became cut off from long-distance trade networks. For inland sites, the access to fine ware pottery is likely to have ceased much earlier, probably before the mid-6th century AD. The evidence for Early Medieval occupation on these sites is therefore, without exception, attested by shapes of utilitarian pottery, again finding parallels at various contexts from the city of Rome.

552 See Arena *et al.* 2001 and Paroli & Venditelli eds. 2004.

Concluding remarks

Although the archaeological data for Early Medieval occupation in our study area remains scanty several sites of this period could be identified based on an improved knowledge of the pottery of this period. The main focus of settlement is formed by the *Astura* settlement and the Torre Astura villa, whereas several sites along the Roman road also continue to be inhabited. The pottery data indicate that, in the course of the 6th century, the study area became cut off from long-distance trade networks and from then on depended on regional production and exchange. At present knowledge all of the remaining sites were abandoned in the course of the 7th century, after which there is no more evidence for occupation in our study area until the advanced Middle Ages.

7.3 Solutions to survey data problems? Assessing the added value of the four case studies)

As mentioned in chapter 2, the four case studies were designed to probe three aspects of sites recorded by archaeological survey, using GIA's Astura and Nettuno surveys as a testing ground. These were a) site chronology; b) site function; and c) site development. This section examines the added value of the four case studies to each of these.

Site chronology

As is evidenced by the overall decrease in the number of uncertain sites recorded for the study area (see figure 7.2), the various case studies have considerably enhanced our knowledge of the chronology of individual sites. This enhancement is mainly the result of the systematic revisits, aimed at the collection of larger samples, and thus more diagnostic pottery.[553] These have been especially important in the identification of settlement for less-documented periods (in our case the post-Archaic, mid- and late Republican, and late Imperial period), since the identification of activity in these periods depends on an extremely limited number of specific shapes.[554] The contribution of the study of the museum collection lies foremost in the mapping of a number of new sites and not so much in the expansion of knowledge on already mapped locations. Although the samples in the collection are generally of a high quality, they also appear to be biased towards fine ware pottery. Based on the excavations at *Astura* further insight was obtained in the shapes and wares circulating in our study area between the 4th and 7th century AD, leading to the identification of several sites of this period.

Despite the overall increase in the number of certain sites, the degree of uncertain sites still varies considerably between different periods (see figure 7.2). Although more intensive sampling (and possibly additional revisits) would certainly lead to a further increase of the degree of certain occupation, I strongly doubt whether decent levels (e.g. 60-70%) can ever be achieved. The four sites studied during the intensive on-site survey all yielded evidence for certain occupation in one (or more) of the less-documented periods; such intensive investigations can, however, never comprise more than a small segment of a site inventory, on account of the high time investment.

Even when certain occupation is attested, another concern is the low chronological resolution of the resulting periodization, with periods of 150 years.[555] This inherently leads to the overstretching of date ranges and hampers an assessment of site (dis)continuity on the level of individual sites; furthermore, it can potentially obscure relevant chronological and spatial patterning within the study area as a whole. To make a more detailed estimate of the chronology of sites and to allow the identification of any relevant chronological patterning, an alternative way of dating surface assemblages was probed for the sites studied in chapter 5, as well as for a number of sites sampled during the revisits that yielded large pottery samples. This method was based on associating all collected materials, instead of considering the full date range of each identified fragment individually. We must certainly keep in mind that the nature of surface assemblages is fundamentally different from that of closed assemblages and that this associative method is unfit for studying the chronology of sites yielding small samples (the bulk of all sites).[556] However, for now the site assemblages studied in this manner appear to provide surprisingly robust and homogeneous dates, with an overall absence of intrusive materials. Despite the small number of site assemblages dated this way, those that were suggested spatial and chronological patterning. A number of larger residential sites in the Astura valley appears

553 See also Cavanagh, Mee & James 2005, 318.

554 As stated earlier, one of the main contributors to the low degree of certain occupation is the very conservative shapes of utilitarian pottery, whose production often comprise more than one of our historical periods. Furthermore, at least two of these periods (post-Archaic and the late Republican periods) witness an (almost) complete absence of fine ware pottery, leaving us to rely on utilitarian pottery and amphorae for the identification of certain occupation. The on-site surveys in chapter 5 revealed that these wares not only provide less accurate dating evidence (due to their long lifespan of production), but are also less diagnostic and less visible on the surface.

