SMALL-ISLAND INTERACTIONS: POTTERY FROM ROMAN MALTA



MAXINE ANASTASI

St Cross College

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Abstract

This thesis is an investigation of Roman pottery from the Maltese islands from the 1st century BC to the mid-4th century AD, and how pottery can help assess Malta's economic role in the wider central Mediterranean region. The archipelago's locally produced vessels, its range of ceramic exports, and the quantification of the types of amphorae, fine, and cooking wares the islands imported, were studied and the data were used to compare with the pottery available from the small islands of Pantelleria, Lampedusa and the Kerkennah isles.

The aim is to revisit the theme of the economic role of the Maltese islands and other similar-sized islands in the region by moving away from the tradition of unilateral and monographic narratives, which more often than not, omit the wealth of information that can be garnered from pottery. In the first instance, a detailed study of three complete and new ceramic assemblages, including amphorae, fine, cooking and coarse wares, was undertaken. The opportunity to quantify identifiable imports and compare them with local products—the first of its kind for fine, cooking and coarse wares—provided valuable proxy data for comparing Malta with neighbouring islands and centres, and demonstrated what proportion of ceramic vessels were locally supplied, and how these changed over time. These data were also fed into a series of network analyses, which plotted the common pottery links shared between small-island and mainland sites in the region. The analyses were interpreted in conjunction with a critique of existing pottery quantification methods, and the potential acceptance for utilising all known pottery data irrespective of the quality and quantity of the published data available. Most importantly, the import trends obtained from this study were incorporated into the existing narrative of how small islands and their local industries featured in the central Mediterranean's regional economy, highlighting the types of archaeologically visible industries that existed; how these developed symbiotically alongside other larger supply networks; and what effect this might have had on the integration of small islands in the Roman Mediterranean.

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PART I: TEXT

Introduction



INTRODUCTION

The south-central Mediterranean basin is home to some of the smallest and most isolated islands and archipelagos in the Mediterranean sea. Yet, these same islands are known to have featured quite frequently in the short-, medium- and long-distance sea-routes busily operating in the region since humans first mastered sea travel in the area.

A collective study of how these small islands functioned and participated in the wider central Mediterranean context would add another dimension to what we know about the trade and economy of the coastal centres along the North African and Sicilian coasts. A series of archaeological investigations, in particular those concerning pottery assemblages on Pantelleria and the Maltese islands,[1]—and to a lesser extent, the Pelagie and Kerkennah islands[2]—have added a great deal more to how these islands fitted into the grander scheme. However, much is still lacking and questions focussing on the collective function of the islands themselves have rarely been tackled. Islands like Malta and Pantelleria have either been studied in detailed isolation, or conversely, as anecdotal adjuncts to regional studies.[3] Thus, the scope of this study is to treat these islands as functional economic units like other major and minor coastal centres elsewhere in the region and try and determine how, and why, certain economic and social choices were made, and how geographic and socio-economic location affected how the

[1] For the Maltese islands, these include sections in the preliminary reports for the *Missione Archaeologica italiana* excavations at Tas-Silġ, San Pawl Milqi and Ras il-Wardija (Bonello et al. 1964; Bozzi et al. 1968; Busuttil et al. 1969; Cagiano de Azevedo et al. 1965; 1966; 1967; 1972; 1973); the University of Malta excavations at Tas-Silġ (Bonanno and Vella 2015); and Ħal Millieri (Bonanno, Blagg and Luttrell 1990). For Pantelleria, see Almonte 2013; Tusa, Zangara and La Rocca 2009; Arquaro and Cerasetti 2006).

[2] De Miro and Polito 1988–1989; 2012 and Bonifay et al. 2005 respectively.

[3] For instance, Bruno 2009 and Bonanno 2005 for the Maltese islands; and Abelli 2010 for Pantelleria.

different islands were connected and interacted with each other and their surroundings.

The main aims of this research are, firstly, to make a detailed study of Maltese ceramic production and importation trends for the Roman period (c. 1st century BC to mid-4th century AD); secondly, to investigate the individual economies of several small islands in the central Mediterranean regions to gain a more comprehensive understanding of how the inhabitants of these islands sustained themselves; and finally, to explore their involvement, both individually and collectively in short- and medium-distance trade in the Mediterranean by assessing what individual roles each island had, and how similar or dissimilar they were to each other.

The first chapter briefly explores a wide range of archaeological, natural and historical factors that affect island life and sea travel in the ancient Mediterranean. Some key economic debates concerning long-, medium- and short-distance trade are discussed and how they can affect the way we view how small islands featured in the wider Roman Mediterranean context. Linked to this is a discussion on the importance, use and problems associated with ceramic quantification studies in the Mediterranean, which is based on a review of some well-known published ceramic reports from the Mediterranean. This section sets the scene for the wider comparative analyses and discussion concerning quantified pottery and network analysis in Chapter 5.

The second chapter introduces the main case study, the Maltese islands, by providing a detailed overview of the archaeological, epigraphic and historical evidence of the economy of the islands, including, where possible, recently published evidence and possible re-evaluations for previous interpretations where new evidence is available. The archaeology of the economy of the Maltese islands is well studied, but an element of

complacency and lack of comparative analyses have resulted in a stale and static historical narrative of the Roman period primarily because of the chronic delay in publishing newly excavated Roman ceramic evidence, of which there is plenty. Without updated and well-recorded complete pottery assemblages, few comparative studies can be made that includes this island group.

The third chapter is dedicated to a detailed study of Maltese local pottery production and import trends for the islands from the Late Punic period to the mid-4th century. Three new pottery assemblages are studied from important stratified excavations in Malta and Gozo and show local and imported trends of amphorae, cooking and fine wares form the 1st century BC to the mid-4th century. A detailed typology and catalogue of these assemblages, including a detailed summary of the main local production zones and fabrics is included in Appendix I. The islands are traditionally associated with the export of textiles,[4] but the lack of archaeological evidence for this trade makes it difficult to investigate connections the islands might have had with elsewhere. A short section, therefore, plots the distribution of Maltese Late Punic ceramic amphorae—the only known Maltese exports traced archaeologically—, and discusses what these vessels might have carried and what might have affected the decline of this small export industry at the beginning of the Roman period.

The fourth chapter examines the available archaeological evidence for the economy of the islands of Pantelleria, Lampedusa, Linosa and the Kerkennah isles. A summary of the islands' potential economies highlights the extensive and varied range of sustainable local industries, which even though rarely extended beyond the local market, were able to sustain a small population. The ceramic evidence assists in determining the nature of

[4] See Bruno 2009, 86–88 for a detailed overview of textile trade on Malta.

possible local or export dependency for certain goods on the island, including whether some islands were dependants of mainland centres or not; and if so, which ones.

Chapter 5 is dedicated to using Social Network Analysis software with available quantified pottery data from the small islands and contextualising them by including ceramic data from other mainland centres (the same sites which are discussed in Chapter 1). This chapter experiments with network graphs to illustrate multi-site connections using multiple common variables, which in this case are amphorae, fine and cooking ware types. Although the various graphs generated highlight particular questions regarding data quality and research biases, they nevertheless generate new and interesting potential ways for plotting how different sites are connected to each other, and whether the strength or weaknesses of these connections can be traced and illustrated.

The final chapter brings together the various findings and collates the different evidence and conclusions sought throughout this study. The potential economic ebbs and flows of the small islands are traced and examined in the light of the wider regional trade networks linking North Africa and Sicily to the rest of the empire. The various small-island economies within the central Mediterranean, examined through available ceramic and other archaeological material culture, were *not* constant, but were in flux and mostly subject to shifting trade flows and constantly changing economic negotiations, which were taking place between North Africa, Sicily and Rome. Each of the small islands display differing economic strategies that developed, some symbiotically with neighbouring mainland centres; by dipping into existing trade traffic passing by, or stopping on islands; or by developing sustainable local industries for a flourishing domestic market.

In essence, the primary aim of this study is to challenge and broaden the current narrative available for the smaller island entities within the central Mediterranean by examining new evidence, exploring old data and experimenting with different methods.

Chapter 1



CHAPTER 1: APPROACH AND METHODOLOGY

The small islands in the south-central Mediterranean are located in a large body of water that is partly bounded by coasts belonging to three different Roman provinces and geographic regions—Tunisia, Tripolitania and south-east Sicily (Figure 1). Great leaps in our understanding of many aspects of Roman-period settlement patterns, extra- and inter-regional trade, production and cultural affinities have primarily been the result both of detailed regional studies, and of broader attempts at comparative studies at macro-regional levels.[5] However, at a regional scale, gaps between large study regions are left blank or their role simply glossed over. On a micro-*regional* scale—and here I mean small islands—, very detailed studies have been undertaken and have provided invaluable and generally quite comprehensive data.[6] However, attempts at combining these marginal grey zones and shifting the fixed regional boundary could go some way towards examining the areas that are all too often glossed over.

1.1 Islands in the Mediterranean

1.1.1 Land and sea

The Mediterranean Sea, with an area of about 6,500,000 km^2 is, and has always been, a 'highway' that has linked three continents; and even today is still one of the most travelled seas.[7] The coastal perimeter of the entire Mediterranean coastline is about 45,000 km—more than the circumference

[5] For instance, the region-wide surveys conducted in North Africa (see Bonifay 2013 for a comprehensive bibliographic overview), together with investigations of ancient port infrastructure (Slim at al. 2004 and Stone 2014), and Keay 2013 for inter-regional analyses.
[6] For example, Castagnino Berlinghieri 2003 (Aeolian islands); Bonanno 2005 and Bruno 2009 (Maltese islands); and Tusa, Zangara and La Rocca 2009 and Almonte 2013 (Pantelleria).
[7] C.O.E. 2005, 122.

of planet Earth—providing lots of access to the sea for a variety of uses (Figure 1).[8]



Figure 1: Satellite image of the central Mediterranean basin (map source: Google Earth).

Strewn within this basin are dotted close to 5,000 islands ranging in size from the largest, Sicily, covering an area of 25,708 km^2, to tiny islets measuring less than 1 km^2. In biogeographical terms, the majority of Mediterranean islands are considered continental islands as they are situated along the continental shelf, and in the distant past, were once connected to the mainland.[9] Unlike oceanic islands (the term adopted by biogeographers to classify islands situated along the oceanic plate and which were never connected to the mainland), many Mediterranean islands are located in such close proximity to the mainland that the degree of insularity (in the physical sense) and isolation that is considered characteristic of islands is rendered almost meaningless.[10] However, as will be touched upon towards the end of this research, this sense of isolation is relative and did have consequences for islanders residing on small islands in the central Mediterranean.

[8] C.O.E. 2005, 122.
[9] Vogiatzakis and Griffiths 2008, 63.
[10] Vogiatzakis and Griffiths 2008, 64.

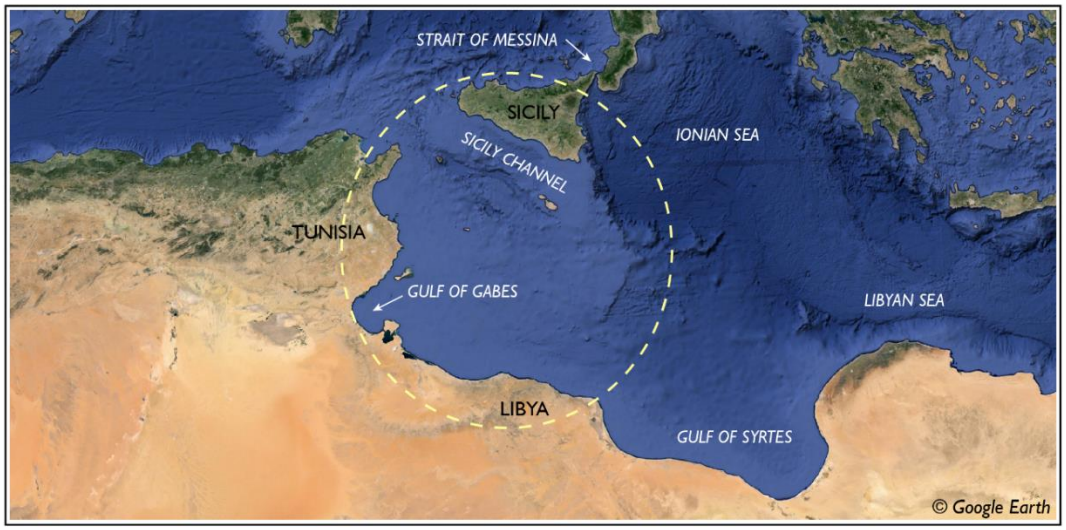


Figure 2: Satellite image of the central Mediterranean. The small islands enclosed within the dashed circle are the main subject of this study (map source: Google Earth).

The south-central Mediterranean zone, which is the subject of study here, is a large expanse of sea bounded by Libya (ancient Tripolitania) to the south, Tunisia to much of the west and the island of Sicily to the north (Figure 2). Far fewer islands dot this particular area when compared to the eastern Adriatic coast and the Aegean Sea. Although very small, the islands of Pantelleria, Lampedusa, and Kerkennah, with particular emphasis on the Maltese archipelago, will be the primary focus of this research. The land within this zone differs from place to place; whilst Pantelleria and Linosa are predominantly volcanic islands, the Maltese archipelago, the Pelagie islands and Kerkennah are sedimentary formations that are mostly semi-arid. A defining characteristic of the central Mediterranean zone is its considerable variability in mainland and island vegetation, climate and natural resources. At least six types of vegetation ranging from savannah to forested areas can be found; many of the larger islands do in fact accommodate a mosaic of many varieties of vegetation across considerably short distances. This phenomenon is linked to the varying altitudinal zones which influence the climate and which in turn determine the type of

vegetation able to grow in the area.[11] Within this zone the altitude ranges from the highest point in Sicily (Mount Etna is 3,323 m high) to sea level.[12] Due to the volcanic nature of many islands, some islands do have considerably high peaks with significantly steep gradients rising from sea level. This further enhances an interesting range of flora and fauna which have adapted to specific and diverse niche habitats within relatively short distances.[13]

The general Mediterranean climate is characterised by short, mild winters and dry warm summers with rain mainly falling between October and March. However, Mediterranean regions, particularly the southern-central zone, are characterised by the unpredictability of rainfall which, when considering the average rainfall, does have a significant effect of the way inhabitants of some of these regions have learned to cope with, as well as sustainably harness, this precious resource.[14]

The sea itself is as much an important element as the land and islands. The waters within this stretch of sea are an important spawning and migratory band for several species of fish, in particular Bluefin tuna.[15] Shallow lagoons and marshes typical of the shallow waters along the central Tunisian and Tripolitanian coast were rich with fish during their breeding season.

1.1.2 Winds and currents

Understanding the wind cycles to be able to harness wind power for propulsion was one of the most important elements in being a successful seaman. Statistically, winds and currents have a stable enough cycle to be

[11] Vogiatzakis and Griffiths 2008, 67.
[12] Vogiatzakis and Griffiths 2008, 64.
[13] Vogiatzakis and Griffiths 2008, 64.
[14] Horden and Purcell 2000, 56; A. Wilson 1997, 27–29; Gambin 2005, 45–47.
[15] Marzano 2013a, 67–68, fig. 9.

able to predict their general prevailing directions each year.[16] The general forecast was divided into bi-annual sailing seasons: an open season during the summer months, which provided the optimal conditions for sailing; and a closed season during the winter, which was considered too dangerous a time to venture out to sea.[17] Sailing during the winter, however, was not impossible, as Tammuz has shown, by highlighting four open-sea routes that were traversed and subsequently recorded by pre-Roman sources.[18]

Sea currents are also important environmental factors that need to be considered. Although unfavourable winds were more detrimental to ancient navigation, understanding the flows of currents, as well as where they ultimately led was also significant. As a general rule, the Mediterranean sea currents predominantly flow in an anti-clockwise direction. Compared with stronger currents like those of the Atlantic, the Mediterranean's sea currents are generally not too treacherous. The dangers inherent in these currents, however, occur when ships sailed parallel to the coast.[19] The well-known dangers were the areas close to straits, capes and estuaries. Meteorological conditions, coupled with strong currents, created complex phenomena that could wreak havoc upon an unsuspecting boat. The best examples of these danger-zones are the Gulf of Syrtis and the Straits of Messina.[20] The former was well-known to be perilous by classical sources, owing to constantly shifting environmental conditions that created a relatively strong anti-clockwise current, coupled with shallow and undetectable sandbanks.[21] A spiral depicted in the *Tabula Peutinger* is believed to represent the swell in the Syrtis gulf.[22] In spite of the ancient

[16] Arnaud 2005, 15.
[17] Arnaud 2005, 16.
[18] Tammuz 2005, 155–156; Beresford 2005; 2013, 267–275.
[19] Arnaud 2005, 23.
[20] Arnaud 2008, 24.
[21] Arnaud 2005, 174.
[22] Crawley Quinn 2011, 12.

warnings concerning the dangers of crossing the gulf, archaeological evidence is suggesting that crossings of the Syrtis was more common than previously thought.[23]

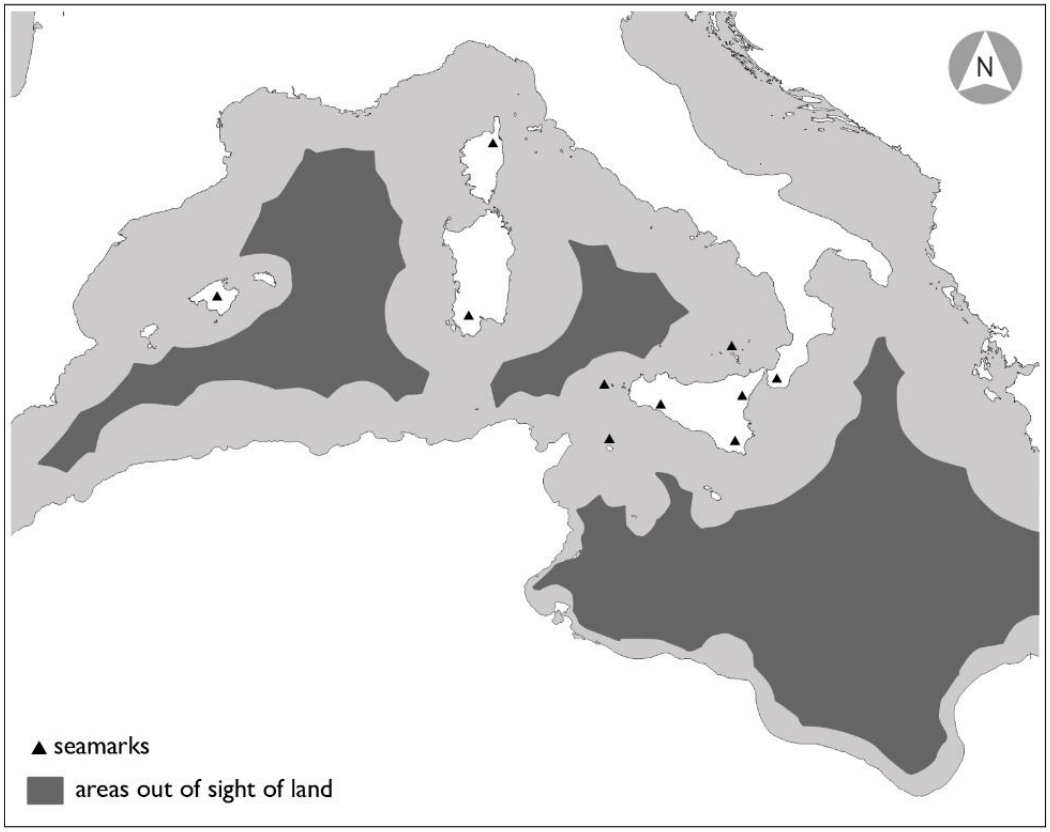


Figure 3: Seaward visibility in the central Mediterranean and natural landmarks (after Arnaud 2005, 30–31).

1.1.3 Coasts and visibility

The decision to navigate across the open sea or to hug the coast, thereby being in constant sight of land, most probably depended on a number of different factors. Environmental, meteorological, as well as social, technological and economic aspects must have played a part in deciding which course to take. The ability to sight and recognise coastal landscapes was of utmost important in knowing where to go.[24] Thousands of

[23] A. Wilson 2013.

[24] Horden and Purcell 2000, 125; Arnaud 2005, 29.

kilometres of variable coastline were important visual references, which were necessary for way-finding.[25]

Island inter-visibility was probably a significant factor in encouraging curious islanders to cross the stretch of water that separated the Cycladic islanders over 8,000 years ago.[26] Unlike the Aegean, where the majority of islands are rarely further than 40 km from another island or mainland, the majority of islands in the western basin are more geographically dispersed and many exceed the 40 km gap of sea.[27] Visibility maps provide a general indication of the farthest distance where land can be sighted by vessels out at sea (Figure 3). Meteorological factors, such as orographic clouds or haze can hinder or impede visibility.[28] The higher and more varied the relief of coastlines, the more visible and recognisable it is to the sailor. Way-points such as mountains, peaks, and promontories are key reference points—seamarks—that are mentally collected and act as visual mind maps for sailors, and are passed down the generations (Figure 4).[29] These natural and/or anthropogenic markers along the coastal landscape of the Mediterranean are reinforced and embellishment in ancient writings, the consolidation and building of temples, sanctuaries, or religious/ritual monuments,[30] or erecting lighthouses or monuments. These landmarks guided sailors towards their intended port and final destination.[31] Cape Pachynus (Pachino) was well-known to the ancients as a point of reference during sea-travel; the high volcanic peaks making up the islands of Marittima, Lipari and even Pantelleria, were all key way-finding points imprinted in the minds of sailors used to travelling in those stretches of sea.

[25] Arnaud 2005, 32.
[26] Broodbank 2000, 110–111.
[27] Vogiatzakis and Griffiths 2008, 66.
[28] Arnaud 2005, 29.
[29] Tartaron 2013, 122–127.
[30] Gambin 2014, 8–9.
[31] Gambin 2013.

These routes and natural landmarks have always acted as key points of reference for sailors crossing the Sicily Channel as early as the Bronze Age, and possibly during the Neolithic.[32] Where landmasses were low-lying, as is the case for much of the coast of Tripolitania and North Africa, and the Maltese islands and Lampedusa, orographic clouds, sea-birds and probably man-made structures like lighthouses, promised that land was soon to be sighted.

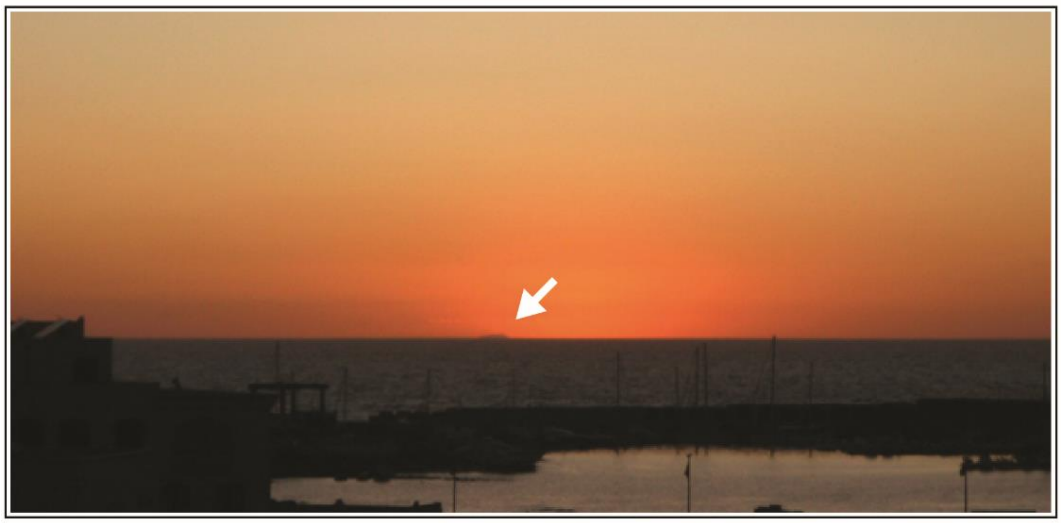


Figure 4: View of Cape Bon from Pantelleria harbour.

1.2 Why study small islands?

Ever since John Evans' seminal article on "Islands as laboratories for the study of culture process", islands have often been considered as ideal areas for conducting archaeological studies.[33] Clearly demarcated boundaries make islands neat units where comprehensive studies could be undertaken, knowing that the geographical parameters of the study are automatically defined by the edge of the island's coast. The circumscribed nature of islands make it easier to identify local ceramic production, in turn making the identification of any exports more straightforward.[34] As a theoretical

[32] Tanasi and Vella 2015.
[33] Evans 1973.
[34] Here, the most often cited example is Pantellerian cooking ware (see Peacock 1984 and Guiducci 2009).

construct, island size can be enveloped in theoretical haziness as to what constitutes an island; and when does an island become a continent—the commonly cited example being Australia.[35] Admittedly, classifying what can be considered an island in the Mediterranean basin is more straightforward: the distinction between mainland and island is obviously clear. However, island size and degree of clustering can create different variables and island environments. For instance, Sicily, Sardinia, Corsica, Cyprus, and Crete are relatively large islands, although they are essentially landmasses that encompass an area that is as large as, or sometimes larger than, other Roman provinces in the rest of the Mediterranean; for instance, Sicily has been described as a "miniature continent".[36] The larger islands may then be conceptually broken down into a myriad different 'cultural islands' because of the different cultural loyalties of the different cities.[37] The remaining islands can be considered small islands, the largest of which is Mallorca (3640 km^2). Dense archipelagos consisting of hundreds of small islands, such as those along the eastern Adriatic coast and the Aegean Sea, are another category of island formation; collectively, the interplay between the (is)land and sea is considered important enough to be coined an islandscape by Broodbank as a way of highlighting the crucial role played by the stretches of sea that form part of the context of island clusters.[38] Smaller archipelagos, such as the Balearic and Maltese islands consist of yet smaller clusters of islands, but which are some distance from the mainland. Off-shore archipelagos, such as the Egadi, Aeolian, Campanian and Tuscan islands are similar in composition, however, are located mostly within direct visual sight of the mainland. Lastly, single small islands like

[35] Rainbird 2007, 20–21.
[36] Braudel 1972, I, 148.
[37] R. Wilson 2013.
[38] Broodbank 2000, 21.

Pantelleria and Lampedusa lie some distance from any mainland or other island.

The resolution most often used to view Roman-period maritime trade networks tends to focus on the long-distance, direct routes that connect the western and eastern regions of the empire. Understandably, the 'big picture' of Roman maritime trade, centring around Rome's main port and its link to major regional ports, such as Carthage, Leptis Magna and Alexandria, has been instrumental in our general understanding of the unprecedented distribution of Roman mass-produced goods over the *longue durée*.[39] More detailed excavations and surveys of maritime structures, port facilities and ceramic assemblages from coastal cities are allowing more coastal sites to be added to an ever-growing database of known ancient maritime infrastructure.[40] However, such a large intricate system, the empire's economy and movement of goods depended on smaller cogs. This concept was nowhere better conceptualised than in *The Corrupting Sea*, where Horden and Purcell argued that the Mediterranean basin was a series of many interconnected microregions that functioned, to a certain degree, symbiotically; furthermore, no microregion could be completely self-sufficient in its production strategies.[41] This is demonstrated whilst still managing to include human agency as a key motivator working within a given microregion.[42] The sea is what ultimately connected the myriad microregions together, and this is how the Mediterranean basin has

[39] Keay 2013; recent projects such as the Portus Limen Project aim to study major regional ports in a multi-disciplinary manner for the Roman period. See http://portuslimen.eu/about/; accessed on 13th February 2015. As if in response, to Woolf's plea a decade ago (Woolf 2004), our empire-wide understanding of the Roman economy has certainly improved and been attempted, especially with works such as Scheidel, Morris and Saller 2007.

[40] For example, Slim et al. 2004 for the Tunisian coast; and Stone 2014 for a survey of the entire coast of North Africa.

[41] Horden and Purcell 2000, 123–172.

[42] Horden and Purcell 2000, 175–297.

come to be known as a unified whole.[43] Horden and Purcell succeeded in bringing small peripheral places, such as small islands, into the discussion of pan-Mediterranean trade and mobility. In their own words:

> "the smaller Mediterranean islands exemplify admirably the concept of the marginal that we were exploring earlier in this chapter. They tend to instantiate especially well the variety of landscape – aspect, geology, relief, soil, altitude, hydrology – that creates a microregional topography. Most contain some very productive niches, which have sometimes been highly renowned […]. The case [Chalkia] illustrates how tiny these niches often are, constrained as they are by the limitations of island aquifers. Extending production involves opportunism and ingenuity."[44]

For Horden and Purcell, islands epitomized both the concept of the 'microregion' as well as the key dots that linked and connected multiple microregions together, which were separated by the sea. E. and J. Fentress summarised Horden and Purcell's view of Mediterranean connectivity and simultaneous methods of sailing and trading as, "the long-distance trade of high commerce, with its great shipping lanes subject to politics and economic shifts, exists against a backdrop of *cabotage*, or small-time trading along the immediate shoreline, whose constant presence is captured by a happy metaphor, 'Brownian motion'."[45]

This predominantly historical narrative has transformed the way in which the ancient Mediterranean is viewed, however, the heavy emphasis on historical sources begs the question on how archaeological applications can be applied to this microregional approach; and whether there is any merit in trying to test it through archaeological applications. Some criticism has been expressed by archaeologists whose research does not fall under the umbrella of classical studies.[46] These offer a unique opportunity to hear alternative views about a macroregion (the Mediterranean region as a

[43] Fentress and Fentress 2001, 203–204.
[44] Horden and Purcell 2000, 224.
[45] Fentress and Fentress 2001, 206.
[46] Knapp 2001.

whole) that is shared amongst multiple temporally specific disciplines (i.e. prehistorians); in particular, Knapp argues that survey archaeology has probably been a very crucial and influential sub-discipline that has contributed towards understanding small-scale regional settlement interaction and connectivity between major cities and their hinterland.[47] Individual treatments of small-island harbours and their connection to port networks have appeared, some in great detail,[48] but these islands' treatment in larger-scale studies is often anecdotal, based on unchallenged—and sometimes outdated—evidence.[49] In addition, a lot of detailed archaeological and historical information is available now that examines these small islands, however, in complete comparative isolation to both larger and smaller-scale networks that are presumably occurring simultaneously around them.[50]

One of the aims of this thesis is to demonstrate how far one can take evidence from the fringes of well-studied provinces and use these data to explore direct—or indirect—links between provincial coasts and the bridges offered by the few interspersed islands in the Sicily and Libya channels. A method that incorporates an uneven range of archaeological data is attempted, and I make no claim to exhaust all potential and available evidence but instead I intend to demonstrate some potential methods that bridge common datasets.

[47] Knapp 2001, 335.
[48] For Pantelleria (Abelli 2010); Lipari and the Aeolian islands (Castagnino Berlinghieri 2003); the Maltese islands (Gambin 2004; 2005).
[49] Here particular emphasis is made to the anecdotal role the Maltese islands play in sea-routes solely on account of the few mentions in classical sources about their geographic location and the trade in textiles (Arnaud 2005, 188; 2008; Horden and Purcell 2000, 358). Lampedusa receives even less mention.
[50] Certainly for the Maltese islands where publications specifically focus on the islands with little mention of how the islands functioned within a wider Mediterranean context; for instance, Bonanno 2005; Bruno 2009.

1.3 Exploring economic models

Ancient trade, in particular for the Roman period, has been at the forefront of research design in Roman archaeology and discussion over the last four decades. A multitude of particular foci have been argued and investigated all within the ambit of understanding the wider implications of the Roman economy. However, three particular themes stand out and are of specific interest to this research. The first is connectivity and its cousins, interaction and networks within an archaeological context. The second depends on the first in understanding the extent and general parameters of how the eastern Mediterranean basin interacted and traded with the western basin. The central Mediterranean is conceivably the place where the two sides of the basin met, naturally with Rome at the conceptual, as well as geographical centre. Lastly, and again closely linked to the above themes is the debate on the characterisation of short-, medium- and long-distance trade and sea travel.

1.3.1 Connectivity, interaction and networks

The concept of connectivity, as defined and explained by Horden and Purcell, has served as a platform on which our understanding of the busy activities that took place in the ancient Mediterranean is based upon and contextualised against. By definition, Horden and Purcell argue that connectivity—in the form of various forms of land, sea and river travel and communication—is the glue that consolidated smaller microregions into a greater, functioning whole—in essence, the Mediterranean basin of the first millennium.[51] Archaeologists studying different cultures and

[51] Horden and Purcell 2000, 123–172.

Mediterranean regions in different periods could all find relevancy in this revised reading of a very well-studied geographical region.[52]

In common with *The Corrupting Sea*, Broodbank argued for a greater awareness of how the island inhabitants interacted with the sea and their surroundings using an island archaeological approach, although, far greater emphasis was placed on small Mediterranean islands.[53] As a method, he stressed the following 'guides': firstly, in research design it is important to resist the temptation to focus on all aspects within, yet not beyond, the island's shores. Indeed, it is precisely the detailed monograph-study tradition of island cultures that has enhanced their isolation and intrigue by divorcing them from a regional context.[54] Secondly, a move toward contextualising island cultures is incorporating a study of their connecter, the sea, through maritime, underwater and coastal archaeologies. Lastly, detailed artefact studies should be undertaken, which can be used to plot the distribution and density of finds across whole islands and regions. Comprehensive and systematic distributions also highlight the potential *absence* of certain artefacts. Broodbank's emphasis on artefact studies also extends to re-introducing the old-fashioned method of studying the transmission of stylistic applications and ideas (such as pottery styles, architecture etc.) that has the potential of tracing homogenous cultural groups and influences.[55]

Alongside island archaeology, the concept of insularity gained a lot of traction in Mediterranean prehistory as a means of understanding the monumental architecture peculiar to some island cultures, in particular the

[52] For prehistory and the Bronze Age, see review by Knapp 2001; for the Classical period see Fentress and Fentress 2001, Laurence 2001.
[53] Broodbank 2000.
[54] Bloomert and Bright 2007, 14.
[55] Broodbank 2000, 33–37.

Late Neolithic temples of the Maltese islands.[56] The Oxford English Dictionary defines insularity as: "The state or condition of being an island, or of being surrounded by water"; or "the condition of living on an island, and of being thus cut off or isolated from other people, their ideas, customs, etc.; hence, narrowness of mind or feeling, contractedness of view."[57] The slightly negative connotations imbedded in the latter description were explored and redefined by J. Robb in understanding the active role of islanders in the importation of particular ideas and cultural traits, whilst consciously preventing the dissemination of others.[58] In summary, an island is insular because it is an island in a geographic sense, but islanders do not necessarily have to be insular in their attitude towards others. One can argue that every community, whether inland or on an island has insular traits if contact is irregular or if the collective attitude towards the outside is geared towards distinguishing their differences. 'Common' cultural traits and the notion of a collective identity change and adapt through different periods and the variables that can suggest difference can be large and involve far-reaching influences.[59] In a sense, even though the concept of insularity can apply to any community, islands offer the ideal 'archaeological' opportunity to test these assumptions. Acculturation by Punic, Greek and Roman colonisation over a millennium added multiple new layers of gradual constant re-fashioning and changing of attitudes towards all aspects of life for that period. For instance, aspects of Punic culture were retained in North African, Iberian and western Sicilian cities, although various degrees of Greek and Hellenistic influences merged to

[56] Evans 1977; Renfrew 1973, 147–166.
[57] Oxford English Dictionary, online edition: http://www.oed.com/.
[58] Robb 2001.
[59] Kouremenos, forthcoming, 1–2.

eventually form new identities that had to face re-fashioning again during the centuries of Roman influence.

The transmission and congruence of cultural traits and ideas was done through the medium of travel; for islands in particular, this travel most certainly involved sea travel. Network theory applied to ancient history is a recent trend in implementing explanatory models for geographically dispersed, yet a culturally connected *koine*.[60] Framing connectivity and interaction using the concept of a network acknowledges the invisible, yet evidently present link that demonstrates a directed or undirected transmission of an idea, style, or object, by a human agency from one point to another. Networks accept the potential, yet acknowledge the comparative isolation inherent in island archaeology's acceptance of insularity as an explanatory construct.

A network is a notion that is applied to the classical world in various ways. I. Malkin adopted a "descriptive and heuristic" network approach to studying the spread and consolidation of a Greek world in the Archaic Mediterranean.[61] Evidence that is mostly derived from historical sources provides a detailed, yet shifting narrative of multiple interactions and links between nodes. One of the many criticisms aimed at Malkin was that he did not incorporate archaeological evidence to support various arguments that would have "enabled a detailed analysis of the spread of networks on the ground".[62] C. Constantakopoulou drew on the shifting interplay between Aegean islands within the Athenian empire during the 5th century BC, using exclusively classical sources in a detailed synthesis, which illustrated the changing perceptions of Aegean-island insularity shaped by the political,

[60] Malkin 2011.
[61] Malkin 2011.
[62] Kellogg 2012.

social, religious and spatial interactions influenced by dominant Athens.[63] The idea of a network in archaeology can be equally descriptive, but is instead based on less specific, but more dispersed, nodes in the form of archaeological material culture. Networking, connectivity and interaction morph into one general concept that is adopted to explain the well-integrated Mediterranean of the Roman period, but also its regional differences and peculiarities. The scope and aims of the research questions have much influence on the direction one chooses to apply networks.

The annexation of the Mediterranean by the Romans took place over the course of around two centuries.[64] Pre-existing Greek and Phoenician city-states dotted along the North African littoral were already highly developed when compared with what the colonisers were faced with in the 9th century BC. Thus, the general everyday activities that took place in most towns by their inhabitants, such as administration, religious and secular rituals and general local production, continued to be practised. New configurations and directions were added onto already existing and functioning networks; small- and medium-scale sea-routes did not change, but new towns were settled, especially in Africa, and new routes needed to be constructed to cater for new directions of movement and incentives. But these no doubt followed parts of old network connections. The ancient Mediterranean is a palimpsest of hundreds of existing, waxing and waning networks channelled along countless environmental and, most importantly, anthropogenic links, both created and subconsciously there. For example, thousands of family networks merge with friendship, religious, political and cultural human-induced connections. Sea-travel, historical, ancestral and cultural ties to the landscape are linked to knowledge of travel and are

[63] Constantakopoulou 2007.
[64] Le Glay, Voisin and Le Bohec 2009, 91–103.

based on both subsistence and opportunistic incentives that encourage trade and exchange; social, familial, friendship and political ties also consolidate these travel and trade links and forged new links and connections that paved the way for movement of goods, people and ideas.[65] Finding the means of adequately representing and illustrating all these multi-layered and multi-media networks is one of the challenges faced by the Romanist.

I am not in agreement with Malkin where he states that "graphic illustrations of wide-ranging Mediterranean networks usually prove to be unhelpful."[66] He does later go on to accept that he opted "for the larger canvas of what seems to [him] highly probable at the risk of not presenting statistics and formulae that [he is] incapable of offering due to the state of our sources of knowledge".[67] Malkin's intention to move away from "messy 'spaghetti monsters'" because visual network maps tend to be confusing and illegible is precisely the opposite of what needs to be done; networks are by their very nature not ordered, straightforward representations, and we should not strive to derive and select the most straightforward links as these belie the real hubbub caused by past activities. Network connections are messy and busy and most of the time irrational and opportunistic precisely because they are ultimately created by social human beings. Malkin's awareness of visual network confusion is also heightened because "the ties overlap not just graphically but also historically".[68] Malkin's primarily classical-historian approach aims to focus on cognitive mapping as opposed to geographic mapping; and is more about identity than physical network connections that are of particular interest to the

[65] This is a known thing; see Malkin 2011, 18–19.
[66] Malkin 2011, 18.
[67] Malkin 2011, 19.
[68] Malkin 2011, 19.

archaeologist. Our goal as archaeologists is to demonstrate long-vanished networks archaeologically. In more practical terms, however, attempting to collate all existing past networks is probably impossible to describe, explain and illustrate. However, re-creating parts of greater networks by touching upon different degrees and types of interaction should be the way forward.

1.3.2 West versus east: Meeting in the middle?

One of the wonders of the Roman period is the fact that some key Roman artefacts have an unprecedentedly wide and dense—albeit sometimes sporadic—distribution that stretches from the Atlantic coast, Scandinavia, the Sahara,[69] and as far east as the coasts of the Arabian peninsula and India.[70] The Mediterranean basin is where these distributions are densest; however, since intensity decreases the further from the source,[71] general spheres of amphorae exchange have shown that cities bordering the eastern coasts of the Mediterranean gravitated towards neighbouring regions for the exchange of primary staples. A similar situation has been shown in the west. In the 1980s, Fulford argued that the proportion of imported and local pottery at coastal sites (at the time the only available quantified assemblages were those from Ostia,[72] Carthage[73] and Berenice[74]) was an indicator of the level of interdependence of Mediterranean Roman cities and showed how connected sites were with one another.[75] A second paper used quantified

[69] A. Wilson 2012.
[70] Tomber 2012.
[71] This is how general areas become associated with particular types of amphorae or fine ware productions; for example the case of Late Roman C ware thought to be a Cypriot production because that is where there is a congruence of the densest finds, despite no kilns having been discovered there. More recently, surveys have challenged that assumption as Late Roman C kilns and wasters have been identified in southern Anatolia, in particular the Pamphylian plain, providing evidence for a known production site (Jackson et al. 2012).
[72] *Ostia I–IV* 1968–1977.
[73] Fulford and Peacock 1984.
[74] Riley 1979.
[75] Fulford 1987.

assemblages from Berenice and Tripolitania in order to ascertain the general regional sources of these imported goods.[76]

The south-central Mediterranean is the zone where the supposed exchange of Roman goods crossed the west-east divide. In the late 1980s, Fulford argued that Roman goods (using the distribution of amphorae and fine wares) were travelling primarily along north-south routes, instead of along an east-west axis.[77] At the time Fulford wrote his two papers (dated to 1987 and 1989), the quantified ceramic evidence available to him was very limited and consisted of assemblages from Ostia, Carthage and Berenice for the former; and Berenice and Sabratha for the latter. Since then more quantified assemblages from other port-cities have been published, including a similar themed synthesis of the eastern and western imported pottery from Corinth.[78] More recently, C. Rice has revisited this theme and re-evaluated Fulford's original aim by including a series of more recent quantified amphorae and fine ware assemblages.[79] Rice concluded that compositional variation in assemblages could differentiate between goods that entered harbours to be transhipped or those that were subsequently intended for the city's consumption.[80] Less variety in the range of amphora sources signals bulk goods in transit at an emporium.[81] She also concluded that although eastern- and western-sourced amphorae were present to some degree in both eastern and western assemblages, higher concentrations of the 'home'-based sources tended to remain in regionally local circulation.[82] There are, however, some exceptions to this regional circulation, for instance as seen with the Mediterranean-wide distribution

[76] Fulford 1989.
[77] Fulford 1987; 1989.
[78] Slane 2000.
[79] Rice 2011; 2012; Wilson, Schörle and Rice 2013.
[80] Rice 2012, 45.
[81] Rice 2012, 46.
[82] Rice 2012, 47–48.

of the eastern-sourced amphora Kapitän II.[83] Fine wares were shown to have a very different dissemination and both eastern and western port assemblages were mostly dominated by western-sourced products.[84]

More recently, an on-going project directed by M. Harpster, involving the mapping of known shipwrecks and linking the site to the production location of their cargoes, is showing that cargo ships were generally travelling within a local regional circuit and were not hauling a single cargo directly from one eastern port to one in the west. There are exceptions, but these are few. Of particular relevance was a zone in the south-central Mediterranean—the area under study here—which showed a greater proportion of cargoes containing amphorae from both eastern and western production centres. This contrasted with predominantly western-sourced cargoes that were discovered in the western Mediterranean sea; and eastern-sourced amphora cargoes being well-represented off eastern Mediterranean shores. Harpster thus suggests that these cargo distributions indicate that ports in the central Mediterranean played a greater role as redistribution points for transhipment extending beyond the confines of local regions.[85]

1.3.3 Short-, medium- and long-distance routes

The apparent conceptual zones of economic circulation for the Mediterranean basin suggest more segmented sea-travel. Through a close reading of classical sources, in conjunction with a detailed study of real navigational concerns at sea, P. Arnaud has demonstrated that practically

[83] Rice 2012, 47–48; Peacock and Williams 1986, fig. 113.
[84] Rice 2012, 58.
[85] Harpster, M. 2014, '…and for sails they used skins and thin-dressed leather…' (Caesar, De Bello Gallico, 3.12): Ships, Identity and Maritime Communities in the Roman and Late Antique Mediterranean. Paper delivered at the *Roman Discussion Forum*, University of Oxford, on 5th March 2014.

all major sea-routes were made up of combinations of small 'base' routes.[86] The Mediterranean consisted of a very dense network of sea-routes, however, we are used to visualising long pan-Mediterranean routes linking major ports to each other, and in particular to Rome. Local and peri-local sea-routes are perhaps some of the oldest and most established sea-lanes; possibly the same general routes frequented since prehistory.[87] Mind maps using unique geographic landmarks were passed on down the generations, to the point where religious significance becomes part-and-parcel of the navigational marker.[88]

Evidence for short- and medium-distance trade is notoriously difficult to detect. Small beaches and bays probably required little modification for mooring or beaching small boats. T. Gambin surveyed the bays around the Maltese coastline classifying potential anchorages and landing places along cliff-lined and low-lying coasts, some offering temporary, seasonal shelter or year-round protection.[89] The harbours that afforded optimum protection for ships are usually the ones that have continued to be developed and used for centuries; unfortunately, constant maintenance and harbour embellishment renders earlier structures invisible. Also, the main harbours believed to have been important in the Punic and Roman period—Marsamxett and Grand Harbour, and Marsaxlokk Bay—remain Malta's primary harbours. In contrast, traces of an ancient breakwater in Pantelleria's main harbour remain partially visible today.[90]

[86] Arnaud 2007, 237.
[87] Evidence for peri-local sea-crossings between the Maltese islands and south-east Sicily can be traced to at least the Bronze Age (Borġ in-Nadur phase; c. 2500–1500 BC) where the distribution of exported Maltese pottery in tombs along the eastern Sicilian coast suggest exchange between the islands (Tanasi 2015).
[88] See section 1.1.3.
[89] Gambin 2005, 259–284.
[90] Abelli 2012b, 75.

Sphere of interaction	Geographical scale	Temporality	Operators	Typical vessels	Evidence	Typical modes of exchange
Coastscape	Territorial coastal zone; passes to interior; inshore waters and the visual seascape.	Everyday life	All: specialists and non-specialists	Fishing boat; pilots; coasting vessels	Akrotiri fresco boats; Mitrou boat; Cretan seals; boat models	Home-based and boundary reciprocity (inland and maritime)
Maritime small world	Many coastscapes, connected by no more than two-day round trips; depends on topography.	Habitual	All: specialists and non-specialists	Fishing boats; coasting vessels; small cargo	Pseira wreck? Point Iria wreck? Akrotiri fresco boats	Home-based and boundary reciprocity, central-place market.
Regional/ intracultural maritime sphere	Aegean basin; depends on technology and development of intracultural relations.	Relatively infrequent	Specialists	Sea-going cargo vessels; galleys	Pseira wreck? Point Iria wreck? Fresco boats; Akrotiri Pylos, Iklaina	Boundary reciprocity, down-the-line, freelance
Interregional/ intercultural maritime sphere	Outside Aegean basin and Mycenaean maritime culture area; depends on technology and development of intercultural relations	Infrequent	Specialists.	Seagoing cargo vessels; galleys	Uluburun wreck; Gelidonya wreck; LH IIIC painted pottery (galleys).	Down-the-line, freelance. Emissary trading, colonial conclave

Table 1: Types and frequency of maritime interaction evidence in the Mycenaean Bronze Age (Tartaron 2013, table 6.1).

The identification of small anchorages and port structures can only tell us so much about short- and medium-distance trade and sea-travel. Evidence for contact between small 'local-level' communities is rarely archaeologically visible. T. Tartaron, using evidence from the Mycenaean Bronze Age, argued for a model based on scalar categories of evidence suggestive of the types and frequency of maritime connections (Table 1).[91]

The main point stressed by this model is that the more specialised the crew, larger the ships and greater the distance travelled, the less frequent the trips made. The opposite is stressed for smaller boats with a less specialised crew covering shorter distances, the more well-travelled and frequent the activity.[92] In all probability, ancient ports catered to all levels of sea-travel;

[91] Tartaron 2013.

[92] Tartaron 2013, 186–187, Table 6.1.

from the local fisherman using the harbour to moor his boat; to the transitory large cargo ship docking for a short time en route to another harbour. D. Stone recently mapped a dense chain of artificial ports, quays and breakwaters along the North African coast arguing for greater economic connectivity on a local and regional level during the Roman period.[93]

The types of evidence that Tartaron seeks in identifying different scales of maritime trade and connectivity can certainly be found in a Roman context. Some very detailed, region-wide surveys and studies of coastal infrastructure of differing scales have appeared in recent decades.[94] The state of ceramic studies is particularly healthy compared with other periods primarily because of the great increase in the volume of low-value amphorae and utilitarian pottery that has a wide and dense distribution. In addition, Roman-period ports, harbours, cities, rural settlements, coinage etc. are among the better-known and more archaeologically visible aspects of the Mediterranean offering a detailed and varied range of sources of evidence to apply Tartaron's model and adapt it to the Roman period.

[93] Stone 2014.

[94] Slim et al. 2004 for Tunisia; R. Wilson 1990 for Sicily.

Sphere of interaction	Geographical scale	Temporality	Operators/ vessels	Evidence	Typical modes of exchange
Coastscape: Local, familiar scale; individual small islands or large cities with a hinterland; community; the microregion	*Territorial coastal zone; passes to interior; inshore waters and the visual seascape.* Local; stretch of coast; within island; hinterland and main city? i.e. Maltese islands	*Everyday life*	*All: specialists and non-specialists; Fishing boat; pilots; coasting vessels*	Local industries; coarse ware pottery; locally circulating products; idiosyncratic objects (ritual); detailed provenance studies	*Home-based and boundary reciprocity (inland and maritime)* Producers>local market Producer>table
Maritime small world; peri-local contact; pre-Roman affiliations based on pre-colonists and proximity – well-known routes	*Many coastscapes, connected by no more than two-day round trips; depends on topography*; places a short distance from the 'local' i.e. south-central Mediterranean coasts	*Habitual*	*All: specialists and non-specialists; Fishing boats; coasting vessels; small cargo*	Export of coarse wares and pottery (or other visible finds) with a narrow, localised distribution; literary and epigraphic evidence; shipwrecks; distribution of coins; regional cultural spheres	*Home-based and boundary reciprocity, central-place market.* Producer>local/foreign merchant Local market>local/foreign merchant; Stocking-up/collection of goods at emporia
Regional/intracultural maritime sphere; connections to other maritime small worlds (based on general region-to-region contact and trade); 'Roman whole' Mediterranean.	*Aegean basin; depends on technology and development of intracultural relations;* i.e. entire Roman world; Mediterranean basin	*Relatively infrequent* (?) Seasonal?	*Specialists; large sea-going cargo vessels*	Distribution of regional products; dissemination of fine wares; organisation of *annona*; literary and epigraphic evidence; shipwrecks and cargo composition; emporia would have a large proportion of imported wares within the pottery assemblage; highly diverse too.	*Boundary reciprocity, down-the-line, freelance* Imperial incentives and driven market (Annona); regional markets emerge independent of Rome; demand-based?
Interregional/intercultural maritime sphere; trade and contact beyond Roman *limes*. Non-Roman contact.	*Outside Aegean basin and Mycenaean maritime culture area; depends on technology and development of intercultural relations*; Outside the empire's limes	*Infrequent*	*large sea-going cargo vessels*	Trade along Red Sea routes; distribution of Roman objects in non-Roman places; Literary sources (periplus); emporia with high proportion of imported wares in the assemblage (25% only local for Red Sea and Arabian ports – Tomber 2012, 208)	*Down-the-line, freelance. Emissary trading, colonial conclave*; Highly organised and regulated; periodic and planned (port-cities founded for this purpose); dependent on emporia ports,

Table 2: Scales of interaction and their potential archaeological evidence adapted for the Roman period (after Tartaron 2013, table 6.1). The italicised text is Tartaron's original text; the remaining non-italicised text is my own.