555 It was also noted during the LRSP that the chronological resolution of some samples was still low, despite total coverage and sampling of site surfaces (Cavanagh, Mee & James 2005, 282).

556 Millett 2000b, 55.

to be founded in the 4th or 3rd century BC (as well as site 15034 studied during the intensive on-site survey), whereas they were abandoned in the later 2nd or early 3rd century AD. Furthermore, several large villas along the Roman road appear to be founded between the mid-2nd and mid-1st century BC and are abandoned between the late 5th and mid-6th century AD. Additional investigations are necessary in the future, both to further evaluate the validity of this method of dating and to study the existence of finer chronological patterning in site inventories.

Site function

The study of site function was one of the principal aims of the intensive on-site surveys (see chapter 5). Indeed, by mapping the spatial distribution of artefacts, an assessment of the function of each of the studied sites could be made. Although three of the four locations were identified as residential sites, they exhibit a wide variety in size and lay-out. The fourth site, site 15085-04, was identified as a road-side chapel/rural shrine, a site type previously unknown to our study area. The identification of the function of each of the four sites was primarily based on the spatial distribution of artefacts over their respective surfaces and much less on their pottery assemblages. Taking this into account, the lack of such spatial data must be considered the main reason for the impossibility to appropriately address the function of sites encountered during the revisits and the study of the museum collection. Although it is reasonable to suppose that most of them represent habitation sites, the intensive on-site surveys underline the variety in appearance that we should expect within what is normally considered a single functional class of sites.[557]

However, based on the pottery assemblages collected, a number of sites suggest a different interpretation. On seven sites, pottery production is hypothesized, although the nature of the evidence varies between them. Three sites in the *Cinfonare* area yielded fragments of misfired tiles and/or loomweights. On site 15059, a large sample of amphorae similar to the ones produced at Le Grottacce suggests the presence of another workshop at this location. Site 11330 comprises two circular structures associated with Archaic dolia and tile, as well as possible production debris. On site 15106, the intensive on-site survey suggests the presence of a building associated with the production of black glazed ware, flanking a residential structure, whereas at *Astura* an enormous collection of similar *anforette* as well as the presence of several wasters indicates the production of *ceramica dipinta a bande rosse* in the later 12th or early 13th century AD. Based on a small sample of *bucchero*, the presence of graves or a votive context is hypothesized in the area of site 15262. Based on a collection of luxury items and special pottery shapes on site 15019, graves of the Imperial period were identified, flanking the funeral monument Torre del Monumento. Site 15107 was tentatively identified as some sort of cooking facility based on a conspicuous number of casseroles of African origin (comprising more than 50% of the diagnostic sample).

Site development

Another important objective of the intensive on-site surveys was the study of the spatial and functional development of individual sites. Although on all four sites the surface distributions of finds appear to still hold significant information on the original morphology of the site, the identification and interpretation of intra-site patterning remains problematic. Several chronologically restricted patterns were identified, such as the industrial part of site 15106 (core area 2), a low-density area containing a high number of terra sigillata fragments on site 15085-03 and a probable contraction of inhabited space on the same site from the 4th century AD onwards. It has, however, not been possible to infer any spatial and functional development from areas that were in use for a long time yielding a wide variety of wares. This appears to be caused by the small-scale movement of artefacts, causing a homogenization of the surface assemblage. These conclusions are similar to those of the *Laconia Rural Sites Project*.[558] Although in all parts of the study area sites with specific functions were identified, we have only limited data on their (spatial and functional) development. These are confined to two excavated contexts. At Le Grottacce a large residential building (and thermal complex) outdates the identified production of amphora.[559] At *Astura*, the identified production of pottery belongs to a phase in which the area is re-occupied; the area was also inhabited between the 4th and 7th century AD (see chapter 5). On all other sites, the lack of detailed spatial data does not allow inferences on their development.

7.4 Evaluation of the results and future directions

Contribution to current debates on the ancient (Roman) economy

The second aim of this thesis was to assess the suitability of using survey data as a proxy for studying

557 See also Cavanagh, Mee & James 2005, 319. The 20 sites studied during the LRSP were thought to represent a single class, but in the end showed an enormous diversity in appearance.