In an attempt to conceptualise the frequency and scale of Roman-period interaction, in particular on the local and regional level, I have revised Tartaron's table of maritime frequency with the intention of adapting it to a

Roman context (Table 2). The scale, volume and frequency of travel and trade differed significantly on the larger scale, but was probably more stable and in keeping with more traditional, well-established connections on a more local level. By focussing on small islands, their peculiar—or not so peculiar—industries, and archaeological evidence, it is hoped that a general method of approaching small-scale interaction can be explored. The lowest common denominator that connects practically all places in the Roman period is pottery. Therefore, I aim to proceed by exploring local ceramic assemblages from the Maltese islands, looking both at local products and their effect on the local economy; as well as the make-up of the imported pottery that found its way to the islands.

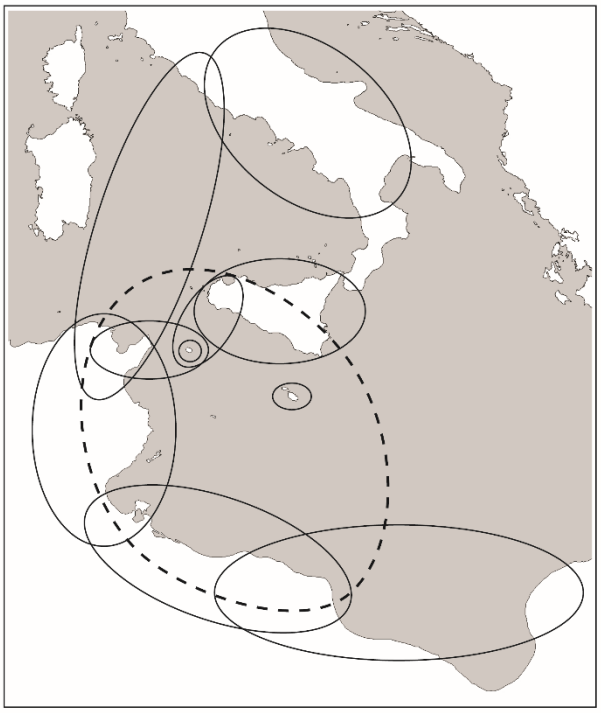
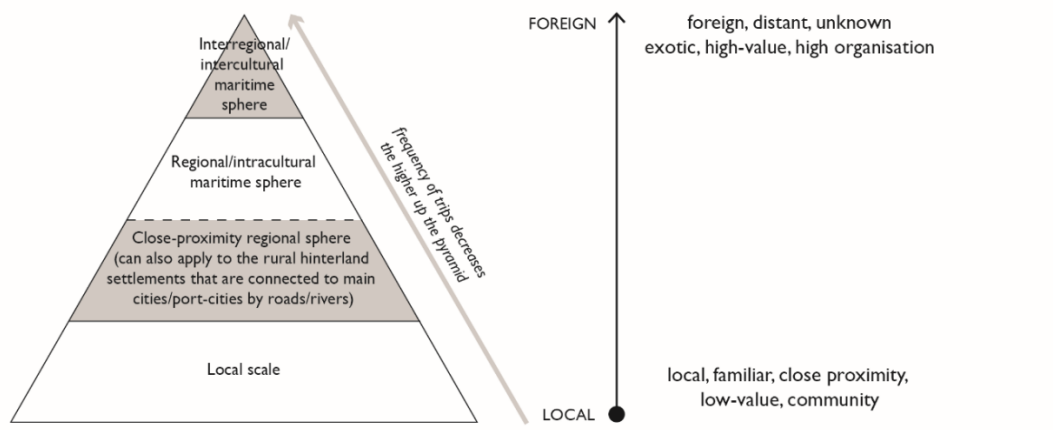


Figure 5: Plan of the central Mediterranean. The ellipses represent the various foci of discussion within the area. The dashed ellipse is the area between major regions (source: author).

Moving beyond the local, different characteristics between pottery types from the remaining small islands and nearby coastal cities will be explored using a network analysis approach. One of the aims is to explore the interaction of places within a zone that is usually peripheral when discussing regional and interregional interaction and trade. The intention

here is to shift existing scholarly boundaries—illustrated as ellipses in Figure 5, which represent examples of scholarly research areas (i.e. Slim et al. 2004 and the focus on the Tunisian coast; R. Wilson 1990 and Sicily etc,)—away from fixed provincial maps and to focus on the areas that converge where several regions border each other—the dashed ellipse within Figure 5.



General geographic reach	*What to expect*	*What can be found*
1. Beyond the Roman frontiers.	1. Exotic, high-value goods.	1. Exotica in Roman contexts (i.e. pepper); distribution of Roman objects beyond frontiers (i.e. distribution of Dr. 2-4 amphorae).
2. Wider regional interaction.	2. Fashionable goods; metals; annona goods for Rome; market-led demand; fine wares.	2. Large ships; less diverse range or cargoes; fine ware distribution; distribution of goods/materials far from source.
3. Close-proximity regional interaction; archipelago-closest-to-mainland relationships; strong links to pre-Roman identities.	3. Dried food goods, oil, wine redistribution of supplies that are not produced on an immediate local scale.	3. More mixed cargoes; smaller ships; emporia-based cargoes; smaller warehouses amphorae and cooking wares? Closer consistancy of specific pottery or artefact types; general range and rough quantities and proportions; low-impact marginal exports (Maltese ones; possibly Pantellerian spread is wider).
4. Local scale; very familiar land- and seascapes; places only a short, and well-known, distance away.	4. Fresh produce (fresh meat, fruit and vegetables); locally significant religious and ritual paraphernalia; idiosyncratic goods that represent place-specific needs.	4. Fabric analysis and identification of local course wares; small ships; natural and small artificial ports/quays; what level of products are being imported and what's being used; local restricted industries.

Figure 6: Visual summary of frequency of interaction for the Roman period (source: author).

An analogy employed here to assist in visualising the frequency of travel and degree of interaction is illustrated in Figure 6. The more distant the place, the less travelled the route, but the higher the value return. On the other hand, the closer and more familiar the destination, the better-travelled and more traversed the route and greater accumulation of low-value goods. The concept is summarised using a pyramid structure (Figure 6).

This scheme is far from being a new concept for the Roman period; however, collating the general divergences from the 'local' to the very

'foreign' does aid us in identifying parts of this system with greater clarity and understanding parts of it within a wider context. There is no denying that the economy of the Roman period was markedly different than anything that existed before. It is the uncertain fluidity, scale and flexibility of the range of interaction within the second rung in the pyramid that receives most of the attention.

1.4 Tracing island economies through pottery

1.4.1 Identifying imported and local pottery: amphorae, fine wares and cooking wares

A significant portion of archaeological data used to study the ancient economy is composed of pottery. Pottery is a versatile archaeological tool because of its ubiquity, durability and volume. These qualities are key to allowing comparative studies across the Roman world. However, this type of information is only useful if it is available in a format that makes it comparable to other similar data. Possibly, the single most important function of any stratified pottery assemblage is that it potentially offers the best chance for archaeologists to glimpse a part of past consumption habits. Recent advances in petrographic analysis and provenance sourcing of pottery, as well as the widespread implementation of extensive surveys have greatly aided in identifying places of amphora (and fine and cooking ware) production as well as the accurate sourcing of these products within foreign assemblages. This allows goods from known production centres to be sourced more accurately and make distribution maps more meaningful. Identifying what proportion of any assemblage is local to the area and what is imported is one of the most basic calculations made and is central to

roughly gauging how dependent or independent a particular site was in relation to external imports.[95]

Amphorae are key markers for tracing the movement of organic goods that were produced in bulk and traded all over the Roman empire and beyond. From at least the 1st century BC wine and olive oil were stored and transported in unprecedented numbers from their place of production to their consumers.[96] Shipwreck data collected by A. J. Parker have been used to demonstrate the steep rise in scale of the maritime trade since the 1st century BC.[97] The majority of these wrecks were identified on the seabed because of the surviving traces of parts of the cargo—amphorae. More infrequent are wrecks that carried other ceramic cargoes such as fine and cooking wares, architectural elements and marble and others.[98] Amphora sourcing has contributed much to the debate on cargoes and what composition of cargo represents a direct route or a point along a redistributive network as a collection of different types of goods from an emporium or entrepôt.[99]

1.4.2 Comparing quantified assemblages: approaches and problems

First and foremost, all archaeological data are incomplete, patchy and somewhat random. We can never be certain about the true aspect of regional trade and the volume of goods that were moving around the Mediterranean in antiquity. However, this should certainly not deter us from at least trying to make sense of it with what is available. Advances in both fieldwork and theoretical methodologies, post-excavation techniques and the stricter implementation of antiquities laws that protect

[95] Indeed, this is what Fulford demonstrated in one of his seminal articles using quantified ceramic assemblages (1987).
[96] Wilson 2009, 215.
[97] Parker 1992a.
[98] See A. Wilson 2011.
[99] Parker 1992b.

archaeological sites are constantly adding more information to an ever-growing arsenal of archaeological data. These data are more detailed and inclusive than ever before and are key pieces of evidence that contribute towards the big questions that can be asked of the Roman world; one such question that has received significant attention recently is that of the scale of the Roman economy.[100] However, the ability to ask (and hopefully answer) these big questions is dependent on there being detailed quality data available. There is a danger, however, of relying on the choicest data and paying less attention to the smaller scale. Unfortunately, it is often the small scale that lacks the wealth of data afforded to better-researched sites.

The earliest and most systematic attempt at quantifying a pottery assemblage was undertaken for the pottery assemblage at Ostia.[101] Soon after, John Riley implemented a detailed method of quantification for all classes of ceramics, including the coarse wares, at the site of Berenice (Benghazi, Libya). He stated that "the ultimate aim of any method of quantification must be efficient inter-site comparisons",[102] and he demonstrated this by comparing proportions of amphora types with those derived from Ostia. Since then, rigorous quantification methodologies were adopted for the excavations at Carthage, Leptis Magna, and Euesperides to name but a few.[103]

The task of quantifying pottery assemblages, especially very large ones, can be immense, complicated, and time-consuming. However, short cuts or improperly published and illustrated results have caused problems when trying to use these data in comparative exercises with other sites. Twenty

[100] See A. Wilson 2009.
[101] See *Ostia I–III* volumes.
[102] Riley 1979, 100.
[103] Fulford and Peacock 1984; 1994; Bonifay et al. 2013; Swift 2006; Göransson 2007.

years on from publishing *Pottery in Archaeology*,[104] the frank opening statement that the subject of quantification "has generated more heat than light in many years" forecast their awareness of the "controversy" that has arisen over choosing one method over another.[105] If one had to break down and incorporate every single criterion that is brought up in this manual and apply it to a study of a real-life assemblage like those discussed in Section 1.5, then very little has actually been achieved so far. But how practical is this? From the reports studied few of these criteria appear to have been taken into consideration. Attempting to calculate the average lifespan of a vessel is largely out-dated now and there is general acceptance that any attempt to try and calculate this is largely a moot point. It is now widely accepted that one of the main uses and priorities of archaeological quantification is to "concentrate on comparing the compositions of different assemblages".[106]

1.5 Fifty shades of quantifying: an overview of the many differences inherent in a supposedly comparative methodology

Whilst preparing and gathering the data required for the comparative aspect of this research many questions were asked of the methods and data that were to be used. In this section, a detailed overview of the different methods adopted in several key publications is presented, followed by a summary of some of the main conclusions drawn. It is clear that each method varies quite considerably, and the methods adopted are ultimately dependent on different research criteria and external demands imposed on the excavators. Unfortunately, even though it is now common practice to quantify assemblages, there are still no defined criteria that are adopted

[104] Orton, Tyers and Vince 1993.
[105] Orton and Hughes 2013, 203.
[106] Orton and Hughes 2013, 204.

over others; quantification methods are still a selection process of the 'best fit'.

1.5.1 Quantified assemblages from published sites

The following section includes an overview of the general methodologies adopted by the excavators and/or pottery specialists for the published site material used in the analyses later in Chapter 5. Following each assemblage description there is a short section that explains how the data were extracted and manipulated in order to make them usable and comparable with other site assemblages used in this study.

1.5.1.1 Carthage

The pottery data for Carthage have been extracted from Fulford and Peacock's pottery report of the excavations on the north side of the Circular Harbour directed by Henry Hurst between 1974 and 1979, as well as some additional work in the early 1980s.[107] This material comes from a small area (c. 0.04%) of Carthage, on the north side of the circular harbour;[108] an important Late Punic and Roman harbour context consisting of Late Punic shipsheds and succeeding Roman harbour installations and buildings.[109] Overall, these excavations have generated crucial economic information relating to the Late Punic and Early to Mid-Roman periods at Carthage.

A large volume of pottery was recovered from this excavation and a systematic attempt was made to quantify all the material based on groupings determined by general class (amphorae, coarse/cooking ware, fine ware and miscellaneous), and where possible, further non-African groups or types (such as Dressel 1 and 2-4 amphorae, Massiliote, Greco-

[107] Fulford and Peacock 1994; Hurst 1994.
[108] Hurst 1994, 3.
[109] Hurst 1994.

Italic, Spanish etc.) and major fine ware classes such as ARS and ITS.[110] The chronology attributed to the assemblage spans the pre-Roman period and the early 1st century BC through to the mid-3rd century BC. Two deposits (context 4.31a and 4.38b) covered the 4th to mid-6th centuries AD.

Initial attempts were made to utilise the quantified pottery data from the Carthage excavations directed by the University of Michigan, studied by John W. Hayes, and quantified by John Riley.[111] Unfortunately, there was far too little detail concerning amphorae types, which did not correlate well with the quantified figures towards the end of the volume.[112] Martin-Kilcher studied several other pottery assemblages from an urban context in Carthage.[113]

The entire assemblage was divided according to different ware groups (amphorae, fine wares, cooking/domestic wares and lamps) and treated slightly differently by each author. Even though Fulford and Peacock worked on most of the pottery within each section, there are slightly different ways in which each class was treated. Fortunately, separate chapters summarising the deposits (Chapter 5) and general quantification (Chapter 6) of the material did bring together quantitative data for the entire group as a whole.

Amphorae: Compared with the Byzantine-dated excavations at the Avenue Bourguiba, the Circular Harbour material consisted of a much smaller volume of material primarily dated to the Late Punic and Roman period. The major comparanda used are Simon Keay's typology of Late Roman amphorae[114] and Nina Keay's typology for Punic and early Roman

[110] Fulford 1994a, 97.
[111] Hayes 1976; Riley 1976.
[112] Riley 1976, tables 7–9.
[113] Martin-Kilcher 1999; 2005.
[114] Keay 1984.

amphorae at Sabratha.[115] The amphora typology describes the North African Late Punic and early Roman types, primarily consisting of Van der Werff types 1–3 (Sabratha types 8–9), the majority of which were recovered from contexts dating to the late 1st century BC.[116] Common and well-known imported forms were not included in the typology but were weighed (in grams) and added to the quantification tables in Chapter 6 based on stratigraphic groupings in key deposits.[117] The classification and quantification methods adopted for this site are the same as those chosen for the excavations at the Avenue Bourguiba, also in Carthage.[118] Diagnostic sherd counts were added to each of the catalogue entries[119] but it remains difficult to relate these counts with the arbitrary weighed categories in Chapter 6.[120] Residual pottery was not extracted from the groups as chronological distinctions based on fabric alone were not possible.[121]

Fine wares: The fine wares studied by Fulford and Timby[122] were organised by chronological groupings that were primarily based on production. The 'Early Sigillatas' were divided into five groups and the Minimum Number of Individuals (MNI) of 178 sherds was given in tabular form.[123] An MNI for Thin-walled wares was not immediately stated in the text, however,

[115] Keay 1989.
[116] Peacock 1994, 42.
[117] Peacock 1994, 43, fig. 3.1.
[118] Fulford and Peacock 1994, vii; Fulford and Peacock 1984.
[119] Peacock 1994, 46.
[120] There appears to be confusion over whether Fulford and Peacock weighed or counted the pottery from the Carthage excavations. Rice mistakenly assumed that the figures for the Carthage pottery were counts (Rice 2012, 28). It appears that aside from the counts added in brackets in each amphora catalogue entry (and these only appear to be occurrence of the form within that particular phase group), the quantified figures in Chapter 6 are based on weight. Even Tomber seems to think that the Carthage material was counted (Tomber 2013, 340).
[121] Fulford 1994a, 97.
[122] Fulford and Timby 1994.
[123] Fulford and Timby 1994, 1, table 1.

each catalogue entry referred to an individual fragment.[124] As stated by the authors, the manner in which the African Red Slipped wares are catalogued differs from the rest of the pottery;[125] instead of grouping the ARS fragments according to typology, the authors organised the fragments by phase groups. This change in method was adopted in order to trace the early occurrence of specific forms that were not identified by Hayes.[126] This also helped in cataloguing very well-known forms which were in production for several centuries.[127] A count of the ARS fragments is incorporated in the deposit summaries in Chapter 5.[128] The weight of the major fine ware groups was also included in Chapter 6.

Cooking wares: A type series of the cooking and domestic pottery is presented in Chapter 4.[129] Although grouped together, as opposed to being placed as a separate chapter, the cooking wares are easily discernible from the coarse wares; something that is not always apparent in ceramic reports. Sherd counts are not given within each catalogue entry making it impossible to extract final RBH counts for this analysis, however, the quantified figures given in Chapter 6 include all coarse and cooking ware pottery together. The occurrence of each form within each type is however given and thus indicates at least the lowest possible RBH count for each phase group. The only weighed class groups that are distinct are based on imported fabrics such as Pantellerian and Campanian cooking vessels.

The quantified data from these excavations have significantly aided in demonstrating economic trends across the Roman Mediterranean. The most

[124] n=286 according to count of entries in catalogue or "c. 360 sherds" according to Fulford and Timby 1994, 9.
[125] Fulford and Timby 1994, 16.
[126] Hayes 1980.
[127] Fulford and Timby 1994, 16.
[128] Fulford 1994b.
[129] Fulford 1994c.

recent research incorporating these data is a D.Phil. thesis recently completed by Candace Rice.[130]

Adaptations: The data for each group were extracted from this report but only from certain contexts (contexts 1, 2, 3.3, 4.1–4.8, 4.10, 4.12a–b, 4.13a, 4.14a, 4.15c, 4.16b–4.18, 4.31a and 4.38b) that were chosen based on their dates. All but a few of these deposits were also used by Rice in her analysis.[131] Two problems were faced with this assemblage. First, the quantified groupings listed at the end were far too general for the purposes of this study and no quantified information pertaining to the number of forms or types is available. Groups are based loosely on source unless otherwise specified. Secondly, the final data are represented in weight, most probably in grams, although this remains unclear. This creates the problem of comparison between other site assemblages as most quantified ceramic data are often counts of sherds (see other sites below). In order to extract some useable type information, the occurrence of a particular type noted within each catalogue entry was listed in an Excel spreadsheet. A total of 367 vessels was recorded, constituting 75 types.[132] This figure excludes most of the common imported forms such as Dressel 1, Dressel 2-4, etc. as these were not added to the typology but were instead weighed and included as distinct groups in the quantification tables.

1.5.1.2 Leptiminus

The data on the pottery from this site was extracted from the third report of a recent survey at and around ancient Leptiminus (modern-day Lamta) between 1990 and 1999,[133] a coastal port-city located in central Tunisia. The

[130] Rice 2012.
[131] Rice 2012, 29.
[132] The 75th type, closed form type 71, belonged to a MRA 1b amphora that is most probably Sicilian in origin.
[133] Stone, Mattingly and Ben Lazreg 2011.

pottery information included in this study was taken from the third report of the urban survey started by John Dore[134] together with pottery from the rural survey, which was catalogued and drawn up by Carr in the same volume.[135]

Amphorae: The untimely passing of John Dore meant that the ceramic catalogue for the urban survey was left incomplete meaning that far less type information is reported than originally intended in the final report.[136] Fortunately, counts of each type recorded have been published.[137] The sherds are quantified by a count of the rims, however, it is nowhere indicated whether any attempt to isolate MNI was made.[138] As this material is the result of a survey, there is no context information or alternative dating evidence that could be linked to the forms recorded.

Fine wares: The fine wares are treated like the amphorae, and listed according to fabric and form making manual counting straight forward. All sherds (RBHS) seem to have been counted, but it is unclear whether an assessment of the MNI was taken into consideration.[139]

Cooking wares: The same methods for fine wares appear to have been adopted for the cooking wares too. Similar details were presented by Carr.[140]

Adaptations: Overall, the methods adopted for quantifying the Leptiminus survey material (both urban and rural) are simple, yet reach the objective of providing a finite list of forms divided according to source as well as type.

[134] Dore 2011a; 2011b.
[135] Carr 2011.
[136] Dore 2011a, 295; 2011b, 338.
[137] Dore 2011b, 337.
[138] Dore 2011b, 338.
[139] Dore 2011a, 295.
[140] Carr 2011.

It would have been convenient to illustrate these data in a table, but nevertheless, the data are available and relatively easy to convert into more manageable formats and manipulated for further analysis. Little needed to be changed as the types and their corresponding count were easily identified. For the purpose of this study, however, the rural and urban data were combined in order to provide a collective view of the whole area.

1.5.1.3 Leptis Magna

The ceramic data from this site are taken from the excavations of the eastern baths by the French Archaeological Mission in Libya in 1994. Four contexts were studied in detail and consist of pottery dating to the 3rd and 4th centuries AD.[141] The significance of these assemblages lies in the detail afforded to the Sicilian amphorae which were studied by Carmela Franco as part of a D.Phil. thesis at the University of Oxford.[142] These data were primarily utilised but earlier material, taken from a 1st century-AD context, from the make-up level of a domus excavated adjacent to the Leptis theatre in 1995, was taken into consideration where possible.[143]

All the assemblage was studied and quantified as one homogenous group, albeit under the guidance of more specialised pottery researchers, ensuring that the proportional relations between the major different classes were maintained and could be related to one another. Clearly laid-out tables listing the number of sherds (RBHS) for all the amphorae, fine wares, cooking wares and coarse wares are presented in an appendix at the end of the article.[144] Provenance and form types are listed clearly, enabling the extraction of the data for additional research. Each form type is then clearly

[141] Bonifay et al. 2013.
[142] Franco 2014.
[143] Reynolds 1997.
[144] Bonifay et al. 2013, 135–146.

catalogued with additional study and comparanda discussed for some of the main groups such as the Sicilian Mid-Roman 1 amphorae.

Adaptations: The types and counts were clearly discernible and easily extracted for the purposes of this research.

1.5.1.4 Jerba

This assemblage comes from the extensive surveys and excavations carried out on Jerba between 1996 and 2000.[145] This first volume includes the pottery from both survey and excavation that dates to the Punic and Roman periods.[146] The total number of fragments studied is given (n=15,517), of which 9,913 could be ascribed to the Hellenistic, Roman or Late Roman period, whilst the remaining 3,765 fragments were dated to the medieval and modern periods. 1,839 sherds, some of which were wasters, could not be dated.[147] The material was divided into major ware groups (amphorae, fine wares, and coarse wares) and treated as separate groups by different specialists.

Amphorae: A detailed list of the types of amphorae identified together with their quantity were available.

Fine wares: The different categories of fine wares (black-slipped, imported Republican fine productions, ARS etc.) are represented differently. For instance, Ben Tahar, who deals with the black-slipped pottery, presents a catalogue of the forms identified that also includes a count of the sherds for that type.[148] On the other hand, Fontana, who tackles the early Roman fine wares, includes useful tables listing the common form and subsequent

[145] Fentress, Drine and Holod 2009.
[146] Fontana, Ben Tahar and Capelli 2009.
[147] Fontana, Ben Tahar and Capelli 2009, 243.
[148] Fontana, Ben Tahar and Capelli 2009, 244–256.

sherd counts.[149] Either way, the type information and the accompanying quantitative figures are clearly provided and were quite easily extracted. There were some instances where the counts given in the text did not tally with those provided in the accompanying tables. In such cases, the data given in the tables were used.

Cooking wares: The cooking wares were included in the coarse ware section, however, under their own distinct heading. Like some of the fine ware section, no tables are available but the number of sherds are given for each type within the catalogue entries.[150]

Adaptations: The extraction of types and their equivalent sherd counts was generally quite straightforward and it is assumed that the majority of the numbers are based on a count of RBH. Since the majority of the pottery came from surveys of the island, the dates and organisation of the classes and types are based on external dating parameters and concordances and not on context groups.

1.5.1.5 Sabratha

The assemblage from Sabratha was taken from the excavations conducted by Kenyon and Ward-Perkins between 1948 and 1951.[151] For some unclear reason, only a small part of the assemblage originally collected was studied and included in the final report. Only a small sample of the whole assemblage was taken to the United Kingdom to be studied. It remains unclear what selection criteria were used, thus it is not certain how representative this sample is.[152] Nevertheless, a detailed report of the general types present is available.

[149] Fontana, Ben Tahar and Capelli 2009, tables 16.1–2, 4–5, 7, 9.
[150] Fontana, Ben Tahar and Capelli 2009, 306–310.
[151] Dore and Keay 1989.
[152] Dore and Keay 1989, Preface.

Amphorae: Only a small number of sherds was eventually studied and were dated by the form from the mid-5th century BC to the beginning of the 7th century AD; these are illustrated in clear tables.[153] The sample size is small (n=1689) and can be considered inadequate for further statistical comparison, however, enough information describing and listing the provenance and type of most of the forms identified proved to be useful for this study.[154] Only the rims and bases were selected for study, and thus counted, as only a few wall sherds were available.[155]

Fine wares: The fine wares are presented in a separate volume from the amphorae and domestic wares in clearly laid-out tables.[156] Further fine ware material from the excavations of the Antonine Temple were studied by Philip Kenrick, but were not included in this study.[157]

Cooking wares: Dore calculates that a total of about 4000 vessels were studied for the coarse and domestic ware assemblage and like the amphorae section the count is mostly based on rims as those were the sherds selected and transported to the UK for study.[158] Here cooking wares are catalogued together with the rest of the coarse wares. Fortunately, there was enough detail afforded to the cooking ware typology (classed according to forms such as casseroles, pans, lids etc.) making it relatively simple to isolate the cooking wares. Pantellerian ware cooking pots were also easily discernible from the other entries. The only problem here was ensuring that some North African cooking vessels that were classified by John W. Hayes in his Late Roman Pottery series, and some Pompeian Red ware vessels were

153 Dore and Keay 1989, 67–70.
154 The amphora study is made using a total of 1775 rims and bases (Dore and Keay 1989, 5); however, the ones assigned a Vandal/Byzantine date have been excluded for this study.
155 Dore and Keay 1989, 5.
156 Fulford and Tomber 1994, tables 1–2.
157 Kenrick 1986, 169–213.
158 Dore 1989, 87.

included in the fine wares volume. These entries had to be identified and added to the relevant ware groups.

Adaptations: The layout of the amphorae and fine wares were relatively easy to follow and although no quantification tables were presented, the number of forms/types could be simply counted following each catalogue entry. Although time-consuming, the process was not complicated. There is a danger that some cooking ware forms were not clearly distinguishable from other coarse ware forms but in general, the main forms could also be easily identified and picked out. The layout of the fine wares was much easier as tables listing the ware group and its corresponding count were provided.[159]

1.5.1.6 Berenice

The ceramic material representing Cyrenaica was taken from John Riley's extensive volume of coarse pottery from ancient Berenice, modern-day Benghazi.[160] A similarly detailed report on the fine wares was later compiled by Philip Kenrick.[161] A large area was excavated and fell upon part of the ancient city's insulae, at least for the Hellenistic and Roman periods. The occupation of the site stretches more or less from the Hellenistic to the Islamic periods.[162] Riley's primary aim was to "consider the coarse pottery from Berenice as far as possible in its totality from each well dated context rather than as individual sherds, and by quantitative techniques to provide important information relevant not only to the pottery specialist and practical archaeologist but also the economic and social historian".[163] This aim was certainly met by Riley as the quality and legibility of the data are

[159] Fulford and Timby 1994, tables 1–2.
[160] Riley 1979.
[161] Kenrick 1985a.
[162] Riley 1979, 91; Lloyd 1978.
[163] Riley 1979, 92.

far superior to any other quantified ceramic report in much of the Mediterranean.

In this publication, coarse wares include all utilitarian pottery (amphorae, coarse wares, cooking wares and other ceramic vessels). Lamps and fine wares (defined by slipped vessels, thin-walled wares etc.) were dealt with in a separate volume.[164] Some detail was afforded to a classification of the fabrics whereby Riley was able to identify six local fabrics.[165] The imported fabrics were grouped and described when relevant to a particular class/form of pottery.

A type series was created in order to deal with the vast amount of pottery collected. Up to 65% of the RBH collected could be classed within this type series. The structure of the typology is based on four chronological periods: Hellenistic, Early Roman, Mid-Roman and Late Roman. The grouping of the forms within these periods was based on the most commonly occurring type within well-dated stratigraphic contexts that were dated on the basis of associated lamps, coins and fine wares.[166] A further aid to this study (and the pottery studied in general) is a series of well-researched distribution maps relevant to the more common forms identified at Berenice.[167]

Amphorae: Riley created a type series all the amphorae from Berenice based on morphological changes and their occurrence within the stratigraphic contexts. Unless wall sherds were from important contexts, they were discarded soon after being washing and inspected for stamps.[168] All the

[164] Kenrick 1985a; that some non-fine ware groups such as Pompeian Red ware were included in the fine ware volume as opposed to being included in the cooking ware section in Riley's volume was recognised early on by Kenrick and Riley but had been determined by the post-excavation methods for sorting prior to the commencement of their studies (p. 1).
[165] Riley 1979, 93–96.
[166] Riley 1979, 98.
[167] Riley, 1979, 99.
[168] Riley 1979, 102.

RBH were counted and weighed and the count of each amphora attributable to a specific type are provided in clear tables and histograms within the volume. Relative proportions of the percentage of a type within the form assemblage are also calculated.[169]

Fine wares: The fine wares were presented in a separate volume from the coarse wares.[170] A different methodology was adopted for this assemblage. Kenrick divided the assemblage according to production (i.e. Italian *sigillata*, ARS, ESA etc.). Despite about 500 coins being recovered, many of these were residual, thus it was the responsibility of the fine ware and lamp specialists to determine the site's chronology.[171] This factor thus dictated that the fine wares be organised differently from the coarse wares. Less attention could be paid to refining the dates for certain fine ware forms, as the established forms were what determined the groups. Therefore, the fine wares are not divided according to context, but rather the common, well-known production. Fortunately, sufficient detail was placed in the deposit summaries that the counts of form-specific types could be recovered from the same contexts Riley studied. Contrary to the amphorae and coarse wares, all the sherds (RBHS) were counted (but not weighed). This difference in counting strategy certainly would affect the way the two groups can be compared together.

Cooking wares: As mentioned above, the methods used to tackle the amphorae were the same for the cooking wares. Some forms, in particular slipped Tunisian cooking wares classified by Hayes, as well as Pompeian Red ware vessels had to be extracted from the volume on fine wares. The only problem for this section was that the relative proportions presented in

[169] Riley 1979, 100, 109.
[170] Kenrick 1985a.
[171] Kenrick 1985a, 1.

percentages are for the type within all the coarse wares (although excluding amphorae), and not within a separate cooking ware group. An attempt at remedying this was made by isolating all the cooking wares from the coarse wares based on the type and fabric descriptions.

Adaptations: The quality and variable methods of relaying the quantified data made this assemblage relatively easy to manipulate. Time and care did have to be taken to identify type concordances as well as provenance for some of the types. The deposit summaries were useful in ensuring that the same contexts were chosen for within both the fine ware and coarse ware volumes. Correcting the difference between the RBH counts for the amphorae and cooking wares, and the RBHS counts for the fine wares was not possible.

1.5.1.7 Rome and Ostia

Plenty of quantified data have been published for Rome and its port-city Ostia.

Amphorae: Well-synthesized amphorae data compiled by Giorgio Rizzo listing the forms from Ostia and Rome have been used to represent the Late Antonine period.[172] The data for Ostia come from the detailed quantification exercises conducted for the assemblages from the Terme de Nuotatore (*Ostia I-IV*). Pottery from a series of recent excavations in Rome make up the latter figures as they were published in an earlier paper.[173]

Fine wares: The principal publication from which these data have been extracted is Archer Martin's paper investigating the supply of fine wares to Ostia.[174] Detailed quantified bar charts show the presence of each type of

[172] Rizzo 2013, tables 4.1–4.4.
[173] Rizzo 2003; 2013, 88.
[174] Martin 2006, figs 1–8.

fine ware from the late 1st century to the mid-3rd century. Martin's data collection is ideal but for the fact that no definite counts are written on the charts making it difficult to know what total each bar adds up to and also what the original count for each category is. A similar problem was faced when trying to extract numbers from the Corinth publications (see below). Fortunately, the quantification methods adopted for the original Ostia excavations provide the original figures to check against.

Cooking wares: The cooking ware data for Ostia come from *Ostia III* and cross-checked with a series of follow-up papers that synthesize the assemblage.[175] No cooking ware data for Rome were included.

1.5.1.8 Nora, Sardinia

The assemblage from the recent excavations of the Roman forum in Nora, Sardinia, was used for this study which covers the period from the 2nd century BC until the 4th century AD.[176] The assemblage as a whole is rather small when compared against others but it does demonstrate diachronically what common forms where reaching this port-city in the Roman period.

Amphorae: The amphorae assemblage itself was quite small (n=63) and seemingly well-organised but there are several inconsistencies with the total number of fragments and amphorae MNI which are difficult to trace and rectify. The presence of particular forms can be extracted.

Fine wares: The fine wares were divided between different specialists (i.e. TWW, black-slipped ware, etc.), which has allowed for a detailed breakdown for each fine ware production, but it remains difficult to relate and compare the assemblage as a whole.[177] The presentation of the fine ware

[175] Anselmino et al. 1986, 57–64; Coletti 1996; Coletti and Pavolini 1998.
[176] Franceschi 2009a.
[177] Falezza 2009a–c; Franceschi 2009b;

classes also varies depending on the author of each section; each illustrating the quantitative information in different formats.

Cooking wares: Cooking ware data are available and are quite detailed and well-organised, although the handmade categories are dealt with separately.[178]

Adaptations: Most of the quantities were extracted for each section without too much difficulty. For the fine wares, further calculations had to be made to convert the proportional percentages given back into whole numbers but this was only possible when the total number of sherds was given.

1.5.1.9 Pantelleria

In recent decades a significant number of publications detailing the ceramic industry, particularly Pantellerian cooking ware, and the island's economic role have been published.[179] The ceramic data selected for this study include the material from the recent surveys and excavations directed by the joint Italian-German team.[180] A tremendous amount of detail went into the recording of this assemblage. Counts of all the sherds collected and studied according to different site as well as those configured for different classes and types allow the reader to extract a wealth of raw data and figures that are easily manipulated for alternative research purposes.

Amphorae: The amphorae have been carefully studied by Babette Bechtold and since the majority of the fragments included in this volume come from surveys they are organised according to the known dated typologies. In total 1143 diagnostic sherds were recorded; 718 from the survey and 425 from the excavation; they covered the period between 8th century BC to the

[178] Falezza 2009d; Mazzocchin 2009.
[179] For instance, see Abelli 2010; Almonte 2013; Tusa, Zangara and La Rocca 2009; See Section 4.1.
[180] Almonte 2013.

6th century AD and provide a testament to the long occupation of the island. One of the primary objectives of this island investigation was to create a detailed document of the island's Punic past, therefore the amphorae are divided according to tight chronological phases for the entire Punic period, and lesser ones for the subsequent Roman and Late Roman periods. In particular, the years between, during and after the three Punic wars are well defined.[181] This has somewhat dictated the organisation of the chronological groupings, but does little to affect the labelling of Roman amphorae according to types. A small section of this publication also catalogues and describes the Maltese ceramics that were discovered during the survey and excavation.[182] Again, the presentation of these data allows one to extract the exact numbers and types of Maltese-made pottery from either the surveyed sites or excavation with some ease and these data have been used in section 3.8. Maltese-produced pottery, other than Punic egg-shaped amphorae were not included in the Network Analysis since these are dealt with separately in Chapter 3 as they are difficult to classify as amphorae or fine wares.

Fine wares: The same level of quantified detail used for the amphorae is used to describe and illustrate the fine wares.[183] Again, the fine ware fragments are divided according to known types that are chronologically distinct.

Cooking wares: The coarse ware section, potentially a very important section for our knowledge of utilitarian ceramics on the island is compiled by Karin Schmidt.[184] Both the local Pantellerian cooking wares as well as all other coarse and utilitarian wares are grouped together here. Unfortunately, few of the data are presented in quantitative tabular formats like the remaining

[181] Bechtold 2013, 409–410.
[182] Töpfer 2013.
[183] Ferrandes, Bechtold and Almonte 2013.
[184] Schmidt 2013b.

classes, making it impossible to select counts for the cooking wares. Only a few sites were selected and dealt with in detail, although a detailed description of each type present is available. A more detailed and complete report of the coarse and cooking wares is soon to be published in *Cossyra I*. For the purposes of this research the occurrence of the types of cooking wares present has been used.[185] For the local cooking wares, Schmidt does state whether the forms present are rare, common or uncommon.[186] Her attention to detail regarding the type concordances between the various typologies currently used for the main Pantellerian ware forms (for instance those adopted for the Sabratha assemblage) has been very useful for this study and has also helped in better dating some of the known forms.

Adaptations: The amphorae and fine ware data were easily accessible, however, only the presence of each cooking ware type could be listed and not quantified.

1.5.1.10 Sicilian mainland sites and Lipari

The data used for key mainland sites in Sicily and Lipari have come from a recent article published by Malfitana and Franco[187] that uses the available ceramic data for a number of key coastal sites to study the island's economy. The sites include Catania, Syracuse, Lipari, Segesta, Agrigento, Lilybaeum, Palermo and Solunto. In a convenient appendix the number of known amphorae and fine wares for each case-study is listed according to type and period.[188] The ceramic data come from the 'Roman Sicily Project: Ceramics and Trade' database currently being compiled under the direction of

[185] A scalar system of common (n=2), present (n=1) and uncommon (n=0.5) was adopted for the network graphs in order to include a rough proportion of the types of cooking wares present.
[186] Schmidt 2013b, table 2.
[187] Malfitana and Franco 2013.
[188] Malfitana and Franco 2013, 193–199, tables 9.1–9.8.

Daniele Malfitana, and are composed from known published ceramics across Sicily.[189] A table listing the common imported amphorae found within Sicilian contexts can be found in a discussion of this Sicilian material culture project.[190] As this synthesis is an up-to-date collection of Sicilian amphorae and fine wares,[191] and it is not clear what sources were used, no other material from existing publications was used from other reports to avoid potential repetition.

Cooking wares were not included in this original synthesis and where possible, information regarding cooking wares on Sicily from available published sources was used to discuss some of the general results of the network analyses.[192]

Adaptations: From the publication used, little is known about the contexts for pottery assemblages included in the 'Roman Sicily Project' but it is clear that "the main research aim is to collect all the available published material" and for such a wide-scale project the assumption is that all details have been gathered from all the possible published sources.[193] This has resulted in very heterogeneous data that cannot be treated as a contextualised assemblage. Thus calculating the proportion of particular types would result in biased conclusions. Like the approach adopted for the 'Roman Sicily Project', the data will be used to identify common or rare forms purely by how many examples of a type are known, and negative data to determine the presence or absence of types. The latter approach has to allow for some margin of error, however, it has potential.[194]

[189] Malfitana 2008.
[190] Malfitana 2008, 174–180, table 1.
[191] Malfitana and Franco 2013, 192.
[192] See Leitch 2010, 316–318 for an overview of North African cooking wares on Sicily.
[193] Malfitana 2008, 131.
[194] Malfitana 2008, 133.

1.5.1.11 Lampedusa

Very little published archaeological material is available for the island of Lampedusa, although more recently, some short summary results of a small survey have been published,[195] although a full report on the ceramic finds remains to be published. Only 13 fragments of 2nd-century pottery could be identified and included in this study together with details of some 4th–5th century fine wares, cooking wares and amphorae.[196] Exact figures for these pottery types are not known but at least we do have an idea of some of the forms that were present.

1.5.1.12 Kerkennah

Like Lampedusa, hardly any information is known about the pottery from the Kerkennah islands making it very difficult to find comparative ceramic information for this study. The only source of information has been extracted from the ceramic report[197] of the intensive coastal survey conducted between 1987 and 1997.[198] Eleven sites were recorded (nos 57–67) and demonstrate occupation on the islands that span the Phoenician/Punic period until Late Antiquity.[199]

A minimum of 19 ceramic sherds was collected and recorded across all 11 sites. Some types are just recorded as being present at a particular site, but no details about the exact number of fragments are mentioned. For the less common types counts are given. This very small assemblage does not allow much manoeuvring in any statistical comparison but these are possibly the

[195] See De Miro and Polito 2012.
[196] De Miro and Polito 2012.
[197] Bonifay et al. 2002–2003.
[198] Slim et al. 2004.
[199] See Section 4.3 for a summary of the available archaeological and ceramic evidence form the islands.

only records of amphorae, fine wares and cooking wares that are known for this island group, therefore they will be considered in this analysis.

1.5.1.13 Marseille

The ceramic data were taken from the assemblages studied by Bonifay from two separate excavations at Bourse, Marseille. The first assemblage comes from a sondage within the port (sondage DY 09); and the second is from an underwater harbour wreck (*secteur de l'epave*).[200] The assembalges have been dated from the mid-/end of the 2nd century to the 4th/5th century AD. Both assemblages are quite small (only 112 amphorae and fine ware sherds were included within this study), and I have omitted the coarse wares, lamps and glass fragments from the assemblage.

Amphorae: The amphora were only studied for the harbour wreck assemblage. They were grouped together in wide chronological groups based on the identified types, rather than stratigraphic groups as it was difficult for the excavators to determine whether the vessels came from the top or bottom of the actual wreck.[201]

Fine wares: A small number of fine ware fragments (n=66) came from both sondages and were quantified and listed within a series of clear tables.[202]

Cooking wares: The cooking wares were classified, quantified and divided between the fine ware and coarse ware categories making it more tiresome to isolate specific groups under one class. For instance, African cooking wares could be found amongst the fine wares, whilst the Aegean and Italian cooking wares were in the coarse ware tables.[203]

[200] Bonifay, Carre and Rigoir 1998, tables II–VI.
[201] Bonifay, Carre and Rigoir 1998, 93, table X.
[202] Bonifay, Carre and Rigoir 1998, tables III–VI, VIII.
[203] Bonifay, Carre and Rigoir 1998, tables VIII–IX.

1.5.1.14 Corinth

No quantified data are yet fully available for the material from Corinth. A detailed catalogue of selected fragments from the Sanctuary of Demeter and Kore,[204] and first attempts at quantifying the amphorae and fine wares from the East Theatre excavations,[205] have been published, however, and attempts at using these data in this study have been made with some difficulty.

Amphorae: The best quantified amphorae data available come from Warner Slane's preliminary synthesis for the East Theatre excavations.[206] The task of quantifying the pottery from this excavation is on-going. The data are presented in different formats directed at answering particular questions concerning the trend of importation over time. However, for the purpose of this study, the raw data (i.e. types and their numbers) are not yet available making it difficult to extract quantified figures. Instead, (unlabelled) charts are presented that trace the number of six common forms over time.[207] The material from the Sanctuary of Demeter and Kore is only presented as a catalogue recording representative fragments of a type and having no quantifiable data available.[208] The selection process for the latter assemblage was biased and based on the best represented (i.e. most common) types thus the numbers calculated for each type are not reliable statistically.[209]

Fine wares: The fine ware data used for the NA exercise were extracted from the catalogue text for the assemblage for the Sanctuary.[210] Additional fine ware data that will be referred to in the discussion of the NA results will

[204] Slane 1990a.
[205] Slane 2000; 2003.
[206] Slane 2003.
[207] Slane 2003, fig. 19.4.
[208] Slane 1990a.
[209] Slane 1990a, 108, note 2.
[210] Slane 1990a.

also include the conclusions drawn from the analysis of the East Theatre excavations.[211] The figures illustrated for the East Theatre excavations cannot be used in the NA because there is insufficient information pertaining to the local wares.

Cooking wares: Only the proportion over time of imported and local cooking wares is available.[212]

Adaptations: So far, only the presence of types can be identified for the Sanctuary, whilst more general trends for the most common can be sought for the East Theatre. Thirty-three amphorae were listed from the Sanctuary's catalogue and could be equated with a general classification and were entered into the database. The fine ware percentages from the East Theatre were averaged to create one figure. Little could be done to extract viable cooking ware information. As no value labels were added to the charts illustrating the amphorae or fine ware trends, this also hindered the extraction of the correct data. Attempts at calculating the approximate figure against the vertical axis in figures 19.8 and 19.10 of Slane's report did succeed in providing some numerical data for this research.

1.5.1.15 Athens

No quantified data are available from the assemblages in Athens, and none seem to be due for publication. Henry S. Robinson's catalogue of Roman ceramics from the Athenian Agora excavations lists and describes about 850 fragments of pottery from eight major contexts but this figure represents a small selection of the whole as "no attempt [was] made to catalogue all the inventoried pottery of Roman date".[213] A more recent typology catalogue for the imported fine wares updates what was recorded by Robinson,

[211] Slane 2003, fig. 19.8.
[212] Slane 2003, fig. 19.10.
[213] Robinson 1959, v.

however, also admits that there was no point in attempting any form of quantification.[214]

For the sake of this study, and to try and make some use of Robinson's publication, I entered each catalogue entry into a spreadsheet. The number of times a vessel type was catalogued (for instance, the same form was repeatedly catalogued within different phased groups and appeared to could be linked to the vessel's frequency at the site) was included to provide a rough indication of the relative frequency of a particular form. Only the amphora data were included in the network analysis in Chapter 5.

1.5.2 Some of the many ways to quantify pottery…

Following on from the previous section, the remaining part of this section discusses some of the similarities and differences between each method explored above, in a bid to determine whether methods of pottery quantification in the Mediterranean are consistent enough to support quality comparative inter-regional and regional studies. The main points are summarised below:

a) Units of measurement: Counting, weighing or both?

The pottery from the British excavations at Carthage is the only assemblage that was weighed and has no rough count of the sherds available within the publication. The remaining assemblages, including the German excavations, also in Carthage, were all counted, although in different ways. The simplest and most straightforward method was to count sherds organised in groups based on diagnostic fragments. Rims are the most diagnostic part of a vessel and as such can represent the array of specific types present on a site. Handles and bases are less diagnostic as they belong to the more generic parts of a vessel. Handles and bases are more likely to

[214] Hayes 2008.

remain morphologically the same throughout different phases and it has also been shown that several different variants of a form that exhibits different rim types, can have handles and bases that are shared with types having a different rim. For instance, handles, bases, bodies and fabrics of Tunisian amphorae produced between the 2nd and 4th centuries AD are notoriously difficult to tell apart unless there are associated rims.

Much has been discussed about what part of a pot should be counted; some argue that a formal means of calculating the MNI (minimum number of individuals) of an assemblage should be taken into consideration, whilst a quicker method of just counting rims, bases or handles (RBH) is more attractive when time constraints weigh heavily upon the people studying the pottery. Body sherds are also receiving increasing attention partly because of the advances in fabric characterisation. Body sherds generally account for the majority of an assemblage, and it has been shown that in some assemblages particular imports are only identified because of the different fabrics noted when studying the body sherds.[215] One of the problems that has been highlighted when counting body sherds is the disregard for the degree of fragmentation of a vessel.[216] Just presenting a sherd count can give very inaccurate results because one vessel could break into 100 fragments.[217] According to Orton and Hughes, the best compromise still remains estimating the vessel-equivalent within an assemblage. In their original edition, Orton, Tyers and Vince developed and introduced the concept of *EVREP* (estimate of vessels represented);[218] a measurable concept

[215] For instance, looking at the body sherds of amphorae from the site of Foreman Street, Gozo, was the only way I could ensure that some form of assessment of the amphorae could be attempted for that particular assemblage as only 4 amphora rims were identified. See Chapter 3.
[216] Byrd and Owens 1997, 316.
[217] Orton and Hughes 2013, 207.
[218] Orton, Tyers and Vince 1993, 171–173.

that has been in use for some time;[219] and was primarily intended to calculate an estimate for the 'real' number of vessels that exist in one assemblage. This measure has been heralded as the only method that remains unbiased when comparing proportions within, and between assemblages.[220] However, in practice, many pottery specialists spend a considerable amount of time during the sorting process checking for joins between fragments; two rim fragments and a body sherd that are found to join are automatically counted as a single sherd or vessel. Careful attention paid to slight variations in fabrics and surface treatment and discolouration can also aid in identifying whether sherds once belonged to the same vessel or not. Not one publication reviewed above adopted the *EVREP* method to calculate the number of vessels. Calculating using this measure has been deemed "too laborious" for large-scale practical application in the field and has been criticised by people trying to implement these techniques in the field, where conditions are far from ideal.[221]

Weight has also been deemed a good and 'unbiased' metric for "comparing proportions between assemblages, even though it cannot be used to measure proportions in any one assemblage".[222] Weight is only significant when it is used to compare the exact same type of vessel within another assemblage that also underwent a similar depositional process. This includes the effects caused by erosion, damp, and other environmental factors that could potentially affect the physical state of the sherds. Tomber has argued that the statistical differences between assemblages that are weighed and those that are counted do not amount to great variation in results, especially when dealing with very large assemblages. This is

[219] Egloff 1973.
[220] Orton and Hughes 2013, 207.
[221] Byrd and Owens 1997, 316.
[222] Orton and Hughes 2013, 207.

particularly the case when calculating the relative value of an assemblage; the absolute value has no statistical value other than as a base record of what has been found and recorded.[223] In order to be able to compare like with like, the most common measure that seems to be adopted nowadays and which has been seen in Section 1.5.1 is a simple count of all the diagnostic sherds (rims, bases and handles). Anything more complex, and which requires additional time (see below), does not seem to be attempted. She also rightly acknowledges that "in order to maximise Mediterranean-wide comparison it is necessary to find acceptable methods for comparing different methods of quantification, each method with its own biases".[224]

Raw numbers listing the absolute number of fragments of each type, fabric, and within a specific class are very important. Anything else added, like weights, vessel equivalents, degree of fragmentation etc., is useful, but since it has been shown that a general count of sherds within each assigned category is the most common and simplest method adopted, then anything more is only useful for the assemblage in isolation: little comparative work can be done with other sites as the data have not been included.

b) Time scales and volume of sherds

Time constraints and the volume of sherds that require detailed study and subsequent quantification have a significant influence on the decisions made at the beginning of any pottery study and the ultimate choice of quantification methods. Creating a working typology, and sorting, counting and weighing each sherd that falls within a category is a very laborious and time-consuming process; thus any additional method incorporated for a study of an assemblage (for example, it is increasingly common to provide detailed information for fabrics too) can potentially

[223] Tomber 2013, 339.
[224] Tomber 2013, 339.

lengthen the study. On the other hand, funding and time are always against the objectives of the specialist. When excavation trenches are extended both horizontally as well as vertically, the volume of sherds recovered can soar quite rapidly. The amount of pottery from one site differs from that of another. This is clearly evident at sites in North Africa or the Mediterranean coastal regions when compared with smaller fringe sites. The pottery assemblage expected of a major port-city like Ostia and Carthage amounts to hundreds of kilograms worth of sherds (for instance, about 590 kg of pottery was excavated in 0.04% of the total area of Carthage[225]). In fact, quantification of pottery has its roots in the need for specialists to speed up the study of large assemblages; instead of looking at and describing every single sherd as a separate unit, counts of sherds based on their similarity to an established type are now the norm.

This balance between a detailed study with sufficient quantification and assemblage volume can be difficult to achieve. For instance, the Carthage publications (the British Mission) did not provide very detailed raw ceramic data for forms (except for a few common amphora forms) but only provided weights for general fabric classes making it very difficult to identify import/export trends on a more detailed level. In contrast, Riley went into great detail and ensured that each sherd for every form classification was counted and listed according to phased context as well as dated phase. Bonifay et al., although dealing with a much smaller assemblage than that for Carthage and Berenice, adopted the simple tabular method of listing all types by their most commonly known terminology—thus making it much easier for readers to digest the significance of the data—and listed raw sherd counts and MNI. When extracting the raw ceramic data for the network analyses (see below), Bonifay et al.'s quantification tables proved

[225] Hurst 1994, 3.

to be the most straightforward, yet detailed and accessible, method for making use of ceramic data; a method that should be adopted elsewhere in order to ensure all ceramic data is more accessible for future studies. Ultimately, that is what we want: a way of identifying, without too much trouble, what type of pottery forms a site has, where they are from, and how many of each were found.

c) Excavation or survey?

Excavations are generally much smaller nowadays compared to the more ambitious land-clearing feats of the early 20th century directed by the antiquarian. Strict attention to recording and proper archaeological investigation overrides the necessity for large-scale excavations of entire settlements. By the 1970s a shift towards fieldwalking surveys revolutionised the way archaeologists attempted studying larger areas, with smaller budgets and with the aim of studying landscape use and the countryside.[226] Issues of quantification, what methods to adopt, and whether any are reliable also greatly steered the debates on interpretive integrity of survey data.[227] However, survey data have quickly become the *de facto* means of large-scale archaeological investigation, often undertaken in conjunction with smaller excavations with the intention of providing specific stratigraphic information for key areas. Four of the sites explored above are made up of survey material (these are Jerba, Leptiminus, Pantelleria and Kerkennah). Our knowledge of entire cities and hinterlands has soared because of survey coverage, however, survey data are rarely used in comparative exercises because the quality of the ceramic quantification evidence is not deemed statistically valid for inter-site

[226] For instance, see Keller and Rupp 1983; Macready and Thompson 1985; Barker and Lloyd 1991.
[227] For instance, see Stewart 2005, review of Alcock and Cherry 2004.

comparison. Fortunately, the important statistical contribution made by Fentress and Perkins in 1988, where survey data were used to compare ARS production and its subsequent distribution from different sites, did demonstrate the significance and relevance of incorporating statistical measures for unstratified survey material into comparative research.[228] Indeed, after nearly two decades the continued addition of new survey data has allowed more ARS finds to be included in Fentress and Perkins' algorithmic analysis, supporting their earlier conclusions, expanding on the regions for comparison, and adding to our overall knowledge of the widescale production and distribution of an important Roman economic proxy, African Red Slip ware.[229] Lastly, without survey data, the archaeology of very large areas of coastal and interior regions, especially in North Africa, would still be unknown to us.[230]

What is the use of quantified survey pottery? It has potential to provide a rough scalar gauge of the frequency of pottery over an area. Sherd density is an application adopted and applied to most surveys.[231] Type coverage relating to specific forms can be significant in distribution of pottery across surveyed areas. Even if the quantified sample does not accurately represent the density of vessels used in the landscape at any one time, their presence nevertheless must indicate something useful. By default, general proportions of pottery classes do reflect general trends that must hold some link to the functional proportion of types that were once present; the more sherds of a type of class indicate a greater preponderance of demand for the

[228] Fentress and Perkins 1988.
[229] Fentress et al. 2004; Fentress 2000.
[230] For instance, we now have a significant amount of information on the coastline of North Africa (Slim et al. 2004) with a detailed account of the pottery recovered from each site marked (Bonifay et al. 2002–2003). Very large areas of southern Tunisia and Tripolitania have also been surveyed (Hitchner 1988; Mattingly 1988; Schörle and Leitch 2012; Munzi et al. 2004; 2010).
[231] Docter et al. 2012, 114–119.

representative content for the area. In other words, the pattern of supply is indicated by the persistence and quantity of particular goods over time.[232]

d) Division of work, quantification methods and classification

The division of work and specialisation on any project differs quite significantly. Generally, it was more common to divide assemblages based on classes (amphorae, fine wares and utilitarian wares); each class is then assigned to a separate specialist for study; for instance, amphorae, fine wares and coarse wares—cooking wares could be included in the latter class or as its own category. There are also various different combinations—such as amphorae, coarse wares and cooking wares being studied by one person, and fine wares dealt with by another, as the arrangement was for Berenice. In some cases, particular classes, such as fine wares, are further divided by type (i.e. Black-slipped ware, Eastern Sigillata, Italian terra sigillata, ARS etc.) and each is studied by a different person. The rationale behind this is to ensure the person with the most expertise for that class of ceramic is responsible for studying and describing the ware. This system was adopted by the team who studied the pottery from Pantelleria. The problem with an approach like this is that each class is studied and quantified in relative isolation, divorcing the relational link between each class, which is an important factor in determining the relative proportions of functional classes of pottery within any assemblage. This is potentially more problematic when different quantification methods are adopted by each person responsible for a particular group. Ultimately, for survey material one can argue whether this would make any difference; as such survey material does not technically form an assemblage in the way that a stratified group of pottery from a controlled excavation would.

[232] Carreté, Keay and Millet 1995, 253–265.

1.6 Chapter summary

The aim of this chapter was to introduce some of the existing debates that concern the study of islands and coastal cities in the Roman period. The importance of natural and social aspects of the sea and sea-travel was briefly covered, followed by a definition of the study area and how small islands have been treated in recent archaeological literature and economic debates. The second part of the chapter explored how detailed studies of whole pottery assemblages can help in studying base-level economic activity on small islands and other coastal cities. However, an analysis of some of the main problems that are inherent in planning and attempting a quantified ceramic study were highlighted and shows that simple quantification (basic sherd count) and detailed and explicit recording are probably the best methods; methods that are more complex than these can become redundant in comparative studies as no two site-studies ever seem to adopt the same quantification strategies.

Chapter 2



CHAPTER 2: SETTING THE SCENE: LATE PUNIC AND ROMAN MALTA

This chapter introduces the general geographic and political setting of the Maltese islands during the Late Punic and Roman period. It is followed by a detailed overview of the evidence for economic activities for the period, including some recent discoveries and new interpretations.

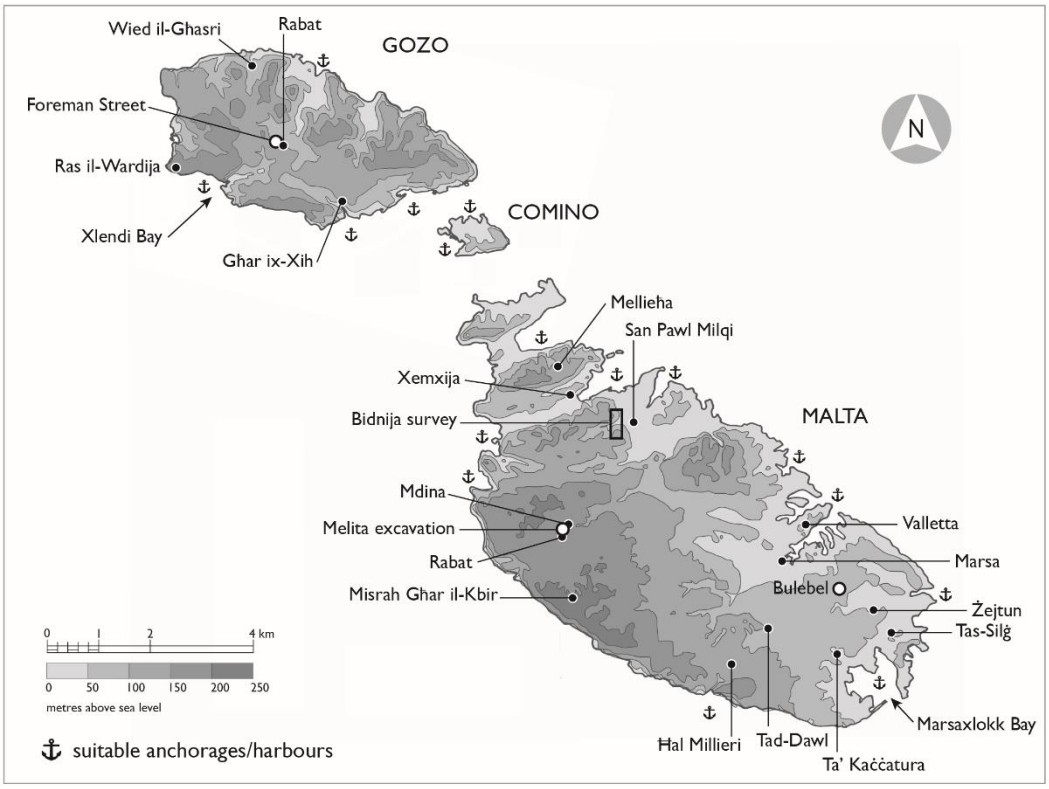


Figure 7: Map of the Maltese islands. The white circles are the location of the three sites selected for the study of their ceramic assemblages (source: author).

2.1 Geographic setting

The archipelago consists of two main islands, Malta and Gozo, and a smaller third, Comino. The geology is sedimentary and geologically quite recent. In total, the islands have an area of little more than 312 km^2; the highest point, the cliffs making up part of the south-western coast, is 253 m above sea-level, and from it the gradient gradually slopes towards sea-level

along the north-eastern shore.[233] It is along this shoreline that most of all the deep harbours and natural anchorages and beaches are located, providing ample safe refuge for sheltering and docking sea vessels (Figure 7). A few more beaches and landing places are located along the more inaccessible west-facing coast.

The islands generally have shallow soil cover and it is common to practice mixed agriculture based mostly on dry-farming. Freshwater was tapped through perched aquifers or through natural small springs. The annual rainfall average is about 600 mm; however, the majority of this precipitation falls during short and sporadic storms, between October and March. Investment in harnessing storm water would have been (and should still be) essential for maximising the conservation of fresh water, especially for irrigation. Artificial wells and cisterns for this purpose were commonplace from at least the Punic period.[234] A recent project started in 2008 aims to map ancient and more recent cisterns throughout the islands.[235]

2.2 Political setting

2.2.1. Phoenician and Greek colonies in the Western Mediterranean

In the simplest terms, since at least the end of the eighth century BC, the western Mediterranean basin was colonised by eastern Phoenician and Greek cities (Figure 8). Tens of small colonies were founded along the central and western Mediterranean coasts and off-shore islands. The promise of fresh precious metal sources, sources of luxury goods and

[233] For an overview of the geology of the Maltese archipelago, see Pedley and Hughes Clarke 2002.
[234] The Żejtun villa has three cisterns (Bonanno and Vella 2012, 12, 22–24); see Bonanno 2009 regarding the well discovered in the southern part of the sanctuary of Tas-Silġ; and Ashby 1915, 55–64 for the large cistern at Ta' Kaċċatura.
[235] White et al. 2010.

territory are some of many probable reasons for the spread of eastern interests in the west.[236]

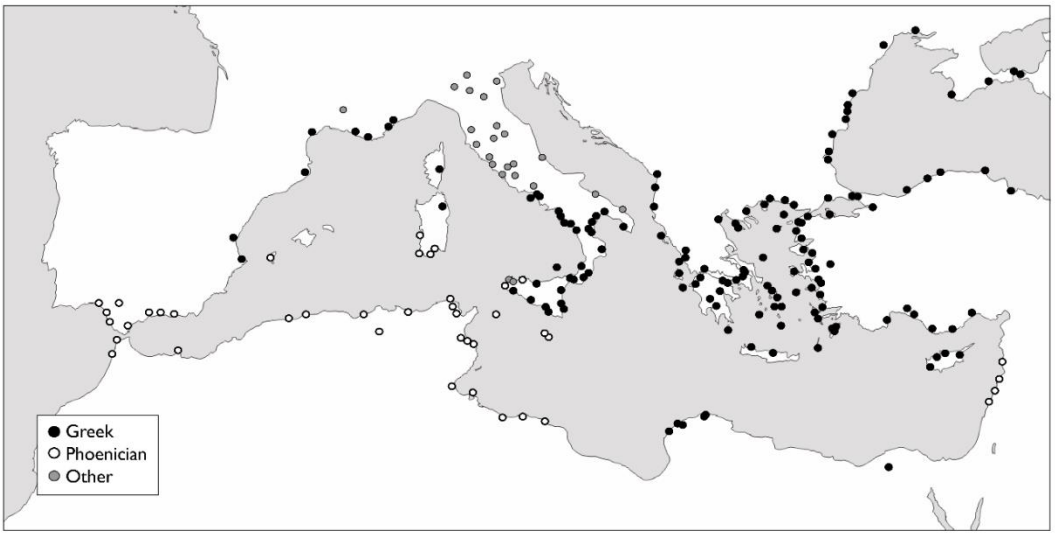


Figure 8: Map of Phoenician, Greek and other colonies in the Mediterranean, c. 5th century BC (source: author).

When Phoenicia succumbed to the might of the Persians at the end of the sixth century BC, the smaller western Phoenician colonies gravitated towards Carthage's leadership because by this time Carthage had become the most powerful and wealthiest of the new Phoenician colonies.[237] The Maltese archipelago and Pantelleria belonged to these colonies and probably were required to pay tribute to Carthage.[238] In addition, by allying themselves with Carthage, increasing threats to Punic[239] commercial and territorial holdings by rival western Greek settlers could be kept at bay. This, however, did not deter trading relations between the two

[236] See Aubet 2001 and Pappa 2010 for Phoenician colonisation; and Malkin 2011 for an overview of Greek colonisation in the western Mediterranean.

[237] Bonanno 2005, 55–57.

[238] Cicero *In Verrem* II.3.12–13.

[239] Following contemporary terminology, the term 'Punic' is used to denote the peoples and culture in the western Mediterranean after Carthage becomes the leading Phoenician colony in the Mediterranean after the fifth century BC (Bonanno 2005, 73).

Mediterranean powers, as witnessed by the numerous Greek artefacts found on Punic sites, and vice versa.[240]

From the mid-fifth century BC, the central Mediterranean appears to have become too small for the number of rival, ambitious and expanding powers residing within it. Constant skirmishes between Punic and Greek colonies took place whilst Rome was gradually appropriating territory from neighbouring Etruria and surrounding Italian tribes, paving the way for the expansion of its republic. In the middle of all of this, the Maltese islands were presumably caught up in the many cultural, social and economic changes that took place throughout the Mediterranean at this time, although very little of Malta's involvement is actually recorded.[241]

Although the change is archaeologically undetectable, the Maltese islands came under Roman rule at the beginning of the Second Punic war (218–202 BC) and fell under the senatorial jurisdiction of the province of Sicily and its satellite islands, which were annexed during the First Punic war (264–241 BC).[242] However, Malta is said to have been the target of a violent act by the Roman navy sometime during the First Punic war (264–241 BC), where the island was plundered and destroyed, yet remained unconquered.[243] But in 218 BC the islands did not resist the Romans a second time round.[244] This historical date is considered the year when the islands where incorporated

[240] It is such finds that led to the firm, yet erroneous, belief that the Maltese islands once belonged to a Greek, rather than Phoenician, colony; see Caruana 1888, 450 and Bonanno 1983.

[241] Bonanno 2005, 73–74.

[242] Livy XXI.51.

[243] Naev. *Bell. Poen.* V.37; Orosius 4.8.5. A recent study of environmental evidence taken from core samples near the Marsa area, Malta, has revealed a very high charcoal reading, which prompted the suggestion that a large fire, possibly a result of a directed attack, could be responsible. It is estimated that this event took place between 300–180 BC, and could be linked with a historic event mentioned by classical writers that took place during the First Punic war. However, to date, no other archaeological evidence has been found that could support such an episode (Fenech 2007, 110).

[244] Bruno 2009, 4.

into the Roman republican empire. There is, however, little archaeological evidence to suggest that the islanders experienced any dramatic changes to their Punic administration, culture and general economy.

2.2.2. Political and administrative structure of the Maltese islands from Punic to Roman times

2.2.2.1. Punic period

Much of what is known about the political and administrative body of Malta and Gozo has been derived from epigraphic and literary sources. Virtually nothing can be said about the administrative set-up of the islands during the Phoenician, and much of the Punic period. It is reasonable to assume that the islands, being a Phoenician colony, were relatively autonomous, but seem to have paid tribute or tax to Carthage after the 6th century BC (as alluded to by Cicero).[245] An inscription written in Punic letters and dated to around the late 3rd century BC implies that the island of Gozo retained some sort of autonomy from Malta as the text refers to a political system governed by two magistrates or governors (*rab*) of the 'people of Gozo'. These two leading figures probably acted like the Carthaginian *suffetes*. Since more inscriptional evidence concerning this period has been discovered from Gozo, it has been assumed that Malta's Punic-period political administration was like that of Gozo.[246] Regardless of their political status, "the inhabitants of this island [Malta], since they received assistance in many aspects through the sea-merchants, shot up quickly in their manner of living and increased in renown";[247] thus during the Punic period, the situation on the islands (assuming Gozo too) seemed one of prosperity and successful diplomatic relations in terms of trading.

[245] Cicero *In Verrem* II.3.12–13.
[246] C.I.S. I, 132; Bonanno 2005, 103–104.
[247] Dio. Sic. *Hist*. V.12.

During the abrupt transition of power between Carthage and Rome, the two episodes recounted by the classical writers (Naevius and Livy), make it appear that Carthage did not replenish its 2000-strong garrison on Malta following the First Punic war; and by the Second Punic war gave up on trying to secure its Maltese outpost, losing it to the Roman navy after 218 BC.[248]

2.2.2.2. *Late Republican period*

As for the Republican period, there is a certain amount of epigraphic and literary evidence that does shed more light on the administrative settings of the islands. Firstly, after 218 BC, both Malta and Gozo were able to mint their own copper coins, suggesting a degree of economic autonomy. These low denominations were intended for domestic circulation; however, a few locally struck coins did move around as witnessed by the few that have been found in Sicily, Carthage and Pantelleria (see Figure 35).[249] Malta, and presumably Gozo, fell under the administrative district of Sicily, and was governed by the *praetor* of Sicily. Following Sulla's reforms, an *ex-praetor* was sent to the province instead. Around the mid-first century BC, Malta enjoyed political autonomy and was allowed to have its own 'people's assembly and a senate'.[250]

As for the culture and language spoken by the Maltese population, much of the epigraphic and numismatic evidence points towards a mixture of Punic and Greek. Probably the most famous inscriptions from the Maltese islands come from a pair of 2nd-century BC marble candelabras that each bear an identical bilingual inscription written in Greek and Punic letters (Figure 9). Both inscriptions mention the giving of an offering to the Tyrian god

[248] Naevius *Bell. Poen.* V.37; Livy XXI. 51.1-2; Bonanno 2005, 103.
[249] Bonanno 2005, 157; Ciasca 1985a; Cutroni Tusa et al. 2006, 292; Perassi 2013.
[250] Bonanno 2005, 133.

Melqart/Greek Heracles made by two brothers. The Punic script is believed to record the actual dedication made by Punic protagonists, with a Greek synopsis written beneath that Hellenizes the names of both deity and worshippers.[251] This strongly suggests that Greek was considered as an official language alongside the spoken vernacular Punic. Evidence suggesting Greek as an official language on Malta and Gozo is further substantiated by a Greek inscription engraved on a bronze tablet awarding a *proxeny* (title of honorary consulate) to Demetrios of Syracuse by the people of Malta.[252]

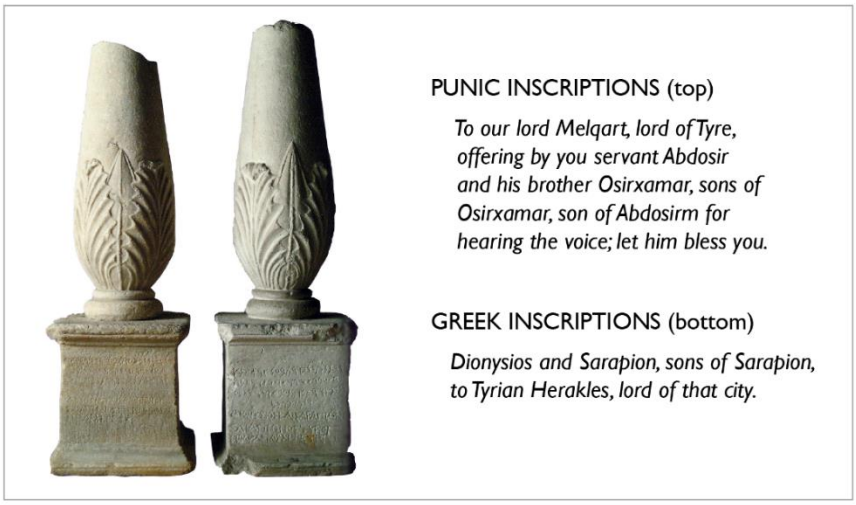


Figure 9: The bilingual candelabra from Malta (adapted from Bonanno 2005, 152–153).

The coins minted after 218 BC also contain a lot of Punic and Hellenistic iconography despite being placed in circulation after the Roman conquest. Compared with coins from Greek cities in Sicily at the time, Maltese coins display significantly more characteristics of their former allegiance. The majority of some of the twenty coins issued during the Late Republic in the Maltese islands retain these Punic and Greek legends and iconography right throughout their lifespan with a few additional Latinizing legends and

[251] Bonanno 2005, 152–153.

[252] I.G. XIV, 953; Bonanno 2005, 151–154; a 4th century-BC *proxeny* inscription linking Syracuse and Euesperides is also known (A. Wilson 2013, 124). The link between these Greek inscriptions and personal networks and major trade routes have been suggested recently by Mack (2015, 161–162).

iconographic representations appearing more often towards the close of the Republican period.[253]

Despite being incorporated with the province of Sicily, the Maltese islands were geographically associated with Africa, and this view does not seem to alter two centuries later (see below).[254] This may be one of the reasons why the Maltese islands remained culturally tied to their Punic roots.

2.2.2.3. Imperial period

The degree of political autonomy enjoyed by the Maltese during the Republican period was short-lived, however, as under the new regime of Augustus this autonomy was withdrawn and governorship was eventually replaced by a *procurator*. Around this time, the islands were given *stipendiarii* status, thereby making them tributary cities.[255]

A fair number of inscriptions point to certain supposedly high-status individuals referred to as *protos* and *primus*, 'first citizens' of Malta and Gozo. Although there remains no evidence that any of these men were Punic-Maltese/Gozitans who rose in status, these references do indicate that there were certainly people, and families, who gained relative wealth, prestige and numerous other social and religious titles, such as *flamen*.[256] In particular, an inscription commemorating Chrestion who restored a temple dedicated to Proserpina, mentions him as being a *procurator*; most probably the person charged with overseeing the imperial property of the then emperor, Augustus.[257] However, in spite of this, a reference to the Maltese as *Barbaroi* is made during the mid-first century AD in Luke's account of the

[253] Coleiro 1971; Perassi and Novarese 2006.
[254] Ovid *Fasti* 3.567–568.
[255] Neither Melita or Gaulos are amongst the five colonies and 63 civitates listed by Pliny in his geographical overview of Italy and Sicily (Bonanno 2005, 200; Pliny *Natural History* III, 8, 92).
[256] I.G. 601; C.I.L. X, 8313.
[257] C.I.L. X, 7494; Bonanno 2005, 204.

Acts of the Apostles, suggesting that at this time inhabitants of the Maltese islands still spoke a language that was 'foreign' to the Romans, and which was most probably Punic.[258]

Two inscriptions dating to the beginning of the second century AD mention Malta and Gozo as being *municipia*.[259] It remains uncertain when in fact both islands' cities received this status, although, the islands remained of *peregrine* status until at least the reign of Tiberius.[260] By the reign of Caracalla, however, it is assumed that both Malta and Gozo were granted full Latin rights following the emperor's citizenship Edict in AD 212.

2.3. The economy of the Maltese islands: Epigraphic, literary and archaeological sources

Narratives describing the economy of the ancient Maltese islands have, for several centuries now, been mostly dependent upon writings by ancient Classical authors. As usual, familiarity with the writings by ancient authors such as Cicero and Ovid prior to the 19th century was in some instances the only window open to the past Roman occupation of the islands.

Over time, the intermittent archaeological remains that surfaced during expanding building development were understood and classified using these writings, thus further compounding the historical realities of these narratives.

The earliest records of archaeological features prior to the establishment of a formal discipline have been passed down to us by Jean Quintin d'Autun (Quintinus). Quintinus' *The Earliest Description of Malta* is the earliest known description of the Maltese islands which juxtaposes the then known monuments with the snippets gleaned from the Classical authors.[261] Just

[258] Acts 28.1–11; Bonanno 1981, 509; (see section 2.2.2.2).
[259] C.I.L. X, 7495, 8318; Bonanno 2005, 232.
[260] R. Wilson 1990, 43; Bonanno 2005, 232.
[261] Vella 1980 [Quintinus 1536].

over a century later, Gian Francisk Abela published an updated overview of the Maltese islands which includes more references to, and lists of, archaeological remains and artefacts.[262] Both these texts, together with a few others, are indispensable to archaeologists and classical historians today as many of the direct observations made of standing stone structures and monuments are the only records left that describe and contextualise structures and objects that have been destroyed or lost since then.

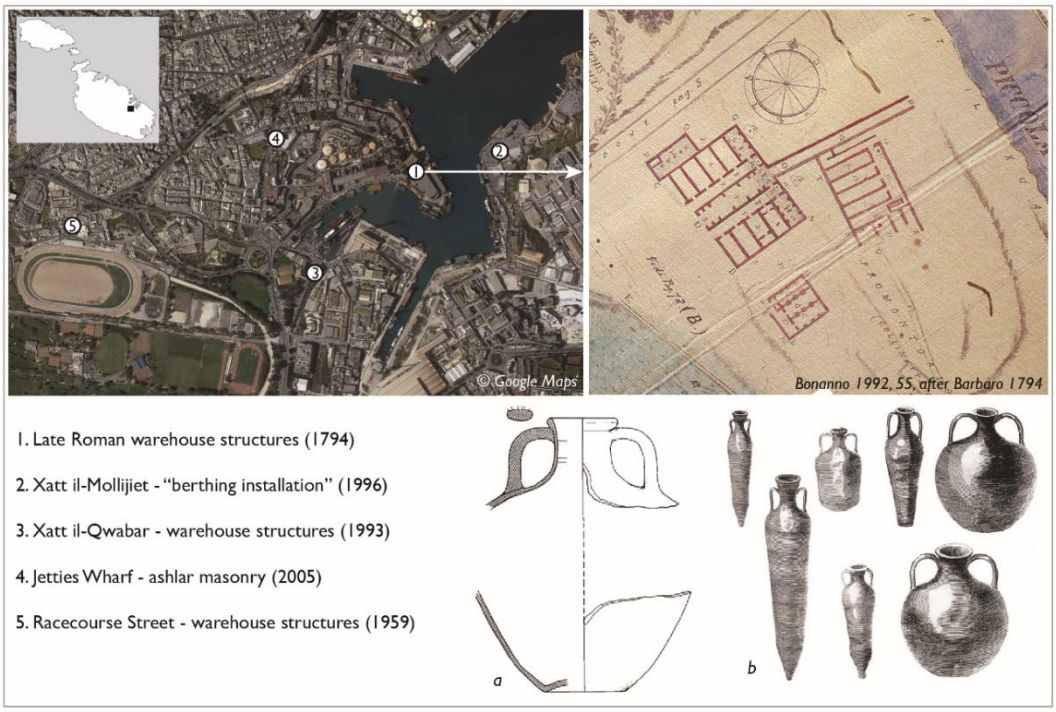


Figure 10: Location of ancient harbour and warehouse structures in the Marsa area. Pottery: a) 7th-century globular amphora from the excavations at Xatt il-Qwabar (Bruno 2009, fig. 46); b) sketches of amphorae discovered by Barbaro in 1794 (Bruno 2009, fig. 12).

These include, for instance, the extensive warehouse structure containing several hundred Late Roman/Byzantine amphorae discovered in Marsa in 1766 and carefully documented (for the standards of the day) by Marquis Carl'Antonio Barbaro (Figure 10);[263] and a complex of Roman-period

[262] Abela 1647.

[263] Ciantar 1772; Barbaro 1794; recent excavations at Xatt il-Qwabar, in the Marsa area, and close to Barbaro's 18th-century discovery, have unearthed many more amphorae that are similar in shape to some of the ones recorded by Barbaro. These globular amphorae are thought to be North African in production and dated to the 7th century (Bruno and Cutajar 2013, 19–22). Other harbour-related structures have been excavated at Xatt il-

thermal baths decorated with mosaic floors, also in Marsa, which were described by Baron de Stadl after their discovery in 1729.[264]

The Maltese islands' most prominent feature depicted in many of the writings of classical authors is the islands' geographical position.[265] These geographical references and the distances between different cities provided within, for instance, Strabo's *Geography*, seem to underline a certain political directive towards highlighting the commonly navigated sea routes between Malta and coastal cities along the southern coast of Sicily, the Cap Bon peninsula in Carthage, Tunisia, and the small island of Pantelleria (ancient Cossyra).[266] The writer's indirect intention to provide politically motivated itineraries for military leaders, as well as travellers, in the Roman world is a well-known feature of the Augustan period.[267] Additionally, Luke's account in the *Acts of the Apostles* details the route taken by the Alexandrian grain ship carrying St Paul from southern Crete to Rome but which ended up being wrecked on the island of Melita (Malta) in AD 60.[268]

2.3.1. Textiles

The Maltese islands are synonymous with ancient textile production and trade thanks to references made by ancient authors.[269] Not surprisingly, however, archaeological traces of this supposedly prolific textile industry are rather scarce.[270] Cicero names ancient Melita as the location where the

Qwabar (Bruno and Cutajar 2013), Jetties Wharf (Cini 2005), Xatt il-Mollijiet (FastiOnline, 21.04.2015) and Racecourse Street (M.A.R. 1959–1960, 5).

264 Bonanno 1986, 10. The original manuscripts are housed in the National Library of Malta, Valletta, Malta.

265 Strabo VI, 277; XVII, 3, 16; Pomponius Mela II, 7, 120; Pliny *Natural History* III, 152; Ptolemy *Geography* IV, 3, 13.

266 Arnaud 2008, 26.

267 Dueck 2000, 125.

268 *Acts of the Apostles* XXVII, 39–XXVIII, 14; Bonanno 2005, 196–202.

269 Cicero *In Verrem* II, 2, 176; 183; 4, 38–41; 103–104; 5, 27; Diodorus Siculus V, 12, 1–4; Bruno 2009, 224.

270 A. Wilson 2009, 214–215.

corrupt Verres had an illicit textile industry.[271] The only archaeological evidence that can be said to reflect this industry are several handfuls of clay and stone loom-weights, and ivory or bone needles and bobbins excavated from several sites within Mdina and Rabat, as well as other sites throughout the island. A group of stone loom-weights, one with an inscribed Greek letter, was excavated from one of the several smaller, possibly domestic, buildings adjacent to the Roman domus in Rabat, Malta.[272] To date, no iconographic representations of weaving, or cloth production of any sort, on the island are known for the Punic and Roman period. The cultivation of cotton can be traced back as far as the Arab period, whilst linen is likely to have been the cloth produced in Punic and Roman times.[273] Recent pollen analyses, however, have shown that flax was grown on Malta during the Punic/Roman period, although the finds are not in sufficient quantity to justify Cicero's great claim for the island's cloth industry.[274] It is possible, however, that the restricted cultivation of flax made linen cloth quite expensive.[275] Alternatively, flax might also have been cultivated in order to harvest the seeds to produce linseed oil.[276] Until the implementation of policies by the knights of the Order of St John to drain extensive marshland areas on Malta in the 17th century, the marshes found at Salina Bay (Burmarrad, Malta) and St George's Bay (Birżebbuga, Malta) had ponds reserved for the retting of flax.[277] The date of establishment of these retting ponds, as well as any others around the islands, remains unknown. Archaeologically, there remains no single trace of retting vats that might suggest an intensive cloth industry during the Punic or Roman period, but

271 Cicero *In Verrem* II, 4, 103.
272 Zammit 1922; 1923; Bonanno 2005, 146, 241.
273 Busuttil 1966; Wettinger 1982, 29–30; Dalli 2006, 158.
274 Fenech 2007, 110.
275 Fenech 2007, 110.
276 Wild 1988, 22.
277 Blouet 1964, 199–200.

this is consistent with the meagre evidence available for retting ponds in the rest of the Mediterranean, since retting is likely to have been undertaken in stagnant natural ponds or streams, which required no permanent infrastructure.[278]

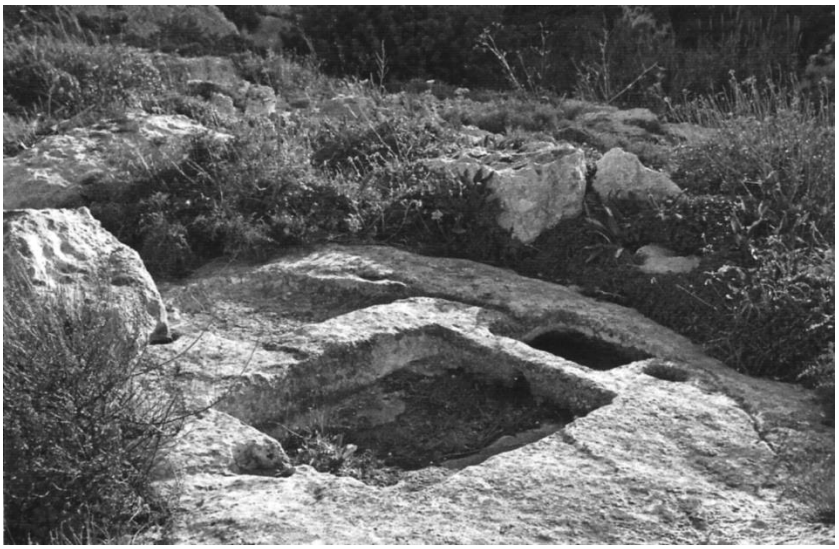


Figure 11: A shallow rock-cut pan from Mġarr ix-Xini (source: Bonanno 2005, 108).

A series of shallow rock-cut rectangular troughs connected via a small hewn channel to another smaller trough, usually circular in shape, known from the Mġarr ix-Xini valley, Gozo, have been hypothesized as being possibly related to retting or dyeing activities (Figure 11).[279] The impossibility of dating any of these features, as well as lack of any associated material culture, has made it very difficult to suggest a water-tight argument for their exact function.[280] A recent comparative study of these pans has shown, however, that rock-hewn troughs belonged more probably to individual small-scale wine presses, of which about 700 are known as *palmenti* from Ferruzzano in Calabria, Italy, and which include one example which still

[278] Wild 1988, 22.

[279] Tens of these features have been recorded so far at Mġarr ix-Xini, Gozo, and several more are coming to light in rural areas in the north of Malta. These vats come in a range of dimensions and configurations; however, they generally measure about 2m long by 1m wide and 0.2m deep (Jaccarini and Cauchi 1999).

[280] S.C.H. 2005, 18; 2006, 13; 2007, 6.2.2; Bonanno 2005, 109. No traces of mortar linings or any surface treatment appear on any of the pans, although this could be due to their exposed positions (Jaccarini and Cauchi 1999, 421).

retains its wooden apparatus from its recent use as late as the 1950s.[281] Evidence for the dyeing of cloth using the methods derived from the islands' Phoenician colonisers is also relatively elusive. A small number of murex shells have been used to identify some areas reserved for cloth-dyeing; however, no significant mounds of discarded shells have ever been discovered that would typically point towards a dyeing establishment,[282] such as the shell dumps found at Meninx (Jerba, Tunisia)[283] and Hellenistic Euesperides (Benghazi, Libya).[284] In spite of this, a handful of murex shells is almost always collected from most archaeological sites of varying periods on the islands; some fragmentary, suggesting that they might have been crushed, and some whole. None to my knowledge, however, contains a hole in the shell directly above the dye-producing gland, which would suggest the careful extraction and preservation of the gland for possible export.[285]

Vegetable dyes derived from plants such as madder (red), indigo (blue), and pomegranate rind (yellow) are also possible sources of coloured dyes, which could have been used in ancient Malta.[286] As with any other organically derived substances, archaeological remains for these dyes in a temperate climate like the Maltese islands are virtually impossible to find.

Alternatively, the masses of ovicaprid bone excavated from the Punic/Roman sanctuary of Tas-Silġ do suggest that sheep-rearing might have been a significant part of the economy.[287] Besides meat, secondary products such as wool may have been used to produce the woollen

[281] Bonanno 2008, 5, 11.
[282] Sagona 1999, 35; Bonanno 2005, 109.
[283] Fentress et al. 2009, 169–170.
[284] Wilson and Tébar Megías 2008, 232.
[285] Wilson and Tébar Megías 2008, 236–237; Botte 2009, 115.
[286] Wild 2004, 25; Jaccarini and Cauchi 1999, 433.
[287] It should be kept in mind, however, that the difference between Maltese sheep and goats is very difficult, if not near impossible, to tell from the skeletal remains (Blundell 1995, 98). Therefore, it is unknown whether sheep or goats were the preferred animal in antiquity.

garments mentioned by some classical writers.[288] Even though these faunal remains are associated with ritual feasting dumps at the sanctuary, the fact that these domesticates were reared in such large numbers suggests that secondary products such as wool may have been exploited to their fullest.[289] That sheep and goat rearing was an important component of the Maltese islands' economy is highly likely if one considers the vast tracts of rocky land or steppe that are unsuitable for crop cultivation, but are ideal as pasture for these hardy beasts.[290] Certain tracts of steppe bear place-names (Tax-Xagħra tal-Mogħoz [the fields of the karstic land of the goats]) that hark back to their use as goat/sheep pasture as early as the mid-15th century.[291]

2.3.2. Agriculture

During the 17th century, several incentives instigated by the Knights of St John aimed to convert as much steppe as possible into cultivatable agricultural land. Despite much effort, the reclamation process was not very successful; and by 1802 a third of the rocky land earmarked for cultivation remained unchanged.[292] What these historical records reveal is that there were greater expanses of land prior to the Order's arrival in Malta that were not suitable for cultivation, but could support a significant economy in cattle, sheep and goat herding.[293] These 'barren' tracts of rock were also one

[288] Corrado 2000; Sil. Ital. XIV, 248–251.

[289] For a preliminary overview of the ritual feasting at the sanctuary of Tas-Silġ, see Corrado, Bonanno and Vella 2004.

[290] Bruno 2009, 69.

[291] Wettinger 2000, 605. Many areas comprising steppe were considered 'common property', which allowed all villagers to graze their goat and sheep herds (Wettinger 1982, 31).

[292] Blouet 1967, 82; de Bosigelin 1805, 122.

[293] Vella 1980 [Quintinus 1536], 39.

of the islands' main sources of fuel, which came from the thorns (xewk) that grew in abundance there since forested areas were scarce.[294]

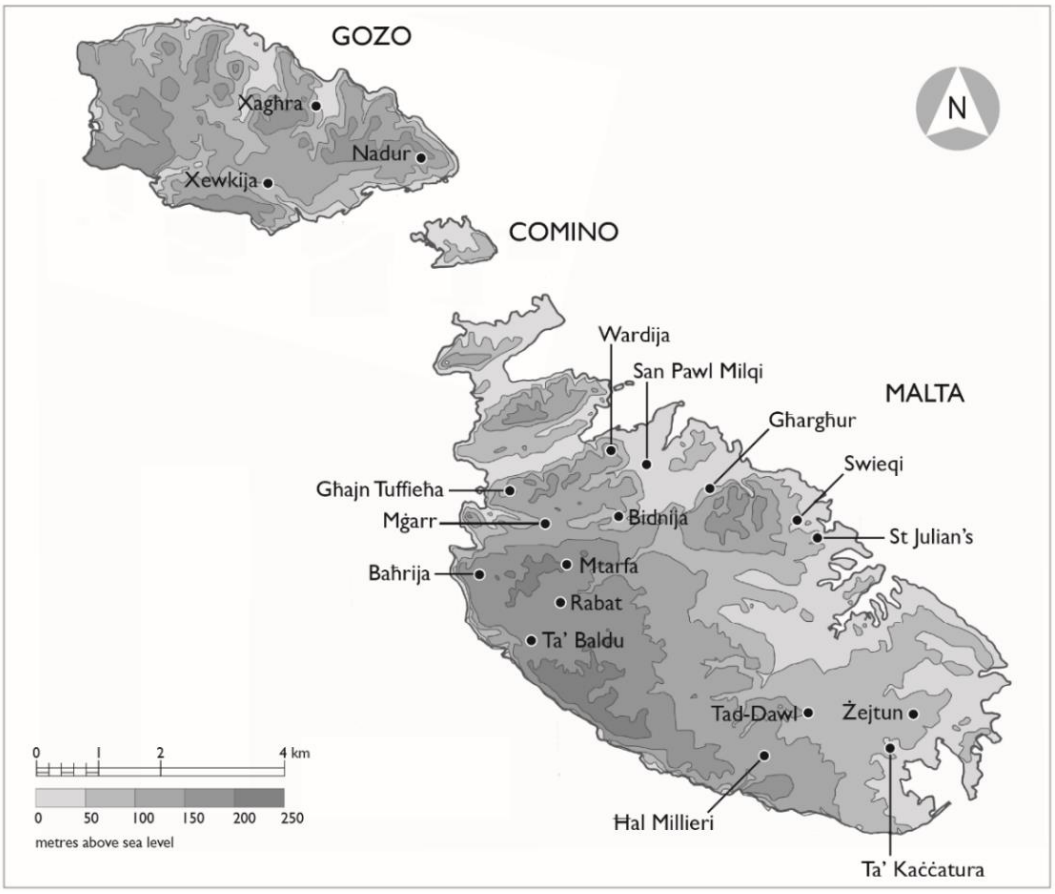


Figure 12: Map of the Maltese islands indicating the location of known villas (source: author).

Creating suitable agricultural land has always been a preoccupation for Maltese farmers. Much of the cultivated landscape visible today is testament to systematic terracing, especially on either side of fertile valleys.[295] Although centuriation was probably not ideal for the Maltese landscape, like nearby Sicily,[296] an organic system of field-divisions did develop and in some places is still evident. Little dating evidence can be secured for most of these terrace constructions, which are often given a *terminus post quem* after consulting Medieval property books that record the

294 Wettinger 1982, 33.
295 For a description of how these fields were constructed, see de Bosigelin 1805, 103.
296 R. Wilson 1990, 39.

allotments of many fields across Malta and Gozo.[297] Fortunately, two recent excavations in the Mġarr ix-Xini valley in Gozo have managed to take back the construction of two separate terrace-walls to the Punic period (c. 6th–4th century BC).[298]

The antiquity of such field-systems is not surprising since agriculturally related structures are frequently encountered in the archaeological record, in surprising contrast to the scant mention of any agricultural activity by Classical writers.[299] In particular, the number of documented *villae rustica* in Malta and Gozo suggests that agricultural industries were quite a significant aspect of the Late Punic and Roman Maltese economy (Figure 12).[300] The majority of these buildings housed an area reserved for the processing of olive oil (olive mills [trapeta], press-beds and vats), with some possibly for wine pressing also (Table 3).[301] Stray finds consisting mostly of trapeta and settling-vats have, over the years, pointed towards more possible villa sites that have yet to be discovered, or else have been destroyed. Several of these villas have been excavated contributing to the

[297] For a study investigating the antiquity of ancient agricultural terraces, see Price and Nixon 2005.

[298] The results remain to be formally published for both excavations; however, preliminary observations can be found at <http://www.xewkija.gov.mt/skavar-2011/index.shtml> (as seen on 7th February 2012), with additional information communicated to me by Dr A. Pace and Mr N. Cutajar (Superintendence of Cultural Heritage, Malta). The other excavation was conducted by the Department of Classics and Archaeology, University of Malta between 2005–2010; see <http://www.um.edu.mt/arts/classics-archaeo/projects/gharixxih> (as seen on 7th February 2012).

[299] One source does, however, refer to the Maltese islands as being more fertile than neighbouring Pantelleria (Ovid *Fasti* III.567).

[300] For a review of the islands' rural villas see Bonanno 1977; and more recently, Bruno 2009, 37–49. Three additional rural centres have been identified recently in the area of Bidnija, Malta (Docter et al. 2012). An updated review and distribution of olive-pressing equipment, including some new finds and a detailed catalogue is being compiled by N. C. Vella and the author (Anastasi and Vella, in preparation).

[301] Recent pollen analyses has shown that both olive and vine cultivation was present as early as the Neolithic and Bronze Age respectively and continued to increase during the Phoenician and Punic period. Interestingly, the pollen percentages for these two taxa decrease during the Roman period (Fenech 2007, 98).

wealth of information we have so far gleaned for the rural economy of the islands.[302]

Villa/site	Anchor block	Press bed	Trapetum	Oil-settling vat
Wardija	-	-	-	1
San Pawl Milqi	4 (WL); 1 (SP-re-used WL)	2	2	<3
Għargħur	1 (WL)	1	1	1
Bidnija	-	-	1	1
Swieqi	-	-	1	-
St Julian's	1 (SP)	-	-	-
Żejtun	1 (SP)	1	-	1
Ta' Kaċċatura	1 (SP)	-	1	-
Tad-Dawl	-	1	2	1
Ħal Millieri	-	-	1	-
Ta' Baldu	-	-	1	-
Rabat	-	-	2	-
Mtarfa	1 (WL)	-	-	-
Baħrija	-	-	1	-
Mġarr	-	-	1	-
Għajn Tuffieħa	-	-	1	-
Nadur	-	-	1	-
Xagħra	-	-	2	-
Xewkija	-	-	2	-

Table 3: Number and type of olive-pressing equipment from Maltese sites. WL=windlass/lever anchor blocks; SP=screwpress anchor blocks.

Unfortunately, several were excavated prior to the introduction of systematic stratigraphic excavations, and many details have now been lost. Despite this, detailed annotated plans of many of these sites still provide us with useful data.[303] New archaeological evidence from the Żejtun villa has shown that farmsteads were first constructed from at least the mid-4th century BC, and were most probably associated with olive-oil production

[302] The most extensively and well-documented villa site remains that of San Pawl Milqi, Malta; see relevant sections in the annual preliminary excavation reports by the Missione Archeologica Italiana a Malta 1963–1970 (Bonello et al. 1964; Bozzi et al. 1968; Busuttil et al. 1969; Cagiano de Azevedo et al. 1965; 1966; 1967; 1972; 1973).

[303] For instance: Caruana 1888 (Tad-Dawl); Ashby 1915, 52–66 (Ta'Kaċċatura).

also at this time.[304] The Żejtun site also confirmed the presence of vine cultivation preceding the Punic farmstead with the discovery of a series of rock-hewn vine trenches beneath the farmstead's foundations.[305]

From the evidence of the olive-pressing equipment present at many of these sites, it is safe to conclude that the cultivation of olive groves did form a part of the ancient Maltese economy.[306] Pollen analyses from several sites have concluded that olive trees were in existence as early as the Maltese Temple period (c. 3000–1500 BC);[307] and their probable cultivation reaches its peak by the Phoenician and Late Punic period, decreasing slightly during the Roman period.[308] Additional crops may also have been cultivated during the Punic and Roman periods such as legumes, and various fruit and vegetables. However, little is known about what was grown prior to the Medieval period.[309]

Pollen analysis on a core sample taken from the Marsa area, Malta (a possible ancient port-city in antiquity) has shown that cereal cultivation was quite prominent from the Phoenician/Punic period (c. 800–500 BC) until around the second century BC to first century AD. Interestingly, however, the pollen samples show that around the Marsa area evidence of cereal cultivation began to decrease from the second century AD and reached an 'all-time low' between the third and fifth century AD. Cereal cultivation starts to rise again only after the sixth century AD.[310] Other evidence are occasional stray finds which include lava stone fragments such as the worn millstone from an unknown context, but now in the Cathedral Museum,

[304] Bonnano and Vella 2012; Anastasi 2012.
[305] Bonanno and Vella 2014.
[306] See Locatelli 2008 for calculations for the estimated output of olive oil thought to have been pressed annually at San Pawl Milqi.
[307] Fenech 2007, 108.
[308] Hunt 2000, 113–114; Fenech 2007, 110–111.
[309] Bonanno 1977, 75–76; Wettinger 1982, 28–29.
[310] Fenech 2007, 110-111.

Rabat, Malta, suggest that grain was being ground in antiquity.[311] Circumstantial evidence for the cultivation of wheat may be drawn from two dedicatory inscriptions discovered in Malta and Gozo mentioning the erection of two temples to the deities associated with agriculture and abundance.[312] An ear of grain besides the head of Isis/Ashtart on a locally minted coin may also be regarded as evidence for a modest economy in grain production.[313] Although only further archaeological, archaeopalynological and archaeobotanical studies can shed more light on the density and widespread cultivation of cereals within the Maltese islands, the likelihood is that additional grain was also imported into Malta and Gozo from Sicily to complement the usually modest yields. This response to combating the scarcity of agricultural land has been recorded by documentary evidence as early as the 16th century, and later.[314]

2.3.3. *Apiculture*

A misconception started by Quintinus' mistranslation of Cicero's accusations against Verres, where Verres is accused of stealing "Maltese clothes, honey and Maltese rugs", has mistakenly been taken to mean that Malta also produced honey that retained some sort of international renown.[315] In this passage, Cicero does not specify a Maltese origin for honey, as he does for the clothes and rugs mentioned in the same passage.[316] Despite this mistranslation, however, it is not impossible that apiculture also existed in ancient Malta. Like the rest of the ancient world, however, little archaeological evidence is available that can suggest an industry in

311 De Bono 1997; Bruno 2009, 67.
312 Bonanno 2005, 203–205; C.I.L. X, 7494, 7501.
313 Bonanno 2005, 180; Bruno 2009, 67.
314 Vella 1980 [Quintinus 1536], 35.
315 Vella 1980 [Quintinus 1536], 25; Bonanno 2005, 147.
316 Cicero *In Verrem* II, 2, 183. Another passage from Cicero (*In Verrem* II, 2, 176) is also often misinterpreted to mean that the honey that is being referred to is Maltese in production (Bonanno 2005, 147).

apiculture dating to earlier than the Medieval period.[317] A structure mistakenly identified as a Roman apiary is known from Xemxija, Malta. A cave was sealed by a stone wall that contains regular rows of openings believed to have been fitted with ceramic combs to enable bees to colonise and create their hives. No proper studies have been undertaken to determine the date of construction of this supposed apiary; however, it is more likely to be of British-period construction.[318]

2.3.4. Hunting, fowling and fishing

Other facets of the local ancient Maltese economy would most certainly have included hunting of birds and small mammals such as rabbits, fishing, and collecting marine and terrestrial molluscs. Work in progress on the micro-faunal remains at Tas-Silġ is showing that in the Late Punic and Early Roman period remains of these small edible creatures were consumed, presumably as part of some ritual activity at the sanctuary.[319] The recent ban on bird trapping in 2008 on the islands has overshadowed the long traditional history of this form of sustenance hunting, which is probably as old as human habitation on Malta and Gozo. Bird hunting was possibly one means of including a regular source of meat and protein in the diet of families who did not own herds of goats and sheep. Until quite recently, each bird caught went straight into the pot.[320] Despite being virtually impossible to provide any measure of reliable dating, much of the Maltese landscape today, especially upon garrigue outcrops and escarpments towards the western cliffs and *rdum* (the area beneath cliffs), is scarred with rock-cut features that were once fitted with snaring nets and cables in order to catch small birds settling on the first land mass during their seasonal

317 Bruno 2009, 70.
318 Vella 2007, 80.
319 Corrado, Bonanno and Vella 2004.
320 Fenech 1997, 10–15.

crossings over the Mediterranean.[321] To my knowledge, no quantifiable bird bone assemblages have been studied from Punic and Roman sites on Malta. The animal bone assemblages from the sanctuary at Tas-Silġ are in the process of being studied;[322] however, faunal remains from domestic contexts such as the Żejtun villa are more likely to provide useful data on the local economy in bird hunting, as well as the frequency of other types of fauna consumed at this domestic site.