558 See Cavanagh, Mee & James 2005, 314.

559 These are buildings 15a (residential building) and 15b (thermal complex) in Piccarreta's inventory (1977, 76).

socio-economic issues. In this section, I will discuss some of the possibilities and limitations that arise from this study with regard to the following topics:
- Quantifying trade
- Modelling economic growth and increased standard of living
- Ancient demography
- Town and countryside relations

The second part of this section reviews the different methodologies applied for the four case studies. This is followed by the introduction of a new research project that aims to further increase the analytical and comparative value of surface pottery, partly building on insights obtained in the course of this thesis.

Quantifying trade

As already emphasized in the introduction to this thesis, pottery constitutes our most reliable source for the reconstruction of the (changing) extent and direction of trade networks over time.[560] However, up till now, the contribution of landscape archaeology towards reconstructing patterns of pottery consumption (both concerning individual wares and overall volumes) has been minimal.[561] The few examples of such analyses that do exist are usually based on imported wares, such as amphorae and fine ware pottery. As explained in chapter 2, samples acquired by field survey (applying partial coverage) often include only small amounts of such imported wares.[562] These small samples provide a rather wobbly basis for analyzing changing volumes of pottery consumption on a regional level. At the same time, supra-regional comparisons are often thwarted by the failure of many projects to publish quantified pottery data (or in fact quantified data of any kind).

The systematic revisits discussed in chapter 3 were aimed at collecting additional information on the function and chronology of individual sites. The systematic collection method (diagnostic sampling) employed resulted in relatively large samples that strengthen the basis for reconstructing overall fluctuations in the consumption of individual imported pottery wares (fine wares and amphorae) for the study area; the data also suggests spatial differentiation in the supply and consumption of these wares. Approaching the topic of overall pottery consumption (and the relative share that each individual class of pottery accounts for), a cautionary remark needs to be made based on the results from the intensive on-site survey (chapter 5). These results illustrate that different classes of pottery have different degrees of *diagnosticity*. This can potentially exaggerate or suppress the factual contribution of individual wares to this overall trend and should be corrected for when reconstructing overall patterns in pottery consumption.

Apart from assessing the consumption of imported pottery wares, the various case studies in this thesis highlight the potential for identifying mechanisms of production and distribution of locally produced wares. Despite forming the largest part of the materials encountered, their contribution to reconstructing exchange systems has been largely ignored until now.[563] The four case studies presented in this thesis provide (in)direct evidence for the presence of at least seven production sites of different periods in our study area, adding to a number of workshops already identified during earlier GIA-fieldwork.[564] Particularly promising were the results of the intensive on-site surveys (chapter 5).

Modelling economic growth and increased standard of living

In the introduction to this thesis, several approaches (and their current limitations) were outlined to use data from archaeological survey in estimating the occurrence and scale of economic growth.[565] The data obtained in the course of the four case studies in my view provide additional opportunities for such a study. The consistent diagnostic sampling employed during the systematic revisits (chapter 3) increases the quantitative basis for the identification of fluctuations in pottery consumption. These fluctuations, viewed in concurrence with increases or decreases in the number of recorded settlements, can be used to assess if and when aggregate economic growth took place. In this light, it is important that the settlement trend for the study area was strengthened both in a quantitative and a qualitative sense: based on the four case studies an increase in the number of recorded sites was noted for almost all periods, whereas for the four most problematic periods, the degree of uncertain occupation was significantly reduced.

Regarding the issue of *per capita* growth, the four case studies yielded both positive and negative data. The occurrence of *per capita* growth implies that the living standard of all segments of society increased. The

560 Peacock 1982, 154; Pena 2007a.

561 For work regarding the consumption of African red slip ware in the Western Mediterranean see Fentress and Perkins 1988 and Fentress *et al.* 2004.

562 Although imported pottery is strongly present in most samples, this normally includes only a small percentage of fragments (preferably rims) that can be used for such reconstruction. See De Haas, Tol & Attema 2011 and De Haas & Tol forthcoming using data from the PRP. Fontana (2008) modelled trends in the consumption of amphorae based on data collected in the course of the South Etruria Survey.

563 This was already noted by Peacock in the early 1980's (Peacock 1982, 156).

564 For an overview of workshops identified during previous GIA-fieldwork see chapter 1 and Tol & de Haas forthcoming.

565 De Haas, Tol & Attema 2011.

results of the on-site surveys (chapter 5), however, suggest that site typologies that are commonly used to differentiate between, for example, elites and non-elites are probably too simple. A detailed study of surface pottery, if collected in a consistent and intensive manner, can possibly provide alternative (or complementary) approaches to identify elite and non-elite settlements. Fruitful approaches include studying changes in the quantity and diversity of fine ware and amphorae repertoires between different sites and a comparative study of relative 'values' of pottery assemblages.[566]

The four case studies also provided evidence for so-called *drivers* of economic growth, in the form of capital investments. For various periods we have evidence for the production of pottery in rural areas; surprisingly, most of these were not associated with site types normally associated with elite settlement (see specifically chapters 3 and 5). Further evidence for investments is provided by tile stamps that can possibly indicate periods of increased building activity.

Ancient demography

The use of survey data to estimate ancient population figures depends above all on three variables; 1) site recovery; 2) site typology and 3) site chronology. With regard to the latter, a different method of dating surface assemblages was probed in this thesis (see chapters 3 and 5), yielding interesting results. In an attempt to increase their chronological resolution, surface assemblages of a number of sites that yielded large samples were dated based on associating instead of aggregating the recovered diagnostic fragments. The samples studied in this manner appear to yield rather robust dates and even suggested the presence of chronological and spatial patterning in our dataset. However, future work is necessary to assess the validity of this method.

The intensive on-site surveys were specifically aimed at investigating site typology. These investigations yielded rather ambiguous results. On the positive side, the interpretation of three out of four studied sites was not altered. On the other hand, the four sites studied attested to a large variety in size, lay-out and function. The on-site surveys also highlighted that estimations of site size, based on the regular intensive survey, are generally too large, whilst recorded site chronologies are generally too broad. At the moment, the small sample of sites studied with this intensive method is too small to allow any generalizing conclusions regarding their effect on site typology. The preliminary results do, however, emphasize the need for a systematic program investigating the varied nature and appearance of rural sites. Based on the different case studies performed for this thesis, we should anticipate that a number of sites represent non-habitation sites (production, graves, religious buildings), whereas it is probable that the classes 'villa' and 'farm' contain sites with a wide variation in size and lay-out.

As a possible alternative to the use of settlement data as an indicator for demographic fluctuations, the potential of cookware consumption should be further investigated. Because of its function, durability and limited aesthetic value, this pottery class is likely to have known a fairly constant supply.[567]

Town and countryside relations

Studying the (changing) relations between town and countryside is not simple for our study area. Regarding the towns *Satricum* was already in decline in the post-Archaic period, whereas no systematic archaeological investigations have been carried out at *Antium*. For reconstructing existing relations we therefore largely depend on the evidence from rural sites; this, however, provides some leads. Small-scale pottery production in a rural context is taken as evidence for regionalization and indicative for a limited integration between town and countryside.[568] A possible example is provided by the production of post-Archaic tile and loomweights in the *Cinfonare* area (see chapter 3). It is unlikely that these goods were traded through urban markets, as other marketing strategies were probably more effective (local markets, itinerant salesmen etc.).[569]

For larger-scale productions, towns did provide the most suitable market and as such they are indicative of tighter town-countryside relations. Examples of larger-scale productions include, without a doubt, the amphora production at Le Grottacce (and Cretarossa)

566 The former approach was already suggested in De Haas, Tol & Attema 2011, note 41. For the study of the relative 'value' of different African red slip ware shapes see Pena 2007b; for the relative value of different pottery wares and shapes see Pena 2007a, 27-31.

567 Although such analyses are certainly not bias-free either; they should, for example, take account of the varying diagnosticity of different cookware shapes (see chapter 5). A further complicating factor could be the common use of bronze cooking pots in the Roman period.