Apart from a handful of metal fish hooks, little else can be linked to fishing activities on the islands, although, fishing no doubt played an integral role in the local economy. Remains of a large amount of marine shells, most probably harvested from the nearby coast, indicate that limpets were consumed at the small site of Għar ix-Xiħ (Gozo) during the Punic period.[323] A diverse range of fish and marine remains were also recovered from the sanctuary of Tas-Silġ (Malta).[324] Interestingly, there are no traces of fish-processing plants or vats dating to the Punic and Roman period anywhere on the islands. Pantelleria and Linosa also lack evidence for this type of industry. Reasons possibly responsible for the lack of fish-processing plants on these islands and not others will be tackled in Chapter 6.

2.3.5. Quarrying

Plenty of quarries are known throughout Malta and Gozo, mostly in areas where Upper Coralline and Globigerina Limestone outcrops are known. Dating of these exposed rock-cut features is hard to deduce; however, in some areas such as Misraħ Għar il-Kbir, evidence of vast stretches of

[321] Fenech 1997, 321–323.

[322] Corrado 2000; (forthcoming).

[323] No formal study of the marine molluscan remains has yet started for Għar ix-Xih.

[324] The fish remains from Tas-Silġ are currently being studied by Andre Corrado and are due to be published shortly. A. Quercia has published a paper about potential coral fishing at the sanctuary from the evidence collected by the *Missione archeologica italiana* (Quercia 2005; 2008). See also Balzan and Deidun 2010.

quarried landscape are found, where homogeneous rectangular blocks of stone have been wedged out (Figure 13a). The scars of quarried stone share similar dimensions to those stone ashlar blocks used to erect some large structures during the Punic and Roman period such as the foundation walls at the Sanctuary of Tas-Silġ and the enclosure wall surrounding the San Pawl Milqi villa in Burmarrad (Figure 13b). Excavations at Bulebel (see below) also revealed Roman-period deposits that filled a disused quarry, providing a useful *terminus post quem* for quarrying activity in the area.[325]



Figure 13: a) The ancient stone quarry near Misraħ Għar il-Kbir, Malta (source: http://mepa.org/heritage-home); b) The ashlar block wall at the San Pawl il-Milqi (source: author).

Often linked with many of the above-mentioned quarries are cart ruts; a series of parallel tracks about 1.40m wide that are either cut or worn into the exposed garrigue rock surface.[326] Much debate exists concerning the dating, cause and function of these tracks as none of these features have yet been found within a secure archaeological context.[327] The ruts' connection with certain ancient quarries, which retain features linking them to Punic- and Roman-period quarrying activity (see above), suggests that many of these ruts may be contemporary and were primarily used to cart quarried

[325] Pace et al. 2012.

[326] Trump 2008, 4. Determining whether a set of cart ruts is cut or worn into the rock is an important distinction that could indicate whether the tracks were deliberately created following a pre-defined plan or were worn over a significant period of time by regular traffic.

[327] See Bonanno 2005, 338–339; Trump 2008; Bugeja 2001; Magro Conti and Saliba 2005; Mottershead 2006/2007; Carol et al. 2012, 33.

ashlar blocks to their intended destination. Similar tracks are known outside the Maltese islands such as Sicily (Syracuse and Agrigento), Sardinia (Cagliari), France (Marseilles), Italy,[328] and Cyrenaica in the Hellenistic period.[329] A set of ruts stretching across the 6 km-wide isthmus of Corinth, known as the Diolkos, has been dated by associated pottery to the 6th century BC. Rectangular grooves visible on stretches of the extant tracks show that they were deliberately cut and not formed by mechanical wear over a long period of time. Written sources[330] record that these tracks were used as a 'highway', where on eight occasions between 428 and 60 BC, warships were placed on some form of carts and hauled across the isthmus were they were launched into the opposite gulf. Prior to Nero's attempt at cutting a channel through this isthmus in AD 67,[331] ships, together with their cargo, would have had to sail around the Peloponnese; by laying out a planned route in the form of an early 'railway', transporting cargo between the Saronic gulf and the Corinthian gulf was made safer, faster and more efficient.[332]

2.3.6. Salt production

Finally, as Malta is surrounded by sea, salt production would be a highly probable enterprise. Even today, almost all the expanses of soft limestone outcrops found at sea level, mostly along the sloping eastern shores of Malta and Gozo, retain shallow rock-cut pools connected by narrow channels, which until relatively recently were used for the evaporation of sea water to collect salt (Figure 14). Once again, dating these features poses several

328 Bonanno 2005, 339.
329 Laronde 1985; 1987; Reynolds and Lloyd 2008, 639.
330 These include: Thucydides *History of the Peloponnesian War* 3.15.1; 8.7; 8.8.3–4; Aristophanes *Thesmophoriazusae* 647–648; Polybius *Histories* 4.19.7–9; 5.101.4; Livy LXII. 16.6; Strabo *Geography* 8.2.1; 8.6.22; 8.6.4; Pliny *Natural History* 4.9–11; 18.18. See also Raepsaet 1993, 233.
331 Suetonius Lives of the Ceasars: Nero 19.2.
332 Lewis 2001, 8–15; Cook 1979.

problems, although documentary evidence show that some, such as the Salina salt-pans, were cut on the order of the Knights of St John in the 16th century and soon become a state monopoly for the production and export of salt.[333]



Figure 14: View of a series of salt-pans on the north-eastern coast of Malta (source: author).

Salt was extensively used in antiquity because of its ability to preserve a wide array of foodstuffs, which could then be packed and transported over considerably long distances without the risk of spoiling.[334] Documentary evidence from the Knights' period indicates that the major method adopted for salt production prior to 1522 is a natural method which consisted of collecting salt crystals that formed once seawater trapped in salt marshes evaporated by exposure to the summer sun.[335] To date, however, there remains no direct evidence that would suggest a significant economy in salt production on the islands prior to the Knights' period. Nevertheless, the collection of salt for local consumption was most probably undertaken for the preservation of locally grown foodstuffs.

333 Mercieca 2005.
334 Horden and Purcell 2000, 196.
335 Mercieca 200, 50.

Vast quantities of salt were required to preserve fish, as well as other forms of food. Garum production and fish sauces were amongst the staples of Late Punic and Roman kitchens, produced in vast quantities in southern Spain and North Africa.[336] Garum was produced and preserved using large quantities of salt.[337] These sauces are known to have been exported as fish remains have been discovered in amphorae destined for foreign shores but which ended up being wrecked.[338] Archaeologically, structures identified as fish-salting vats consist of deep sunken vats with rounded corners and which are lined with cocciopesto. No such vats have yet been identified in Malta, but this does not dismiss the possibility that dolia might have assumed the role instead as is known in the Greek and Punic worlds (see above).[339]

2.3.7. Ceramic production

Not surprisingly, there is a significant amount of archaeological evidence that indicates the existence of a prolific and long-lived local ceramic industry, which produced most of the islands' pottery containers, brick and tile. There are no published excavations of kiln sites on either island,[340] however, many sherds inscribed before firing and pottery wasters, mainly from the sanctuary at Tas-Silġ, are known. New ceramic evidence from the recent excavations at a small Late Punic and Roman rural shrine at Għar ix-Xiħ, in Gozo, is also showing that Gozo had its own particular pottery industry, which produced different shapes using a finer orange clay than

336 Botte 2009.

337 Botte 2009, 67.

338 Auriemma 2000.

339 A. Wilson 2007a, 180.

340 A site in Xagħret-Medewiet, close to the sanctuary of Tas-Silġ is believed to have been a possible kiln/pottery workshop; however, no finds or records of this site have been preserved or relocated to-date (Caruana 1899, 3). Several sites, recently excavated by the S.C.H. can be potential kiln sites, such as Żebbiegħ (Malta) and Foreman Street (Gozo), remain unpublished. See the following chapter (Section 3.4) for an analysis of the ceramic material for the site at Foreman Street.

the assemblages and harder fired clays seen in Malta. Sagona, Bruno and Quercia have already extensively studied and highlighted the main vessel forms and clay types used for the pottery produced in Phoenician, Punic and Early Roman Malta.[341] Brick and tile fragments collected during a recent field survey are also currently under study.[342] Preliminary findings show that the fragments collected are made using local and foreign fabrics. The next chapter will explore new and existing evidence for local ceramic production on the islands.

2.4 Past ceramic research: what has been done and what remains to be done

Research and rescue excavations carried out over the last century and a half have resulted in an accumulation of a significant corpus of classical-period pottery fragments from a variety of urban, domestic, funerary and ritual contexts. The most significant of these remain the three missions by the Italian university of 'La Sapienza', Rome, at the multi-period site at Tas-Silġ, the San Pawl Milqi villa and the Punic sanctuary at Ras il-Wardija, between 1963 and 1970;[343] and the quasi-systematic collection and recording of hundreds of rock-cut tomb contexts, mostly dated to the Punic and early Roman period. The majority of these were discovered during urban and rural building works throughout the 20th century.[344]

The Italian excavators routinely published preliminary annual reports of the contexts and finds from each of the sites they excavated throughout the course of the 1960s. Key pottery finds were listed and published, but no

[341] Sagona 2002; Bruno 2002; 2009; Bruno and Capelli 2000; Quercia 2002; 2004–2005.
[342] For a preliminary overview of the types of brick and tile found on Malta, see Docter et al. 2012, 136–138.
[343] See relevant sections of the M.A.I. reports (Bonello et al. 1964; Bozzi et al. 1968; Busuttil et al. 1969; Cagiano de Azevedo et al. 1965; 1966; 1967; 1972; 1973).
[344] The majority of these tombs were listed and recorded in the Museum's departments annual reports (M.A.R.).

systematic and quantified study of the ceramic material was ever published. Instead, smaller quantified studies of particular classes were eventually published several decades later. These include: B. Bruno's detailed quantified and petrographic study of local and imported amphorae from Tas-Silġ and San Pawl Milqi for the Late Punic, Roman and Byzantine periods;[345] and A. Quercia's great contributions to the knowledge of local pottery with the publication of three detailed quantified studies on Punic-period local cooking wares,[346] coarse wares,[347] and Pantellerian ware,[348] all from the sanctuary site at Tas-Silġ. Similar studies focussing on Punic and Roman fine wares and Roman-period coarse and cooking wares remain to be undertaken. Indeed, the pottery other than the amphorae from San Pawl Milqi, possibly one of the most important and well-known oil-producing villas on the island, remains to be studied in full. Other than the *Missione*'s three excavations, only one other site has undergone some form of study, the brief, yet detailed, analysis (with sherd counts) of the residual Roman and Medieval pottery from Ħal Millieri, Malta.[349]

The vast stock of complete funerary vessels collected from hundreds of Punic and early Roman tombs throughout the Maltese islands offered an additional pottery resource that formed the basis for a series of ceramic studies, particularly focused on the Phoenician and Punic period. These include A. Ciasca's analysis of Phoenician and Punic pottery in Malta and its relation to patterns for the western Mediterranean;[350] the similarities between pottery styles and techniques between local Maltese material and the pottery of the Phoenician homeland before the 6th century BC by W.

[345] Bruno 2002; 2004; 2009; Bruno and Capelli 2000.
[346] Quercia 2000; 2002.
[347] Quercia 2004–2005; 2011.
[348] Quercia 2006.
[349] Blagg, Bonanno and Luttrell 1990.
[350] Ciasca 1985a; 1985b; 1999.

Culican;[351] whilst Vidal González worked on re-contextualising unprovenanced pottery vessels from local museum stores and private collections by undertaking a detailed study of äape and fabric and comparisons with funerary material from known funerary contexts.[352] Lastly and most important is C. Sagona's ambitious study on all the pottery from Phoenician, Punic and early Roman tomb contexts. Her contribution was the first to offer a detailed classification of both shapes and fabrics of all the pottery from the tombs. Quantification exercises did not feature in her monograph; however, a very detailed gazetteer of all the vessels and fragments with context details is a valuable resource.[353] Despite some important criticisms concerning the arguments she makes regarding the earliest Punic occupation of the island, and the broad generalisations she makes concerning some of the ceramic forms, the detailed catalogue of Punic coarse ware types with accompanying illustrations has been an important contribution to our understanding of pottery on the islands.[354]

Punic-period pottery has clearly received more attention than later Roman-period material, especially since two of the three sites excavated by the Italians were Punic. Aside from Bruno, who studied the Roman, Byzantine and early Medieval amphorae, the general focus of research still remains that of the Punic period. The joint Belgo-Maltese fieldwalking survey in the north of Malta carried out over the course of three seasons between 2008 and 2010, aimed to collect *all* ceramics and finds, however, there is a heavy

[351] Culican 1982.
[352] Vidal González 1996.
[353] Sagona 2002; the Gazetteer listing detailed information of each tomb recorded up until 1990 is found in an appendix of Sagona's volume (pp. 756–1149), whilst each entry in the Gazetteer lists every pottery vessel recorded at the time of excavation.
[354] See Vella 2005 for a detailed review of Sagona's publication; in particular, the problems with her interpretation of the earliest evidence for Phoenician occupation on the islands; see Anastasi 2010, pp. 13–16 for a critique of Sagona's dealing of the Later Punic- and Roman-period pottery.

focus on the development of the Punic rural landscape over all others.[355] Detailed petrographic analyses on locally produced Punic pottery from secure contexts from the University of Malta's excavations at the Żejtun villa are currently being undertaken, with preliminary conclusions and specimen information are available online as part of the FACEM project.[356]

Detailed ceramic quantification of the Late Punic and Roman assemblages from the University of Malta's excavations at the small rural site at Għar ix-Xih, Gozo and the Żejtun villa aims to add important and detailed information of the classical pottery for the Maltese islands, which will complement what we already know. In addition, further insights can be gained into the local ceramic industry in antiquity and what sorts, and quantities, of imports were reaching these small rural sites.[357]

2.5 Chapter summary

This intention of this chapter was to set the general scene for the archaeology of the Maltese islands. An overview of what is known about the political, social and economic situation of the islands in the Punic and Roman period was attempted, followed by a summary overview of the current state of ceramic studies on the islands. The new ceramic material that is analysed in the following chapter provides a new and detailed body of data that will complement and add some valuable new insights into the islands' local industries and economic choices as seen through the imported pottery.

[355] Docter et al. 2012.

[356] The FACEM project aims to create a detailed database of Punic pottery specimens for the central Mediterranean (www.facem.at). A detailed overview of some of the Maltese Punic fabrics included on the FACEM website have been published online (Schmidt and Becthold 2013).

[357] See Sections 3.6.1 and 3.6.2 for an overview of the pottery from the Żejtun villa and Għar ix-Xih.

Chapter 3



CHAPTER 3: THE SMALL PICTURE: POTTERY FROM ROMAN MALTA

This chapter collates the pottery evidence from three Roman-period sites—Bulebel, Foreman Street and the Melita esplanade excavations—in the Maltese islands (these sites are represented by the three white dots in Figure 7).[358] All categories of wares—amphorae, fine, cooking and coarse—will be used to attempt an analysis of the local production of pottery for the islands, and to gauge the types and quantities of imported forms reaching the islands during the Roman period. These data will then be used to identify patterns of economic activity and trade in the Maltese islands within the wider Mediterranean context.

3.1 Methodology

A significant part of this research was dedicated to the study of unpublished Roman-period pottery assemblages. Each assemblage was studied separately over several fieldwork trips to Malta, and altogether produced 10,838 pot sherds, which after visual examination made up a total of 7,494 individual vessels. The Minimum Number of Individuals (MNI) was calculated on the basis of the visual identification of fabric, form morphology and joining sherds.[359] A x20 handheld magnification lens was

[358] No comprehensive archaeological reports have been published for any of these sites yet. A few articles or unpublished typescripts which highlight preliminary findings are referenced when available. I am grateful to Nathaniel Cutajar (S.C.H.) for giving me access to the Bulebel and Foreman Street assemblages, and Sharon Sultana and David Cardona (Heritage Malta) for access to the Melita esplanade material. I am also grateful to Dr Babette Bechtold for reading a draft of this entire chapter and offering useful comments.

[359] This method worked well for the Bulebel and Foreman Street material as all the material from each context could be accessed and viewed relatively easily. Due to the conservation policy at Heritage Malta, each pottery sherd from the Melita esplanade site, regardless of whether sherds joined others, was individually wrapped in opaque acid-free paper and could not be left unwrapped, therefore joins between fragments could not be made easily, unless I could remember particular fabric.

used to identify the different fabrics and further group sherds into different types within the separate ware groups (amphorae, coarse wares, cooking wares and fine wares). Representative profiles of a type were recorded in more detail and were illustrated and photographed. Where possible, a small sample of the fabric belonging to the selected sherds was taken and attached to the illustration for reference purposes after the initial study period.[360]

Once the primary recording process was completed, each vessel was entered into an Access database, which recorded all the form, fabric and comparative details relevant to the piece. The purpose of this exercise was twofold:

1) To build a basic typology of Roman-period pottery for the Maltese islands;

2) To use these quantified data to compare the assemblages between local sites and with other quantified assemblages for sites outside the islands to identify any chronological and spatial trends in the consumption of local and imported products.

3.1.1 Quantification

The sample sizes for the Bulebel (n=2408), Melita (n=1461) and Foreman Street (n=3621) assemblages are relatively small when compared against other complete assemblages from local and foreign sites.[361] Therefore, in

[360] This method of retaining fabric references was only done for the Bulebel and Foreman Street assemblages (see Appendix I, Figure I.4).

[361] Publications that contain quantified data for Maltese sites are not common making it difficult to compare contemporary sample sizes, but when compared with the amphora assemblage from Tas-Silġ (n=2722) and San Pawl Milqi (n=491), the assemblages being studied here are small. The majority of the sherds quantified by Sagona in her recently published study of the University of Malta's excavations at the sanctuary of Tas-Silġ are not Roman in date and are divided according to ware type making it difficult to determine the exact proportion of Roman-period ceramic material at the site. Although no collective study of the ceramic material from the Italian mission at Tas-Silġ and San Pawl Milqi took place, an idea of the size of the assemblage can be estimated by adding

order to maximise the usefulness of the data, all sherds (RBHS) that were believed to represent an individual vessel were included in the charts illustrating the quantities. This is because in some instances wall sherds that belonged to clearly imported vessels were not represented by a diagnostic sherd such as a rim, base or handle. Unfortunately, this presented additional problems because the nature of some of the contexts made it difficult to identify any residual sherds within the assemblages. To try and overcome this bias, the quantification of the amphorae sherds are represented in a variety of formats. As an example, the chart representing the Bulebel amphora assemblage (Figure 42, top) illustrates the number of diagnostic amphorae sherds (RBH) which can be identified typologically. This first method was adopted so clear types known for their general provenance, chronology and contents could be traced. Unfortunately, the small number of diagnostic amphora sherds in the Bulebel sample meant that only 28% of the recorded amphorae assemblage (which is also made up of an additional 72% undiagnostic, or wall, sherds) could be positively identified. In an attempt to make use of these extra data, all the sherds (RBHS) were then divided into provenance groups (i.e. local, North African, Italian etc.). Diagnostic features such as rims are not essential here allowing greater inclusion of the wider assemblage to be used. To investigate whether there was a difference between the provenancing of the RBH and walls, and whether the total of the two reflected any different trajectories, the three different totals (1. RBH, 2. walls only, 3. Total RBHS) were plotted in a line chart (see Figure 42, bottom). Usually such charts are used to illustrate trends over time, but in this instance, they will be used to reveal any significant divergences between the three different totals within each provenance group. This should allow any provenance trends not identified

the number of sherds study by Bruno (amphorae) and Quercia (coarse and cooking wares); see Section 3.6 for further details.

when looking at the diagnostic sherds (RBH) to be revealed by adding the total number of walls known to belong to the same group. For instance, the local sherds in the Bulebel phase 1 assemblage (see Figure 42) are made up of 11 diagnostic and 47 walls which through visual examination are likely to belong to individual vessels. When each total is plotted against each other it is evident that by excluding the walls, the percentage of total local amphorae vessels drops quite significantly, potentially altering the final conclusion. By adopting this combination of methods, the effect of residual sherds within the sample could be controlled to a certain extent. By identifying the types that chronologically are residual fragments in the assemblage, care could be taken when interpreting the totals of the remaining provenanced wall sherds which share similar fabrics to later vessel types.

The small sample sizes also conditioned the manner in which the three main pottery classes were quantified; cooking wares were divided according to their region of origin (i.e. local, Italian, North African etc.); whilst fine wares were divided according to their known class (i.e. local red-slip, Italian *terra sigillata*, African Red slip ware etc.); a combination of the two methods was adopted for amphorae.

3.1.2 Chronology

The pottery data from the three sites were used to trace the import trends spanning the Late Republican/Early Imperial period through to the mid-4th century (Table 4). Where available, comparisons were made with other published local material. The markedly different contexts (production site, rural dump and urban domestic context) also made comparing assemblages difficult and gave inconsistent results. Instead, the quantified data from each phase within a site represented a part of the time period under study.

Chronology	Site
4th-1st centuries BC	Residual fragments from all the sites
Mid-/end 1st century AD	Bulebel, phases 1-2; Melita, phase 1
First half of 2nd century AD	Melita, phase 2
End of the 2nd/mid-3rd century AD	Foreman Street; Bulebel, tomb-use phase
Mid-3rd – mid-4th century AD	Melita, phases 3-5

Table 4: Chronological divisions of assemblages used for analysis in this study.

3.1.3 Category choice

All the pottery was divided into one of four general classes of pottery: amphorae, cooking wares, fine wares and coarse wares. Local pottery forms almost always made up the entirety of coarse wares so this class was not included in tracing import trends. Instead, the vessels in this class were catalogued and studied separately to understand local pottery production and its chronological and spatial development across the islands.[362] The remaining classes represent the types of pots that are known to have been extensively exported and imported across all regions of the Mediterranean. Because of this extra-regional export phenomenon, amphorae, fine wares and cooking wares are a very insightful proxy for gauging production, organisation and market demand for various products during the Roman period. Each class, however, represents a different part of regional production and market demand because of the functions each class is associated with. Amphorae are first and foremost containers for the storage and transport of the product they were made to carry so by studying amphorae we are in fact looking at the distribution of what they contained (i.e. olive oil, wine, fish sauce, dried fruit, alum etc.). The jar itself was of secondary importance and fortunately for archaeologists was often

[362] See Appendix I.

disposed of soon after it was emptied.[363] Fine wares and cooking wares were produced and exported because of their use as functional vessels, thus the demand and distribution plotted for these objects is different to that of amphorae. By looking at the different proportions of imported and locally produced vessels within each of these classes, and viewing these patterns alongside each other we can potentially observe the mechanisms that enabled or hindered the various choices of imported items over time and what consequences this had for local production.

3.2 Quantification of Maltese pottery

Quantifying pottery from an excavated site or survey has become standard practice in archaeology, and has been for some time now. Various techniques and measures are known and the degree of reliability has been the subject of much debate.[364] Published quantified ceramic assemblages are few for the Maltese islands. Of these, only a handful have counts for the entire assemblage (i.e. Ħal Millieri and the University of Malta's excavations at Tas-Silġ). Of these two, only the former is published in a comprehensible format;[365] for some poorly judged reason, the latter omits any useful numeric charts and only presents a pie-chart devoid of value labels rendering it useless for quantification purposes.[366] The excavations carried out between 1963 and 1970 at the sanctuary of Tas-Silġ and the villa of San Pawl Milqi—both excavated by the *missione archeologia italiana*—each produced a large amount of pottery, however, no systematic studies of the entire assemblages are available. What are published are individual studies

[363] There are instances, however, where amphorae were reused. The mid-2nd century Grado wreck carried a cargo of fish products contained in reused amphorae which are usually used to transport olive oil or wine (Auriemma 2000).
[364] See the analysis of quantification techniques in Section 1.5.
[365] Blagg, Bonanno and Luttrell 1990.
[366] Sagona 2015, Tables 1.5a–b.

on the amphorae,[367] local and Pantellerian cooking ware,[368] coarse wares[369] and a simple table listing the ARS at each site.[370] Despite these very useful studies, it remains difficult to relate each category together. The preliminary results of the 2008 field-walking survey highlight some of the pottery finds studied, but the final quantified results of all the pottery categories still awaits completion.[371] The unstratified pottery from the 1972 excavation at the Żejtun villa was studied and quantified as part of a contextual analysis for a Master's thesis.[372] Quantification of the assemblage for Għar ix-Xih, a small rural site in Gozo, also remains to be completed and published.[373]

3.3 Pottery from the Bulebel excavation (Malta)

In March 2012, a series of rock-hewn features was uncovered following the construction of the Actavis Malta factory within the Bulebel industrial zone, in the south-east of Malta (Figure 7). Archaeological excavations were carried out by the Superintendence of Cultural Heritage (SCH), and revealed a large disused quarry filled in with rubble and construction debris.[374] Cut into the sides of the quadrangular-shaped quarry were also found four rock-cut tombs (Figure 15).[375]

The rock-cut features that belong to the earliest phase of the quarry assemblage at the Bulebel are the scars left by quarrying activity. At least

[367] Bruno 2004; 2009.
[368] Quercia 2002; 2006.
[369] Quercia 2005-2006; 2011.
[370] Bruno 2009, tables 1 and 2.
[371] Doctor et al. 2012; see Section 3.6.3.
[372] Anastasi 2010; see Section 3.6.1.
[373] Quercia and Anastasi 2008-2009; see Section 3.6.2.
[374] See Appendix IV for the stratigraphic matrix for the Bulebel excavation.
[375] Pace et al. 2012. Three quarries were recovered but only one (Quarry 1) was completely excavated. The other two (Quarries 2–3) were only defined and the disturbed material from the top level were studied (SUs 14 and 18 respectively).

two separate events involving the dumping of rubble and pottery, possibly in an attempt at levelling out the disused quarry, took place (Figure 15).

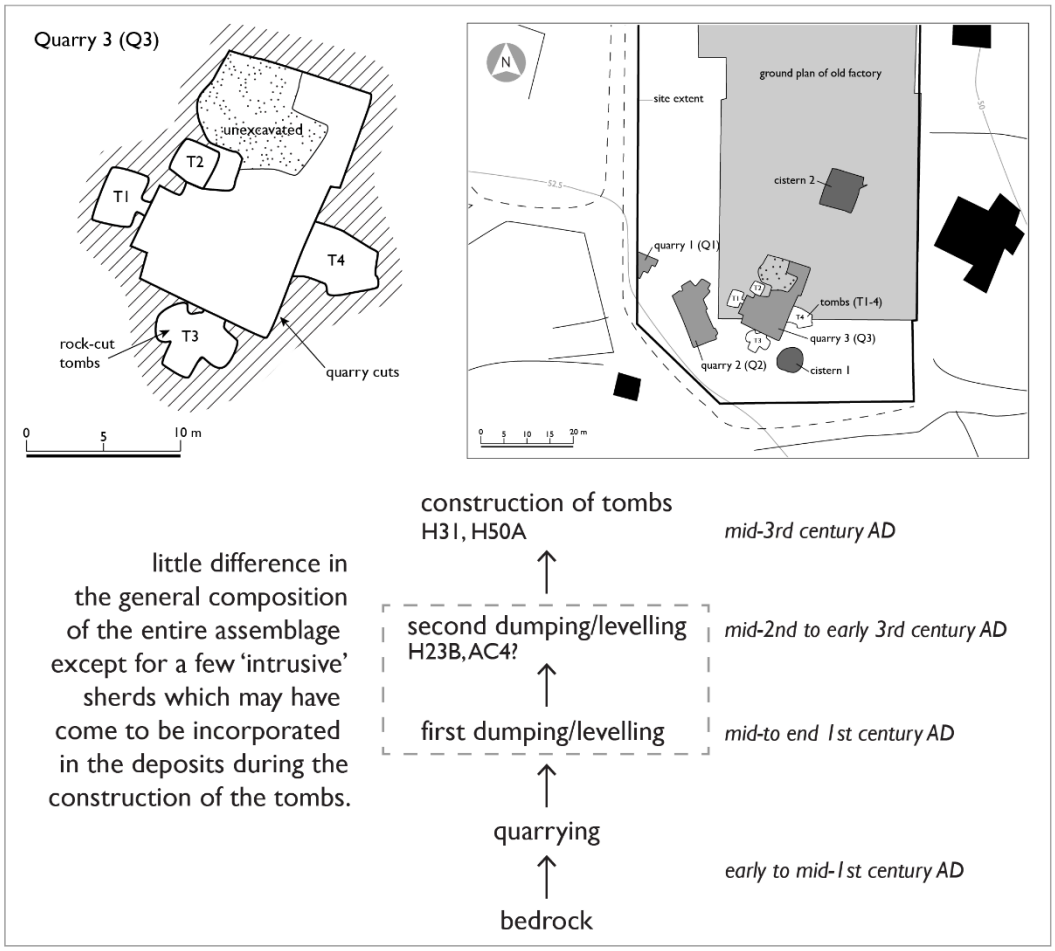


Figure 15: Top: Site plan and detail of the Bulebel quarry excavation (after Pace et al. 2013, fig. 1); and bottom: Schematic diagram of the activities believed to have taken place at Bulebel (source: author).

The first dump was deposited sometime before the mid-/end of the first century AD. Joining fragments discovered during the pottery study indicate that several deposits were dumped over a short period of time and correspond to different actions, however, they originated from the same source. The composition of the pottery forms found in the second, and latest, dumped deposits is virtually identical to the earlier one except that a handful of sherds date to the mid-2nd and early 3rd century. This may be interpreted as a further attempt at levelling out the deep quarry in preparation for the cutting of four tombs (T1–4) within the quarry walls; or that the top layers were partially disturbed whilst the tomb quarrying was

taking place. The imported pottery associated with the earliest interment (Chamber C, Tomb 3) dates to the early/mid-3rd century and may explain the intrusive cooking ware fragments (Hayes 23B), which are several centuries later in date than the consistent 1st-century pottery which makes up the majority of the latest dumping activity.

Joining fragments noticed in the multitude of rubble layers in this second phase of dumping are also indicative of the single-source location of the waste pottery. One context (SU 21) contained two near-complete North African amphorae only and although their exact form cannot be identified, they are probably 2nd–4th-century AD amphorae of the Africana series. Their isolated presence in this top layer suggests that they are contemporary with the use of the tombs and seal the remaining contexts in the quarry.

Type	Import		Local		Total		*Proportion of import/ local within each class*	
	No.	%	No.	%	No.	%	Import (%)	Local (%)
Amphora	229	9.51	80	3.32	309	12.83	74.11	25.89
Cooking ware	28	1.16	326	13.54	354	14.7	7.91	92.09
Fine ware	21	0.87	58	2.41	79	3.28	26.58	73.42
Coarse ware	30	1.25	1636	67.94	1666	69.19	1.8	98.2
Total	308	12.79	2100	87.21	2408	100	-	-

Table 5: Number and percentage (RBHS) of imported and local pottery; and the proportion of imported versus local pottery from the Q3 assemblage at Bulebel (n=2408).

3.3.1 Imported and local amphorae

The amphorae provided the best means of establishing a chronology for the entire assemblage. Just under 13% of the entire assemblage was composed of amphorae: of these, 74% are imported and 26% are local (Table 5). The amphorae types identified range from the Middle Punic period (c. mid-4th/3rd century BC) to the beginning of the 3rd century AD (Table 6).

Eighty-six out of 309 sherds were diagnostic enough to allow some sort of identification. The majority of the forms are Late Republican wine amphorae (Dressel 1, Lamboglia 2, Dressel 2-4), most of which originate

from Italy (Campania and the Adriatic coast) on the fabrics identified. The second most common form recognised is the Malta Type 1 amphora, identified and dated by Bruno to the Late Republican period.[376]

Amphora type	Provenance	Content/s	Date	No.	%
Punic egg-shape	Malta	Oil, wine?	4th c. BC - 1st c. AD	6	1.9
Greco-Italic	Campania (S. Italy)	Wine	3rd - mid-2nd c. BC	5	1.6
Van de Werff 1	N. Tunisia (N. Africa)	Garum?	2nd-1st c. BC	1	0.3
Dressel 1	Campania & Adriatic (S. Italy)	Wine, seashells, resin, hazelnuts, garum, olives	mid-2nd – end of 1st c. BC	17	5.5
Lamboglia 2	Adriatic (S. Italy)	Wine, olive oil(?)	2nd – end of 1st c. BC	7	2.3
Malta type 1	Malta	Oil, fish sauce	End 2nd – end 1st c. BC	13	4.2
Unknown*	N. Africa	-	-	2	0.6
Unknown*	?	-	-	11	3.6
Dressel 2-4	Campania & Adriatic (S. Italy)	Wine; Falerian(?) - 'praised vintage'	Mid-1st c. BC – end of 1st c. AD	10	3.2
ERA12	?	?	Mid-/end 1st c. AD	1	0.3
ERA13	Naxos (Sicily)	Wine?	1st c. AD	1	0.3
MRA1b	Catania (Sicily)	Wine?	Mid-1st - mid-2nd c. AD	7	2.3
Crétoise 4/Dr. 43	Crete	Wine, preserved fruit	Early 1st – early 3rd c. AD	1	0.3
Unknown*	N. Africa	-	-	4	1.3
Unknown**	Malta	-	-	61	19.7
Unknown**	Adriatic	-	-	40	12.9
Unknown**	N. Africa	-	-	29	9.4
Unknown**	Campanian	-	-	19	6.1
Unknown**	Sicilian	-	-	24	7.8
Unknown**	Spanish	-	-	3	1
Unknown**	Eastern	-	-	1	0.3
Unknown**	Import	-	-	46	14.9
Total				309	100
* unknown diagnostic (RBH) sherds ** unknown undiagnostic sherds					

Table 6: Amphorae types from Bulebel.

The only other Maltese amphora type is the Punic egg-shaped amphora; this is the typical transport container of the Punic period but is known in

[376] Bruno 2009, 101–105.

contexts dating to the mid-1st century AD.[377] Imperial period amphorae forms were primarily flat-bottomed Mid-Roman 1b amphorae of Sicilian production (most probably from workshops in Catania and Naxos) and have been dated to between the mid-1st and mid-2nd century AD.[378] Single examples of ERA 12 and 13 and a Crétoise 4 (Dressel 43) were also identified. No Imperial amphora forms were identified in the stratigraphically earliest phase (Phase 1). This, coupled with a high density of Republican forms and no later-dated imports within this phase, does indicate that phase 1 is chronologically distinctive from the stratigraphically later phase (Phase 2).

3.3.2 Imported and local cooking wares

Cooking wares make up 14.61% of the total quarry assemblage; 8% are imports and 92% are local (Table 5). Handmade wares make up the bulk of locally produced cooking wares. The most common imported cooking ware fabric is Campanian (26.03%), identified because of the black sand and mica inclusions in the fabric. Minor quantities of Pantellerian (5.48%), North Tunisian (4.11%) and an unidentified import (1.37%) make up the remainder of the imported forms. The principal Campanian forms date to between the 1st century BC and early-to-mid 1st century AD. The Pantellerian sherds—only one of which is diagnostic—and the North African examples can be dated to the Imperial period. A Hayes 23B casserole dates from the mid-2nd to early 3rd century.[379] The majority of the cooking ware category is dominated by local forms; the most typical form being Quercia's olla type A1, which he dates to between the 4th and 2nd

[377] Sagona 2002, 92–93.
[378] Thanks go to Carmela Franco for identifying the Sicilian fabrics and providing clearer dates.
[379] Hayes 1972, 45–48.

century BC at the sanctuary of Tas-Silġ,[380] but which is known in tomb contexts dating to at least the mid-1st century AD.[381]

3.3.3 Imported and local fine wares

Very few fine ware fragments were identified in the quarry assemblage (1.49%; Table 5). Of these, 58.33% are local red-slipped fragments, and the rest are imported (41.67%). The imported fine wares consist of residual Greek black-slipped pottery (5.56%), Campanian black slip (22.22%), Eastern red slip (8.33%) and Italian *terra sigillata* (5.56%). A series of locally produced thin-walled ware bowls make up 1.79% of the assemblage, most of them made in local fabrics. A handful of imported Italian and possible North African examples have been recorded too, including one well-preserved profile of a Knidian Grey ware cup datable to the Early Roman period.[382] The absence of African Red slip ware provides additional evidence that the assemblage is composed of pottery that dates no later than the mid-1st century AD.

3.4 Pottery from the Foreman Street excavation (Gozo)

In 2008, rescue excavations were conducted in preparation for the development of housing west of the historic city of Cittadella, Rabat, Gozo (Figure 7). Excavation revealed a series of deposits composed of ash and pottery. No kiln structures were identified; however, the composition of the stratigraphy, with its ash, multitude of pottery and ceramic wasters does indicate that this site may have been the dumping area for a nearby pottery workshop.[383]

[380] Quercia 2004–2005, 407.
[381] Sagona 2002, 222.
[382] Hayes 2008, 269.
[383] Pers. comm. Nathaniel Cutajar.

The pottery from this site was chosen for study as it provides a unique opportunity to study local ceramic production on the island of Gozo. To date, no known ceramic production areas are known archaeologically on the island. On the neighbouring island of Malta, no well-excavated production sites are known either although recent excavations at the site in Żebbiegħ, in the north of Malta, brought to light a disused cistern or large pit filled with ash, pottery and wasters similar in composition to the site at Foreman Street.[384]

Type	Import		Local		Total		*Proportion of import/ local within each class*	
	No.	%	No.	%	No.	%	Import (%)	Local (%)
Amphora	99	2.73	1	0.03	100	2.76	99	1
Cooking ware	130	3.59	11	0.30	141	3.89	92.2	7.8
Fine ware	38	1.05	47	1.30	85	2.35	44.71	55.29
Coarse ware	26	0.72	3269	90.28	3295	91	0.79	99.21
Total	293	8.09	3328	91.91	3621	100	-	-

Table 7: Number and percentage (RBHS) of imported and local pottery; and the proportion of imported versus local pottery from Foreman Street (n=3621).

Following the advice of the site's excavator, material from only three stratigraphic units (42, 57, 59), totalling 3,621 sherds, was chosen for analysis as a general overview of the material showed that the make-up of the ceramic material was relatively homogenous. These three contexts were contemporary and make up about 30% of the total deposits excavated. Due to time limitations, and being secure in the knowledge that these three contexts were very representative of the standardised material at Foreman Street, only a portion of the entire assemblage was studied.

[384] The results of the Żebbiegħ excavation have not been published yet, but a brief overview of the excavation can be found on FastiOnline (http://www.fastionline.org/excavation/micro_view.php?item_key=fst_cd&fst_cd=AIAC_1159. Last accessed on 26/08/2015)

3.4.1 Coarse ware production

Coarse wares make up over 90% of the assemblage at Foreman Street; 65% of these can be attributed to one of at least nine types of pottery vessels that can be securely tied to the Foreman Street repertoire (Figure 16). The frequency and multitude of wasters belonging to these types strongly suggest that they were produced within the vicinity. The shape repertoire is made up of bowls (types 4.1.9, 4.1.10, 4.1.11, 4.1.12 and 4.3.14), plates (type 4.1.15), large bowls (type 4.3.4–5) and jars (types 4.4.7–9 and 4.4.11); a detailed description and catalogue of these types can be found in Appendix I. All these forms are made in a glauconitic fabric (Local fabric 2), which is similar in general composition to the glauconitic fabric recorded in the Bulebel assemblage.[385] A local clay source for the production site is most probably within the vicinity of Il-Gelmus hill, which has one of the few outcrops of Greensands limestone above a clay bed (Figure 29).[386] The distribution of these vessels so far appears to be restricted to the island of Gozo and due to the lack of published excavations of the Roman period, no vessels can be recognised, aside from a single tomb context in Wied il-Għasri,[387] the material of which is currently on display at the Museum of Archaeology at Cittadella, Gozo. Earlier variants of some of these forms, in a different fabric associated with the Punic period, are known from Late Punic sites such as Għar ix-Xih[388] and Ras il-Wardija, Gozo.[389]

[385] See Appendix I.
[386] See section on fabrics in Appendix I.
[387] Sagona 2002, 1124–1126.
[388] Quercia and Anastasi 2008–2009.
[389] Cagiano de Azevedo et al. 1965, fig. 14.9; see Section 3.7.

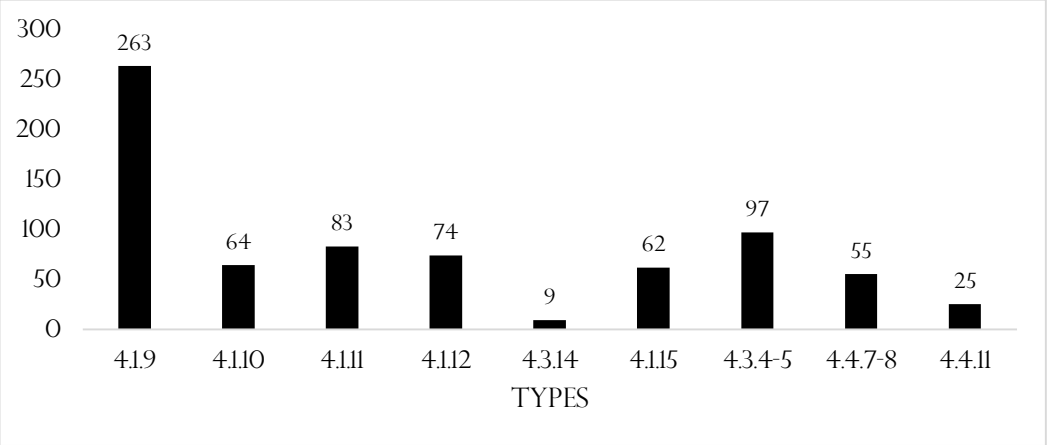


Figure 16: Number (RBH) of local coarse ware types identified at Foreman Street (n=1117).

3.4.2 Imported and local amphorae

Only four diagnostic amphorae sherds were identified in the assemblage; three are North African and one is local. However, one of the North African rims is too damaged to identify correctly, although it may belong to the Africana II series on the basis of the fabric.[390] No parallels for the remaining two African rims can be found, but they are similar to some of the Mid-Roman jugs identified by Riley in the material from Berenice.[391] The single local example shares similarities with the Malta type 2 series with a glauconitic fabric, which is the rarer variant identified by Bruno for the Maltese islands.[392]

When the amphorae wall sherds are taken into consideration, the overall picture of the amphorae at the site changes, even though amphorae only make up 2.73% of the entire assemblage. The fabrics indicate that the majority of amphorae have a North African origin, all of which can be sourced to North Tunisia (on the basis of Peacock's 2.1 and 2.2 fabrics) or Central Tunisia (Peacock 2.6) at 46% and 21% respectively.[393] Two fine buff

[390] See Bonifay 2004, figs 57–59.
[391] Riley 1979, 139.1157.
[392] Bruno 2009, 105, fig. 18.1.
[393] Peacock 1984, 14–18.

fabrics, one of which contains added micaceous inclusions accounted for 23% of the assemblage. No diagnostic sherds were associated with this fabric so a detailed identification of the forms and provenance of this fabric is impossible. The fabric may, however, originate from the Adriatic or Aegean area when compared with some fabrics from Bulebel. Five percent (5%) of the wall sherds share affinities with the Agora F65–66 fabric typical of the coastal areas of Asia Minor and belong to the Agora F65-66 amphora or its successor, the Late Roman Amphora 3 (LRA3).[394] The Agora F65-66 form has a long date range from the mid-1st century BC to the 4th century AD. Finally, only 1% of the amphorae fabrics can be ascribed to a local source, eliminating all possibility of local amphorae production at the site.

3.4.3 Imported and local cooking wares

Cooking wares made up the second largest class in the assemblage (3.59%) and are composed entirely of imported North African (62.75%), Pantellerian (33.33%) and Southern Italian (3.92%) vessels. No local wheelmade cooking vessels were recorded; instead, only a tiny proportion of handmade vessels (0.3%) were counted (Table 7).

The predominant North Tunisian cooking ware forms are Hayes 197 casseroles (17.14%) with their respective lids, Hayes 196 (10%), which date to between the 2nd and 4th century.[395] They are also associated with variants of casserole forms Hayes 23A and B (2.86%), which were produced in the same area and are generally contemporary. The lid form Hayes 185 makes up 5.71% and is also a North Tunisian production dating to the end of the 2nd to mid-3rd century.[396] Less common forms include several lids (Hayes form 182, Fulford forms 11.5 and 14) and casserole forms (Hayes 183, 193

[394] See the fabric description on: http://archaeologydataservice.ac.uk/archives/view/amphora_ahrb_2005/details.cfm?id=311 (seen on 24/05/2013).
[395] Bonifay 2004, 225.
[396] Bonifay 2004, 221.

and Riley's MRCW1c). The latter form appears to match the 'Benghazi local fabric 4' described by Riley for the assemblage from Berenice suggesting that this typically Italian form may be a Cyrenaican imitation.[397] This form has been dated to the 1st and 2nd centuries but peaks during the early 3rd century at Berenice.[398]

A third of the cooking wares are Pantellerian in origin and are represented by a series of restricted forms. Attributing dates to Pantellerian ware forms tends to be quite generic because of the longevity of a standardised repertoire which changes little from the 1st century to the 5th century. Five forms were recognised in the assemblage, the most common form being a shallow pan with a slightly flaring triangular rim. This form has a long life and has been recorded in various contexts dating to between the 1st century BC and 5th century AD.[399] The Foreman Street examples share more similarities with the 3rd-century examples from Cosa,[400] where both have a more pronounced and pointed triangular rim than the later almond-rim-shaped vessels from well-dated 5th-century contexts in Carthage and Pantelleria.[401] This observation may be compounded by the conspicuous absence of any of the olla forms (in particular type 3.5.1.1) in the later-dated Carthage material coupled with the absence of any of Fulford's forms 2 and 3 and Quercia's tegame tipo 1 and 2 from the Foreman Street assemblage; the latter being most common in the 6th- and 7th-century contexts at Tas-Silġ.[402] Quercia's study of Pantellerian ware from the sanctuary of Tas-Silġ

397 Riley 1979, 261.
398 Riley 1979, 259.
399 Fulford 1984, 157.
400 Dyson 1976, 139–140, fig. 59: LS52–53.
401 Baldassari 2009a, tav. II.
402 Quercia 2006, fig. 8; Pantellerian ware forms associated with later-dated contexts at Sabratha (types 303-307) are also absent from Foreman Street, whereas forms (types 291 and 293), which have been dated to the 2nd century AD are very common at Foreman Street (Dore 1989, 216).

showed that forms 3.5.1.1 and 3.5.2.1 were most numerous in contexts dating to the 3rd-4th centuries.[403] No parallels have yet been found for the casserole type 3.5.1.2 and these are also absent from the Carthage contexts.[404]

Only two wall fragments of Southern Italian cooking ware (characterised by a gritty brown micaceous fabric) were recovered from the Foreman Street assemblage. The absence of any distinguishing forms makes it difficult to draw any further conclusions.

3.4.4 Imported and local fine wares

Just over 2% of the assemblage was made up of fine wares; of these, 45% are imports and 55% are local red-slipped pottery (Table 7).

Although ARS accounts for the majority of imported fine wares (28%), only one ARS rim that belongs to a Hayes 6C bowl can be identified and is generally dated to between the end of the 1st and the end of the 2nd century.[405] The fabric appears to be typical of the ARS A Northern Tunisian production. Another ARS C ring base of a bowl with a shoulder carination was also recovered but no direct parallel can be found for the form. The ARS C fabric was the predominant fabric identified.

The second most common imported fine wares are Corinthian Roman relief ware bowls. These bowls are made using a one-piece mould and are typical of Corinthian workshops in the 3rd century.[406] Parallels for these bowls can

[403] Quercia 2006, 1608; see Appendix I.
[404] Fulford 1984.
[405] Hayes 1972, 29–31, fig. 3; this sherd is most probably residual as the fragment is small and very worn when compared with the remaining sherds in the assemblage, which all have fresh breaks.
[406] Hayes 2008, 111.

be found in Corinth[407] and in the Athenian agora and date to the 3rd century, as well as several other sites in the central Mediterranean.[408]

Local fine wares are entirely made up of hastily coated red slipped pottery (55.23%), here considered the typical local fine ware of the Roman period. The most common red slipped bowl forms have flaring or flat rims (types 2.1.5 and 2.1.6 respectively). A couple of examples of red slipped bowls appear to be local imitations of African Red Slip ware bowls, in particular, Hayes 6, which have flat-topped everted rims, incised with a groove. The local red slip vessels are made using the generic glauconitic fabric (Local fabric 2), however, the fabrics tends to be much softer, and in many instances, paler, than the unslipped examples. A thin, uneven, dull to bright red, matt slip coats the surface although the black glauconite inclusions are still visible on the surface. Local red slip pottery is known on Malta,[409] but no production centres have yet been identified. The characteristic glauconitic fabric and the vessel forms identified at Foreman Street strongly suggest that both red slipped and unslipped versions of the same form were produced at the site. The few examples of imitation Hayes 6 suggest the possible experimentation on the part of the potters to replicate imported forms. Incidentally, an example of a North Tunisian Hayes 6 bowl rim was also recovered from the same deposit and may have acted as the models which the local potters adopted to copy the form. None of the Hayes 6 imitation red slip vessels has unslipped counterparts like the type 2.1.5 bowls.

A few fragments of imported thin-walled cups were also identified (7.06%). Only two rim fragments were diagnostic enough to allow identification, and belong to one-handled cups or mugs commonly found in Maltese Late

[407] Canaday Spitzer 1942.
[408] Hayes 2008, 111, fig. 54: 1686–1711; see Malfitana 2005; 2007.
[409] Sagona 2002, 84.

Punic/Roman tombs.[410] The fabric for the illustrated examples is fine, granular and dark grey in colour with lots of fine quartz and occasional fine white inclusions. The form is a very common one and is characterised by a thin everted rim which has a small raised band (Marabini form LXVIII) at the junction between the rim and the start of the shoulder. This shape is mainly common in Italian (such as Cosa)[411] and Adriatic contexts, as well as the western Mediterranean; however, similar vessels are known in the Athenian Agora,[412] and have been dated from the Flavian period up until the 2nd century.

3.5 Pottery from the Museum Esplanade, Rabat (Malta)

Between 1983 and 1984 a small trial trench was excavated in an area close to the Roman domus in Rabat, the location of the ancient Maltese capital of Melita (Figure 7).[413] The excavation was a test project directed by the Museums' Department (Malta), the UCLA Institute of Archaeology and the US Information Agency.

The two short seasons revealed parts of orthogonal ashlar structures either side of a linear road or street. Investigation of the eastern structure (structure A) contained a clear series of floors, after which the structure was abandoned, fell into disrepair and was covered with accumulated debris. The stratigraphy of the site reveals at least seven activities, a few of which are thought to be contemporaneous events.[414] The earliest levels reached belong to the construction of a series of floors laid in the first century AD. A near complete "Arretine plate" was associated with the preparatory layer

[410] Sagona 2002, 191–192, fig. 349: 49.
[411] See Marabini Moevs 1973, 237, pl. 46.
[412] Hayes 2008, 101–103, fig. 51.
[413] The assemblage from the Museum Esplanade will be referred to as the Melita pottery from hereon.
[414] See Appendix V for a detailed overview of the stratigraphic matrix and report for the Museum Esplanade excavation.

of the earliest floor level of Structure A.[415] Only a few fragments of diagnostic pottery were recovered from the succeeding floor preparatory layers which date to no later than the end of the 1st century AD. The floor levels provide a *terminus ante quem* for the construction of the ashlar structure (A).