568 Keay 1991, 85.

569 Pena 1995, 75; for an in-depth analysis of pottery distribution see also Pena 2007a.

and possibly also the production of tiles in the coastal area during the Late Roman period.[570]

Another possible approach to the study of town-countryside relations is looking at the actual composition of the surface assemblages from rural sites. Large similarities between site assemblages are suggestive of a well-integrated rural economy. If the consumed goods are, however, predominantly of local/regional origin, this does not necessarily imply the existence of close relations between town and countryside. The consistent presence on rural sites of classes of imported pottery does suggest close relations between town and countryside, as it indicates that they were part of the same supply systems. Of course, all of these assumptions on the nature of town-countryside relations can be tested by comparing assemblages from rural sites with those recovered during the excavation of selected urban contexts.[571] Furthermore, differences in the quantity and diversity of imported vs. local pottery can be used to identify (spatial) differences in the level of integration between sites.[572] Identified patterns should be considered together with data on the infrastructure, as the existence of communication routes facilitated the circulation of goods and as such the in- or exclusion of areas within socio-economic networks. The data acquired in the course of this thesis, especially for the Roman Imperial period, in my view provide a firm basis for such investigations.

The four case studies: time well spent?

This thesis presented four case studies that elaborated on a dataset acquired by archaeological survey. The execution of each of these cases entailed a considerable time-effort. As such, the study touches on the lively debate regarding research intensity. Although this debate mainly concerns the validity of time-consuming methods applied in intensive surveys, the execution of 'second-phase' work, supplementing a previously acquired dataset, has received some attention as well. Concerning the case studies presented in this dissertation, the general consensus is that revisiting and the study of reference sites are well worth the effort. Based on the indecision regarding the representativity of surface distribution, the carrying out of intensive on-site investigations certainly does not receive a unanimous positive verdict.[573] The same argument has been used to question the application of systematic and intensive methods of collecting pottery data.[574]

In my view, research intensity should be closely tied to the type of questions that one wishes to answer. In our case, the two principal aims formulated in the introduction to this thesis were certainly met. The systematic revisits (chapter 3) and the study of the museum collection (chapter 4) have increased both the number of sites and the degree of certain occupation for each period. It appears that especially our knowledge of the four least documented historical periods (post-Archaic, mid- and late Republican, late Imperial) has benefited from these cases. The second aim of this study was to further assess the possibility of using survey data as a proxy for approaching socio-economic issues.[575] Although I surely do not want to anticipate on the results of these future socio-economic studies, the acquired data surely looks promising. Especially the consistent and intensive sampling appears to provide a solid quantitative basis for studying the nature and scale of ancient trade, economic growth and the social organization of the countryside. Regarding the study of ancient demography, I am less optimistic, although the intensive on-site surveys (chapter 5) reveal the potential for studying local site typologies.

Although altogether months were spent on the collection, counting and further processing of the enormous amounts of pottery incorporated in this study, the ceramic approach of this thesis has been of pivotal importance. I am convinced that large-scale consistent and intensive sampling provides us with the best opportunity to study and identify similarities and differences in economic exchange and consumption, as well as social organization in different regions, topics that are until now mainly approached by using 'interpretational' data (comparing the occurrence of site types, site numbers). At present, the main impediment for comparative studies based on 'artefactual' data is the general failure by many field survey projects to publish quantified pottery data.

570 Amphorae produced at Le Grottacce are frequently found in both the coastal zone and in more inland parts of the Pontine Region (Tol & de Haas forthcoming). They are until now absent in the *ager Portuensis* (Olcese & Thierrin-Michael 2009). Perhaps a stamped amphora from Le Grottacce has now been identified at Maresha in Israel, whereas a second possible example is present in the Greco-Roman Museum at Alexandria (Finkielsztejn personal comment). The Late Roman tiles produced in the coastal area (of the ·AEMILI·PAVLLI type) were also mainly distributed locally, although an example was found at Ostia (Steinby, Helen & Solin 1977, no.1140).

571 Keay 1991; Patterson 2008, 516.

572 Keay 1991.

573 This scepticism mainly regards the representativity of surface assemblages (Fentress 2000; Winther-Jacobsen 2010, chapter 3).

574 Fentress 2000.

575 The GIA has recently explored the use of data from archaeological survey to study aspects of the Roman economy (De Haas, Tol & Attema 2011; Attema & de Haas forthcoming; De Haas & Tol forthcoming).