Type	Import		Local		Total		*Proportion of import/ local within each class*	
	No.	%	No.	%	No.	%	Import (%)	Local (%)
Amphora	211	14.45	26	1.78	237	16.22	89.03	10.97
Cooking ware	210	14.38	90	6.16	300	20.54	70	30
Fine ware	89	6.1	145	9.99	235	16.08	38.03	61.97
Coarse ware	31	2.12	625	42.81	656	44.9	4.73	95.27
Prehistoric	0	0	33	2.26	33	2.26	0	100
Total	541	37.05	919	62.97	1461	100	-	-

Table 8: Number and percentage (RBHS) of imported and local pottery; and the proportion of imported versus local pottery from Museum Esplanade, Rabat, Malta (n=1461).

No distinct occupation layers were noticed within the structure but a large deposit made up of rubble appears to be chronologically distinct from the latest Roman-period activities which took place after the former's deposition. This can be dated to around the early-to-mid-2nd century AD. Three other levelling/depositional events associated with the abandonment of both structures (A and B) date to the Late Roman period: Phases 3 to 5 have been dated to no later than the mid-4th century. A total of 14 coins were found during both seasons, and none of these coins post-dates the second half of the 4th century AD.[416]

[415] Lander 1984, 3. When the Melita Esplanade ceramic material was being studied (August 2013), the pottery associated with this floor level was not located in the Museum stores in Valletta, therefore the identification of the Arretine vessel is based on the unpublished preliminary report (Lander 1984).
[416] Lander 1984, 6.

3.5.1 Imported and local amphorae

Just under 90% of the amphorae in the Melita assemblage are imported forms (Table 8). The amphorae types range in date between 4th century BC and mid-4th century AD (Table 9). The percentage of local forms is primarily made up of egg-shaped amphorae typical of the Punic period (n=13), although are known from mid-1st century AD contexts. At least 5 examples of these are most probably residual fragments. Later Roman-period local amphorae consist of 2 examples of Malta type 1 (2nd to 1st centuries BC) and a single Malta type 2 example (Early Imperial period) which may be residual too. A few Late Republican Tyrrhenian and Adriatic amphorae (Dressel 1, Dressel 2-4 and Lamboglia 2) sherds were scattered across Phases 1 to 5. The bulk of the recognised amphorae types are Sicilian (MRA 1a), Cretan (AC1 and 2), North African (Africana IIA; IID; Tripolitanian I; Uzita, 52, 10; and Dressel 30s of probable Algerian production). These amphorae range in date between the mid-2nd and mid-4th century AD. Two fragments of a LRA2 amphora from Phase 5 may date to between the 4th and 7th century AD. The latest ARS fine ware (Hayes 67) may be dated to the second half of the 4th century AD.

Amphora type	Provenance	Content/s	Date	No.	%
Punic egg-shape	Malta	Oil, wine?	4th c. BC–1st c. AD	13	5.5
Van de Werff 1	N. Tunisia (N. Africa)	Garum?	2nd-1st c. BC	3	1.3
Mana D (Ramon T-4.2.1.5 and T-5.2.3.2/1)	N. Tunisia (N. Africa)	Garum?	4th-2nd c. BC?	2	0.8
Dressel 1	Campania (S. Italy)	Wine	mid-2nd–end of 1st c. BC	4	1.7
Dressel 2-4	Campania (S. Italy)	Wine; Falerian(?) - 'praised vintage'	Mid-1st c. BC–end of 1st c. AD	2	0.8
Lamboglia 2	Adriatic (S. Italy)	Wine, olive oil(?)	2nd–end of 1st c. BC	1	0.4
Malta type 1	Malta	Oil, fish sauce	End 2nd–end 1st c. BC	2	0.8
MRA 1b	Sicily	Wine	Mid-1st–mid-2nd c. AD	2	0.8
MRA 1a	Sicily	Wine	Mid-2nd–mid-/late 4th c. AD	15	6.3
MRA 1	Sicily	Wine	-	14	5.9
Malta type 2	Malta	?	1st–2nd c. AD	1	0.4
Crétoise 1	Crete	Wine?	Early 1st–mid-4th c. AD	2	0.8
Crétoise 2	Crete	Wine?	Early 1st–beg. 3rd c. AD	2	0.8
Africana IIA	N./C. Tunisia	Wine, fish sauce?	Mid-2nd–end 3rd c. AD?	4	1.7
Africana IID	C. Tunisia	Wine, Fish sauce?	Mid-/end 3rd–4th c. AD?	1	0.4
Africana II type	N. Tunisia	-	c. 2nd–4th c. AD	1	0.4
Africana II type	C. Tunisia	-	c. 2nd–4th c. AD	2	0.8
Uzita, 52, 10	C. Tunisia (Salakta?)	Fish sauce?	End 1st–2nd c. AD	1	0.4
Tripolitanian 1	Tripolitania	Oil	1st–mid-2nd c. AD	1	0.4
Dressel 30/Keay 1A	Mauritania (N. Africa)	Wine	3rd c. AD	7	3
LRA2	East Aegean	Oil, wine	Early 4th–beg. 7th c. AD	2	0.8
Unknown (Punic)	Import	-	-	1	0.4
Unknown (Punic)	N. Africa	-	-	6	2.5
Unknown	Local	-	-	10	4.2
Unknown	Import	-	-	138	58.2
				237	100

Table 9: Amphora types from Melita.

3.5.2 Imported and local cooking ware

Cooking wares make up a significant proportion of the Melita assemblage (Table 8), and 70% of these cooking wares are imported from North Africa, Pantelleria and Italy. Sixteen percent (16%) of local wares are made in a handmade fabric (Local Fabric 6), whilst 11.33% of local wheelmade sherds are in a fine red lime and glauconitic fabric (Local Fabric 2) typical of the Early Imperial period. The imported cooking wares originate from Italy (8.33%), Pantelleria (12.67%), North Tunisia (47%) and 2% of unknown provenance. Pantellerian and Tunisian cooking wares are most numerous in the latest phases of the site (Phases 3–5). Besides the relative absence and/scarcity of these forms—as well as the small number of sherds in general (n=36)—and fabrics in the two earlier phases (Phases 1–2), there are few patterns that can be discerned for the cooking wares in the assemblage. The Tunisian forms present are almost entirely from North Tunisian production centres, whilst four sherds may be Central Tunisian on the basis of the fabric. The majority of the forms are also typical of the imported repertoire of Tunisian exports between the 2nd and 4th century AD (Hayes forms 181, 197, 196 and 185). A more detailed study of the sourcing of these North African examples was carried out by Victoria Leitch in April 2009. Although many of the sherds she looked at are not included in this body of material,[417] she did conclude that the site received the "common classic forms", as well as some of the earlier forms which date to the mid-1st century AD.[418]

[417] Leitch looked at material from 34 wooden crates storing the material but did not have access to the excavation notes at this time (Leitch 2010, 319). The same fragments included in this study were selected on the stratigraphic information obtained at a later date. Due to this some of the forms she identified are not included here.
[418] Leitch 2010, 319.

3.5.3 Imported and local fine ware

Fine wares account for about 16% of the total ceramic assemblage at Melita (Table 8). However, unlike the amphorae, imported examples make up only 38% of all fine wares; locally produced fine wares are made up of red slipped pottery (59.15%) and a few thin-walled vessels (2.98%). A small fraction of the imported fine wares are most probably residual sherds because of their rather early date, in particular the Campanian A and C black slip fragments and possibly the Italian *terra sigillata*. The remaining imported sherds (31.5%) are entirely of North Tunisian ARS production which date from the mid-3rd to early-to-mid 4th century AD.

3.6 Other Maltese assemblages

3.6.1 The Żejtun villa

The Żejtun 'villa' was discovered in 1961 during building works for the construction of the Carlo Diacono Girls' School in the village of Żejtun, in the south of Malta. After several years of partial abandonment, an extensive archaeological excavation began in 1972 under the direction of Dr Tancred Gouder and took place over a series of four annual summer seasons. Arbitrary spits at 20-cm intervals were adopted as the primary excavation technique and a total of about 8 trenches were opened over the course of the excavation. More extensive areas were excavated to the north of the site. No field notes for the seasons between 1972 and 1976 were ever recovered, however the discovery of a sketch plan drawn by Frans Mallia in 1972 shows the location of several of the trenches dug during the first season.[419] All the finds recovered during the 1970s excavations were kept and stored at the Vilhena Palace stores under the curatorship of Heritage Malta. As part of my Masters research, I undertook to study the pottery from the 1972

[419] Bonanno and Vella 2012.

season and created a detailed catalogue of all the Late Punic and Roman-period pottery, as well as some simple quantified data.[420]

In 2006, at the request of the school's head and the Żejtun local council, excavations resumed at the site under the direction of Prof. Anthony Bonanno and Dr Nicholas Vella of the Department of Classics and Archaeology, University of Malta. Short, annual seasons, now using a stratigraphic method of excavation, have been ongoing since 2006. The ceramic material is now being studied in detailed by both Dr Babette Bechtold and myself, but remains to be completed and published.

The pottery that came from the 1972 excavation was mostly unstratified, however, all the material did come from the northern 'habitation' and 'industrial' zones of the site and is most probably linked to Late Punic/early Roman occupational layers, and the abandonment and re-use levels dating to between the 5th and 7th centuries AD.[421] Just over 25% of the assemblage was made up of imported vessels, mostly amphorae and fine wares. The remainder were locally manufactured ceramics quite similar in clay and finishing technique to the pottery from the Late Punic and early Roman sanctuary at Tas-Silġ, located about 1.6 km away. Several inscribed coarse and cooking ware vessels with pre-firing Punic inscriptions, identical to the thousands discovered in ritual deposits at Tas-Silġ, indicate a period of contemporaneous and linked activity between the farmstead and the sanctuary.[422]

The material from the more recent 2006 excavations comes from contexts sealed beneath foundation levels for the construction of the farmstead

[420] Anastasi 2010; 2012.
[421] Anastasi 2010, 106–107.
[422] Bonanno and Vella 2012; Anastasi 2012; Frendo 1999.

which is dated to the mid-5th to 4th century BC.[423] A second building phase of the structure contained Later Punic/early Roman material but in very small quantities with little diagnostic features. Very little imported material was noted; the majority being local coarse and cooking wares. The majority of amphorae were locally produced Punic egg-shaped types. General quantification from phased contexts remains to be done but is in progress.

3.6.2 Għar ix-Xih, Gozo

This small rural site is located on the side of the Mġarr ix-Xini valley, on the outskirts of Sannat and Xewkija, on the island of Gozo, and was discovered by Dr George Azzopardi in the early decades of the 2000s. The excavation of the small site commenced in July 2005 jointly directed by the University of Malta and the Superintendence of Cultural Heritage, and was generously sponsored by the local councils of Sannat and Xewkija. Preliminary recording and counting of the pottery has been undertaken by both Dr Alessandro Quercia and myself.

The site consists of several phases, the earliest is related to the accumulation of natural cave deposits pre-dating the arrival of humans from Sicily in the Neolithic period. The main structural phases are linked to the construction of a field terrace wall; the building of a square structure, possibly a tower, and the anthropogenic modification of the existing cave structure that incorporates a series of walls intended to enclose the space. These construction activities date to between the 3rd and 2nd centuries BC. Related to these building activities are a range of fills that contained scores of clay anthropogenic figurine fragments representing several possibly Punic

[423] These dates are based on the preliminary ceramic study of primary contexts studied by B. Bechtold (2008).

deities. This suggests a religious and ritual character during the Punic period.

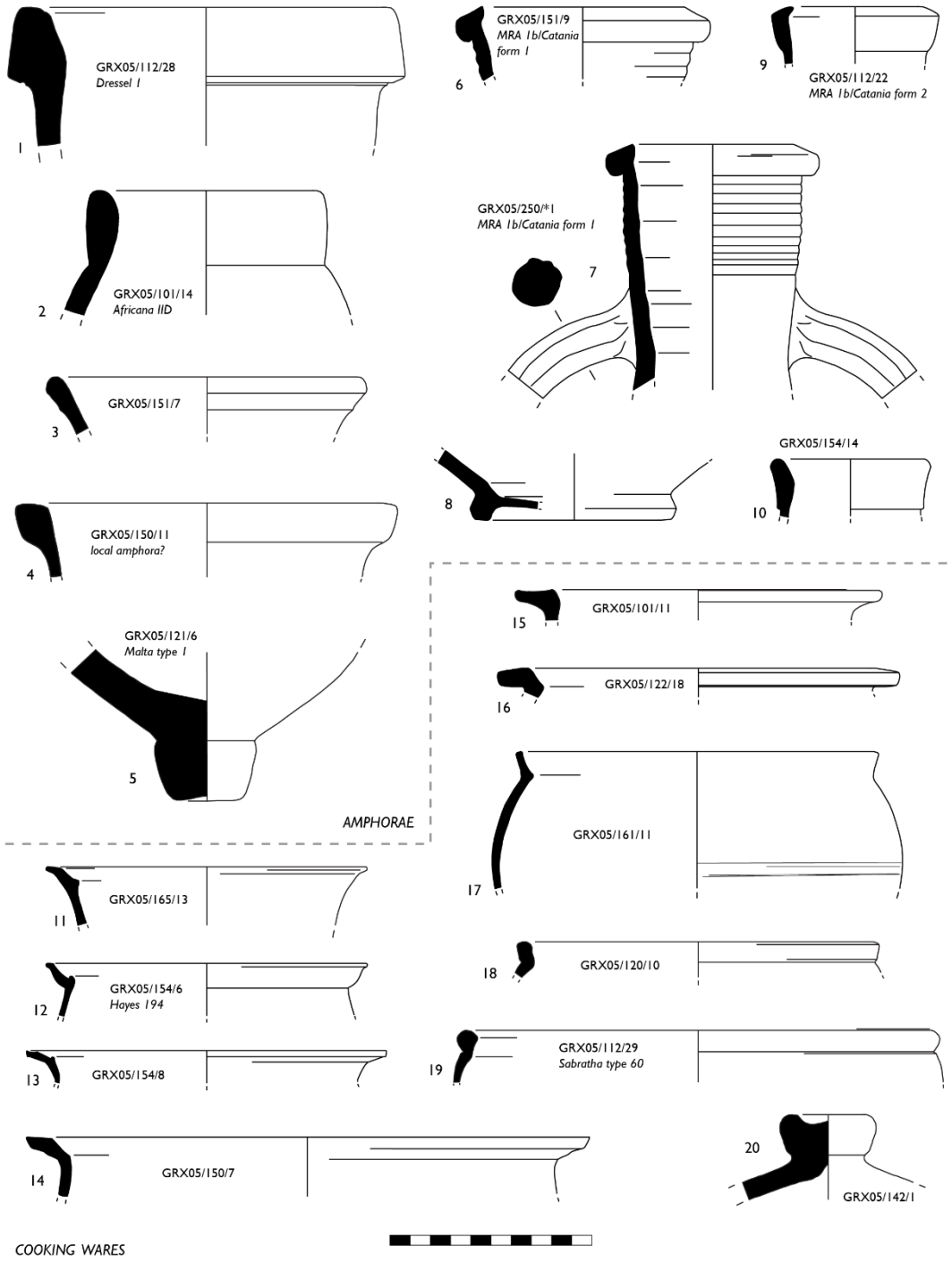


Figure 17: Selected amphorae and cooking wares from Għar ix-Xih.

A later, Imperial Roman phase related to the re-use of the modified cave structure, and hearth remains, shows sporadic occupation of the site in connection with a few associated imported amphorae and cooking wares

fragments. A very small fraction of the assemblage belonged to pottery other than coarse wares; cooking wares made up just 1.44%, whilst fine wares and amphorae made up just 0.85% (Figure 17).[424]

This site contained an interesting range of 1st–2nd-century North African imported cooking wares. Some of these include an early Hayes 194 casserole rim, probably from the Carthage area (Figure 17.12). This is the only example of this type of form noted for the Maltese islands to date, but is very common on sites in Carthage,[425] Pantelleria,[426] and Sabratha;[427] both the Punic and Roman forms.[428] North African casserole forms similar to GRX05/154/8 and GRX05/150/7 have been identified at the sanctuary of Tas-Silġ[429] and resemble Hayes' Early Roman Cooking Ware type C from Carthage (Figure 17.13–14).[430]

None of these forms was identified in any other contemporary contexts on Malta, such as the contemporary levels at the Żejtun villa or the Bulebel excavations. In addition to these early Roman cooking ware forms, several Hayes 183-184 variants were recovered (GRX05/112/29 and GRX05/120/10) that resemble the some of the cooking ware variants from Sabratha (Figure 17.18–19).[431] The importance of these usually uncommon cooking ware forms in the Maltese islands at a small rural site is interesting.

[424] Information taken from A. Quercia's preliminary report of the November 2011 pottery study season (Quercia and Anastasi 2008–2009). A catalogued description of the selected sherds can be found in Appendix III.
[425] Vegas 1999, 197–198; Hayes 1975, context XI.
[426] Schmidt 2013b, 543–554.
[427] Dore 1989, 34–35.
[428] Schmidt 2013b, 544.
[429] Sagona 2015, fig. 1.129:6–7.
[430] Hayes 1976, 97, fig. 15, no. C9.
[431] See Appendix III.

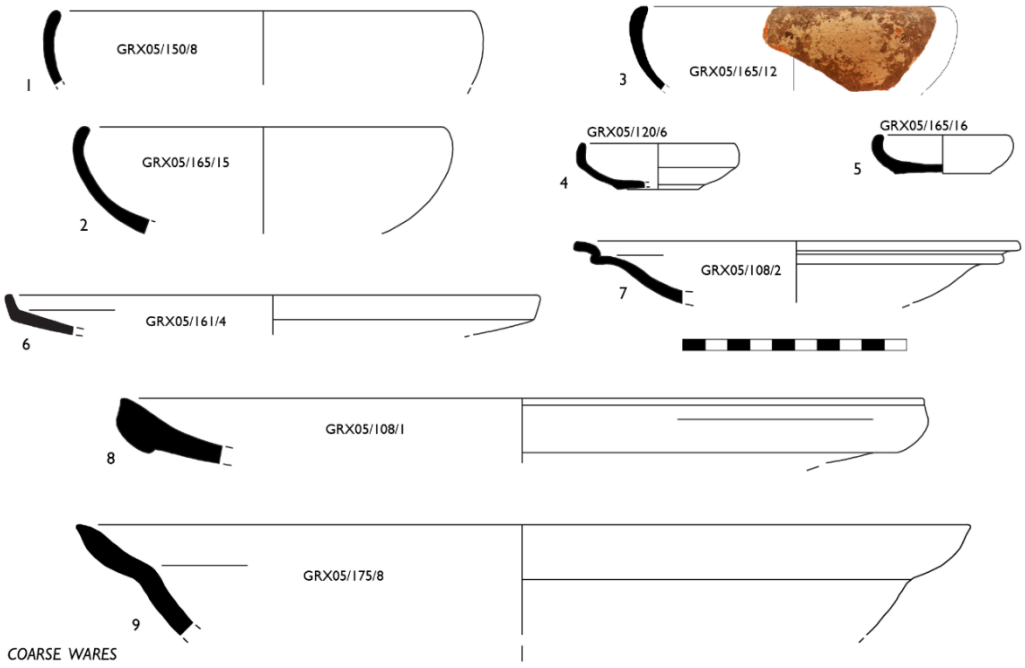


Figure 18: Selected coarse ware pottery from Għar ix-Xih.

At least three MRA 1b amphorae fragments were also recorded (GRX05/151/9,[432] GRX05/122/22 and GRX05/250/*1) which date from the mid-1st century BC to the early 1st century AD (Figure 17.6–9). A North African Africana 2D amphora rim dating to the mid-3rd to 4th century is associated with the later phases and the fabric indicates that this amphora is a product of central Tunisia (Figure 17.2).

The coarse wares from the site are predominantly Punic in character and provide an interesting range of shapes that are potentially the predecessors of some of the forms identified from Foreman Street (Gozo) dated to the mid-2nd/3rd century AD (Figure 18). The general fabrics of the Għar ix-Xih coarse ware assemblage generally lack the dense black glauconite tempering and are mostly fine pale orange in colour with fine white and yellow lime inclusions mixed together with white foraminifera fossil, although there are exceptions to this as there are some fragments that were

[432] This form was kindly identified by Carmela Franco as a Catania flat-bottomed type form 1, and dates to between the Augustan–Tiberian period and the beginning of the 3rd century AD.

made using a fabric like Local Fabric 2. A handful of Punic-period intrusive fragments from the Foreman Street assemblage are akin to these.[433] The vessels were then finished with a thick and smoothed cream-coloured slip, in keeping with the local Punic tradition seen at most other sites across the islands. Very few Roman-period coarse ware forms could be identified, but this is most probably due to the scant Roman occupation of the site. Contrary to the Roman-period imported vessels, Punic-period imported pottery is lacking and is again in keeping with the general Maltese phenomenon of a lack of imports for the Punic and early Roman periods.

3.6.3 The Malta Survey Project (MSP2008)

Between 2008 and 2010 a joint Belgo-Maltese survey project, directed by Roald Docter (Ghent University) and Nicholas C. Vella (University of Malta) led a team of Maltese and Belgian undergraduate students in an extensive field-walking survey in the north of Malta (see location in Figure 7). A large number of features and finds were recorded over three seasons and included rock-cut tombs, a lined vat related to the settling of olive oil, ancient quarrying scars and cart ruts to name a few. The preliminary findings for the first three seasons were recently published;[434] but a full report of all the findings remains to be done.

To date, only the finds from half of the total number of transects have been studied with the total number of finds processed reaching 24,945. Of these, 11,708 finds—including tile and other ceramic and non-ceramic material—could be dated to the Hellenistic, Roman and Late Antique periods. Large tracts of garrigue landscape and intensive farming and human occupation are most probably responsible for the poor state of preservation of most of

[433] These include: types 4.1.1-1–2, 4.1.3-1, 4.1.6-1, 4.1.12-1, 4.1.13-1, 4.1.14-1 (see Appendix I).
[434] Docter et al. 2012.

the material. The condition of a vast majority of fragments was quite poor, either being heavily worn or highly fragmented. As is common for survey material the majority of the pottery collected consisted of small, worn and undiagnostic fragments making identification very difficult at times, thus classification was mostly based on the fabrics identified, whether local or imported.

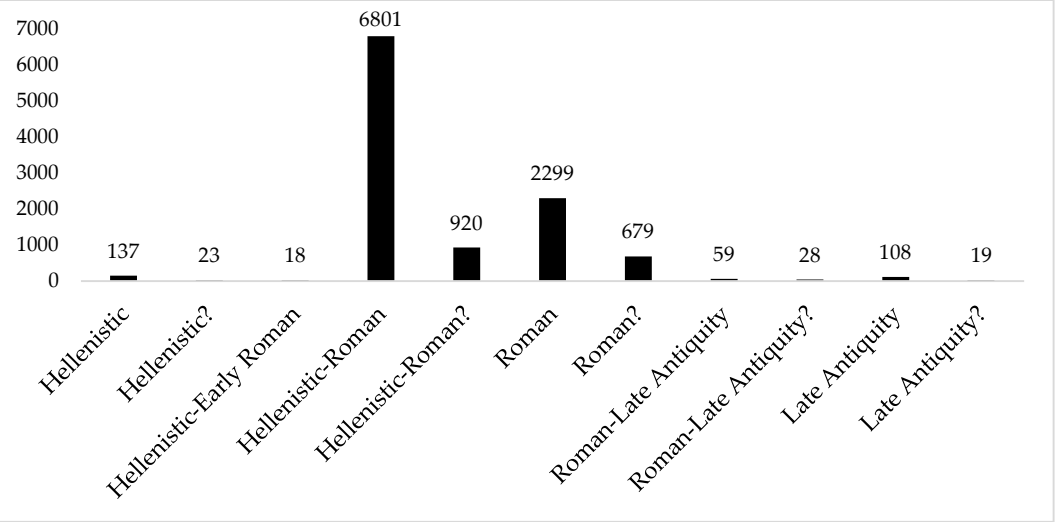


Figure 19: Number of pottery finds according to the survey's chronological periods.

The pottery classified for three general, and sometimes overlapping, periods (Hellenistic, Roman and Late Antique) will be included here as these fragments most certainly belong to the chronological periods covering the 4th/3rd century BC to the 4th–7th century AD. At the time the finds processing was undertaken very little was known about the character of local Roman-period fine and coarse ware ceramics. As a result of this some of the fabrics have probably been attributed to wider chronological parameters which include the Phoenician/Punic and the medieval periods. Whilst taking into consideration these possible misidentifications, a summary of the Hellenistic and Roman material collected and studied will be presented here. Out of the total finds, 11,091, the most numerous category of pottery finds fell into the Hellenistic-Roman period, followed by the Roman period (Figure 19).

Sherds belonging to closed vessels and amphorae were the most numerous ceramic finds from the survey (n=7,053). Of these, 3,584 could be attributed to amphorae containers with some degree of confidence. Over half of the amphorae sherds are made from imported fabrics (60%), whilst 40% are local. The breakdown of regional sources identified through the fabrics showed that of the imported sherds 39% were found to be from western sources, whilst only a mere 4% could be identified as eastern-sourced amphorae. Of the total number of imported fragments, a large percentage (33.31%) could not be more accurately identified or sourced to a particular region. This figure most certainly affects the very low number of identified eastern-sourced amphorae as many of these unknown, yet imported sherds are more probably from eastern sources. As the finds team were mostly unfamiliar with eastern-sourced amphorae, attributing a more probable source was mostly reserved for western, thus more familiar, fabrics. A further breakdown of the sources show that North African sources were the most common imported fabrics (18%), followed by Italian fabrics, mostly Campanian black sand fabrics (4.86%).

Very few diagnostic amphorae fragments were recovered, something not so unusual for survey finds, although it made identification particularly difficult. In total, 36 amphora sherds dating to the Late Punic and Roman period could be identified with certainty. The most common forms are Italian wine amphorae (Lamboglia 2/Dressel 6 and Dressel 2-4). Interestingly, a relatively high number of Forlimpopoli amphorae were identified on account of the distinct handles, as well as a few Africana 2A wine or fish-sauce amphorae. A large number (n=170) of diagnostic sherds, mostly handles and bases, of unidentified forms were also identified and recorded, however, these remain to be drawn and published so until this is done, identification of their forms remain unknown.

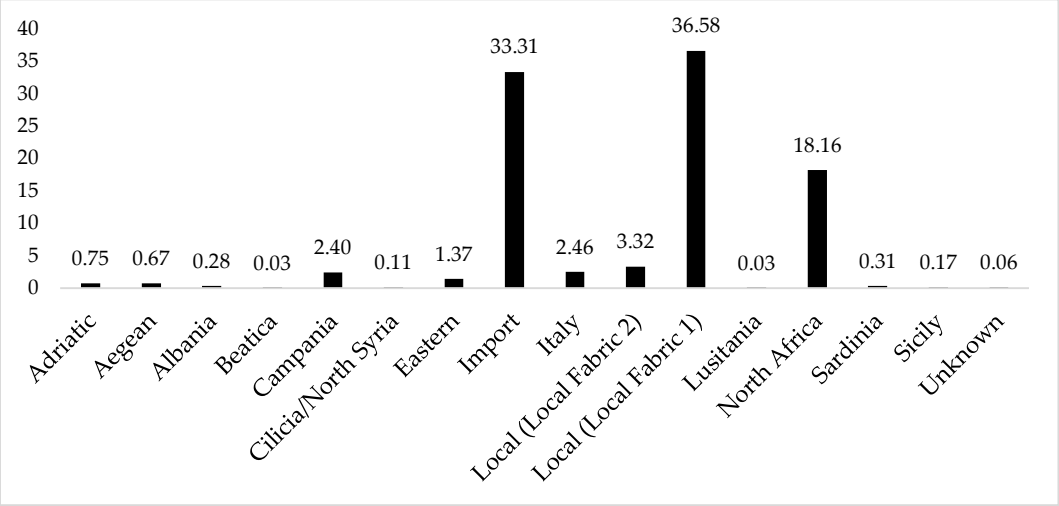


Figure 20: Proportion (%) of all amphora fragments (grouped by source) from the Malta Survey Project (n=3584).

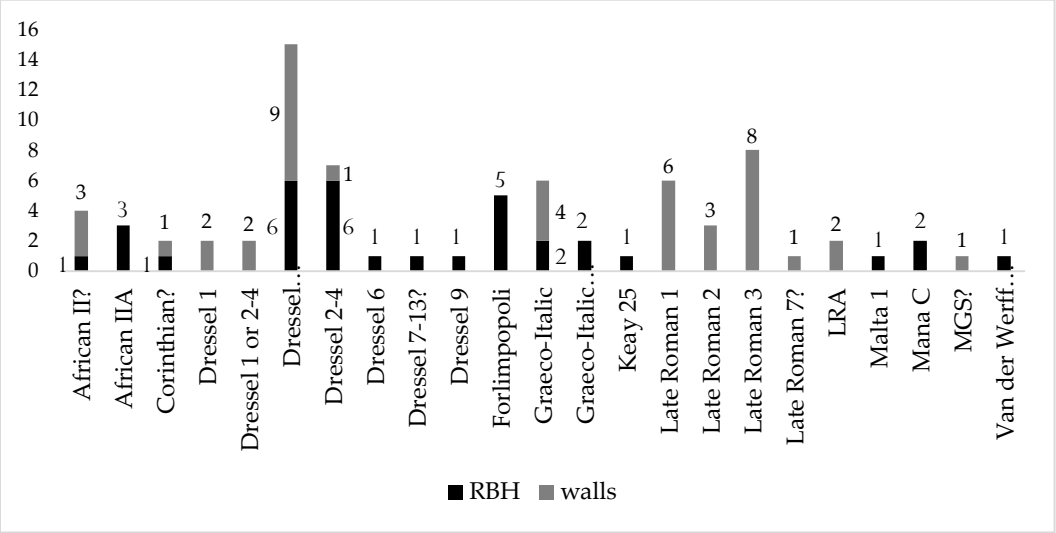


Figure 21: Number of diagnostic amphora types identified for the Malta Survey Project 2008 (n=77).

Only a very small number of fragments recovered were Roman-period fine wares. Fifty-five fragments of ARS were identified. Potentially many more sherds were found, however, owing to the poor preservation there was a lot of uncertainty in their identification as the slip has since eroded. Local red slipped ware with the characteristic glauconitic fabric was also identified (Local Fabric 2). Only a small handful of ITS and Eastern sigillata sherds were recorded.

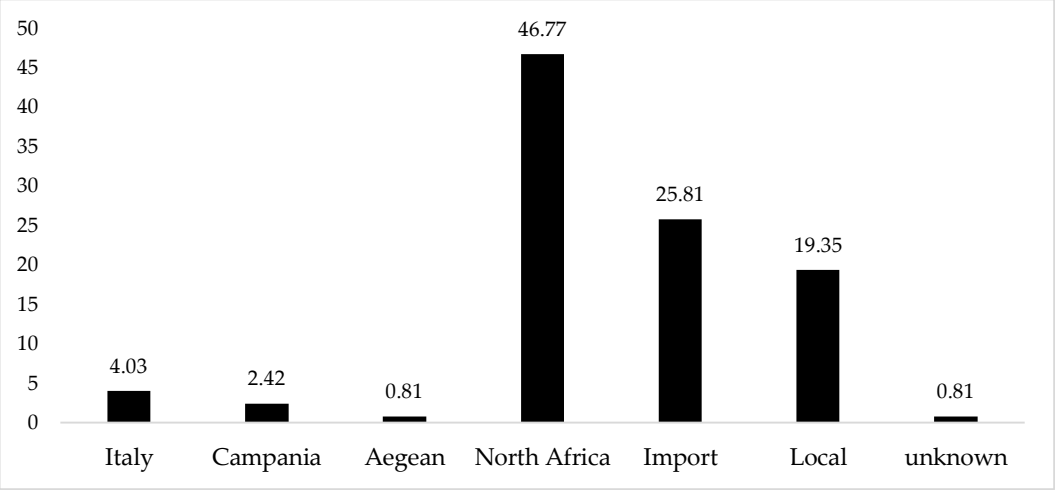


Figure 22: Proportion (%) of fine ware fragments (grouped by regional source) from the Malta Survey Project 2008 (n=124).

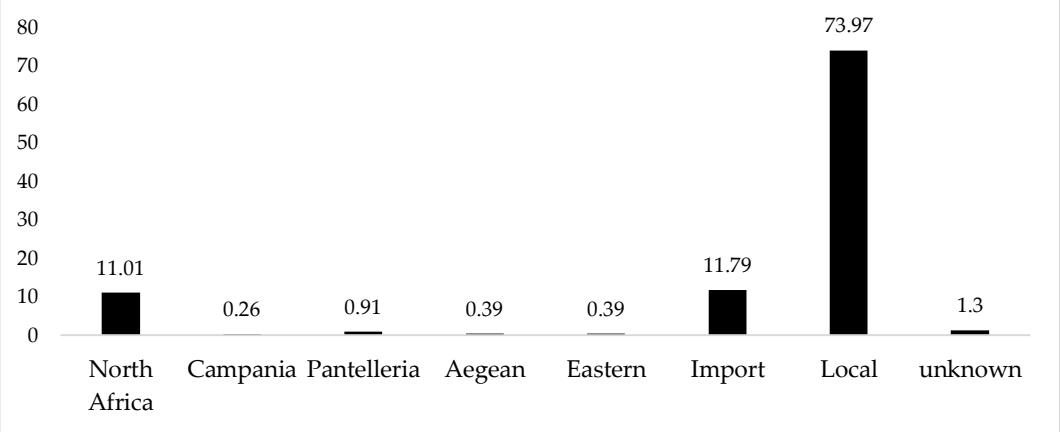


Figure 23: Proportion (%) of cooking ware fragments (grouped by regional source) from the Malta Survey Project 2008 (n=773).

Cooking wares were dominated by mostly local products (73.97%) made using a coarse orange-to-red clay filled with white/yellow lime tempering similar to Local Fabric 5 (Figure 23). North African cooking ware fabrics account for 11.01%, whilst 11.79% are unidentified imported fabrics, and only 0.91% were identified as Pantellerian cooking ware. Very few other cooking ware fabrics from the Aegean, Italy and the eastern Mediterranean were identified and tend to confirm the general pattern of limited cooking ware importation to Malta. In spite of this, just over a quarter of all the cooking ware fabrics were identified as imported. When compared to other contexts around the Maltese islands, the ratio of local to imported cooking wares tends to be the most fluid.

Just under 60% of all the pottery sherds studied were classified as coarse wares. Of these, 92% were made using clays similar to Local fabric 1, whilst a small proportion (6.7%) of the coarse wares were made using Local fabric 2. A very tiny amount (0.45%) could be identified as Local fabric 3 but the manner in which the fabrics were identified—by several different specialists unfamiliar with local fabrics—may have played a role in this figure being on the low side (see above).[435]

3.6.4 The sanctuary of Tas-Silġ

The sanctuary at Tas-Silġ has been undergoing excavations since the Italian archaeological mission commenced excavations there in 1963; this project ran from 1963 until 1970, and then again from 2000 and remains on-going.[436] More recently, the Department of Classics and Archaeology at the University of Malta excavated four trenches in the southern part of the site.[437] The sanctuary spans several millennia, originating with a Neolithic megalithic temple complex dating to around 2,500 BC, followed by a long sequence of re-building through the Bronze Age, the Phoenician period and subsequent Punic, Roman and Byzantine periods; each phase making use of the previous temple structure and embellishing earlier works. The pottery from the Punic and Roman phases has been subject to a number of different studies and it is clear that the nature of the assemblages are quite characteristic of a ritual site, where thousands of repeated offerings to the Punic and Roman deities resulted in vast dumps of pottery vessels that are

[435] As was stated earlier, very little was known about the general fabrics of the Maltese islands before the start of this survey and a combination of several foreign pottery specialists probably has a great deal to do with the mis-identification of a subtle fabric as Local fabric 3 which could easily be mistaken for an imported fabric.

[436] Regular preliminary reports were published, more or less annually, for the three sites between 1964 and 1973; see Bonello et al. 1964; Cagiano de Azevedo et al. 1965–1967; 1972–1973; Bozzi et al. 1968; Busuttil et al. 1969. See Semeraro 2004–2005 for a recent summary of the more recent Italian excavations.

[437] Bonanno and Frendo 2000; Bonanno and Vella 2015.

made up of a very restricted repertoire of shapes and fabrics. Only a tiny fraction of the ceramic assemblage was imported, although the opposite is true for the amphorae, which are the most common imports for the Late Republican and early Imperial period (Figure 25).[438]

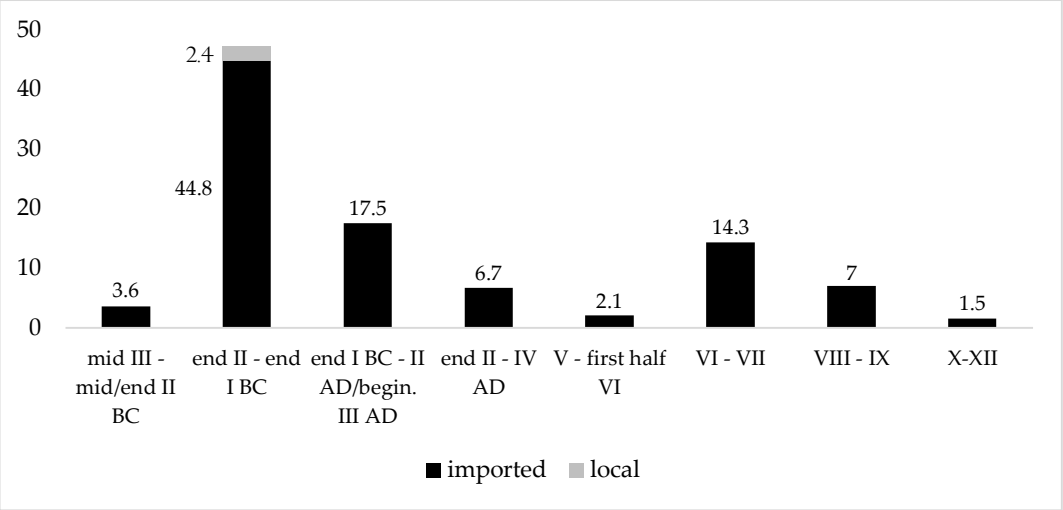


Figure 24: Proportion of local and imported amphorae (%) from Tas-Silġ from the mid-3rd century BC to the 12th century (data from Bruno 2009, fig. 25).

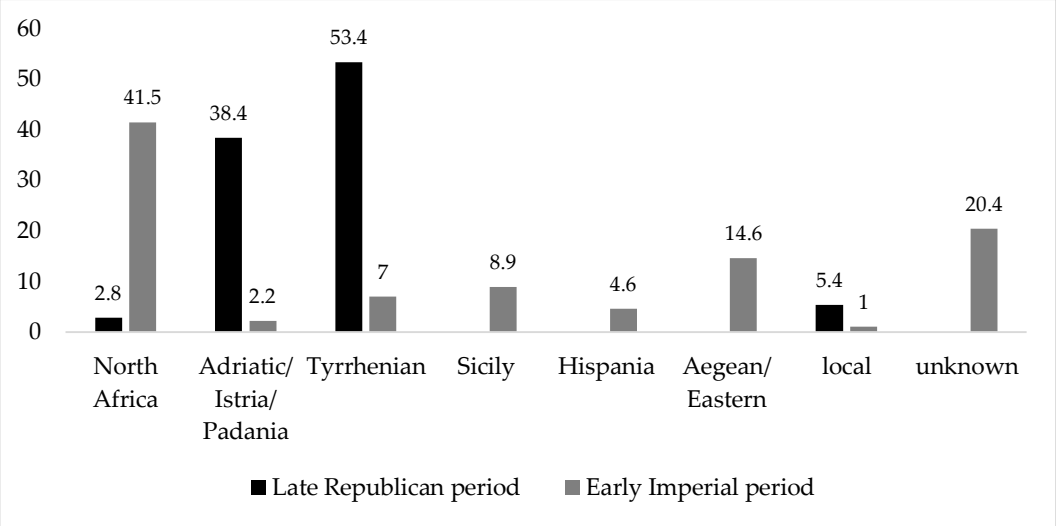


Figure 25: Proportion of amphorae sources (%) from the Late Republican and Early Imperial periods at Tas-Silġ (data from Bruno 2009, figs 26–27).

The site offered a unique opportunity to study the Punic and Late Roman Republican coarse wares for the south of Malta. The main shapes have undergone a preliminary study by A. Quercia, and more recently by C.

[438] Bruno 2009, 132–133.

Sagona and show that the most common forms were plates and bowls.[439] Thousands of these coarse ware bowls were inscribed with an abbreviated Punic dedication to the goddess Ashtarte and this suggests that the vessels were made specifically for use at the sanctuary. Of interest are a handful of vessels made in the same fabric and following the same shape and surface treatment that are also inscribed but have been found less than 1.6 km away at a Punic farmstead in Żejtun.[440] The general coarse ware fabrics at Tas-Silġ belong to Local fabric 1, however, there are some slight differences in the colour and hardness of the vessels when compared to the material from Melita. The Tas-Silġ material is certainly from the same or similar production centre at that for the Żejtun villa and also the early phases of the Bulebel assemblage.

3.6.5 The San Pawl Milqi villa

This large rural oil-producing site was excavated together with Tas-Silġ by the Italian mission between 1964 and 1970. Excavations uncovered an extensive villa with several lever-press/windlass presses, most probably representing the only (relatively) large-scale oil processing farm on the islands.[441] Many more farms/villas have been identified on Malta and Gozo, however, evidence for no more than a single press are present at these other sites suggesting that the vast majority of villas produced oil for local consumption (Table 3). At the San Pawl Milqi villa evidence for a 4th-century BC-phase was identified and suggests Punic foundations with possible industrial activity. B. Bruno compiled a detailed study of the amphorae from the site and concluded that the site produced a considerable number

[439] Quercia 2004–2005; 2011; Sagona 2000; 2015.
[440] See above; Section 3.6.1.
[441] A detailed study of oil-producing capacity has been undertaken by D. Locatelli, who calculated that a significant surplus of oil could be produced (2005–2006; 2008).

of its own amphorae (Malta types 1 and 2) from the Late Republican to Early Imperial period (Figure 26).

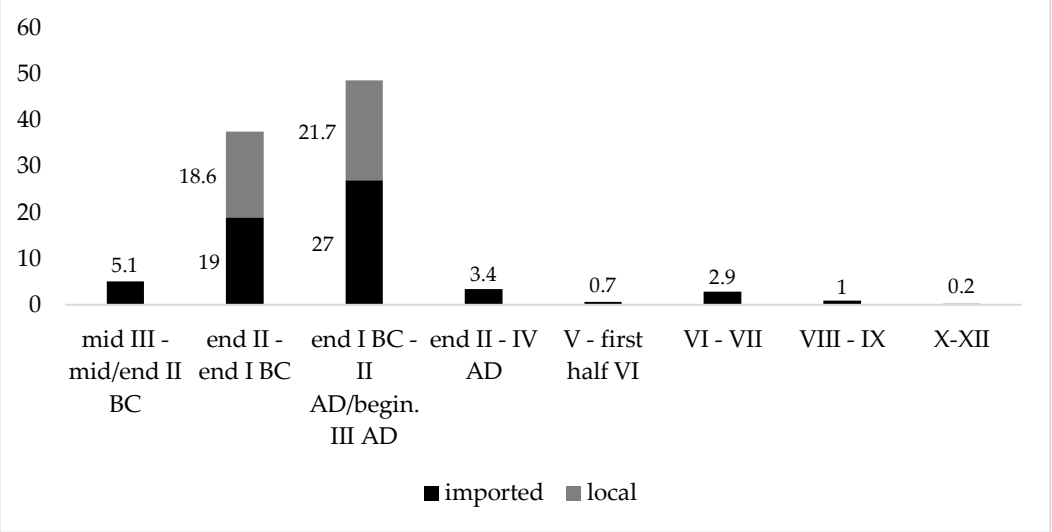


Figure 26: Proportion of local and imported amphorae (%) from San Pawl Milqi from the mid-3rd century BC to the 12th century (data from Bruno 2009, fig. 32).

The amphora assemblage studied by Bruno is significant because it is the largest non-ritual, Roman-period assemblage available on the islands; and it contained the largest proportion of locally produced Roman amphorae, which is also suggestive of the villa's large-scale initiative for producing surplus olive oil. It has been hypothesized that the nearby Salina bay would have acted as the port where surplus oil, bottled in local Malta type 1 and type 2 containers, could have been shipped elsewhere; either locally or abroad.[442]

Several building phases have recently been identified following a re-evaluation of the Italian excavations in the 1960s, ranging from the 4th century BC, to the height of oil-production during the late 1st/early 2nd century, until its final destruction and abandonment sometime in the second half of the 3rd/early 4th century AD, apparently caused by a fire.[443]

[442] Gambin 2005, 93.
[443] Bruno 2009, 152.

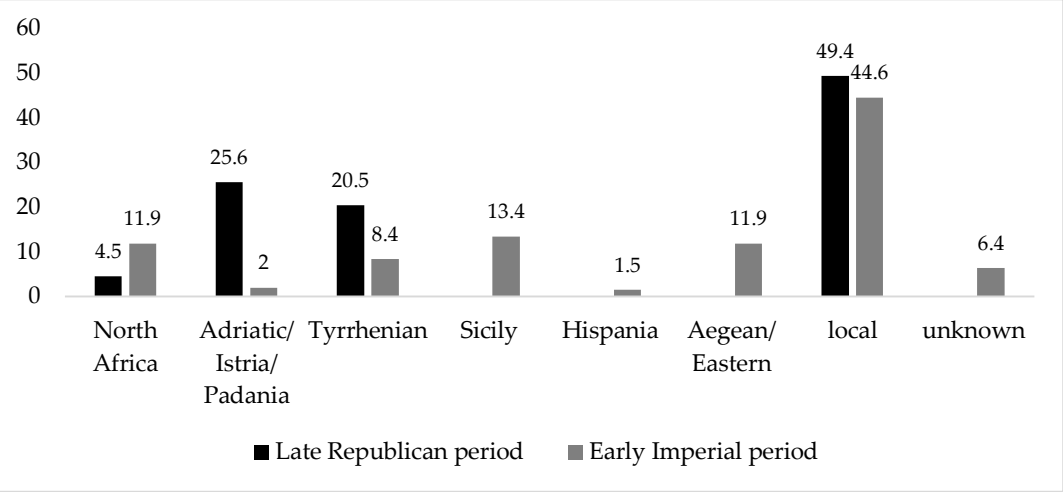


Figure 27: Proportion of amphorae sources (%) from the Late Republican and Early Imperial periods at San Pawl Milqi (data from Bruno 2009, figs 33–34).

3.7 Maltese pottery production

From the overview of several Maltese pottery assemblages from various sites across the archipelago, some general conclusions can be drawn regarding the nature of a prolific and long-standing local pottery production for the islands. At least six fabrics can be considered local to the islands and are predominantly used for the manufacture of utilitarian coarse ware vessels (i.e. bowls, plates, storage jars and large mixing bowls), a series of cooking vessels (i.e. ollas, casseroles and shallow pans) and a restricted range of transport amphorae (i.e. the Punic egg-shape form, Bruno's Malta types 1 and 2, and Sagona's urn forms III-IV: 4a–b).[444]

From the evidence presented, there appear to be at least three production 'zones' across Malta and Gozo where local fabrics share similar qualities and are suggestive of a localised pottery production and the proximity of clay sources (Figure 28).

3.7.1 South Malta

This zone is characterised by the Late Punic and early Roman pottery from the sanctuary of Tas-Silġ, Bulebel and the Żejtun villa, which are all

[444] Section 3.8 explores the Maltese Punic and early Roman export production.

clustered within a short distance of each other. The inscribed pottery forms (plates, bowls and cooking vessels) shared between Tas-Silġ and Żejtun further strengthen this connection and are strongly suggestive of a shared production centre. The similarity between the shapes and fabrics (mostly Local fabric 1, even in the early Roman period) also point toward the Bulebel assemblage originating from the same or similar production zone as those of Tas-Silġ and Żejtun.

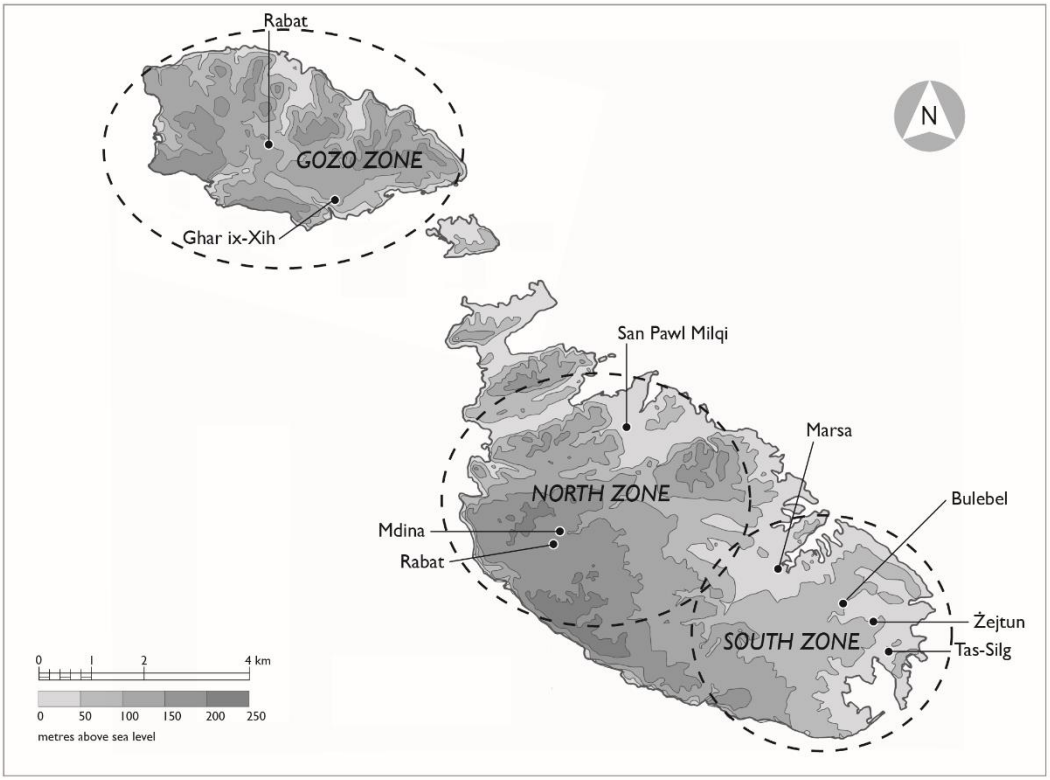


Figure 28: Map of the Maltese islands showing the three possible pottery production zones (source: author).

No definite kiln sites are known in the area, but a number of over-/under-fired and defective wasters are known from Tas-Silġ. The Punic dedications on thousands of the coarse ware forms were also inscribed before the vessels were fired, further suggesting that the vessels were made with the specific intention as dedicatory objects for that sanctuary.[445] It is possible

[445] See relevant sections in the Italian *missione* reports (Bonello et al. 1964; Cagiano de Azevedo et al. 1965–1967; 1972–1973; Bozzi et al. 1968; Busuttil et al. 1969); Sagona 2000, 93; Sagona 2002, 222; Quercia 2004–2005, 351–352; Frendo 1999; Frendo 2000, 97–99.

that the vessels were in fact made at the sanctuary itself, although no traces of kilns have been discovered there. The use of open fires or bonfire kilns is possible, and would explain the lack of built kiln structures and potentially the uneven surface colours found on the coarse ware pottery from Tas-Silġ, suggesting that the firing temperature was highly unregulated.[446] One reference to a pottery production site in a place known as Xagħret-Medewiet was made by A. Caruana, located close to the sanctuary and villa, but the site has since been lost.[447]

3.7.2 Central/North Malta

A second zone located further north, in particular around the ancient capital Melita, is characterised by a fabric that is similar in many respects to the southern Maltese zone, but is brighter orange and contains coarse lime and fossil inclusions. Some of the general shapes are similar to the southern part of the island, but the surface techniques tend to be slightly different. The material recovered from the Malta Survey Project contained a significant amount of wall fragments similar to this coarse orange fabric (a northern variant of Local fabric 1?). Roman-period fabrics identified in pottery collected during the surevy, tend to contain a higher glauconitic content, although never exceeding the proportion of glauconite in Local fabric 2. The buffer zones between this north and south divide are very fuzzy and are only based on the material from the sites studied here. Detailed analysis of more assemblages throughout Malta will help trace better boundaries for these production zones, as well as the possibility of identifying whether

[446] Sagona 2015, 51, Table 1.4.
[447] Caruana 1899, 3.

pottery moved beyond their immediate 'zones' within a localised distribution system.



Figure 29: The thickest Greensands outcrop, il-Gelmus hill, on Gozo. The outcrop is a short distance from the Foreman Street site (source: author).

3.7.3 Gozo

A third general production zone is found on the island of Gozo. The main ceramic evidence comes from Għar ix-Xih (for the Punic and early Roman period) and Foreman Street (for the end of the 2nd to mid-3rd century AD), and some other small sites and surface collections.[448] Gozo hosts its own series of coarse ware shapes which are thinner and finer than their Maltese counterparts. The Punic material from Għar ix-Xih has a fine, chalky, orange fabric with fine yellow lime and white foraminifera inclusions. The fabric is softer than most Maltese Local fabric 1 examples. Vessel walls from both Gozitan sites, as well as others, are much thinner too. There is evidence for a typological development of forms from the Punic period (c. 3rd–2nd century BC) until at least the early to mid-3rd century AD which displays a certain conservatism in the production of local ceramics on Gozo. Changes to the

[448] A scatter of surface pottery, probably Late Punic in date, was collected in Nadur (Gozo) and brought to my attention by Mr Ruben Curmi and his young son. No archaeological intervention was made in the area, but six Punic-period rock-cut tombs were discovered in the village in the early 20th century (see the gazetteer entry, Sagona 2002, 893–895).

typology mostly affect the nature of the clay, which remains essentially the same, although glauconitic tempering dominates from at least the end of the 2nd century AD onwards. Evidence for local cooking wares and local amphorae is lacking for Gozo and may account for the higher dominance of imported products intended to fulfil this local shortfall.

3.8 Maltese Exports? The pottery evidence

Evidence for a small range of exported Maltese vessels have been identified outside of the Maltese archipelago. The most distinctive forms include an egg-shaped amphora (Figures 30–31), and a flat-based table amphora with a cream slipped surface and thin red-painted bands on the rim and body (Table 10; Figures 32–34). A few bowls, 'cinerary urns' and jugs have also been identified but are vastly outnumbered by transport containers (Figure 39).

3.8.1 Egg-shaped amphora

This amphora is characterised by an egg-shaped body with no neck, a round bottom and two handles attached to the shoulder (Figures 30–31). This characteristically Punic form appears to be the only 'transport' container or amphora produced on Malta for the entire Phoenician and Punic period, from at least the mid-7th century BC to the 1st century AD.[449] No other amphora shapes of this size (c. 60–70 cm tall), which imitated other Punic or Greek forms, were produced on Malta or Gozo until the 2nd century BC, when a Roman amphora shape, Malta type 1, started being produced for about two-to-three centuries contemporaneously (see Section 3.8.6).

[449] A general chronological typology of the main egg-shaped Punic and early Roman amphora forms from the Maltese islands has been compiled by Sagona (2002, 87–93).

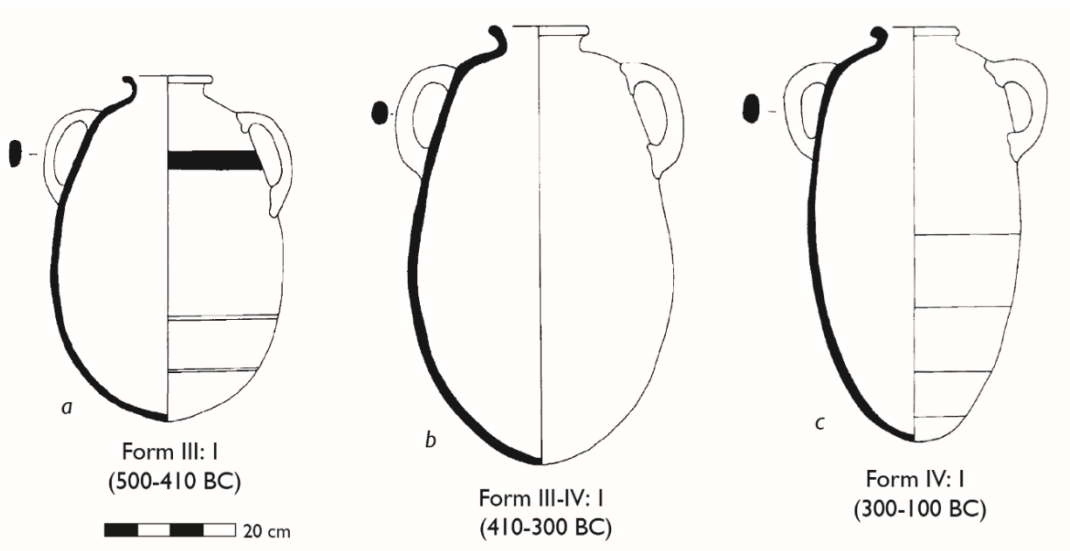


Figure 30: Maltese egg-shaped amphora forms (after Sagona 2002, figs 88.1, 91.2, and 92.3).

The Maltese egg-shape amphora belongs to a Punic series of transport containers produced in other central-western Mediterranean Punic colonies, in particular western Sicily.[450] Indeed, distinguishing between western Sicilian and Maltese 3rd-century BC amphora has become much easier thanks to the online FACEM fabric database, which stores detailed macrophotographs of central Mediterranean Punic amphora forms and their fabrics.[451] The local containers are made exclusively from coarse orange (sometimes with a grey core) clay with white foraminifera and lime inclusions (Local Fabric 1). Earlier variants tend to be smaller and rounded, and are coated with a thin cream-coloured slip or salt-skin, and painted with thin red bands (Figure 30a).

From the 3rd/4th century BC, the general shape becomes more troncoconic with a pointier base, and the juncture between the neck and remaining body becomes more distinct. The surfaces are left unslipped, with very thin, and faint red-painted lines decorating the bodies of vessels between the 3rd and

[450] Ramon Torres 1995; Sagona's Form III: 1 and III–IV: 1 = Ramon Torres's type T-2.2.1.4 (Ramon Torres 1995, 180, fig. 154); Sagona's Form IV: 1 = Ramon Torres's type T-2.2.1.2 (179, fig. 153); Sagona's Form IV–V: 1 = Ramon Torres's type T-3.2.1.2 (183, fig. 156–157).
[451] See fn. 356.

1st century BC (Figures 30.b–c, 31a). From the end of the 2nd/early 1st century BC, rims become collared and remain like this until the production ends sometime after the mid-/late 1st century AD (Figure 31b).[452]

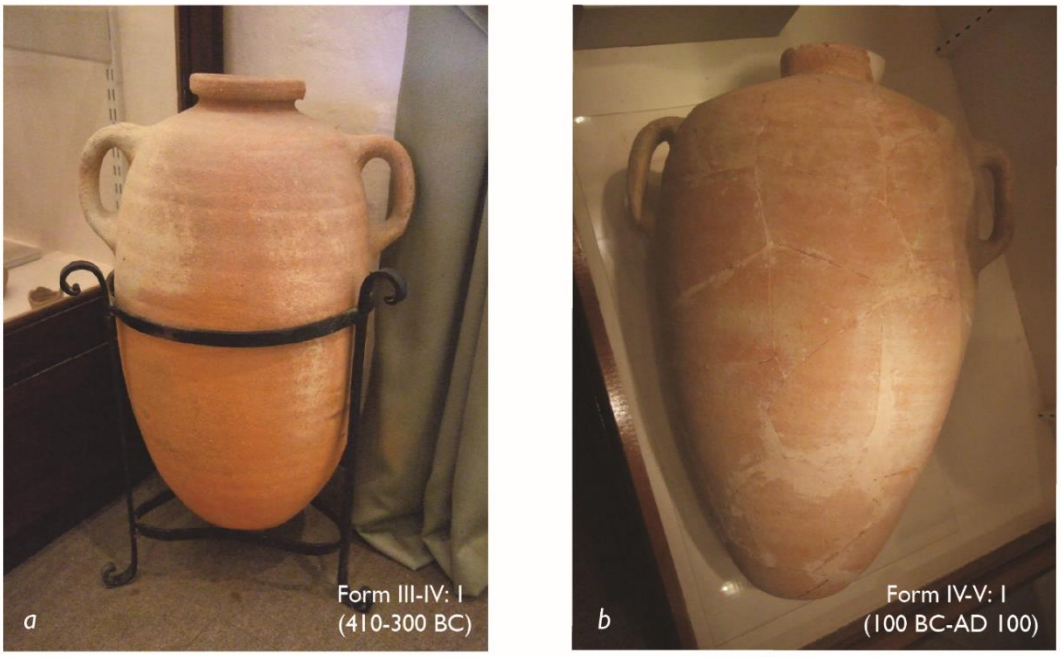


Figure 31: Maltese egg-shaped amphora forms (R. Zerafa).

3.8.2 Flat-based table amphora

This second container is characterised by a shorter and narrower-bodied vessel with a swollen body, a flat—and sometimes splayed—base, and a distinct cylindrical neck with two strap handles attached from beneath the rim onto the body. The most distinctive feature of this form is the cream-slipped, burnished surface with red-painted bands decorating the rim, body and base (Figures 32–34). Table 10 summarises the main characteristics of the four types known on Malta and Gozo. Currently, the dating of these forms relies on Sagona's chronology for funerary contexts in the Maltese islands, where all types are thought to have been produced between the late 5th to early 3rd centuries BC.[453]

[452] Rims belonging to this form have been catalogued as type 1.1.1 in the catalogue in Appendix I.
[453] Sagona 2002, 103–104.

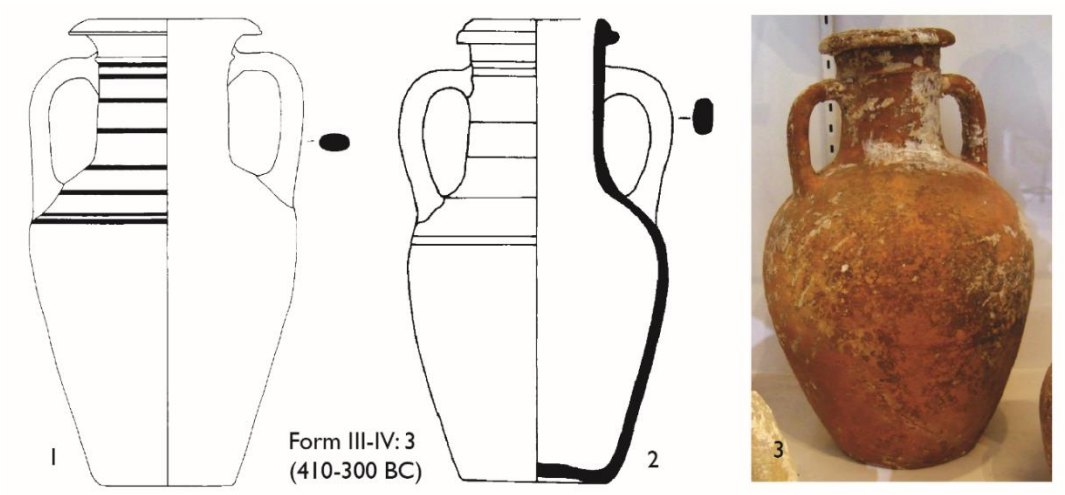


Figure 32: Local Maltese flat-bottomed amphora, type III-IV: 3, from Maltese funerary (nos 1–2) and underwater (no. 3) contexts (1-2: Sagona 2002, figs 86.7, 111.3; 3: R. Zerafa).

Form	General characteristics	Fabric and surface	Dating	Figure/s
Sagona urn form III-IV: 3	Wide-bodied, flat-bottomed vessel with a thickened triangular, beaded rim with a ridge on the neck; and oval-section strap handles.	Local Fabric 1; Unslipped or cream-slipped (but unsmoothed or unpolished) surfaces; thin red-painted lines on the body.	410–300 BC; rims like this have not been found in later-dated contexts	Figures 32; 34.5
Sagona urn form III-IV: 4a	Squat flat-bottomed vessel with a flared, everted simple rim, slightly ribbed and ridged; wide, splayed base; double-cordon handles	Local Fabric 1 and 2; thick, cream-slipped surfaces (some highly smoothed or polished); thick red-painted lines on rim, body and base.	410–300 BC; appears in contexts at late as the mid-2nd and 1st century BC; possibly slightly later (see Appendix 1).	Figure 33.3
Variant of above?	Tall flat-bottomed vessel with narrow neck that flares into a collared almond-like rim; a ridge is sometimes found on the neck; splayed base; double-cordon handles.	Local Fabric 1 (and 2?); same surface treatments as above.	410–300 BC?	Figures 33.1–2; 34.6
Sagona urn form III-IV: 4b	Tall, slender vessel with splayed flat base, a wide neck with a flat-topped and hanging rim; oval-section strap handles.	Local Fabric 1; thick, cream-slipped, polished surface with thick red-painted bands on the rim, body and base. Dashes painted on the handles.	410–300 BC; rims like this have not been found in later dated contexts	Figure 34.1–3, 7.

Table 10: Summary of characteristics of local Maltese flat-bottomed amphora.

Recent analysis of stratified material from the Punic sanctuary site of Lago di Venere on Pantelleria has demonstrated that the presence of Sagona form III-IV: 4b vessels are associated with fine wares dating to the early-to-mid-

2nd century-BC.[454] A similar chronology for these Maltese vessels was also concluded by the German-Italian excavations of the San Marco acropolis.[455]

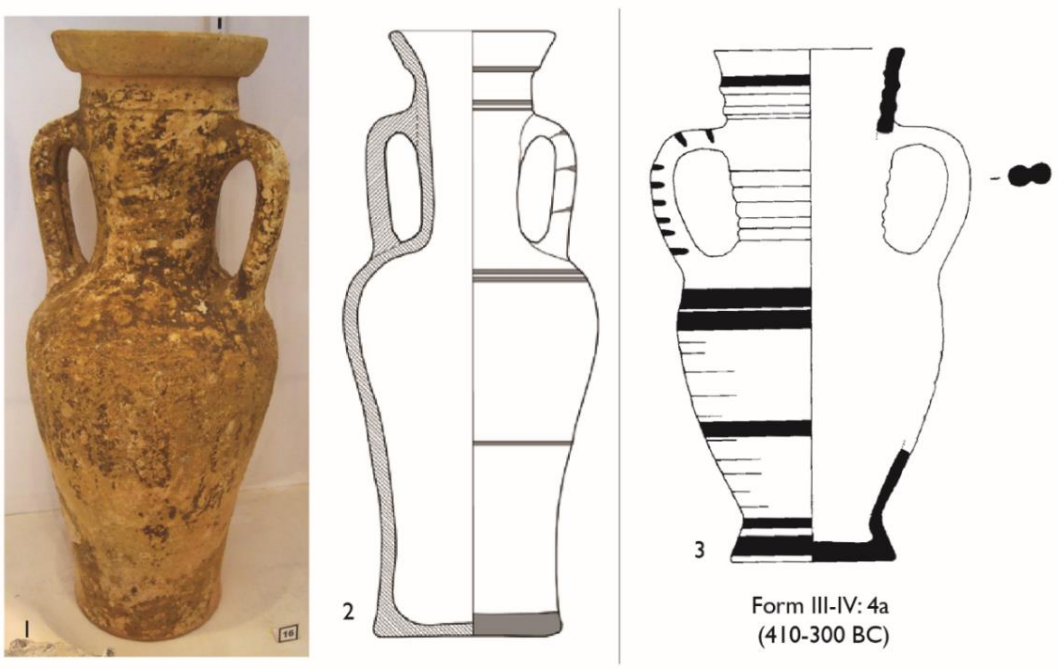


Figure 33: Local Maltese flat-bottomed amphorae, type III-IV: 4a and variants, from underwater (no. 1) and funerary (nos 2–3) contexts (1: R. Zerafa; 2: Bruno 2009, fig. 16; 3: Sagona 2002, fig. 292.1).

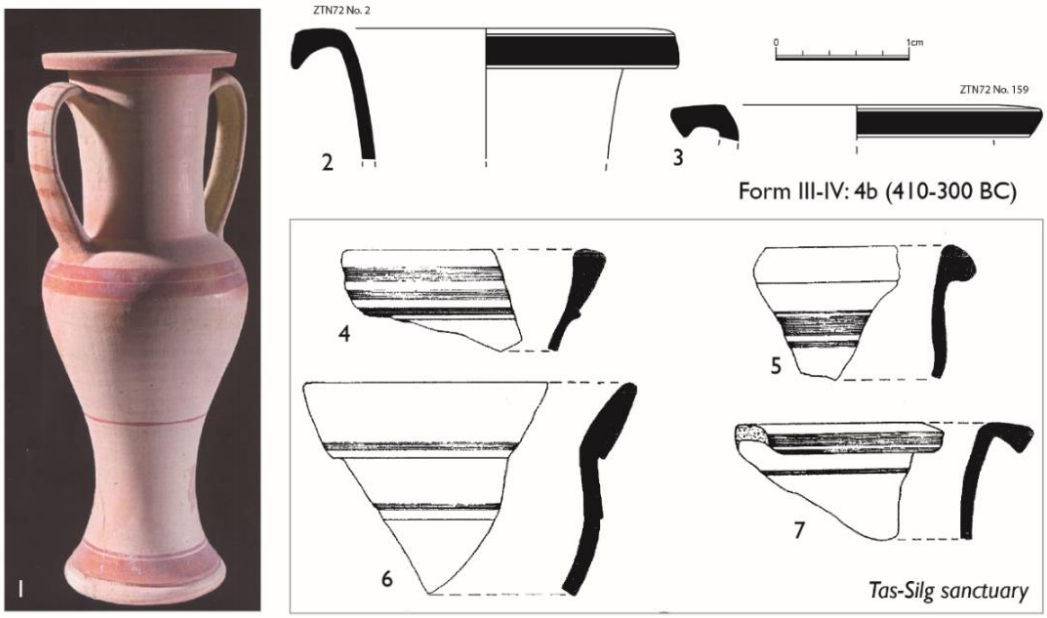


Figure 34: Local Maltese flat-bottomed amphorae, type III-IV: 4b, from a funerary context (no. 1; Bonanno 2005, 113) and the Żejtun villa (nos 2–3; Anastasi 2010, fig. 131.7–8). A wide range of rim forms came from the excavations at Tas-Silġ (nos 4–7; Cagiano de Azevedo et al. 1965, fig. 7.1–4).

[454] This new information comes from a recent study (June 2015) conducted by myself on the pottery from the Late Punic excavations at Lago di Venere on Pantelleria, directed by Dr Carrie Ann Murray (Brock University) and Clive Vella (Brown University).
[455] Töpfer 2013, 530.

Similar vessels to these Maltese examples were possibly produced elsewhere, in particular on Ibiza, however, the latter forms tend to be taller, more slender, and stand on a higher concave base.[456] The study of several fragments belonging to this type of amphora suggests that at least some variants of these general forms continued to be produced into the late 1st century BC and possibly in the first half of the 1st century AD.[457]

3.8.3 Other ceramic exports?

Amongst the Pantellerian assemblage a different type of vessel was identified, not a container to store and transport anything but a thick-walled bowl, some examples with a horizontal loop handle, and decorated with the characteristic red paint on a thick cream slip (Figure 39).[458] According to Töfper, the fabric and surface finish argue for a relatively secure Maltese origin. Another example is documented in a survey conducted over the surrounding area of the Pantellerian acropolis.[459] At least three bowls sharing similar characteristics may also be found at Sabratha.[460] Interestingly, however, no bowls with similar red-painted decoration have been recognised in Maltese archaeological contexts. The only examples which can possibly be used as a parallel are from the Phoenician-Punic sanctuary at Tas-Silġ[461] and possibly from the small rural site of Għar ix-Xih, Gozo, although these two examples do not have any red-painted decoration.[462] No production sites have been identified on the island that might have manufactured similar vessels. Indeed, enough Punic-period

[456] Fernández 1992, figs 26–27, nos 76-77.
[457] See type 4.4.2 in Appendix I. Unfortunately, very few rims were recovered belonging to this form making it difficult to properly identify the exact types that continued to be produced into the 1st century BC.
[458] Töfper 2011, cat. 5–8.
[459] Almonte 2005, fig. IXA.
[460] Dore 1989, 209, fig. 56–57, type 257.
[461] See Sagona 2015, figs 1.60:3, 1.74:1, and 1.75:4–5.
[462] Quercia and Anastasi 2008–2009, figs 4.2 and 14.2.

ceramic assemblages have been studied in Malta and Gozo to strongly indicate that such vessels were at the very least not in local circulation. They may have been a form that was specifically intended for export.

3.8.4 Distribution

A. Ciasca was the first to compile a synthesis of exported Maltese pottery for the Punic period, deriving her data from published finds and museum collections abroad.[463] The general distribution of Maltese Punic pottery has remained practically unchanged since her study with only a few additional sites being added following recent discoveries (Table 11; Figure 35). Of particular significance are the recent archaeological investigations on Pantelleria[464] and Jerba,[465] which have greatly enriched our knowledge of the strong trade connection between these former Punic colonies.

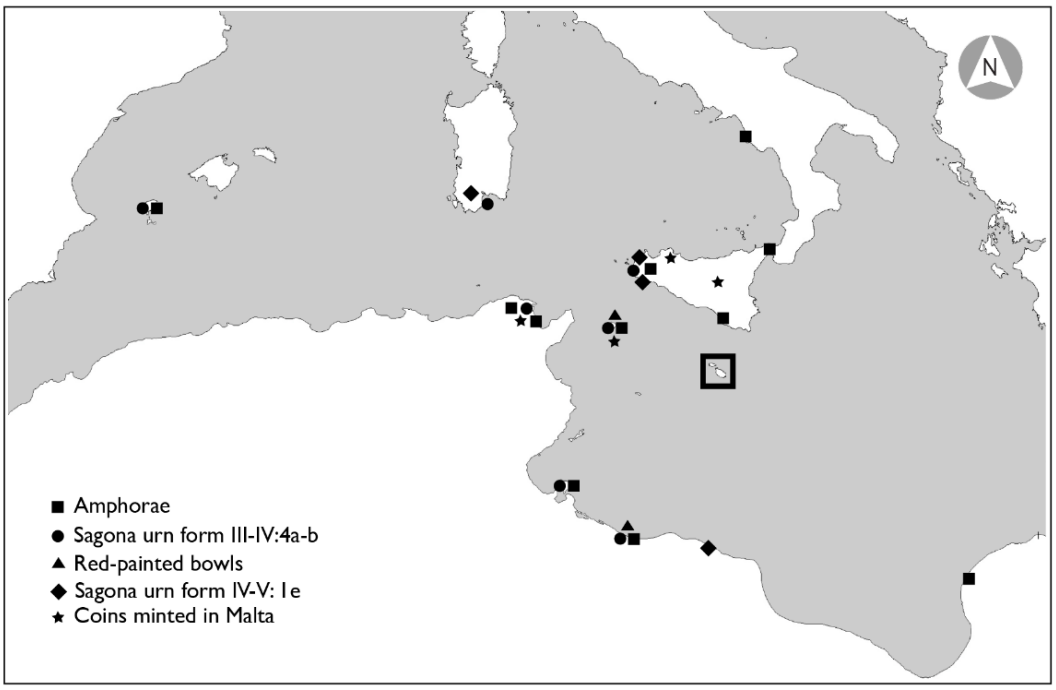


Figure 35: The distribution of Punic and Late Punic/Early Roman Maltese pottery in the Mediterranean (source: author).

[463] Ciasca 1985a.
[464] Bechtold 2013; Töpfer 2013.
[465] Ben Tahar 2014, 90.

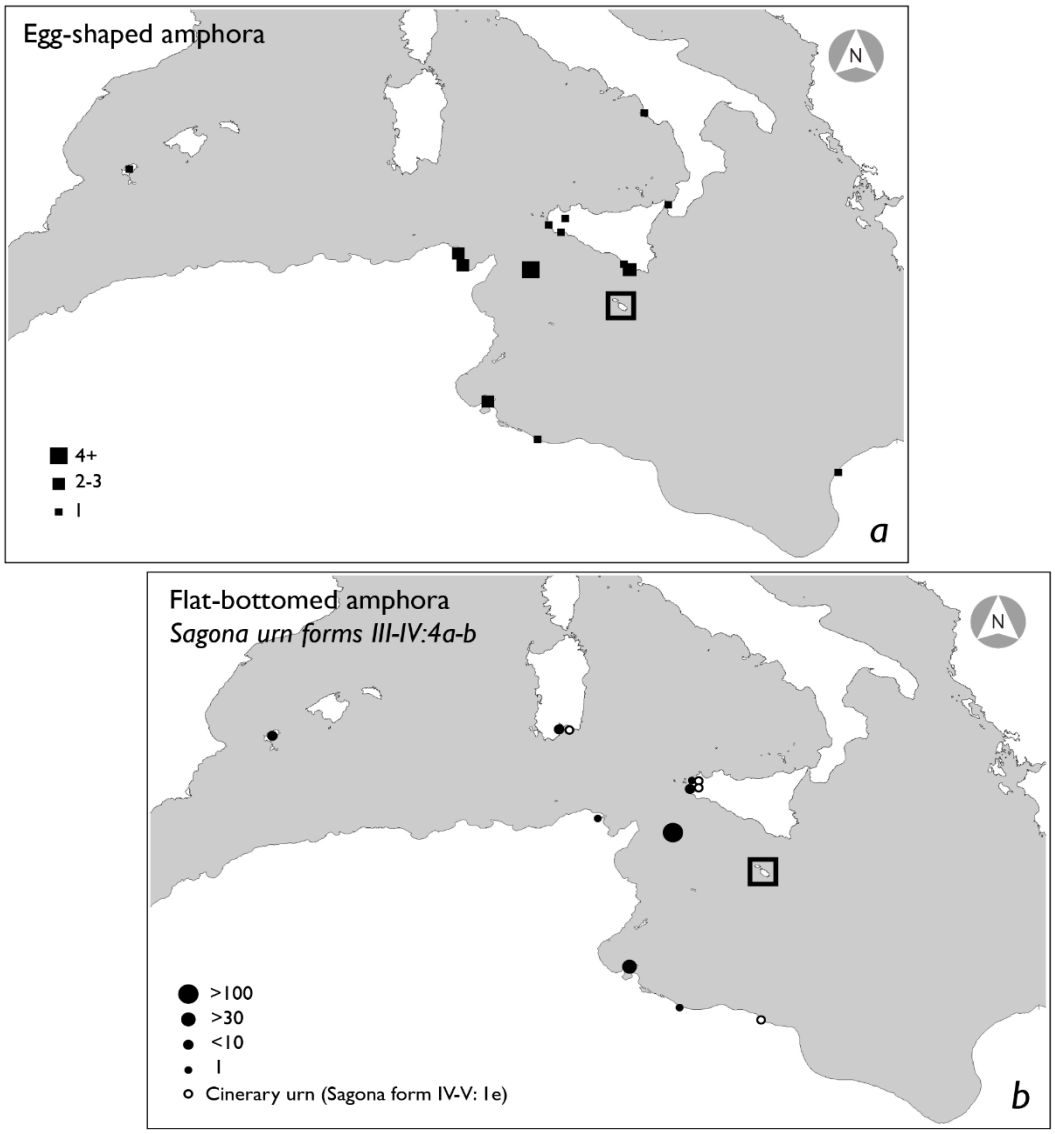


Figure 36: Distribution maps of Maltese egg-shaped and egg-shaped amphorae (source: author).

Since Ciasca mainly derived her evidence from museum examples, there was little scope for quantifying the data available at the time as there were usually no more than a couple of examples per area. The lack of a distribution map for the finds also made it difficult to visualise the extent of the dispersal in the central Mediterranean. Therefore, in this section the distribution of Maltese products will be plotted and examined in the light of new archaeological evidence (Figure 35). Since Ciasca's research, new ceramic reports have been published, which catalogue a few fragments of pottery which are probably local to Malta (Table 11). In addition, the evidence from the recent excavations on Pantelleria and Jerba provides a

glimpse into the potential volume, albeit small, of exported vessels from Malta in the Punic and early Roman period. The egg-shaped amphora has a sparse distribution spanning several centuries, and is documented by single or pairs of examples; very rarely are there more than two, except for Pantelleria, were again, only 6 examples dating to the last quarter of the 7th and beginning of the 6th century BC have been identified (Figure 36a).[466]

These Punic amphorae are also found in Greek and Punic settlements alike. The discovery of two Maltese amphorae from the Porticello wreck which sunk in the Straits of Messina, and dates to the 5th century BC, indicates that Maltese products were exported in small quantities amongst mixed Punic and Greek cargoes.[467] Although not all of the amphorae were collected from the seabed, the ones that were brought up (25 in all) show that 40% are of Mendean or Bosphorus origin; 40% are Punic Mana D forms; 12% are Greek types and 8% are probable Maltese amphorae (Figure 37g).[468] The composition of the cargo suggests that merchants either travelled to different ports or bought additional cargo or else stowed a mixed cargo whilst at an *emporium*. An unspecified number (although certainly less than 1% of the total assemblage) of Maltese egg-shaped forms were also identified in the stratified excavations in Carthage dated to the Mid- to Late Punic period (530–300 BC).[469] The presence of late collar-rimmed egg-shaped forms at many coastal sites in the central Mediterranean suggests that the export of this container from Malta carried on until about the 2nd century BC to 1st century AD..[470]

[466] Bechtold 2013, 466–467.
[467] Jones Eiseman 1973, 18.
[468] Jones Eiseman 1973.
[469] Bechtold and Docter 2010, tab. 4.
[470] Sherds from secure stratigraphic contexts are not common, and the few that are available remain to be published. The excavation results of the San Marco acropolis will shortly be published, whilst the excavators concluded that the amphora fragments from Sabratha and Berenice could be residual (Dore 1989, 35–36; Riley 1979, 143).

Location	Vessel type	Qty	Date (based on context)	Reference/s	Figure/s
Camarina (Sicily)	Egg-shaped amphora (Sagona form III:1)	1	6th century BC	Pelagatti 1976–7, 525, tav. LXXVII: 7–9; Sourisseau 2013, 111–115; Schmidt and Bechtold 2013, 2–3.	Fig. 37a
Gela (Sicily)	Egg-shaped amphora (Sagona forms III:1 and III-IV:1?	2?	Punic; 5th-4th century BC?	Orsi 1907a, col. 162, fig. 124, col. 193, fig. 150.	Figs 37c
Lilybaeum (Sicily)	Egg-shaped amphora	2	Punic	Bisi 1970, 256, fig. XXXIV; 1971, 689–690, fig. 18, 714, fig. 57.	-
Lilybaeum (Sicily)	Sagona urn form III-IV: 4	2	Punic	Bisi 1971, 734, fig. 71.	-
Lilybaeum (Sicily)	Cinerary urn (Sagona form IV-V: 1e)	1?	Punic; 300–100 BC?	Bisi 1971, 690, fig. 19.	-
Mozia (Sicily)	Egg-shaped amphora (Sagona form IV-V:1)	1	Punic; 100 BC–AD 50?	Ciasca 1985, 18–19, fig. 1.	Fig. 37h
Mozia (Sicily)	Flat-bottomed amphora (Sagona form III-IV: 4a/b? variant	1	Punic; 5th–3rd century BC?	Ciasca 1985, 22, fig. 2.	Fig. 38a
Mozia (Sicily)	Cinerary urn (Sagona form IV-V: 1e)	1	Punic; 300–100 BC?	Ciasca 1985, 22, fig. 3.	Fig. 39c
Selinunte (Sicily)	Egg-shaped amphora (Sagona form I:1)	1	6th century BC	Becthold, forthcoming [sec. 2.4]	-
Segesta (Sicily)	Egg-shaped amphora (Sagona form I:1)	1	6th century BC	Becthold, forthcoming [sec. 1.3]	-
Porticello wreck (Messina Straits, Sicily)	Egg-shaped amphora (Sagona form III-IV: 1)	2	5th century BC	Jones Eiseman 1973, 18, fig. 7, 18a.	Fig. 37g
Velia (S. Italy)	Egg-shaped amphora (Ramón T-3.2.1.2; Sagona form IV-V: 1)	1?	3rd century BC	Gassner and Trapichler 2010, 167, fig. 112; Bechtold 2013, 467.	-
Cagliari (Sardinia)	Flat-bottomed amphora (Sagona form III-IV: 4)	1	Punic	Ciasca 1985, 20.	-
Sardinia	Cinerary urn (Sagona form IV: 1e)	1?	3rd century BC?	Bartolini 1981, 5, fig. 1.	-
Pantelleria	Egg-shaped amphora (Sagona form I:1	6	675–525 BC?	Bechtold 2013, 466–467.	-
Pantelleria	Egg-shaped amphora (Ramón T-3.2.1.2; Sagona form IV-V:1)	1	250/240–200/190 BC	Bechtold 2013, 467.	Fig. 37d

Location	Vessel type	Qty	Date (based on context)	Reference/s	Figure/s
Pantelleria	Flat-bottomed amphora (Sagona forms III–IV: 4a and 4b)	c. 100+	mid-2nd century BC	Töpfer 2011; 2013, 528, cat. 1–3; Almonte 2005; Brock University excavations at Lago di Venere, find number LDV15.1.	Fig. 38d
Pantelleria	Bowl	8	Punic	Töpfer 2011; 2013, cat. 4–6; Almonte 2005, tav. IXA.	Fig. 39a
Carthage (Tunisia)	Egg-shaped amphora (Sagona form IV-V: 1)	4+?	4th century BC	Delattre 1904, 8, fig. 5; Merlin and Drappier 1909, fig. III: 3; Gauckler 1915, 137, fig. XCVIII; Docter and Becthold 2010, tab. 4.	Fig. 37b
Carthage (Tunisia)	Oinochoe	1	Punic	Delattre 1906, 41–45, fig. 5.	-
Utica (Tunisia)	Sagona urn form III-IV:4?	1	Punic; 4th–3rd century BC?	Tunisian-British excavation at Utica (2012–2014), find no. FV 1196.	Fig. 38b
Utica (Tunisia)	Amphora?	1	Punic	Tunisian-British excavation at Utica (2012–2014)	-
Utica (Tunisia)	Amphora	1?	8th/7th century BC	Cintas 1951, 40–42, 72, fig. 33, tomb 16.	-
Ghizène (Jerba)	Egg-shaped and Flat-bottomed amphorae (Sagona form III-IV:4)	34	Punic	Ben Tahar 2014, 90; Schmidt and Bechtold 2013, 2.	Fig. 38e
Ibiza (Balearic Islands)	Egg-shaped amphora	1?	Punic	Ramon 1981, 14.	-
Ibiza (Balearic Islands)	Flat-bottomed amphora (Sagona form III-IV: 4a and variant?)	4	Punic	Ciasca 1985, 22; Rodero Riaza 1980, 37, fig. 3: 1–3, tav. 1; Escandell and Blazquez 1960, 174–175, pl. 3.	Fig. 38f
Sabratha (Libya)	Flat-bottomed amphora (Sagona form III-IV: 4a)	1	second half of first century BC	Dore 1989, 245, fig. 69, type 398.43.	Fig. 38c
Sabratha (Libya)	Bowl	3	Punic	Dore 1989, 209, fig. 56–57, type 257.	Fig. 39b
Sabratha (Libya)	Egg-shaped amphora (Sagona form IV-V:1)	c. 3	Punic	Dore 1989, 35–36, fig. 11: 180–193, type 10	Fig. 37f
Leptis Magna (Libya)	Cinerary urn (Sagona form IV-V: 1e)	1	4th century BC	De Miro and Fiorentini 1977, 30–31, fig. 37, tav. XVI: 6.	-
Berenice (Libya)	Egg-shaped amphora (Sagona form IV-V:1)	1	Punic	Riley 1979, 143, D91, fig. 72: 91.	Fig. 37e

Table 11: Maltese Punic and Early Roman pottery found outside the Maltese islands.

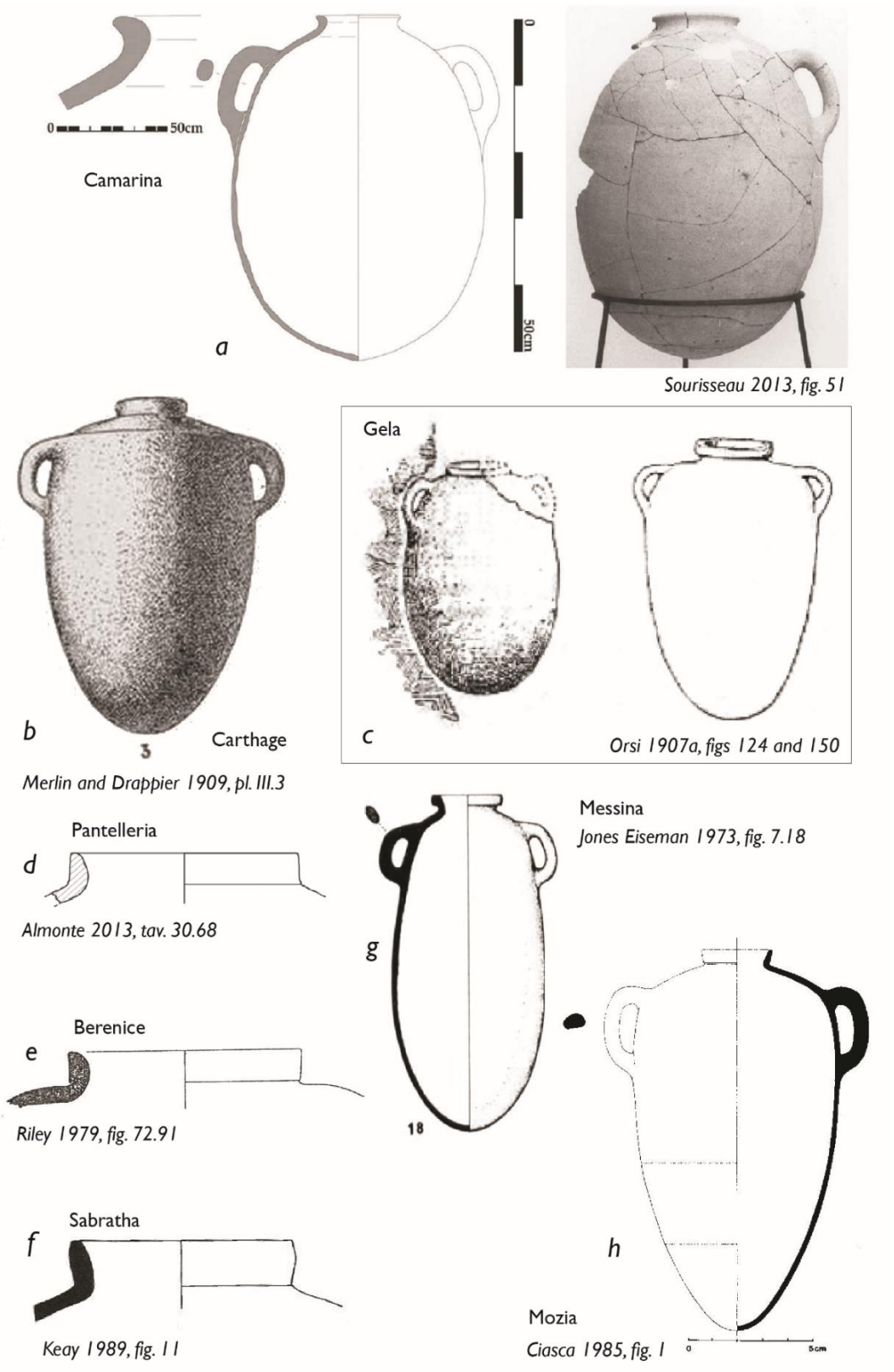


Figure 37: Maltese amphorae identified outside the Maltese islands.

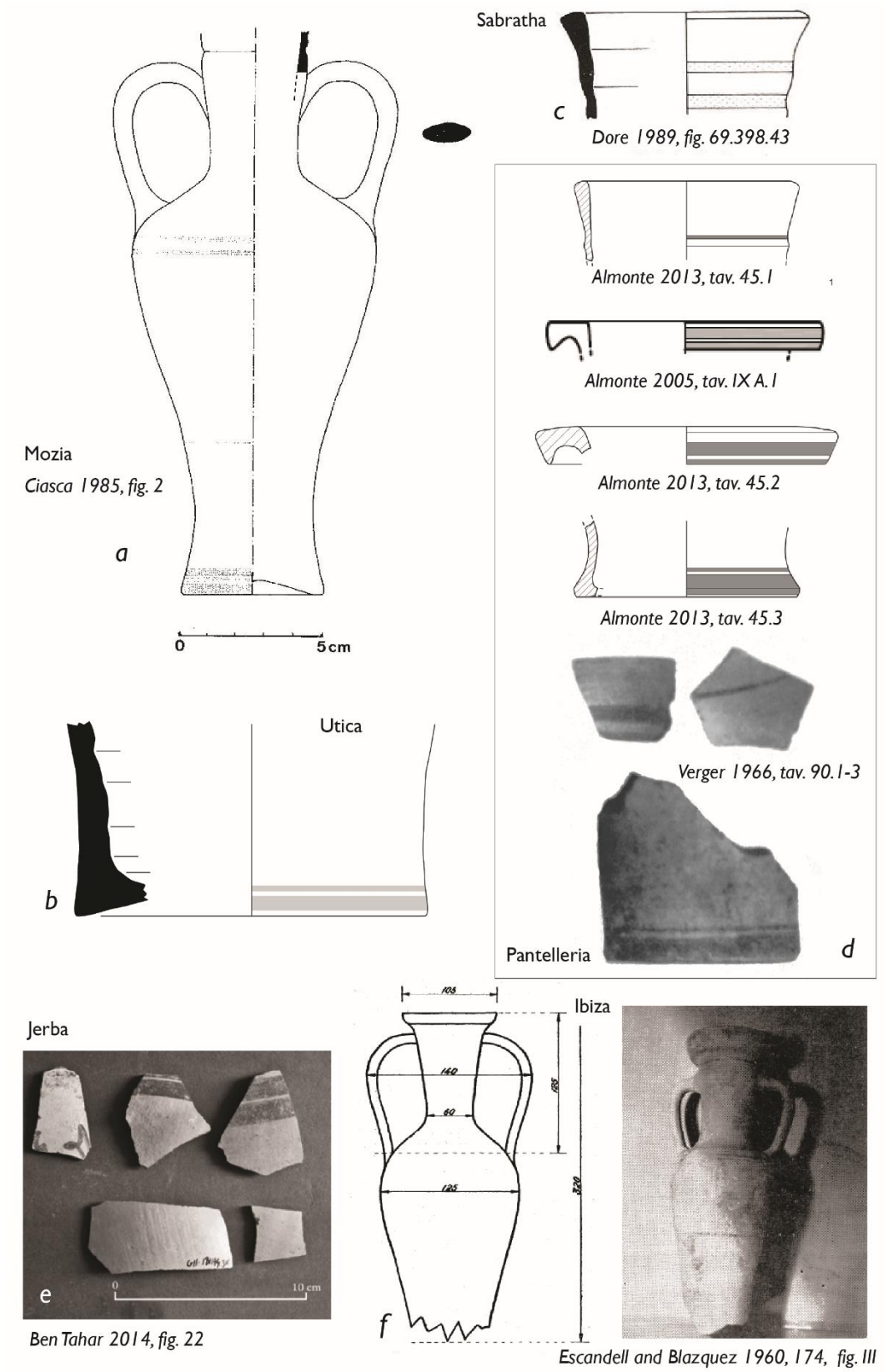


Figure 38: Maltese table amphorae identified outside the Maltese islands.

At least ten examples of this late egg-shaped form have been identified (the largest group) and are concentrated in coastal central Mediterranean sites, irrespective of whether the city was a Greek or Punic colony.

The distribution of the flat-bottomed amphora is similar to that mapped for the egg-shaped form, however, quantitatively, the former container reached certain places in far greater numbers. This is the case for Pantelleria, where over 100 vessel fragments have been recorded, and Ghizène (Jerba) where at least 34 fragments of smooth, painted cream-slipped pottery have been identified. No examples of the flat-bottomed type have been identified east of Mozia and Sabratha, unlike the wider eastern distribution witnessed by the egg-shaped forms (Figure 36).

Secure contexts from the excavations of the San Marco acropolis have dated the flat-bottomed amphora to about the mid-2nd century BC, providing a useful indication of the possible duration of the export of this vessel (and the late forms of the egg-shaped amphora) during the 'transition' of governance from Carthage to Rome, shortly after the Second Punic war.

Although additional and secure dating evidence for the egg-shaped form in non-Maltese contexts is desperately needed, it is possible that the change in political control in this region affected the small export industry of the Maltese islands, causing it to cease completely by the end of the Late Republican period.

A few examples of Maltese vessels were discovered in underwater contexts. Two flat-bottomed amphorae (including the early type III-IV: 3 which has not been identified outside of Malta to date; Figures 32–33.1) were discovered off the coast of Xlendi, Gozo, not far from at least one large 3rd-century BC wreck carrying a cargo of hundreds of locally produced egg-

shaped forms.[471] Another flat-bottomed form was recovered off the coast of Sardinia.[472] These underwater contexts, together with the recovery of some Maltese amphorae from the Porticello wreck add further evidence to a small, yet organised trade of Maltese products to neighbouring islands and cities.

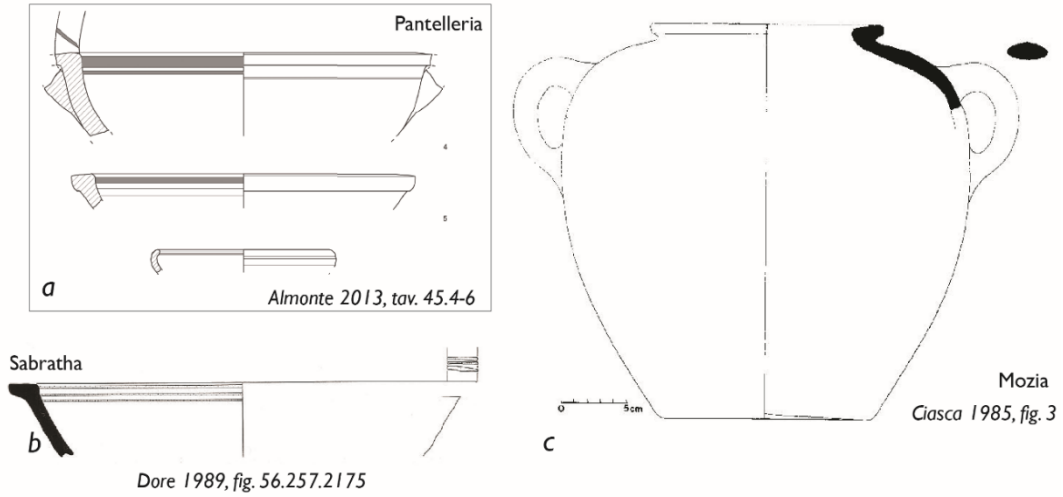


Figure 39: Maltese pottery identified outside the Maltese islands.

3.8.5 Containers for what?

As for the contents being carried in the amphorae and jars, there is little indication of what these might be. The storage and transport of local wine or olive oil intended for limited or a side-line export alongside another major Maltese export such as textiles has been hypothesized.[473] Archaeological evidence that suggests the local production of olive oil comes from several excavated farmsteads with stone apparatus intended for olive pressing, some of which have Punic-dated contexts.[474] Small-scale wine pressing is also believed to have been undertaken in rural areas across Malta and Gozo.[475] Although the production scale is small for export standards, given the number of the rock-cut installations discovered, this

[471] Azzopardi 2006, 45-48; I.C.A.E. 1961, 1.
[472] Ciasca 1985a, 20.
[473] Gambin 2005, 84–85.
[474] Bonanno 1977; Bruno 2009, fig. 7; see Section 2.3.2.
[475] Bonanno 2008.

could potentially have been quite a prolific side-line industry. Unfortunately, the dating of these installations remains vague as no archaeological deposits can be securely associated with any of the features so far identified. Traces of pitch have been identified on a Punic jar recovered from the Xlendi Bay seabed, similar to Sagona's urn form III-IV: 4, which might support the export of Maltese wine.[476] The morphological similarity between the flat-bottomed forms, which have double-cordon handles, and Roman wine amphorae (such as the Dressel 2-4 and its many variants and imitations) may also suggest a link with wine.[477] Honey may also be another possible export in the flat-bottomed amphora, but concrete archaeological evidence for this is lacking.[478]

3.8.6 Containers in the Roman period

The dating evidence obtained from the Pantelleria excavation suggests that Maltese containers (both the egg-shaped and flat-bottomed amphorae) were being exported up until at least a few decades after the annexation of both islands by Rome during the Second Punic war (218 BC for the Maltese islands and 217 BC for Pantelleria). Compared with earlier conclusions, this extension of the chronology of a local Maltese export (by at least a century if traditional dates for the flat-bottomed amphora type were 5th–mid-3rd century BC) could mean that the presumed end of this export could be linked to a shift in political and economic powers tied to Carthage's fall.

During the last two centuries BC, a new 'Roman' amphora form started being produced on the Maltese islands, probably alongside the late types of egg-shaped forms. The Malta type 1 appears to be modelled on southern Italian and North African Late Republican forms and is typologically very

[476] Azzopardi 2006, 45–48.
[477] For instance, see type 4.4.2-2 in Appendix I.
[478] Bonanno 2005, 147.

different to the previous Punic egg-shape (Figure 40).[479] B. Bruno's study on the amphorae from Tas-Silġ and San Pawl Milqi indicated that this new form became the main local form being produced, and at the villa of San Pawl Milqi, actually made up about half the number of amphorae in the Late Republican period.