Future directions

The four case studies discussed in this thesis provide a first, although promising, incentive towards using the full potential of surface distributions. To further increase this potential, I advocate the application of even more intensive research programs. In order to obtain both detailed information on local settlement as well as quantified data that allow (supra-) regional comparisons, perhaps a multi-stage project combining quantitative and qualitative studies provides the most logical solution. In a first phase, the survey of continuous landscapes, recording on- and off-site data, can provide a general view of ancient settlement and land-use strategies of an area. In a second phase, systematic revisits to previously mapped sites can provide additional information on their chronology and function. Consistent and intensive diagnostic sampling at this stage provides a quantified basis for addressing more detailed socio-economic issues both on a local level and on a wider scale. Intensive on-site surveys of the kind discussed in chapter 5, complemented by geophysical prospection, can potentially shed further light on local site typologies.

Many of the ideas developed in the course of GIA's most recent field surveys, including those deriving from the here presented study, have resulted in a new research project that has recently obtained a substantial grant from the Netherlands Organization for Scientific Research (NWO). This five-year project aims to investigate the role of minor central places in the economy of Roman Italy. It comprises the study of a number of such rural central places (situated in the Pontine Region) and their respective hinterlands through field surveying, geophysical prospection and targeted excavations, focusing on the material evidence (mainly pottery) for economic interaction and exchange. The artefacts collected during the fieldwork are used to map distribution patterns of both imported and locally produced pottery and changes therein over time.[576]

Much emphasis will be placed on the study of locally produced (coarse) wares, using mineralogical and chemical analysis of pottery samples and comparing these with those from known production sites in central Italy and from production sites mapped in the course of the project itself.[577] The outcomes of this study will be used for an analysis of the mechanisms of production and distribution of both imported and locally produced pottery and, by extension, to assess the role of minor centres in rural exchange networks.

576 A recent example of such a study was performed for Roman *Pompeii* (Pena & McMullen 2009a and b).

577 An atlas, containing information on all identified production sites of Roman date in central Italy is in preparation (Olcese ed. forthcoming). A reference collection of fabrics from many of these sites is gathered by prof.ssa Gloria Olcese of the Università di Roma La Sapienza.

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Nederlandse samenvatting

In de afgelopen vijftig jaar heeft de landschapsarcheologie zich ontwikkeld tot één van de voornaamste archeologische disciplines met een eigen veldwerkmethode (veldverkenningen, zogenaamde surveys), theoretisch raamwerk en instrumentarium. Tijdens een survey wordt een gebied belopen, met als doel het in kaart brengen van aan het oppervlak waarneembare resten van antieke bewoning (vaak in de vorm van verspreidingen aardewerk en bouwmaterialen). Waar de vroegste surveys nog relatief onsystematisch en grootschalig waren, wordt recenter onderzoek gekarakteriseerd door een meer intensieve en systematische aanpak. De hieruit voortkomende meer betrouwbare en gedetailleerdere datasets worden tegenwoordig ingezet voor het bestuderen van socio-economische aspecten van de Romeinse maatschappij, zoals economische groei en demografische ontwikkeling. Echter het gebruik van survey data voor de studie van bovengenoemde kwesties is niet eenvoudig. De levensduur, functie en chronologische ontwikkeling van sites blijkt moeilijk te reconstrueren op basis van de vaak kleine hoeveelheden oppervlaktematerialen die worden verzameld. Daarnaast is er onduidelijkheid over hoe het aantal aangetroffen sites zich verhoudt tot het originele aantal sites dat het antieke landschap bevatte.

Het voor u liggende proefschrift beoogt een bestaande dataset verkregen via veldverkenningen aan te vullen door middel van vier gerichte case studies, waarbij de studie van het materiële bewijs (voornamelijk aardewerk) meer dan voorheen een centrale rol inneemt.
Deze vier case studies bestaan uit:

1) Het herbezoeken van eerder gekarteerde sites;
2) De studie van de archeologische collectie van een lokaal museum;
3) Het uitvoeren van intensieve vlakdekkende surveys op vier sites;
4) Het karteren en bemonsteren van een site uit een periode die uit eerder onderzoek slecht bekend is.

Samen dienen zij een tweeledig doel: enerzijds te komen tot een nauwgezettere reconstructie van de nederzettingsgeschiedenis van het onderzochte gebied, anderzijds het verkrijgen van een beter inzicht in de geschiktheid van survey data voor het bestuderen van socio-economische ontwikkelingen. De achtergrond van deze studies wordt gevormd door de Astura en Nettuno surveys, die tussen 2003 en 2005 werden uitgevoerd door het Groningen Instituut voor Archeologie (GIA) in het kader van het langlopende Pontine Region Project (PRP). Het studiegebied is gelegen in de kustzone van de Pontijnse regio (circa 60 kilometer ten zuiden van Rome) en beslaat de huidige gemeente Nettuno en het zuidelijke deel van het stroomdal van de Astura rivier. Het studiegebied maakt deel uit van het achterland van de antieke steden *Satricum* en *Antium*.

De studie bestaat uit zeven hoofdstukken, voorafgegaan door een inleiding waarin een kort overzicht wordt gegeven van de belangrijkste ontwikkelingen binnen de landschapsarcheologie en het gebruik van survey data voor socio-economische reconstructies wordt geproblematiseerd. Hoofdstuk 1 geeft een overzicht van voorgaand historisch, topografisch en archeologisch onderzoek in het studiegebied. Dit voorgaande onderzoek heeft zich voornamelijk gericht op de bovengenoemde sites *Satricum* en *Antium*. Niet-stedelijke of rurale sites waren, voorafgaand aan GIA's surveys, alleen bekend uit een inventaris van het stroomdal van de Astura (Piccarreta's *Forma Italia*-volume) en uit de beschrijving van een beperkt aantal monumentale graven en villa's.

Het tweede hoofdstuk schetst de methodologische achtergrond van dit proefschrift en introduceert de dataset die gebruikt wordt voor elk van de vier case studies. De bestudeerde sites zijn gelegen in drie verschillende delen van het onderzoeksgebied: de kustzone, de Astura-vallei en het Campana-gebied, gelegen ten noorden van *Antium*.

In hoofdstukken 3 tot en met 6 worden de resultaten van de vier case studies gepresenteerd. Tijdens de herbezoeken (hoofdstuk 3) is getracht aanvullend materiaal te verzamelen op sites die tussen de jaren '70 van de vorige eeuw en 2005 zijn gekarteerd. De systematische en intensieve manier van verzamelen, waarbij alle diagnostische materialen (materialen die op basis van hun vorm iets kunnen zeggen over de datering van de site of over specifieke activiteiten die er werden uitgevoerd) zijn opgeraapt, zorgt ervoor dat de chronologie van een flink aantal sites bijgesteld of uitgebreid kan worden. Deze verzamelmethode staat bovendien toe fluctuaties in de consumptie van aardewerk in de loop der tijd te reconstrueren. Extra informatie wordt vooral verkregen voor periodes waarvoor relatief weinig informatie beschikbaar is, zoals de post-Archaïsche periode, de midden en late Republiek en de late Keizertijd. Opmerkelijke verschillen, zowel in chronologische als in materiële zin, zijn waarneembaar tussen het

Campana-gebied en de Astura vallei. De meeste sites in de Astura vallei waren bewoond in de post-Archaïsche en de Republikeinse periode, terwijl het aantal nederzettingen al vanaf het begin van de Keizertijd afneemt. Het verzamelde aardewerk is over het algemeen gering in aantal en arm, hoewel dit deels het gevolg kan zijn van verdergaande vernietiging van sites als gevolg van intensieve landbouw in dit gebied. In het Campana-gebied piekt de bewoning voornamelijk in de vroege en midden Keizertijd. Naast kleinere sites liggen hier ook een aantal zeer rijke sites met monumentale architectuur (zoals mozaïekvloeren, marmeren decoraties en bepleisterde muren in bonte kleuren). Deze zijn voornamelijk gelegen langs een Romeinse weg, die de stad *Antium* verbond met de *via Appia* en Rome. Grote hoeveelheden geïmporteerd aardewerk, voornamelijk afkomstig uit Noord-Afrika, laten zien dat de bewoners van deze sites makkelijk toegang hadden tot dergelijke producten via de markt in *Antium*. Helaas laten de herbezoeken ook zien dat in de afgelopen veertig jaar minstens een derde van eerder beschreven sites verloren is gegaan onder invloed van de voortschrijdende urbanisatie en landbewerking.