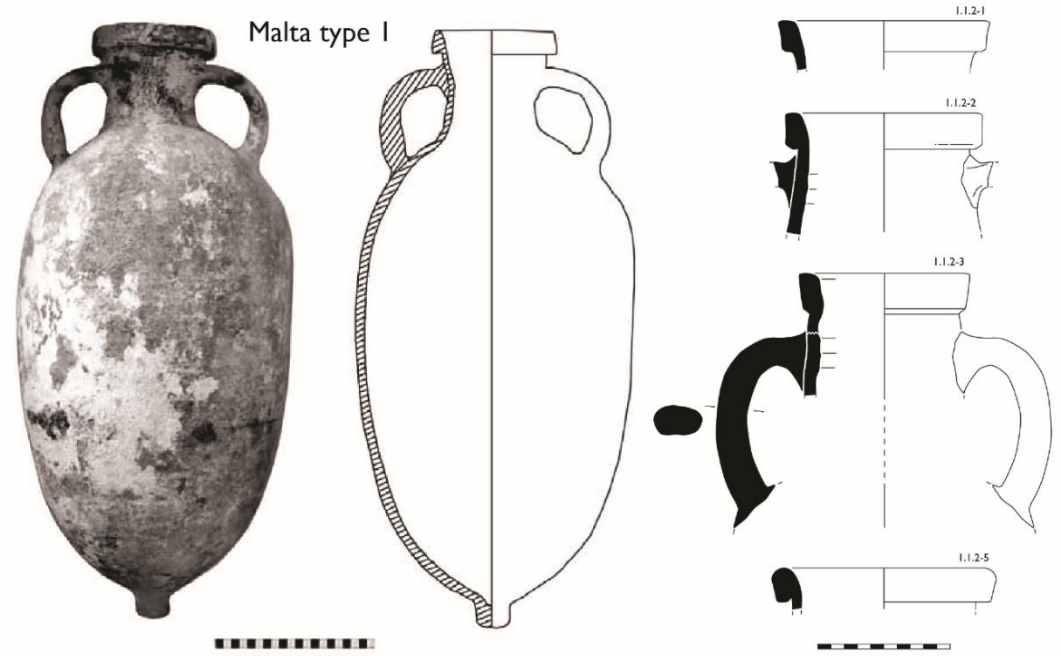


Figure 40: The locally produced Malta type 1 amphora (left: Bruno 2009, fig. 17). The rims on the right are from the Bulebel contexts (see Appendix I).

The early Imperial Malta type 2 variety was also produced in great numbers (Figure 41).[480] Many examples of the early Roman local forms (mainly Malta type 1) have been identified in the mid-1st century AD contexts from Bulebel.[481] To date, not a single fragment of either Malta types 1 or 2 has been identified outside of the Maltese islands, despite the strong evidence for the continued production of local olive oil and the high probability that these amphorae forms became the new containers for locally produced oil. There is little evidence for the production of Roman-period wine containers that replaced the flat-bottomed vessels. There is no evidence for any of the

[479] Bruno 2009, 101–107.
[480] See Sections 3.6.4 and 3.6.5.
[481] See Section 3.3 and type 1.1.2 in the catalogue in Appendix I.

cream-slipped 'Punic' containers being produced anywhere after the mid-1st century AD. It is possible that wine production ceased around this time or else was being stored and transported in a different type of container.

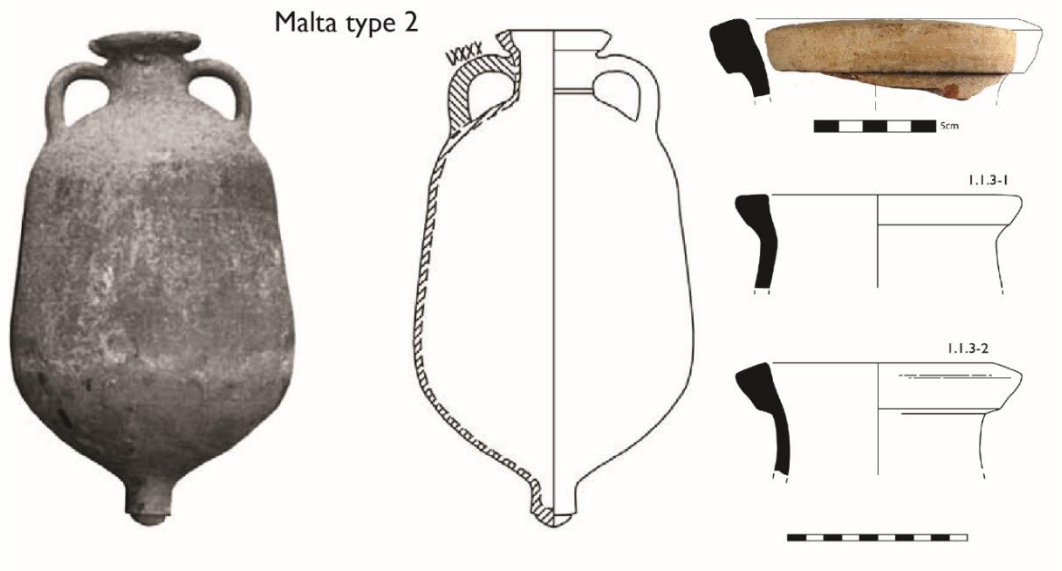


Figure 41: The locally produced Malta type 2 amphora (left: Bruno 2009, fig. 18). The rims on the right are from the 1972 excavation of the Żejtun villa (Anastasi 2010, fig. 129.2); the middle rim is from Foreman Street; and the bottom rim is from Melita.

Until now, the only archaeological evidence for the possible export of Roman-period amphorae (Malta types 1 and 2) was discovered off the coast of Xlendi. None of these amphorae types has been identified on any terrestrial sites in the Mediterranean and were probably manufactured for the storage and domestic transport of Maltese olive oil.[482] Fragments of the earlier Roman-period variant (Malta type 1) and late variants of Sagona's urn form III-IV: 4 do sometimes share similar fabrics, further suggesting that there may be a chronological overlap between the two. Some of the urn fragments from Pantelleria[483] contained black inclusions which are most certainly glauconite. Similar forms in the same fabric were recovered from a 1st-century BC/mid-1st-century AD context in Bulebel.[484]

[482] Bruno 2009, 114.
[483] Töpfer 2011, cat. 22–23.
[484] See type 4.4.2 in Appendix I.

3.9 Import trends in the Maltese islands in the Roman period

This section combines the ceramic evidence obtained from the separate site assemblages studied above and uses it to observe any trends in the proportion of local and imported ceramics reaching the islands over the Roman period. Each chronological period is based on the assemblages listed in Table 4.

3.9.1 Early Roman period: End of the 1st century BC–mid-/end of the 1st century AD

Both phases of the Bulebel site provided the bulk of the evidence for this period (Figure 42). The amphorae types identified in Phase 1 are dominated by imported Italian wine amphorae (Dressel 1 and Lamboglia 2) and local Roman types (Malta type 1) believed to have carried olive oil or garum.[485] The remaining types identified in this phase are either unidentified imported amphorae or residual fragments (Punic egg-shaped and Greco-Italic). The former residual type, however, is known from 1st-century AD tomb contexts so it may have been used alongside the Malta type 1. Two Spanish, two Sicilian and one eastern wall sherd tell us little about the types reaching the site, but if they are contemporary may suggest a small influx of non-Italian sources. The few North African wall fragments share a similar fabric to Punic-types from North Tunisia and are probably residual. The presence of a single diagnostic Van der Werff 1 amphorae in Phase 2 supports this. The picture changes little in Phase 2: Italian wine amphorae (Dressel 2-4) still dominate but are now accompanied by Eastern Sicilian wine amphorae from Catania (MRA 1b) and Naxos (ERA 13). The presence of earlier forms (namely Dressel 1 and Lamboglia 2) may be residual now, but the Malta type 1 sherds seen in phase 2 may still be contemporary with those in Phase 1. Either way, the Maltese amphorae in phase 2 decrease in

[485] Bruno 2009, 112–113.

number. One Eastern wine amphora (Crétoise 4/Dressel 43) has been identified and suggests that there was some eastern material reaching the islands but in very few numbers.

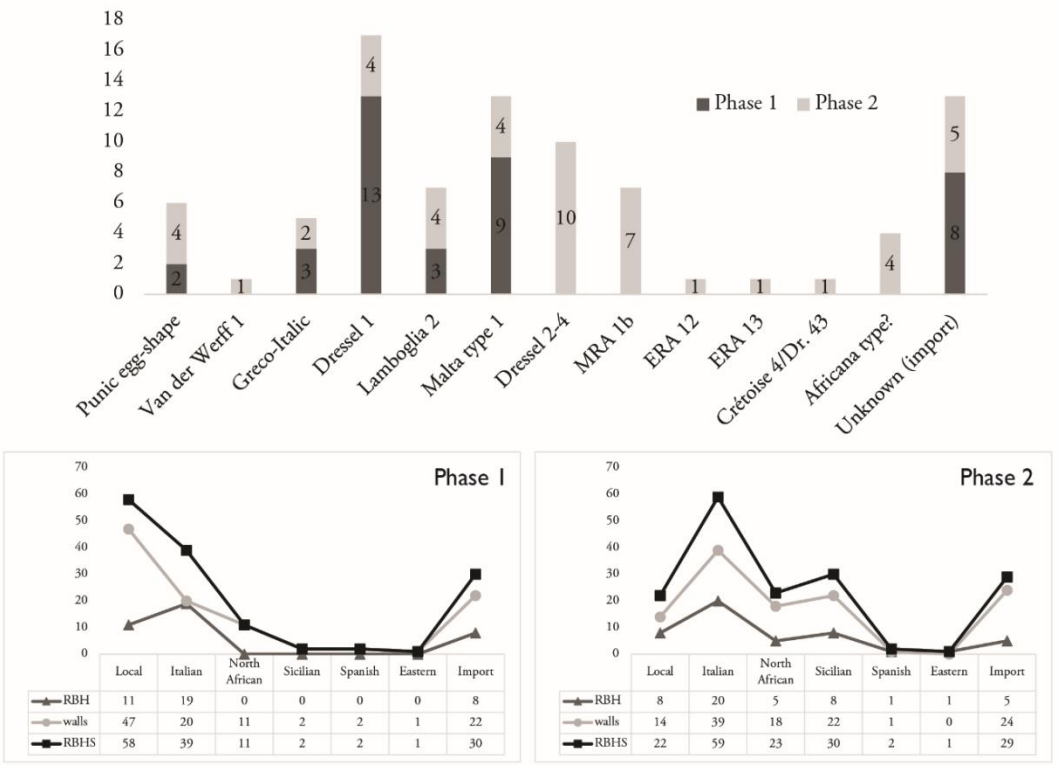


Figure 42: (top) Amphora types (based on RBH); and comparison between count of walls, RBH and combined total for amphorae in Phases 1 (bottom left) and 2 (bottom right) at Bulebel (n=309).

The North African-sourced sherds are also a little difficult to interpret here as none can be assigned to a particular form, therefore we remain uncertain as to whether these sherds belonged to residual Punic, intrusive Roman, or contemporary forms. If context is taken into consideration, however, two different amphorae—consisting of a combined total of 265 sherds which make up at least two-thirds of the entire vessel—from North Tunisia and South/Central Tunisia were found in the same context with no other pottery and because the context is one of the stratigraphically latest layers, are probably types belonging to the Africana series and may be contemporary with the furnishing of the tombs (see below). In the absence of any rims, the only toe associated with a North Tunisian production seems to point towards this conclusion.

The amphorae evidence from Melita phase 1 is very inconclusive, but the types identified are in keeping with the patterns observed at Bulebel (Figures 43–44).

The fine ware evidence from Bulebel shows that imported wares were significantly outnumbered by local red-slipped and thin-walled pottery (Figure 46). Of the imported fragments, most are probably residual (Greek black-slip and Campanian pottery). The presence of only two Italian sigillata bowls and one Knidian cup indicate that the import of fine wares was severely infrequent and their function was seemingly performed by local types. A similar scenario is noted for the cooking ware assemblage, where again, local wheel- and handmade vessels are present and favoured above imported Italian dishes and pans (Figure 48). The Southern Italian pans, some of which are Pompeian red ware dishes, are infrequent but do hint at a modest influx of these 1st-century cooking pots. A locally potted shallow pan with a red-painted interior suggests that local potters tried to replicate these pans.[486] The sparse evidence from Melita does little to add to, but neither contradicts, the evidence above (Figure 48).

What is evident for this period is that wine from Italian and Sicilian sources was being imported in proportionally significant numbers, whilst olive oil was mostly locally produced and supplied. The absence of imported olive oil amphorae supports this and this pattern fits in with Bruno's conclusion too.[487] The islanders did not, however, feel the need—or could afford—to import table and cooking wares from the same region. Instead, a prolific local industry that supplied both rural and urban sites dominated the market. Determining whether this was an intentional choice by the islanders or was decided for them because of cost is difficult to determine,

[486] See type 3.2.2-2 in Appendix I.
[487] Bruno 2009, 172–180.

but evidence of other imported objects (i.e. marble, coins), industrial structures (the tens of olive-processing farmsteads which must have produced a fair amount of oil) and ancient literary sources which lavish compliments on the skill and revered textile industry, all indicate that cost was not the inhibiting factor here. The organisation in the trade of Italian table and cooking wares may have been different from that of wine (see below).

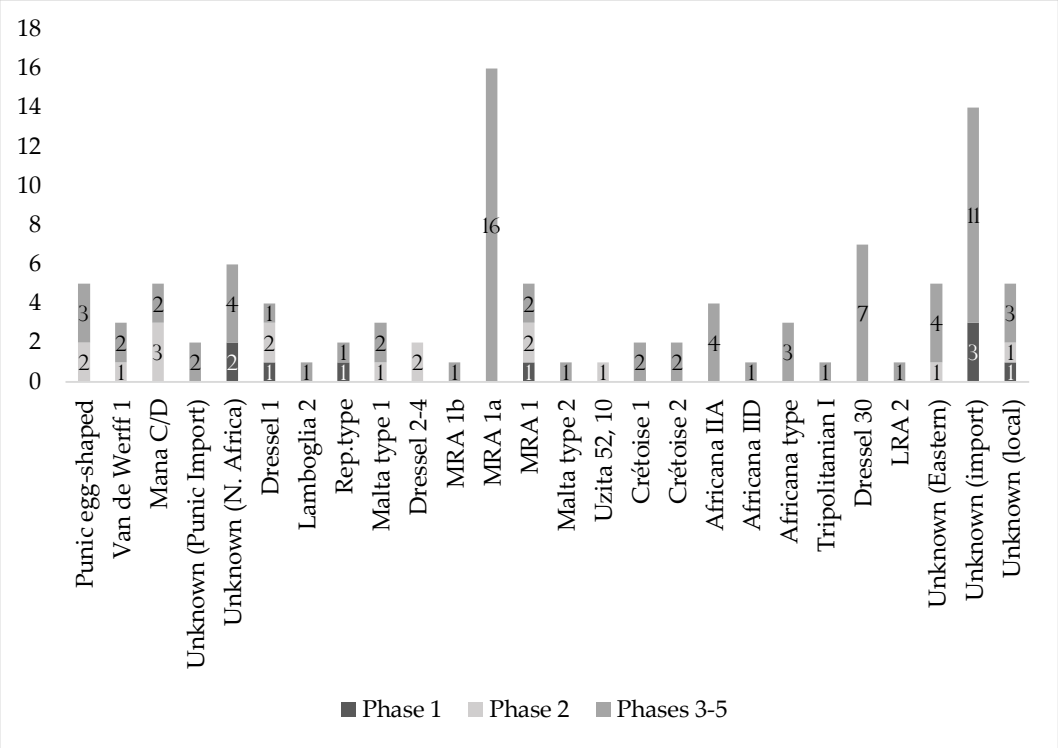


Figure 43: Number of diagnostic amphora types identified at Melita (n=102).

3.9.2 Mid-Roman period: 2nd–mid-3rd century AD

The picture for this period is based on the very scant material from Melita phase 2 (first half of the 2nd century), and the homogenous production-site assemblage at Foreman Street. By virtue of the type of site, the patterns observed at Foreman Street have to be interpreted with caution as the assemblage is disproportionately composed of local coarse wares which are believed to have been made in the vicinity (Table 7). The remaining 8% of imported vessels does, however, add some useful information about what

types of imported were reaching the islands at the beginning of the 3rd century.

Both assemblages generated very inconclusive amphorae evidence. The handful of types identified at Melita are similar in composition to the previous period but it appears with more residual sherds (Figure 43). Foreman Street produced only 4 rims. When the rest of the body sherds were grouped according to region of origin, one can tentatively conclude that North and Central Tunisian amphorae were significant (Figure 45). Adriatic fabrics are well represented also. A few eastern-sourced sherds were also present. The presence of just one local amphorae sherd (Malta type 2) indicates that amphorae were certainly not being produced close-by. The 1st-/2nd-century date for this form may also make the sherd residual; however, aside from a handful of clearly Punic and Early Roman small and worn sherds, the assemblage is fairly homogenous with a low incidence of residuality.

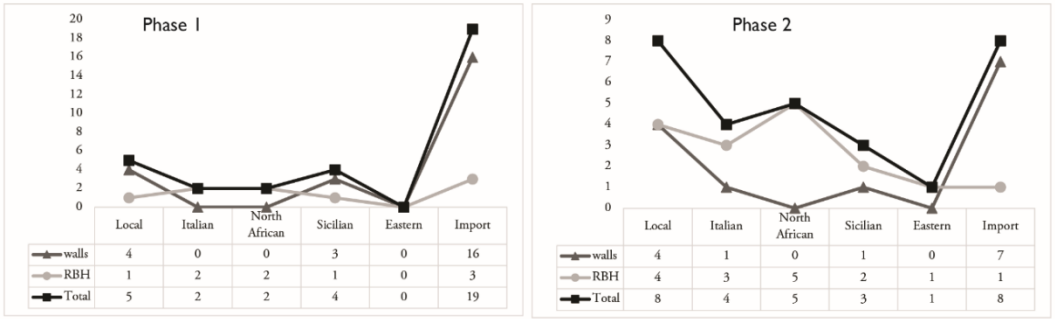


Figure 44: Comparison between count of walls, RBH and combined total for amphorae in Phases 1 (left) and 2 (right) at Melita (n=61).

Fortunately, Foreman Street produced far better fine and cooking ware evidence for the period (Figures 46, 48). Although proportionately still low (when compared with the coarse wares), better diagnostic sherds were available for study. Just over a third of the cooking ware sherds recorded could be assigned, with some certainty, to a type and these were predominantly composed of North African and Pantellerian ware

casseroles and lids typical of the period. The remaining sherds still belonged to these two sources. Local cooking wares are represented by 11 small handmade fragments; this together with the complete absence of local wheelmade forms is an interesting contrast to what was noted in the previous period and assemblage. As will be demonstrated below, a preference towards imported versus local cooking wares seems apparent for the later Roman period.

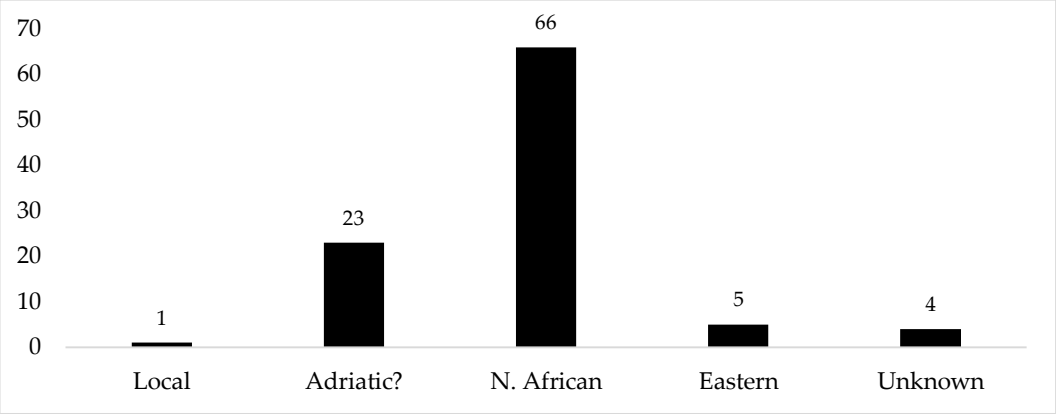


Figure 45: Quantity (based on RBHS) of amphorae from Foreman Street (n=99).

The ratio of local against imported fine wares is more balanced here (Table 7). Local red-slipped pottery forms dominate 55% of the group. African Red Slip ware, although composed of mainly undiagnostic ARS A and C fragments, make up 28% of all fine wares, whilst making up 63% of the imported examples. Corinthian relief ware has, to my knowledge, not yet been recognised at another Maltese site before. And even though the numbers are small, the fact that 7% of this assemblage is made up of this ware may be significant. To my knowledge, this 3rd-century import has not been reported on Malta to date, but relief ware bowls of Hellenistic date (i.e. Megarian relief ware bowls) are documented.

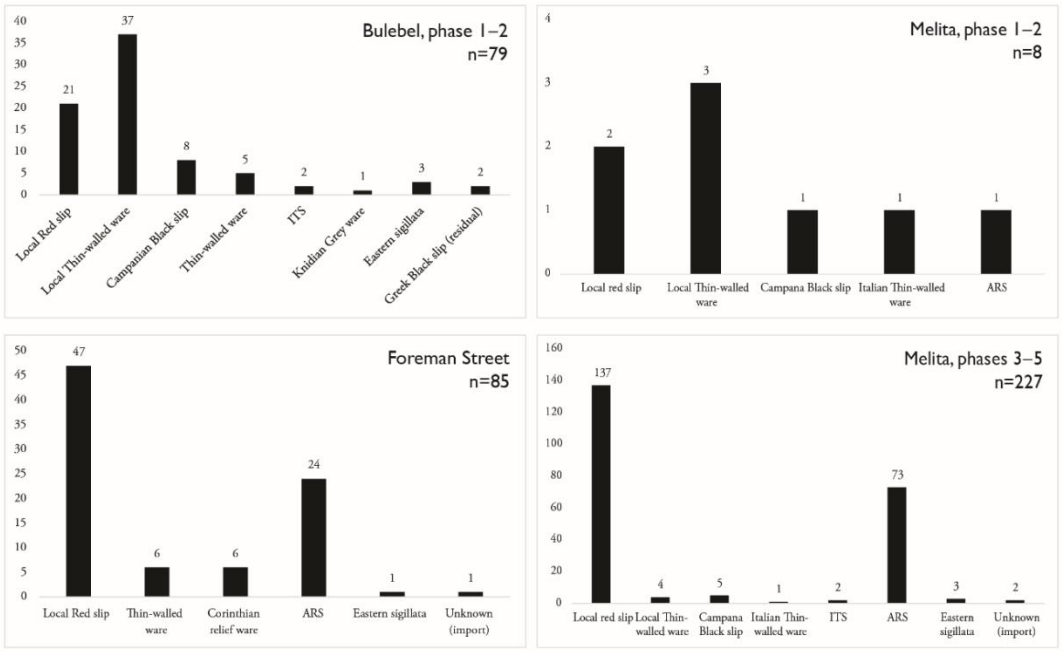
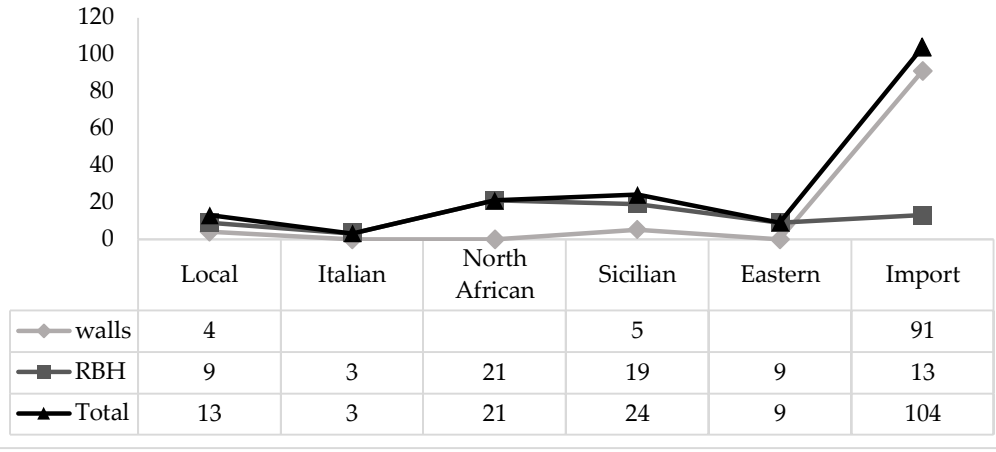


Figure 46: Quantification of fine wares from the three sites.

3.9.3 Late Roman period: Mid-3rd–mid-4th century AD

Three 3rd-century ARS dishes (one Hayes 31 and two Hayes 50A) were each found associated with local red-slipped and coarse ware vessels in two of the tombs carved into the side of the disused Bulebel quarry. The same ARS forms have been documented in several other tombs on the island and provide some of the best dating evidence for Roman-period tomb use.[488] It is this mid-3rd-century group that the two North African amphorae from the latest stratigraphic horizon of the Bulebel quarry fill (see above) are probably contemporary with. In addition to the amphorae, 2 Hayes 23B casseroles, clearly dateable to the mid-2nd–early 3rd century, but found mixed with the Phase 2, 1st-century levelling material for the quarry, are also chance losses associated with the cutting of the tombs rather than the levelling of the quarry itself (Figure 15).

[488] Sagona 2002, 1141–2.



	Local	Italian	North African	Sicilian	Eastern	Import
walls	4			5		91
RBH	9	3	21	19	9	13
Total	13	3	21	24	9	104

Figure 47: Comparison between count of walls, RBH and combined total for amphorae in Phases 3–5 at Melita (n=174).

The last three Melita phases provide the best quantified range of assemblage for this period (Figures 43, 47). Late 3rd/early-4th century Eastern Sicilian wine amphorae (MRA 1a) were the primary import at this time, together with North African wine containers from Mauretania (Dressel 30). Cretan wine was also trickling in as well as wine or garum from Tunisia. No definite imported oil amphorae dating to this period have been recorded, however, neither are there any locally produced vessels known that made up for this. The latest date for the Malta type 2 is believed to be the end of the 2nd century, and judging by the local types identified in this assemblage, they all appear to be residual. Bruno remarks that from the end of the 2nd century, all Tunisian and Tripolitanian amphorae imported into the island carried oil or garum,[489] but new evidence suggests that some of the amphorae she took to represent oil (Africana IIA) are now known to have contained wine instead.[490] The high incidence of unidentified imported amphorae may have fulfilled the role of oil containers instead. Recent excavations at the Żejtun villa are indicating that the olive-pressing plant, built in sometime in the 4th century BC, was still in partial use during this period, so there is some evidence that the island was still producing

[489] Bruno 2009, 182.
[490] Bonifay 2004, 474, table IV.

some of its own oil.[491] The amphora evidence from the 1972 excavation, although incomplete, does not contradict the Melita evidence in terms of what was being imported into the islands at the time.[492]

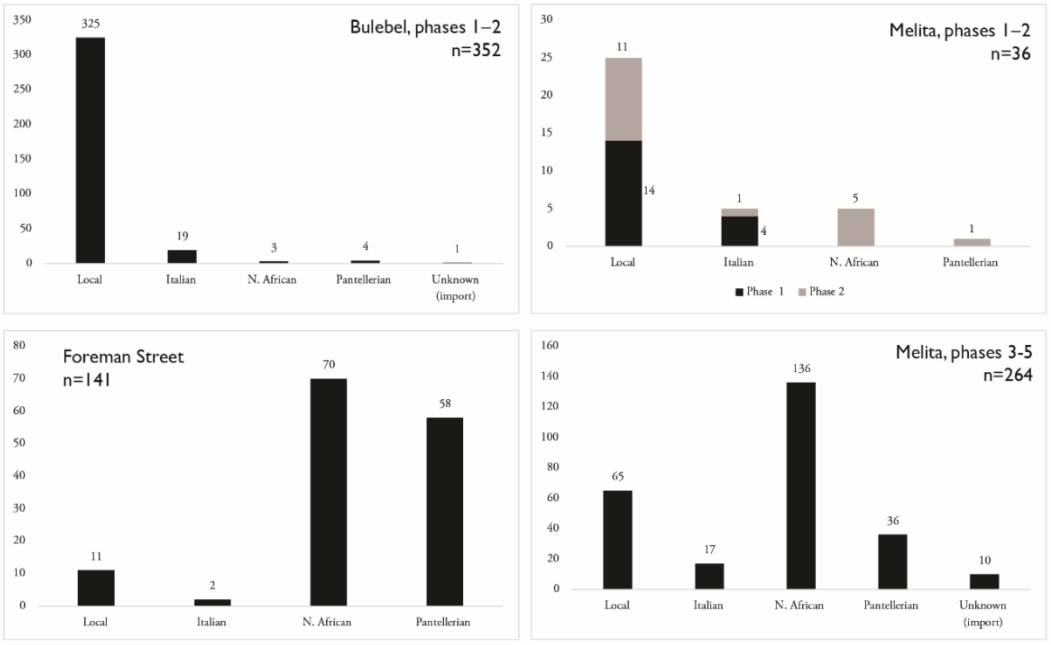


Figure 48: Quantification of cooking wares from the three sites.

Fine wares are still dominated by local red-slipped forms (60%) but are supplemented by ARS dishes (Hayes forms 44, 45 and 50—the latter being the most common) which make up the lion's share of imports (Figure 46). The remaining 5% of imports are residual and Hellenistic and early Roman in date. Only two sherds can be assigned to an Eastern production. Local thin-walled wares are also starkly under-represented when compared with the earlier 1st-century assemblage at Bulebel.

Over half of the imported cooking wares are North African and are made up of types belonging to the typical exported vessels of the period (casseroles Hayes forms 23B, 197 and 181 and lids 185 and 186). Local cooking wares comprise about 25% of the total cooking ware assemblage and consist of both wheel- and handmade forms. Pantellerian ware

491 Anastasi 2010, 106–107.
492 Anastasi 2010, 129.

casseroles (Scauri types 3.1-2, 4.4 and 4.6) make up another 14% of the assemblage; a marked decrease when compared with the Foreman Street pots. The Italian forms (c. 6%) are mainly composed of walls but 2 globular ribbed cooking pots may belong to a late Eastern series dated to the mid-4th century.[493]

3.10 Chapter Summary

The purpose of this last section was to summarise the results of a series of previously unpublished ceramic assemblages which date to the Roman period. Although the number of fragments per assemblage may be considered small, by applying different counting strategies and illustrating the data in a variety of legible formats, general patterns could nevertheless be observed.

A review of the local amphorae produced throughout the Punic, and possibly even into the early Roman period, provided a unique opportunity to map the distribution of the only archaeologically attested traces of a Maltese export industry, probably involved in the export of locally produced olive oil and wine to a range of Punic and Greek cities in the central Mediterranean until at least the mid-2nd century BC. The local industry concerning the production of a wide range of utilitarian vessels on Malta and Gozo is also prominent throughout the duration of the Punic and Roman period. At least three distinct zones can be recognised determined by differences in shapes and fabrics, and is significant when we take into consideration the type and quantities of imported pottery common on Maltese sites, and when compared to other island assemblages.

The final section traced the imported pottery reaching the Maltese islands from the 1st century until the mid-4th century AD, by combining important

[493] Riley 1979, 270.

amphora, cooking ware and fine ware data to assess the general quantity and range of commodities consumed by the Maltese. Indeed, larger assemblages from a wider array of local sites is ultimately required for a better assessment of the islands' economic past, but the little material that was available for study has certainly brought us one step closer to towards holistically investigating these important economic proxies.

The general pattern that emerged from these new data confirmed the import of a larger proportion and wider variety of wine throughout the Roman period. Olive oil, especially during the Late Republican and early Imperial period was locally supplied, with only a very marginal amount of imported oil or garum apparently supplementing it. The strong presence of eastern Sicilian wine, at least in the 1st century and again in the mid-3rd/4th century and the relatively low number of African containers (when compared with the average assemblage in the rest of the central Mediterranean and Sicily) suggests against a direct trade connection between North Africa and Malta, but implies a link via a port in eastern Sicily, perhaps Catania or Syracuse. This 'route' might also account for the small amount of Aegean/eastern wine that was also reaching the Maltese islands, especially from the 3rd century onwards, because ports along the eastern Sicilian coast were more likely to receive a larger volume of trade from the east. Aegean and eastern-sourced amphorae made up a significantly greater proportion of the imported amphorae in early Imperial contexts at Tas-Silġ (Figure 23) and San Pawl Milqi (Figure 25), and this anomaly with the new data may be explained by the large number of imported amphora fragments that could not be assigned a source with certainty.[494]

[494] A large number of imported wall fragments displaying a wide variety of fabrics were certainly imported but it remained difficult to determine their source and type because of

Imported cooking wares appear to have increased in popularity after the end of the 1st century AD, despite the presence of a few imported southern Italian cooking dishes in the early Roman period. By the mid-Roman period, a marked increase in North African casseroles complements the otherwise stable local production of cooking wares. Although present, Pantellerian wares are not as common as one might assume given the proximity of the two islands.

Lastly, local fine wares remain dominant on both Malta and Gozo throughout the Late Punic and Roman periods, despite there being a marked increase in African fine wares after the 2nd century AD. The Maltese islands display very conservative characteristic with the consumption of fine wares throughout the Roman period. These findings will be examined and discussed within the context of other island patterns in the remaining chapters.

the lack of diagnostic features. These remaining fragments are however more probably from Adriatic or Aegean sources than any other place as they are not at all characteristic of North African quartz fabrics or Italian black sand fabrics. The fabrics associated with the imported diagnostic fragments within the three assemblages are described within each catalogue entry in Appendix I.

Chapter 4



Following on from the previous chapter, this section will describe and discuss the main evidence for the other small islands or island groups within the central Mediterranean (Figure 49). A brief overview of the available literature for the islands of Pantelleria, Lipari, Lampedusa and Kerkennah aims to highlight some of the primary published works available, as well as summarise the evidence available for the economies of the small islands during the Roman period.

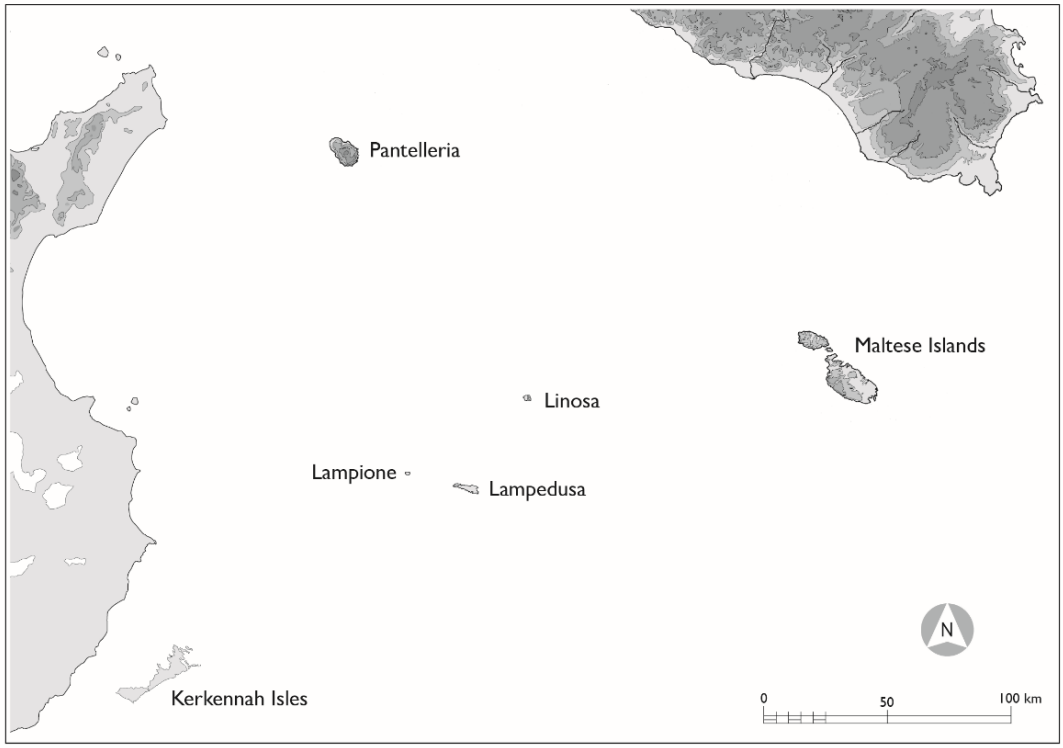


Figure 49: Map of the central Mediterranean small islands mentioned in this chapter.

4.1 Pantelleria

Over the last three and a half decades a significant amount of research has been undertaken on the island of Pantelleria, the initial catalyst being the petrographic sourcing, by David Peacock back in the mid-1980s, of a widely exported range of cooking wares made in Pantelleria.[495] Since then extensive

[495] Peacock 1984, 8–10, fig. 3.

surveys and excavations have endeavoured to explore the ancient ruins on this small, yet economically important island.

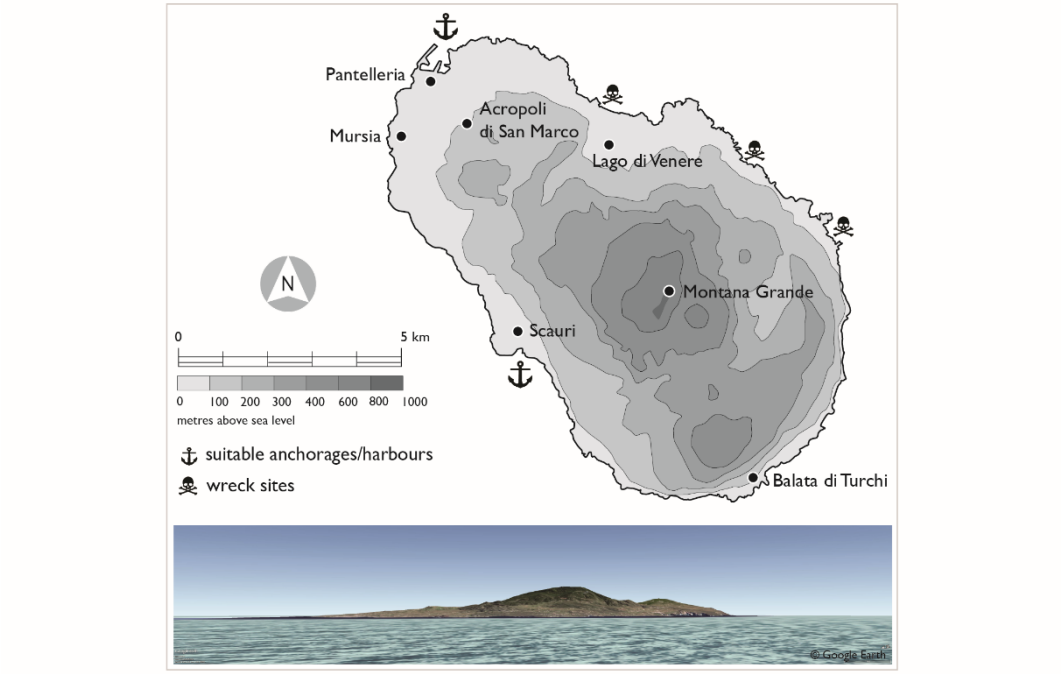


Figure 50: Map of Pantelleria (top) and view of Pantelleria from the sea (bottom; source: Google Earth).

The geographic position of the island occupying the western part of the Sicily Channel between Cape Bon and the south-western tip of Sicily, coupled with the island's prominent elevation, certainly led to its strategic role as a way-point and stop-off for passing merchants sailing between north Tunisia and western Sicily (Figure 49). The intervisibility between Pantelleria and Cape Bon must also have been a maritime advantage for ships sailing along routes crossing the western channel. Intensive occupation of the island can be traced to the Neolithic period primarily because of the volcanic resources the island offered to Neolithic communities in the central Mediterranean. The trade in Pantellerian obsidian was widespread in Sicily, Tunisia and the Maltese islands from the Neolithic onwards.[496] The island was first occupied by the Phoenicians not

[496] Tusa 2003, 15; Broodbank 2013, 231–232, fig. 6.22.

long after the colonisation of North African colonies such as Utica and Carthage from at least the second half of the 8th century BC.[497]

The small volcanic island has a total area of 83 km^2, dominated by the peak of the extinct volcano, Montana Grande, reaching a height of 836 m above sea level (Figure 50). The coastline lacks natural coves and indentations such as those common with the limestone-based geology of islands like Malta and Lampedusa. This feature creates fewer potential anchorages. However, evidence of ancient harbour works, with a possible *cothon* harbour have been identified in recent archaeological investigations.[498] Underwater archaeological investigations have also demonstrated the predominantly Punic-period activity of the harbour area clearly showing that the Pantelleria harbour was the primary 'trade' harbour during the Punic, and possibly the early Roman period.[499] The growth of Scauri as an important harbour for the island appears to have occurred towards the later Roman period.[500] The karst-like rocky coastline is generally quite treacherous for departing or approaching sea vessels, especially in rough seas, and this is possibly a reason why the waters surrounding the island are littered with a number of wrecks. An intensive underwater survey along the north-eastern shores has recovered at least six wrecks dating from the Punic and the early Roman periods.[501] The amphorae that formed the cargoes were composed of North African vessels (Mana C and D forms) and Late Republican Italian forms (Greco-Italic forms, Dressel 1s, Lamboglia 2s and Dressel 2-4 forms).[502]

[497] Schäfer 2013, 5032.
[498] Abelli 2012b.
[499] Baldassari 2012a, 101–102.
[500] Abelli 2009a.
[501] Baldassari and Fontana 2006.
[502] Baldassari and Fontana 2006, 42–54.



Figure 51: Fragment of a press-bed from Pantelleria. The block measures c. 0.45 m by 0.25 m (source: author).

Little is known about the potential agricultural output, although a number of farmsteads or rustic villas have been identified scattered across the island.[503] Domestic-scale wine and/or olive pressing probably also took place; a fragment of a press-bed was identified during a recent visit to the island (Figure 51), and self-sufficient *dammusi* or farms are historically known for cultivating their own vines, orchards and olive groves.[504] A handful of stone querns and mills for grinding wheat are also known, although the dating of this equipment remains uncertain.[505] The discovery of cisterns outside of the main habitation hubs is indicative of farms and measures to irrigate crops using stored rainwater.[506] The system of terracing for the cultivation of vines across Pantelleria, many of which remain extant and in use,[507] is believed to be Punic in date as similar parallels of a Punic

[503] Verger 1966a, 134, 141; 1966b, 262; Mosca 1998, 1474; 2009, 65–69.
[504] The press-bed fragment (Figure 51) was re-utilised as a step in a small house close to Lago di Venere and shares similar features to other Punic/Roman-period examples. Presumably the actual context of the slab came from nearby but no further information was forthcoming.
[505] Mosca 2009, 67–68.
[506] Castellini and Martinelli 2003, 55.
[507] Tudisca, Sgroi and Testa 2011; Barbera 2013, 522–523.

date are known in northern Tunisia.[508] A variety of Mediterranean crops are still grown on Pantelleria today and attest to the possible range of fruit and vegetables that were grown since antiquity. The soils are rich in volcanic material, making them fertile and the variable altitudes and meteorological conditions have created various micro ecosystems, each with its own unique conditions suitable for particular crops at different times of the year. Olive and vines remain common crops, as well as capers, figs and fruit trees.

Rainfall is generally limited to about 484 mm per annum and the permeable nature of volcanic rock restricts the creation of fresh water aquifers for the collection of potable water. In response to this, hundreds of rock-hewn cisterns were excavated across the island.[509] The same response to water collection is seen on the island of Linosa (see below). Recent archaeological surveys in connection with the *Carta archeologica dell'Isola di Pantelleria* have mapped the distribution of all known cisterns on the supposition that groups of cisterns may correlate with a settled population.[510] The research aim was primarily focused on identifying the Punic-period cisterns because of their easily recognizable shape, but it was not uncommon for these same cisterns to remain in use after the Roman occupation.

Pantelleria is well-known for its production and export of cooking wares from the 1st century BC, and which gained momentum from the 4th to 7th centuries AD, throughout the western Mediterranean basin. A kiln linked to this production has been identified in Scauri and is responsible for the material exported from the 2nd century AD.[511] Research in Pantellerian pottery production is mostly concentrated on the production of Roman-period cooking wares. Efforts have more recently been shifting towards

[508] Verger 1966b, 264; Mosca 1998, 1474.
[509] Castellani and Mantellini 2003; 2006.
[510] Castellani and Mantellini 2003, 51.
[511] Baldassari 2007a, 41–51; 2007b, 107–125; 2009a, 91–106; 2009b, 125–136; 2009c, 361–368.

studying local pottery production of the Punic period, and other types of wares and fabrics.[512] An important range of 2nd–1st-century BC Pantellerian ware forms is known from Sabratha and has provided crucial evidence for the establishment of an intensive trading network for this type of cooking ware much earlier—at least from the 3rd to 2nd century BC—than was generally thought.[513] K. Schmidt has demonstrated that a much wider repertoire of vessel types (such as bowls, plates, fine ware imitations, thin-walled ware and storage jars) was manufactured using Pantellerian fabrics, and thus was not purely restricted to a limited range of cooking wares.[514] A range of local imitations of imported vessels was also identified.[515] Also of significance is the significant import of western Sicilian coarse ware vessels within 3rd to mid-2nd century BC Pantellerian assemblages, as has recently been observed from excavations at the Lago di Venere Punic sanctuary site. Western Sicilian fabrics accounted for 60% of the total coarse wares, significantly more than North African and local wares together. There is very little evidence on Pantelleria that suggests a local production in fine wares of any sort as the majority of fine wares collected and recorded during recent survey and excavation work in the north of the island have been identified with foreign sources.[516] However, a small number of local imitations of fine wares are believed to have been manufactured in the Punic period, although in no significant quantity.[517] Only one possible local amphora sherd was identified in this assemblage and has been dated to the Punic period. The lack of a local amphora series, only attested by a handful of fragments, may suggest that the island relied on a greater amount of

[512] Schmidt 2013a, 2.
[513] Dore 1989, 216–230, figs 59–61.
[514] Schmidt 2013a; 2013b.
[515] Schmidt 2013b, 550.
[516] Ferrandes, Bechtold and Almonte 2013, fig. 27.
[517] Schmidt 2013a, 2.

amphora-borne products; this is certainly confirmed by the significant number of imported amphorae recovered, both in the Punic and Roman periods. On the other hand, however, local produce may have been stored in alternative vessels or containers that are not evident in the archaeological record.[518]

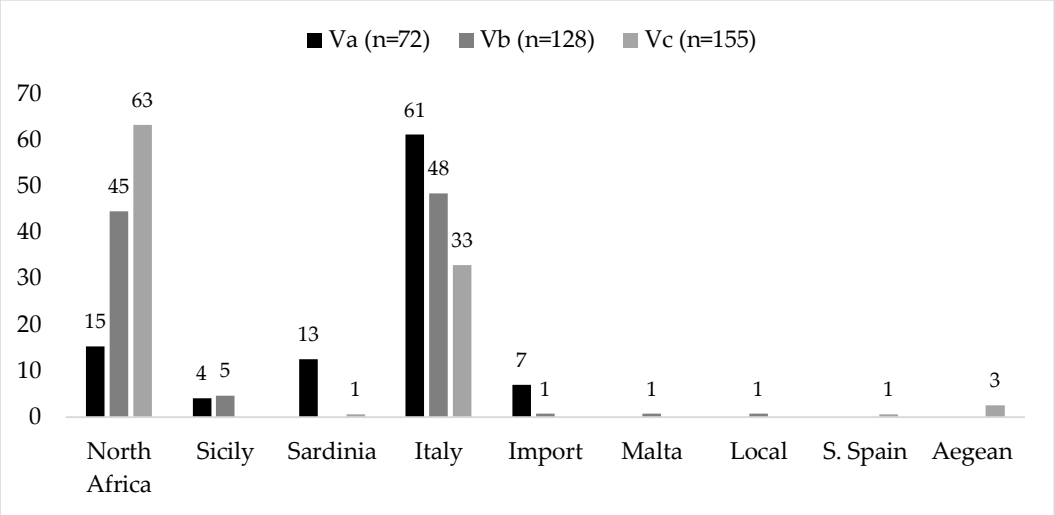


Figure 52: Proportion (%) of amphora sources from Pantelleria from Phases Va to Vc (data source: Bechtold 2013, 435–442, tab. 11–13).

Very detailed and well-published pottery assemblages for the Punic, Roman and Late Roman periods are available today painting an interesting and unique picture of the island's role in ancient trade between Carthage and eastern Sicily and the western Mediterranean.[519] The bulk of transport amphorae recovered from both terrestrial and underwater sites are North African and Italian in origin and remain so, with little fluctuation from at least the 6th century BC until the Late Antique period (5th–7th century). Bechtold's detailed look at the shifts in amphora sources shows the rather gradual shift from predominantly western Greek sources of importations to Punic North African sources over the course of the three Punic wares

[518] Bechtold 2013, 439, tab. 13.

[519] Mainly Bechtold 2013. The phases used by Bechtold to group the amphorae from the Pantellerian survey and excavation are as follows: Va (300–250/240 BC); Vb (250/240–200/190 BC); Vc (200/190–140/130 BC); VI (140/130 BC–AD 14); VII (AD 14–150/250); tardo-antico (AD 250/300–600). These are based on the periodization of Pantelleria (Bechtold 2013, 411, tab. 1).

(Figure 52). Bechtold concluded that the loss of Sardinia and Sicily to Rome at the beginning of the second Punic war affected the territorial reach of Carthage, thus affecting food supplies to Pantelleria. Although Italian imports never ceased throughout the duration of the Punic wars, the reliance on North African regional imports to Pantelleria increases quite dramatically.[520] A similar import pattern to that of Pantelleria was also noticed at Cartagena and Cadiz.[521] The dominance of North African amphorae remains throughout the Roman period, a reflection of the flow of North African goods flowing towards other Roman provinces (Figure 53).

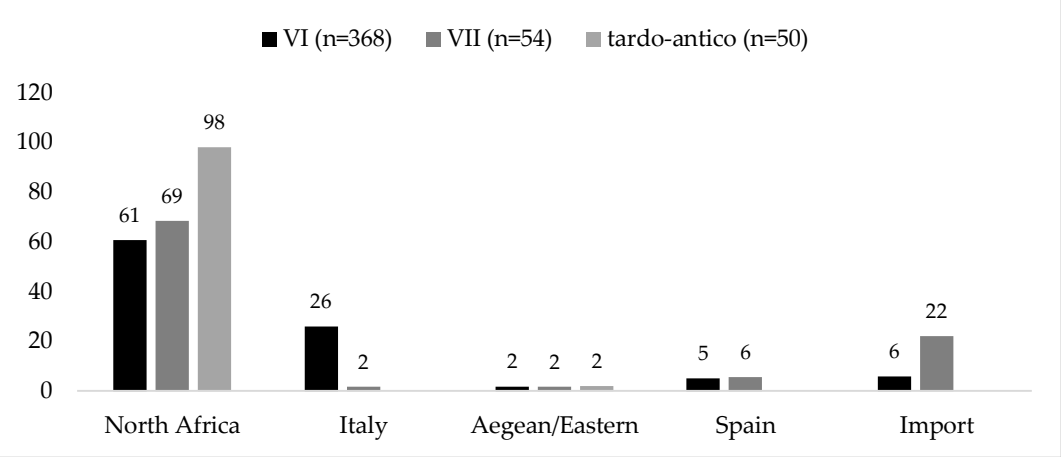


Figure 53: Proportion (%) of amphora sources from Pantelleria from Phase VI to tardo-antico (data source: Bechtold 2013, 445–453, tab. 16–20).

A short while after the fall of Carthage, Pantelleria was still receiving the majority of its amphora-borne products from North Africa, although, by the Late Republican period, Italic wine amphorae were also being imported. This suggests that the island was very much still an important way-point between western Sicily and the newly occupied territories of North Africa (Figure 53). The fact that little appears to change might also suggest that there was far less of a dramatic effect on the central Mediterranean region

[520] Petrographic analysis on amphorae from several of the 3rd–1st-century BC wrecks around Pantelleria have confirmed the primarily Carthaginian provenance of the North African containers (Amadori et al. 2002).
[521] Bechtold 2013, 434–440.

after the fall of Carthage then might be expected. Life and economic trade appears to have continued for the inhabitants of the small island.