Een aanvullende bron van informatie wordt gevormd door de archeologische collectie van het museum van Nettuno (hoofdstuk 4). Over de afgelopen veertig jaar heeft de voormalig directeur van het museum materialen verzameld (en hun herkomst vastgelegd) tijdens veldverkenningen en op bouwlocaties. Een groot deel van de collectie is afkomstig van sites – en specifieke delen van het studiegebied – die vandaag de dag niet meer of niet goed toegankelijk zijn; als zodanig biedt de collectie aanvullend inzicht in de verspreiding van antieke bewoning in het studiegebied.

Omdat de museumdirecteur vrijwel uitsluitend materiaal uit goed bekende perioden verzamelde, levert de bestudering van materialen afkomstig van sites die ook door het GIA werden onderzocht weinig extra informatie op.

Hoofdstuk 5 presenteert de resultaten van intensieve surveys op eerder gekarteerde sites. Door deze sites in vakken van 16m² (vier bij vier meter) te verdelen en hieruit alle artefacten te verzamelen werd de verspreiding van verschillende typen aardewerk over het oppervlak zeer gedetailleerd in kaart gebracht. Dit diende een tweeledig doel: ten eerste beoordelen in hoeverre de nauwgezette bestudering van oppervlaktedistributies ons iets kan vertellen over de originele morfologie van deze sites; ten tweede bekijken of een studie van een dergelijke intensiteit extra informatie kan opleveren over hun chronologie, functie en ruimtelijke ontwikkeling. De resultaten van de studie waren over het algemeen positief. Elk van de vier onderzochte sites leverde één (of meerdere) duidelijk afgebakende gebouwen op en van elk van de locaties kon de chronologie worden aangescherpt. De meeste van deze gebouwen konden ook functioneel geïnterpreteerd worden op basis van de gevonden materialen. Het onderzoeken van ruimtelijke ontwikkeling van sites bleek in de meeste gevallen echter onmogelijk. Een bijkomstig resultaat van de intensieve site-surveys is de identificatie van een aantal vertekenende factoren, die de kwaliteit en samenstelling van aardewerkmonsters genomen tijdens reguliere – minder intensieve – surveys beïnvloeden.

De vierde case study betreft het karteren en bemonsteren van een profiel met archeologisch materiaal nabij de monding van de Astura rivier (hoofdstuk 6). Doel van deze studie was het verkrijgen van inzicht in de materiële cultuur van de late Keizertijd tot de vroege Middeleeuwen, een tijdsinterval waarover nog weinig bekend was in het studiegebied. De verzamelde materialen – vooral aardewerk, maar ook relatief grote hoeveelheden glas en munten – dateren tussen de 4^{e} en de 7^{e} eeuw na Christus en laten zien dat de site participeerde in zowel regionale als supra-regionale handelsnetwerken, waarbij mogelijkerwijs gebruik is gemaakt van een nabijgelegen haven. Grote hoeveelheden van één bepaald type aardewerk (*ceramica dipinta a bande rosse*), overwegend afkomstig uit de funderingssleuf van een stenen muur laten zien dat de site een tweede fase van bewoning kende, te dateren in de 12^{e} of 13^{e} eeuw na Christus. De vondst van enkele misbaksels van dit type aardewerk duidt op productie ter plekke.

Hoofdstuk 7 evalueert wat de vier case studies hebben bijgedragen aan de twee voornaamste doelstellingen van de studie. Zowel in kwantitatieve als kwalitatieve zin is deze bijdrage onmiskenbaar. Voor elke periode werd het site-bestand uitgebreid, terwijl meer zekerheid is verkregen over de schaal van bewoning voor de vier moeilijkst te identificeren periodes. Hierdoor kunnen we ook met meer zekerheid veranderingen in aantallen sites tussen periodes (aan de hand van een nederzettingstrend) reconstrueren. Het laatste deel van dit hoofdstuk beschouwt de geschiktheid van de dataset voor het bestuderen van verschillende aspecten van de Romeinse economie. Veelbelovende onderzoeksthema's lijken het kwantificeren van handel, het modelleren van economische groei en levensstandaard alsook het verkennen van relaties tussen stad en platteland. De studie toont aan dat om deze thema's te kunnen bestuderen, vaak meer gegevens nodig zijn dan veel surveys nu verzamelen, en dat er dus een belangrijke rol weggelegd is voor *second-stage* studies die bestaande datasets aanvullen.