Fine wares are represented by different import trends that reflect different supply and import patterns on the island. ITS, followed by ARS A are the most common fine ware types in the early Imperial period—phase VI (Figure 54). Fine ware distribution seems to reflect a more pan-Mediterranean trend, rather than regional influences or control, as amphorae have been shown to reflect. Punic-period fine wares never reach the sheer mass that early Roman ITS and later ARS achieved. The proportion of Late Punic fine wares that correspond to phase V (300/240–140/130 BC) closely resemble the proportion of fine wares recorded at Carthage.[522]

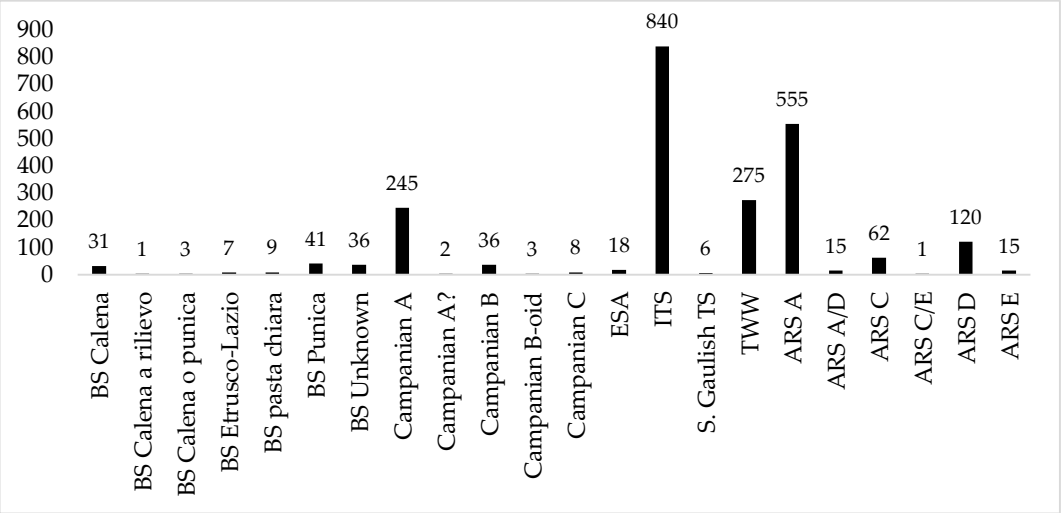


Figure 54: Quantity of fine wares recorded on Pantelleria (data from Ferrandes, Bechtold and Almonte 2013).

The dominance of African amphora imports throughout the Roman period clearly demonstrates that Pantelleria remained an important mid-way transhipment point between North Africa and Sicily; at this time, two of the most important Roman food-producing provinces in the empire. Data from the island-wide survey directed by the Università di Bologna show both the

[522] Ferrandes, Bechtold and Almonte 2013, 337; compare fine ware data with Rice 2012, fig. 14.

increase in imported amphorae between the 3rd and 2nd centuries BC and the gradual increase of Italian imports after the 1st century BC; interestingly the consumption patterns of Italian amphora-borne products shift quite dramatically after the 2nd century BC and tend to be more pronounced in urban contexts and decreases in rural areas.[523] The high and consistent number of North African Late Punic amphorae recovered from wrecks along the coast of Pantelleria also attests to the importance of Africa in the economy of Pantelleria.[524] Towards the Later Republican period, the influx of Italian wine amphorae is also quite marked.

Compared with the Punic (and late Antique periods), far less evidence is available for the imperial period on the island, although, compared with the other islands below, there is enough to suggest general trends. One underwater context (Cala Levante; site 6) is believed to be part of a cargo of North African cooking wares dating to around the 3rd century AD.[525] A handful of other Roman-period amphorae from underwater contexts and from the extensive surveys that were conducted also give some indication about the island during the Roman period.[526] Remains of a maritime villa, with foundations dating to the 1st century, and extended sometime during the 2nd-3rd century, were discovered near the port of Scauri and predate the eventual construction of the 4th-5th century village there.[527] The generally small amount of collected material dating to the early Imperial period may suggest a reduced degree of occupation of the island, or a general shift in trade patterns until the island re-enters the central Mediterranean economic stage towards the end of the 3rd century AD and starts to export locally produced cooking wares. During this time, the port at Scauri witnesses a

[523] Baldassari and Fontana 2006, 59–60, fig. 21.
[524] Baldassari and Fontana 2006, 41–55.
[525] Baldassari 2012b, 195.
[526] Baldassari 2009c.
[527] Abelli 2009a, 325.

resurgence in port activity and the consolidation of settlement and pottery production centres in the vicinity between the late 4th and early 5th century.[528] The Scauri wreck also belongs to a vessel that was carrying a cargo of Pantellerian cooking wares (or Scauri ware) and has been dated to the end of the 4th and beginning of the 5th century AD.[529] Along with the predominantly local cargo (77%), a number of North African products, including amphorae and cooking wares (19%) and other pottery vessels were possibly amongst the cargo from a range of sources (4%).[530] The amphorae, which were predominantly from North Africa, amounted to an MNI of 114 vessels.[531] It seems probable that some of these also formed part of the cargo alongside the local cooking wares; as well as a small consignment of North African ARS plates, in particular ARS D forms Hayes 67 plates[532]; and 4th-/5th-century North African cooking wares.[533]

4.1.1 Distribution of Pantellerian cooking ware

Pantellerian cooking ware had a considerable distribution throughout the western Mediterranean basin. The difficulty in dating the standardised ware makes it difficult to identify any changes to this distribution over time, although K. Schmidt has begun the process of categorising particular Pantellerian forms according to chronology based on the finds from Pantelleria, Sabratha and Scauri.[534] The distribution of Pantellerian ware pottery is remarkably similar to that of African cooking ware. Leptis Magna and eastern Sicily is the furthest east that Pantellerian ware is indisputably

[528] Abelli 2009a, 325–326.
[529] Tusa, Zangara and La Rocca 2009.
[530] Baldassari 2009a, 92, figs 3–4.
[531] Baldassari 2009d.
[532] Baldassari and Mannelli 2009.
[533] Mannelli 2009.
[534] Schmidt 2013b, 551–553, tab. 1–2.

distributed, with possible single finds in Berenice[535] and Durres,[536] which signal the most peripheral distribution. African cooking wares are also not present in the eastern Mediterranean, the Dalmatian coast and sporadic finds in Berenice and Crete marking the furthest eastern advance.[537]

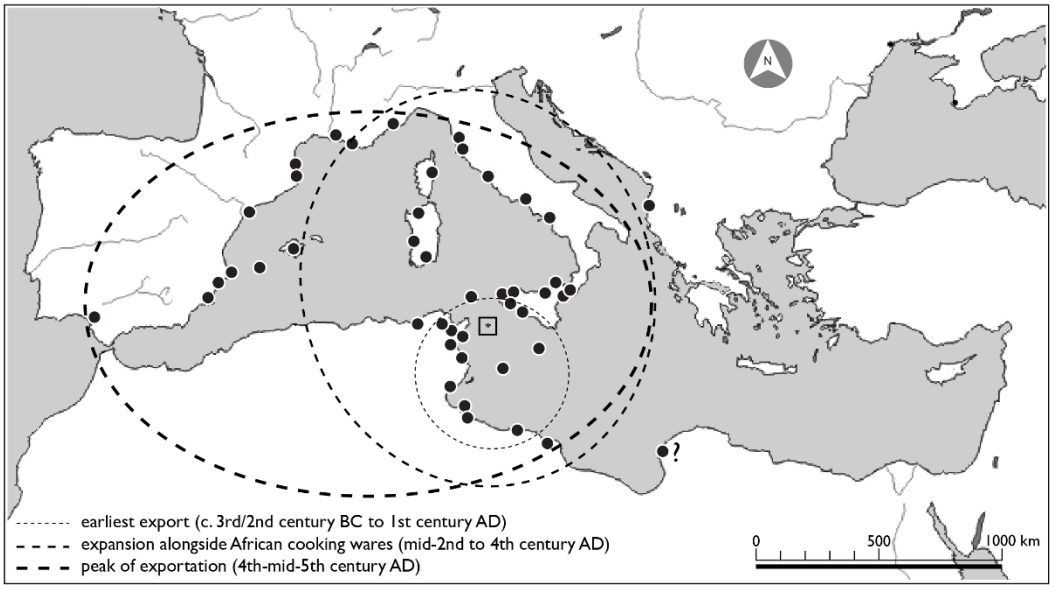


Figure 55: The distribution of Pantellerian cooking ware showing the growing spheres of exports (adapted from Santoro 2007, fig. 1.3).

The Pantellerian wares in Sabratha are the earliest known export of this ware from 3rd–2nd-century BC contexts, but mostly from the 1st century BC to 3rd century AD. Interestingly, Pantellerian ware was very rare in a 1st-century BC context from Leptis Magna;[538] this increased to 3–4% (of total cooking wares) from the late 2nd to mid-3rd century AD; and reaches 11% from the beginning of the 5th century AD.[539] A few fragments of a Pantellerian 1st-century BC form (Sabratha form 286) can be identified at

[535] Riley 1979, 339, fig. 123.869.
[536] Reynolds, P. 2011, *Kitchen wares*. Lecture delivered as part of a Monographic coarse on Roman pottery, University of Malta, on 22nd February 2011; see also Reynolds 2003.
[537] Leitch 2010, 230–322, see map pp. 291–292.
[538] Reynolds 1997, 57.
[539] Bonifay et al. 2013, 133, fig. 43; Welsby Sjöström 1997, 46.

Carthage[540], Leptiminus[541] and Utica;[542] whilst Pantellerian wares dating from the end of the 2nd century BC have been recorded on Malta.[543] A mid-1st-century AD wreck (Skerki wreck F) carrying a stone cargo together with a wide range of amphorae and cooking vessels was discovered on the Skerki Bank, between Cape Bon and western Sicily. The ceramic cargo included eastern Sicilian and Italian wine amphorae, North African (Hayes form 194) casseroles and Pantellerian cooking wares supporting the early Imperial westwards distribution of Pantellerian cooking ware at this time.[544] Mid-2nd- to mid-3rd-century AD forms appear in all the previous places mentioned, but now also at Cosa,[545] Jerba,[546] Ostia,[547] Marseille,[548] and Durres. From the 4th century AD onwards, the Scauri forms appear in practically all the coasts in the western Mediterranean basin. The ambit extends north (at least as far as Cosa and Marseille) from the mid-2nd/early 3rd century AD and appears to coincide with the expansion of North African goods throughout the Mediterranean. From the 4th century AD, Pantellerian wares become a standard find in Late Antique cooking ware assemblages at coastal sites and are usually second to African cooking wares. However, from the early 5th century onwards, Pantellerian ware exports continue and remain strong, despite the decline in African cooking wares.[549] Thus it can be suggested that Pantellerian ware exports developed in the shadow of North African exports, until their success finally outdid them and persisted well after North African cooking ware declined. It is also clear that the initial geo-

[540] Hayes 1976, fig. 15.17; Fulford 1994, 60, form 8, fig. 4.4; Fulford 1984, 159, form 7, fig. 57.7.
[541] Dore 2011a, 323, fig. 9.9.
[542] Recent finds from the Anglo-Tunisian excavations in Utica, find no. FV 913.
[543] Quercia 2006, 7.
[544] McCann 2001.
[545] Dyson 1976, fig. 60.54.
[546] Fontana, Ben Tahar and Capelli 2009, 313.
[547] Coletti 1998; Guiducci 2009, 370.
[548] Bonifay, Carre and Rigoir 1998, 63–64.
[549] Leitch 2010, 282–283.

political changes that came into effect after the Vandal conquest did little to affect production and export from Pantelleria. The question to be explored now is whether the Pantellerian industry was closely tied to and possibly directed by North Africa, which saw the island as a profitable extension of its shores? More of this will be explored in the final chapter.

In conclusion, the archaeological and ceramic evidence available for Pantelleria reveals an island that was developed in the shadow of Carthage, especially as an extension of the Punic capital during the three Punic wars, even despite its annexation by Rome at the beginning of the second Punic war. Significant building investment and planned development on the island in the north during the Punic period in conjunction with the influx of North Tunisian and western Sicilian amphora-borne goods does suggest an external impetus for planned control of the island because of its strategic position for political and economic control of the Sicily Channel. No other small island shows signs of such extensive planning, although the Maltese islands were heavily settled. Also, the quantity of ceramics on Pantelleria is not matched on Kerkennah and the Pelagie islands, despite their Punic North African control, and the composition of the Pantellerian assemblage is very different to that of the Maltese islands as the latter does not appear to have ever been subjected to intensive foreign influence as Pantelleria seems to have been under Carthage.

4.2 The Pelagie Islands: Lampedusa, Linosa and Lampione

Lampedusa is the largest of the central Mediterranean Pelagie islands, with an area of 20.4 km^2. The island's main axis faces the southern Tunisian and Tripolitanian coast; and like the Maltese archipelago, the island's geology is sedimentary and its plain tilts towards the south with the highest north-western cliffs measuring no more than 133 m above sea-level (Figure 56).

The island is today characterised by a dry, windy, rocky and dusty landscape with very little land suitable for agricultural use. However, Lampedusa was almost agriculturally 'self-sufficient' before the mid-20th century. Abandonment of farming techniques and a heavier reliance on imported staples have resulted in a rapid degradation of the landscape.[550]

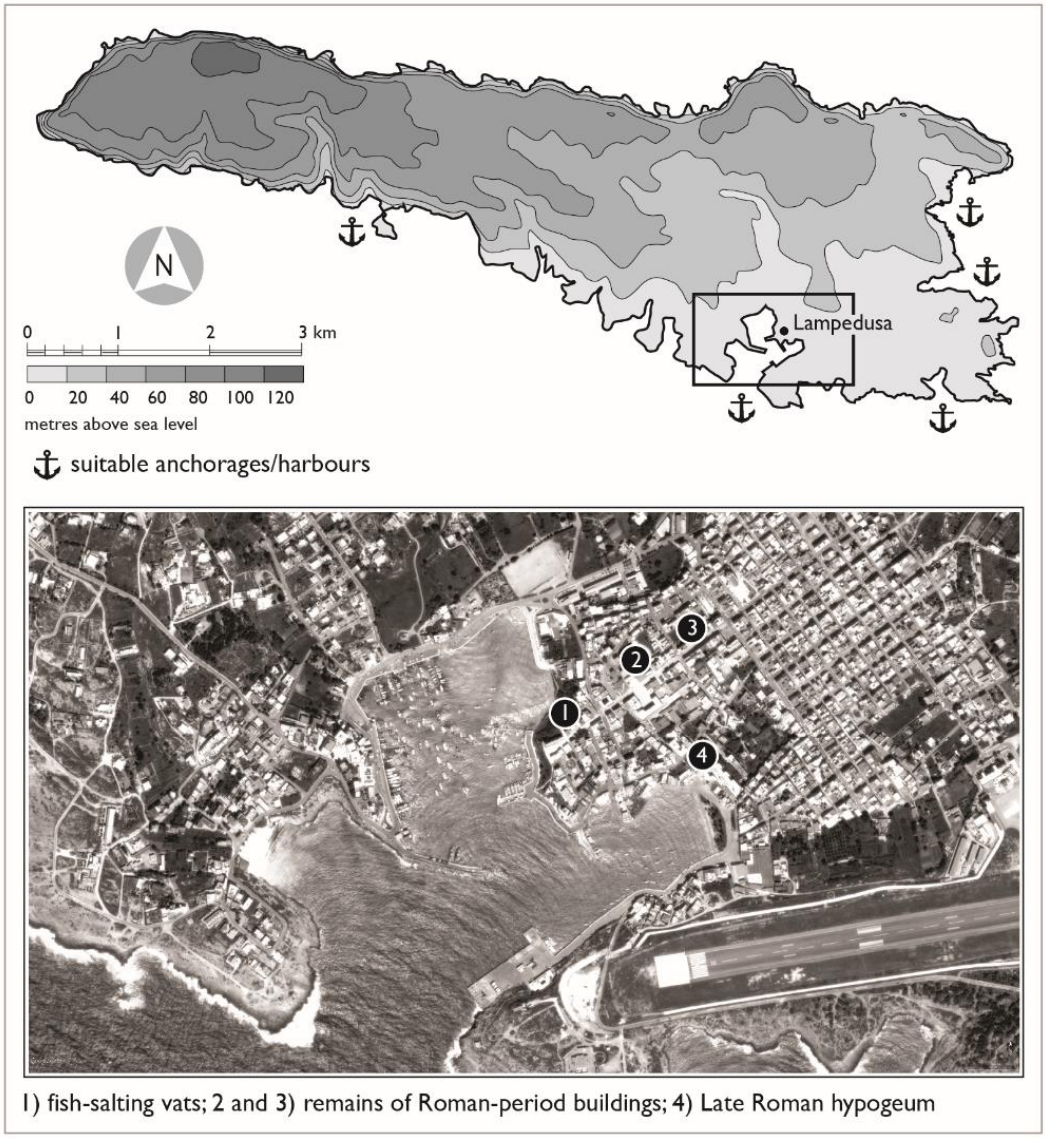


Figure 56: The contour map of Lampedusa (top) and the location of sites around the harbour (bottom; source: Google Earth).

A variety of crops (including, but not limited to, cereal, vine and olive) was grown, with deep soil depths collecting in the crevice-like fissures or

[550] La Mantia et al. 2011; a similar situation involving the move away from traditional means of agriculture has taken place more recently in Kerkennah (see below).

canyons running north-south across the island. Terracing of these steep valleys was also practised to maximise soil depth and minimize the risk of soil erosion (Figure 57). This agricultural practice is known throughout the central Mediterranean islands and elsewhere in the Mediterranean basin. Low annual precipitation—on average about 320 mm that is highly irregular—provided a very limited supply of fresh water. The calcareous limestone also makes very poor aquifers. Today, these sources of fresh water alone are not sufficient to cater for the needs of the current population of about 5000 people.[551] Bell-shaped cisterns traditionally dated to the Punic period are scattered across the island and are suggestive of a small settled population on the island.[552]



Figure 57: Soil-filled fissures cultivated on Lampedusa (source: Google Earth).

The earliest archaeological exploration of the island was conducted by Thomas Ashby during a short visit to the archipelago in 1909.[553] Ancient building remains, pottery, cisterns, marble fragments and rock-cut tombs were reported which showed that the main island was inhabited from at least the Neolithic until the Late Roman period. Of potential interest is an

[551] Barrocu 2003, 209.
[552] Ashby 1911, 15.
[553] Ashby 1911.

apsed building in *opus reticulatum* located close to the main harbour, which Ashby dates to the Roman period.[554] Punic-period rock-cut tombs were also identified to the east of the harbour. The presence of Roman lamps suggests reuse of some of these tombs; whilst the location is close to the more recent investigation of a Late Roman-period hypogeum (see below).[555] A series of circular huts or circular, shallow rock-cut foundations are thought to belong to a prehistoric presence on the island, however, some circular rock impressions could also be remnants of threshing floors as speculated by Ashby.[556]

More recent investigations on the initiative of the *Soprintendenza per I Beni Culturali e Ambienti di Agrigento* during the 1980s consisted of a series of surveys and excavations in order to identify and record the ancient remains on the island, especially those recognized beneath the island's urban centre.[557] Three separate but contemporary buildings were identified built in dry masonry and were dated to between the 4th and 7th centuries based on the material recovered.[558] The bulk of the pottery, however, showed an intensity of occupation during the 5th and 6th centuries and consisted of late ARS, Tripolitanian and Phocaean fine wares, North African cooking wares, Pantellerian ware and North African and Eastern amphorae.[559]

[554] The exact location is unclear. Ashby says that the building is located "in Lampedusa […] it is situated in the garden, to the east of the castello" (1911, 11). Presumably this is in the main town, Lampedusa, and close to a castle-like symbol plotted by Ashby on his map of the island (Ashby 1911, pl. 2).
[555] Ashby 1911, 21–22; De Miro and Polito 2012, fig. 1.
[556] Ashby 1911, 20. There have been speculations that these circular buildings might also be the towers referred to by pseudo-Skylax (*Periplus* §93–94 [Fabricius 1878]) and that they could be remains of prehistoric megalithic structures, although there is little evidence to support these conclusions (Ratti 2011).
[557] De Miro and Aleo Nero 1988–1989; De Miro and Polito 2012.
[558] De Miro and Aleo Nero 1988–1989, 549. One of these buildings could be the one described by Ashby (1911, 20).
[559] De Miro and Polito 2012, 267.

A fish-salting factory near Cala Salina showed traces of 2nd-century AD occupation with several transport amphorae and cooking wares produced in Byzacena.[560] This link with southern Tunisia and Tripolitania clearly shows the economic sphere the island was participating in. On the other side of the promontory, a Paleo-Christian hypogeum was also located and partly excavated. An assemblage consisting of 32 Christian lamps manufactured in Byzacena datable to the 5th–6th century, as well other pottery dating to the period has been recently published.[561]

Traces of the extensive fish-salting installation were excavated in 1986 near the modern port of Cala Salina.[562] The complex contained 10 lined quadrangular tanks. This appears to be one of the primary industries on the island, at least for the Roman period, however, the exact extent of the site's chronology remain uncertain as there are traces of Medieval activity within the area.[563] Ancient authors mention that Lampedusa, together with Kerkennah and the coastal regions within the Gulf of Gabes were located within a stretch of sea that experienced tidal phenomena that aided fishing in shallow waters.[564] A small collection of coins believed to have been minted on the island sometime between the 3rd and 2nd centuries BC also attest to a livelihood built around a fishing industry that specialised in tuna as witnessed from the depiction of a tuna fish on the reverse-side of this mint.[565] No evidence has been forthcoming regarding pottery production (remains of kilns or kiln wasters) on the island. Little is known about the extent of agricultural activity in antiquity, but the island's geography limits the potential for any large-scale cultivation of crops. The geography is

[560] De Miro and Aleo Nero 1988–1989, 550; De Miro and Polito 2012, 267.
[561] De Miro and Polito 2012.
[562] De Miro and Aleo Nero 1992; Botte 2009, 88.
[563] Botte 2009, 89.
[564] Strabo, *Geography* 17, 3, 18; Marzano 2013a, 77.
[565] Rossini 2005.

similar to that of the Maltese islands, mainly consisting of bare rock covered with low-lying shrubs, potentially suited for goat and sheep grazing and rearing. Possibly, similar flora to that of Malta and Kerkennah (such as figs and date palms) were cultivated on a small scale and contributed towards a small localised economy for the islanders.

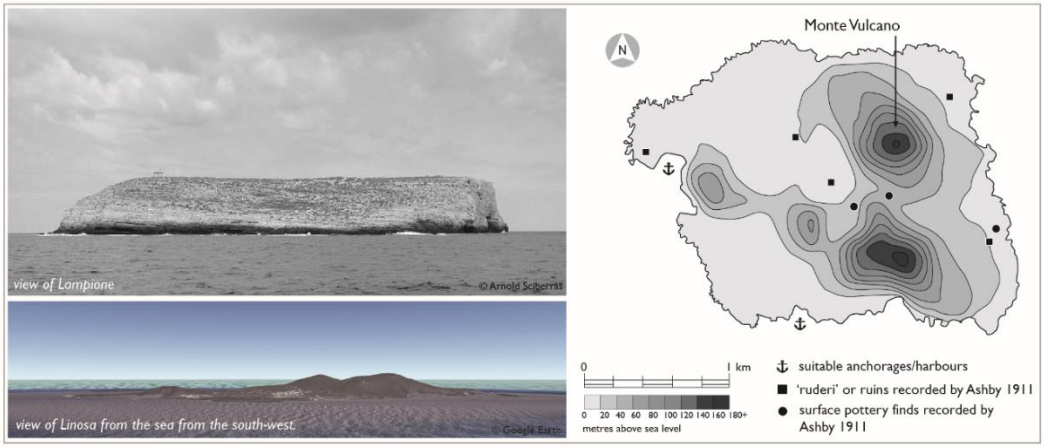


Figure 58: View of Lampione (top-left) and Linosa (bottom-left); and contour map of Linosa (right).

The tiny islet of Lampione, with an area of just 0.04 km^2 is located about 17.5 km west of Lampedusa. The highest point is just 36 m and the only building today is a lighthouse, and the islet is mostly inaccessible, with no decent landing spots (Figure 58). Ashby spent a day exploring the islet and reported the remains of two possible ancient structures, one with "a tessellated pavement composed of irregular cubes of coarse marble".[566] He also identified a possible lined cistern and reported that there was "a considerable quantity of Punic and Roman pottery" strongly suggesting some form of short- or medium-term habitation for a few people.[567] The pottery probably reflects imported food supplies that had to be brought onto the islet for whoever was stationed there. The waters surrounding the islet are quite deep, c. 60 m, and are known to contain rich coral reefs,

[566] Ashby 1911, 30.
[567] Ashby 1911, 30.

sponges and other maritime ecosystems that could have been exploited in antiquity.

Forty-three kilometres north of Lampedusa lies the smaller, volcanic island of Linosa. The island has a total area of about 5.5 km^2 and has three visible volcanic craters; the tallest, Monte Vulcano, reaches 195 m above sea-level (Figure 58). On account of its geology, Linosa, like Pantelleria, possesses fewer sheltered anchorages and natural harbours than Malta and Lampedusa. The island also has fewer beaches, although, a few alcoves located within the indented western and southern coast may have offered some shelter to small boats. The porous volcanic geology is also partly responsible for the lack of freshwater aquifers. Due to this, the island is mostly known because of the 150 or so ancient cisterns, which are, to date, the only known traces of an ancient presence on the small island.[568] Very little archaeological information is available for Linosa, although a recent survey project, conducted by the University of Tübingen, aims to redress this situation. At least one season (2011) has taken place to date but no results have yet been published.[569] Ashby reported finding traces of possible Roman-period walls and traces of building foundations, one of which was associated with "a piece of Samian pottery, and a piece of apparently Roman glass, and was told that much other pottery and a coin had been found, but that the latter had been sold" (Figure 58).[570] The small island probably had a small resident population, probably partly reliant on locally grown food and other imported staples. No traces of any economic industry such as fish salting or pottery production are known, but a possible small

[568] Calcara 1851; Ashby 1911.
[569] See http://www.uni-tuebingen.de/en/20660 for a brief overview of the Linosa Survey Project (accessed on 27/03/2015).
[570] Ashby 1911, 33.

trade in volcanic material to its neighbouring island and fishing may have taken place.

4.3 The Kerkennah Isles

The Kerkennah archipelago (ancient Cercina) lies no more than 10 km from Sfax on mainland central Tunisia and shares a similar geography as the Pelagie and Maltese islands. The archipelago is made up of two islands, Cercina (modern-day Chergui ['East']) and Cercinitis (modern-day Gharbi ['West']) and is characterised by a semi-arid environment (Figure 59). The rate of near-desertification became so severe during the 1980s that hundreds of islanders were driven to relocate to the mainland. Today, much of the island is covered with palm groves and remains an important crop for the local population.

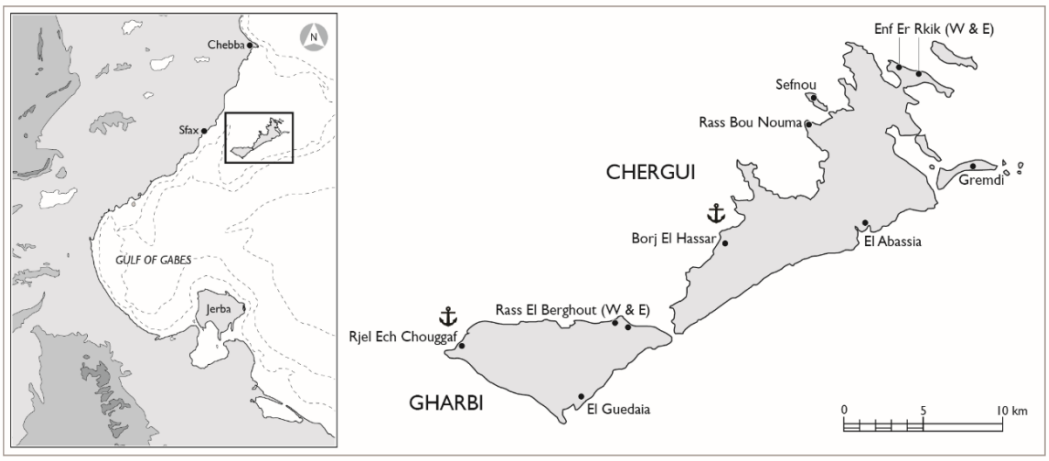


Figure 59: Map of the Gulf of Gabes and the Kerkennah isles.

The islands are repeatedly mentioned in several episodes describing the Second Punic War, in particular the episodes recounting the African proconsul Gnaeus Servilius Geminus' attempt to reach the African mainland. After plundering Meninx (Jerba) he passed through Cercina (ancient Kerkennah) and to prevent the sacking of their island, the local inhabitants paid Gnaeus ten talents of gold before he moved on to the

mainland.[571] In 46 BC the Praetor Sallust, who joined Caesar in his African campaign, was in command of a small fleet and in charge of securing and organising supplies on Kerkennah. The island was not able to generate enough grain itself but was used most probably as a 'supply' island where grain was off-loaded from ships and stored for later distribution amongst Caesar's army.[572] The island is, however, best known for its role as a place of exile for Sempronius Gracchus in punishment for his affair with Julia the Elder. Sempronius Gracchus was banished there under Augustus for 14 years, before being executed there.[573]

The little that we know of the islands' archaeological remains comes from the excavation of a 3rd-century BC Libyco-Punic tomb[574] and the recent survey of Tunisia's coastal areas.[575] Eleven sites were recorded (nos 57–67) that together indicate the islands' long history of occupation from the Phoenician to Late Roman period. The archaeological features and their associated finds are summarised in Table 12. There is evidence for fish-salting from at least three sites (nos 59/60, 61 and 67). One site, Borj el Hasser (no. 61) comprised an entire factory aimed at processing fish products. The other two (Ras el Berghout and Enf er Rkik; nos 59/60 and 67) were found to have isolated fish-salting tanks.[576]

[571] Livy, *The History of Rome* 22, 31; Polybius, *Histories* 3, 96.
[572] *Bellum Africum* 3.8; 34.1; 34.3; Syme 1964, 37.
[573] Tacitus *Annals* 1, 53.
[574] Fantar 1997.
[575] Slim et al. 2004; Bonifay et al. 2002–2003.
[576] Bonifay et al. 2003–2003, fig. 23.

Site	Archaeology	Pottery and other finds
El Guedaia (no. 57)	Small artificial mound with an area of about 120 m^2, and incorporated within a building, was recorded about 100 m from the shore lying upon a natural red loam accumulation and sandstone.	The area surrounding this mound contained a pottery scatter, which included two Punic amphora sherds (Mana C2B/Van de Werff 2).
Rjel Ech Chouggaf (no. 58)	Small artificial mound about 1 km north-east from the Sidi Youssef pier on the extreme west of the islands. The mound has been subject to coastal erosion and traces of a wall structure are visible as well as several fragments of mortar lining adhering to ceramic tile fragments and other forms of artificial aggregate point towards the presence of lined tanks or cisterns.	A diverse range of ceramics were collected from this area that date to the Roman period: ARS types A and D; North African cooking wares (Hayes 181 and 182); and Punic amphorae of type Van der Werff 1.
Rass El Berghout Ouest (no. 59)	Remains of a tank, partly destroyed by sea erosion.	Pre-Roman and Roman fine ware: black-slipped Campanian ware and black-slipped imitations, presumably local or regional; Pompeian Red ware and ARS C.
Rass El Berghout Est (no. 60)	About 500 m south-east of western site (above) there are traces of a small complex dated by the Campanian wares. This site has been cut by a deep ravine, most probably a result of erosion, and thus a clear 2 m-high section is visible across the site.	Campanian pottery
Borj El Hassar (no. 61)	This site is the largest ancient site on the main island and is located within the ancient settlement of *Cercina*. The main structure forms part of the Turkish fort of El H'sar. Closer to the coast, a series of walls and structures, some clearly constructed in *opus africanum*, make up part of an earlier archaeological site and are associated with a series of lined tanks, which have been interpreted as fish-salting vats, and cigar-shaped cisterns.[5] A small sondage excavated by F. Chelbi revealed a pre-Roman structure, possibly a rampart that was covered over with industrial complex showing more traces of lined tanks and cisterns.	A large number of fragments datable from the Punic period (Campanian black-slipped pottery) until the 7th century AD (ARS D Hayes forms 105).
El Abassia (no. 62)	Close to the marshy *sebkha,* a long double-skin wall was found. The 2 metre-wide wall runs extends for about 30 m until a perpendicular return that runs for another 10 m. Remains of a square building are incorporated into the south-eastern corner of this wall and could possibly be the remains of a square watch tower.	

Site	Archaeology	Pottery and other finds
Gremdi (no. 63)	Masonry blocks together with part of an eroded wall, all of which are partially submerged. Chelbi also recorded the existence of two submerged roads that are only visible during low tide. Not far from these roads, an M-shaped structure was also noticed when the tides receded. Today, the remains of this building form part of a fishery close to the port of El Ataya.	Pottery consisting of North African cooking ware (Hayes 183) and North African amphorae such as Africana II and spatheia. Traces of ancient quarrying of the partially submerged coastline.
Rass Bou Nouma (no. 64)	Beneath a natural accumulation of colluvium lies traces of an archaeological site that have largely escaped marine erosion. There are clear traces of an artificial mound revealing parts of lined cisterns, walls and pottery	Finds include of two fragments of Campanian black-slipped ware, south Gaulish sigillata, and a Punic-period bead.
Sefnou (no. 65)	A 3 m-high section is visible in an eroded escarpment on the north-western coast of the archipelago. Within this section, traces of ancient masonry such as wall and lined tanks are visible.	Associated with this site are fragments of ARS A of the 2nd century AD; a North African Keay LXI/LXII amphora dating to the 6th century AD and a fishing-net weight.
Enf Er Rkik Est (no. 66)	Along this part of the coast traces of a wall and at least two well-preserved cisterns have been identified, with a third one about located a further 150 m away.	Fragments of Campanian black-slipped ware and Hellenistic relief bowls, dating to the 2nd century BC, were collected.
Enf Er Rkik Ouest (no. 67)	In this area, beneath 5 m-deep natural sediment accumulation lie the foundations of a possible ancient tower. Very little pottery was found associated here and large parts of the site have been destroyed by recent construction.	North African and Eastern amphora (including a possible Kapitän 2) fragments have been recorded from this site.

Table 12: Summary of surveyed sites (nos 57–67), their archaeology and their finds on the Kerkennah Isles (data from Chelbi 1995, 132–133; Slim et al. 2004, 125–130; Bonifay et al. 2005).

The islands lie in a unique geographic area in the Mediterranean that is characterised by salt marshes and tidal fluxes.[577] The islands are also very low-lying, with an altitude that does not exceed 14 m. In addition, they form part of a wide submerged plateau extending to the Chebba point on the mainland, no deeper than 10 m. When the tide was low, fishermen would flock to the shore to look out for fish trapped in the shallow waters. The central Mediterranean basin is rich in sea fauna, in particular pelagic fish species like tuna. Tidal phenomena are particular to the coast of the Gulf of

[577] Oueslati 1992.

Gabes creating the perfect conditions for fishing using weirs constructed of woven palm to trap shoals of fish (Figure 60).[578]

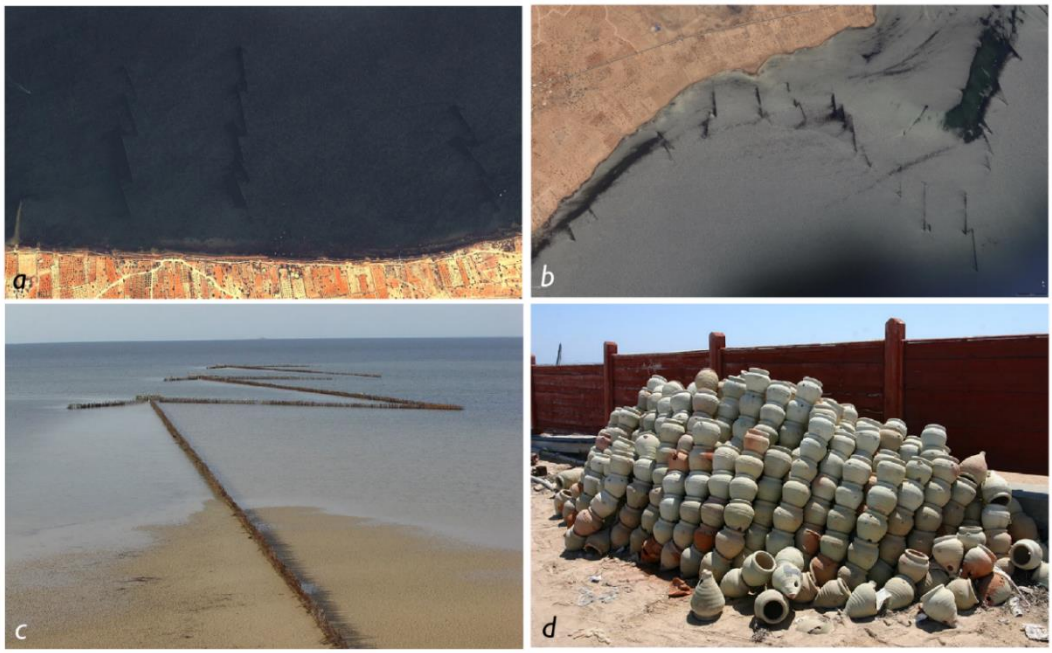


Figure 60: a–b) Aerial view of weirs or charfia traps along the coast of the Kerkennah isles (© Google Earth); c) palm weir extending from the Kerkennah coast; and d) clay pots for octopus fishing (source: Wikipedia - https://commons.wikimedia.org/wiki/File:Gargoulettes.JPG).

This method for trapping fish is still used today in the region and in the Kerkennah islands is known as *charfia* (Figure 60a–c). A somewhat vague reference to this method being used on the island is mentioned by Strabo.[579] This is a common Mediterranean fishing practice which has taken different localised names throughout the region.[580] This environmental advantage, together with shoaling routes, led to the establishment of a high density of fish-salting factories (as opposed to smaller installations) that line the coast of Central Tunisia (Figure 111).[581] Today, octopus fishing is also still widely practised, where clay pots are tied together along a line and left on the sea

[578] Marzano 2013a, 77.
[579] *Geography* 17, 3, 18.
[580] Marzano 2013a, 54.
[581] Slim et al. 2004, 287–289, fig. 184.

bed overnight. The following day each line is hauled up and the pots are inspected for settled octopuses (Figure 60d).[582]

Aside from fishing, another reference made by Herodotus refers to the islands as *Cyraunis* in the 5th century BC describing them as fertile and "full of olives and vines".[583] Unlike today where the islands are characterised by a semi-arid environment, the islands were most probably wetter than they are now and certainly more fertile. Date palm are an integral resource of the islands today and are the primary source of the materials used in the *charfia* fishing technique to construct the weirs needed to trap fish. Aside from their use as materials, surely the fruit that the trees bore was also harvested. Today, large swathes of palm groves are dying as a result of a combination of the salinization of the soils along the coast as well as anthropogenic factors.[584]

4.4 Chapter summary

This short chapter brought together the various ceramic and other evidence available for the other small islands in the central Mediterranean. The quality of the available information varies quite significantly from island to island; however, there is scope for using these data for comparative analyses. The remaining two chapters will bring together the island pottery evidence collected and analysed so far.

[582] Marzano 2013a, 36–37.
[583] Herodotus, *Histories* 4, 195, 1.
[584] Fehri 2011.

Chapter 5



CHAPTER 5: THE BIGGER PICTURE: A NETWORK ANALYSIS OF THE CENTRAL MEDITERRANEAN

In this chapter quantified ceramic data from a series of coastal sites and small islands in the central Mediterranean are used to determine whether any coherent interpretations can be sought through the use of a network analysis (NA) of the pottery. Amphorae, fine and cooking ware assemblages extracted from the sites' assemblages discussed in Chapter 1 will be manipulated in a variety of ways in order to test a number of assumptions often made of quantified ceramic studies, as well as to try and determine whether network analysis has potential as a form of analysis for this type and quality of data. Firstly, a brief overview of the uses, applications and limitations of network analysis in archaeology will be discussed. Secondly, the methodology adopted to build the networks for this study will be presented to explain the use of the data and the problems inherent within them. Lastly, the visual results obtained from a variety of analytical applications will be illustrated and discussed.

5.1 Network analysis: its uses, application and limitations

A network is a group of interconnected people or things. Network analysis software was developed for use in the Social Sciences in order to study social interaction and flows of communication between at least two different *actors* or *nodes*. In recent years this type of analysis has been adapted by archaeologists hoping to visualise and understand complex networks built around connections between different geographical places linked together via a common element. With networks, boundaries that are otherwise pre-defined in GIS applications are removed and it is the links between the nodes that determine the final visual outcome, eliminating some of the constraints endemic to spatial-analysis software and which can

be shown to cross several boundaries.[585] The concept and use of network-based models has always been popular with archaeologists, particularly when studying past social interaction. Social Network Analysis (SNA) offers a potential way for archaeologists to apply methods used by sociologists for studying social interaction within large social groups. However, there are many factors that limit the applicability of SNA in archaeological applications. Firstly, sociologists have access to direct social relationships which, when plotted, create a complete network linking actors together. Archaeologists, on the other hand, do not have this type of information and other forms of data have to be used to recreate these links.[586] Archaeologists, therefore, are "engaged not so much in network analysis as network reconstruction".[587]

There is no denying that the Roman Mediterranean was an unprecedentedly highly connected place. Practically every corner of the Roman empire has shared material culture, whether Italian wine amphorae or African cooking pots, which make it a more complex canvas on which to plot distinct networks and trace the routes of interactions as well as identify particular meaningful structures. One can argue that creating and understanding interaction in pre-Roman cultures and regions was less 'complicated' or less obviously connected, therefore making NA more applicable and more straightforward to apply. Therefore, using SNA has not really been applied to this period primarily because of the misconception that NA is essentially a useful tool for understanding inter-regional interaction that explains culture change. Indeed, NA has been, and is still being, applied to prehistoric cultures or less 'globalised' societies than the Romans are known to have been. In recent years however, a number of

[585] Knappet 2013a, 6.
[586] Knappet 2013a, 7–8.
[587] Knappet 2013a, 8.

network-based analyses have been applied to the Roman period. They are currently best applied to Roman transport costs and way-finding networks, mostly focussing on geo-spatial, and agent-based modelling using data extracted from the Antonine Itineraries,[588] and archaeological evidence of Roman transport infrastructure (such as remains of roads, harbours and urban centres) combined with computed variables for sailing conditions (i.e. the effects of winds, current and visibility) that can calculate time-cost travel routes across the Roman empire.[589] Brughmans' analysis on Eastern fine wares from the ICRATES relational database[590] and Isaksen's network of major Roman ports[591] both use pottery as their primary dataset to create networks. An agent-based network using Roman brick stamps was also created by Graham.[592] Therefore, using quantified ceramic assemblages—material that is so well distributed throughout much of the Roman Mediterranean—should be able to highlight the more subtle connections between already well-connected places.

A potentially important feature of applying network analysis to study the Roman economy within the central Mediterranean region is that one can observe non-geographic aspects of networks, thereby divorcing patterns often seen in Roman-period data from established geographic places that can cloud how some data are interpreted. Such different views of networks (non-spatial and non-geographic) are useful tools for the potential in understanding or at least investigating non-geographic components in something like the Roman exchange of goods in the Mediterranean. It is possible that constantly focusing on the distances between places and meteorological conditions could cloud other equally important political and

[588] Graham 2006a.
[589] Isaksen 2008; Scheidel and Meeks 2012 [ORBIS]; Scheidel 2014.
[590] Brughmans 2010, 284–299.
[591] Isaksen 2013, 55–59.
[592] Graham 2006b.

social factors.[593] Compared to today, the Romans had a different concept of how space should be visualised and rationalised. The best example to illustrate this is the manner in which modern-day maps have predefined criteria that we deem easier to conceptualise space and how we negotiate it. In contrast, for the Romans, "large-scale grographical space was often viewed as a list, of what-comes-next," where the Antonine Itineraries are the most oft cited lists used to understand this Roman view of space.[594] Networks offer an opportunity for us to disentangle the data from modern spatial mapping.[595] Non-spatial networks also provide a means of further testing assumptions about trading relationships that are often put down to proximity from the source. A network is not a means in itself. Representing abstract data in the form of a network is just another potential way of enabling archaeologists to explore different ideas and visually represent them. Isaksen succinctly demonstrates that visualisation at a network level is sometimes necessary to stimulate new ideas and ways of looking at essentially old data. Nevertheless, he makes it clear that new visualisation methods do little to explain the data, but instead act as a trigger for thinking about the same data in different ways which could lead to alternative resources for seeking an explanation.[596] Further explanation derives from explicit descriptions of the data, the questions asked of them and other contextual research and models that contribute towards explaining the visualised network results.[597] Finally, like all other comparative studies, temporal changes within networks are also extremely important to take into

[593] Isaksen 2013, 45.
[594] Graham 2006a, 46.
[595] Graham 2006a, 46.
[596] Isaksen 2013, 55.
[597] Isaksen 2013, 46.

consideration as otherwise the outcome would be somewhat meaningless.[598]

5.2 Methodology

A network is made up of a series of nodes (vertices) connected via lines that represent a known link between at least two or more nodes. Nodes are an essential component in any network. A link between two nodes creates a visible relationship between the two nodes and the more links between nodes, the more "connected" are the two nodes (Figure 62). In this study the nodes represent a selection of small islands and port/coastal cities located in the central Mediterranean basin (Figure 61).

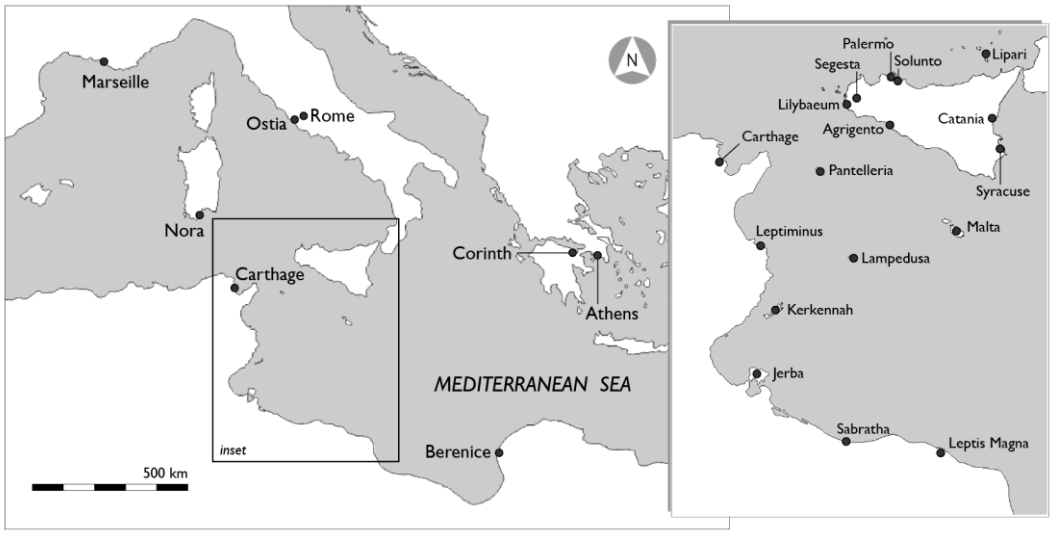


Figure 61: Location map indicating the sites chosen for study (source: author).

The decision of which islands and cities to include, however, depended on more factors than their geographical positioning. As discussed earlier, a primary aim of this analysis is to determine whether it is possible to measure interaction and connectivity between small islands within the central Mediterranean using quantified pottery as the primary proxy. Ultimately, this meant that the choice of nodes depended on the availability of complete quantified and published ceramic assemblages. Basic counting

[598] Isaksen 2013, 46–47.

and weighing of pottery assemblages has become commonplace in practically every archaeological investigation nowadays, and has been on most major Mediterranean excavations since at least the 1970s.[599] However, many sites remain unexcavated, do not have any of their pottery studies published, or worse still, have no published counts of the major types and ware groups making it very difficult to observe any economic trends from the pottery.

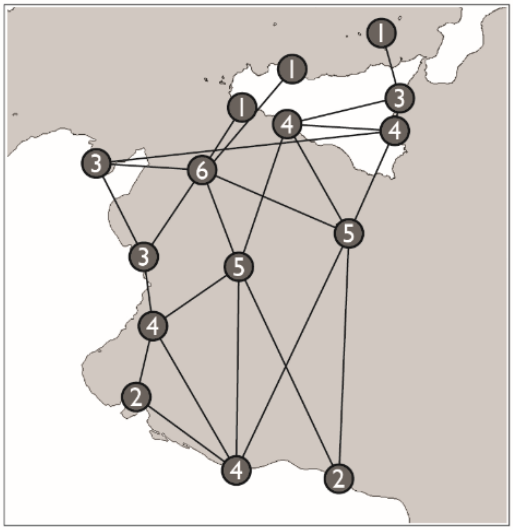


Figure 62: Nodes (circles) connected to other nodes via common links (lines). The numbers represent the total number of links a node has (source: author).

Two primary factors determined the choice of nodes for this study. The first was identifying sites which fell within my region of study. The second, and the more problematic of the two, was to identify good quantified ceramic material from these chosen sites. The central Mediterranean islands of Malta, Gozo, Pantelleria, Lampedusa and Kerkennah were key sites. Coastal cities along the Tunisian and Libyan coast as well as Sicily were also essential. This selection process, together with the issues that arose from this particular sample region (the central Mediterranean), and accompanying assemblages compounded the already tricky balance archaeologists have to deal with when trying to balance out parameters of

[599] See Section 1.5.

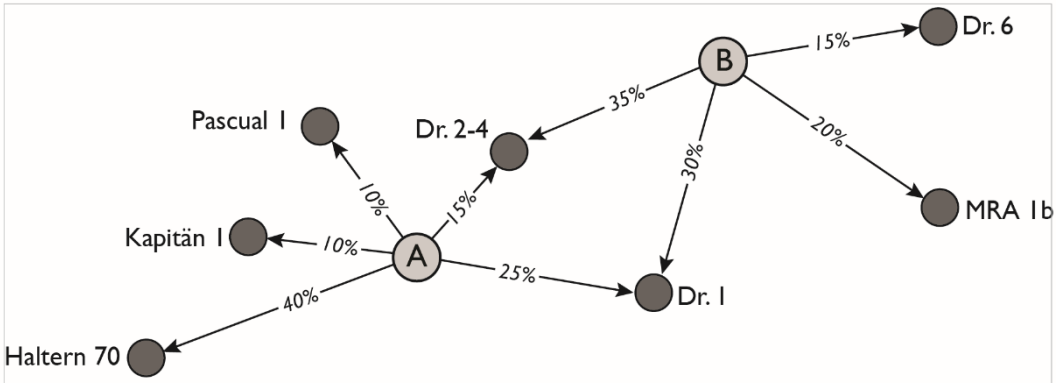
study versus the quality of the evidence available to work with within the chosen region. The quandary soon resembles a chicken-and-egg situation whereby one has to decide on how to proceed with a research aim: does one choose an area of study first and base an argument on whatever evidence is available? Or does one choose the best available evidence and base the area of study depending on that evidence?

Several other major centres or known Roman-period port-cities such as Berenice, Marseille and Ostia were also included so that wider Mediterranean connections could be identified and that the small Mediterranean islands could be viewed within a wider regional context. The former group of sites was determined because of their geographical position, whilst the latter were chosen primarily because of the quality or availability of published quantified ceramic data. One of the biggest problems encountered through this analysis was defining my network parameters; where does one stop? The more inclusive and complete the sample of sites, the better and more reliable the network. This would, however, have meant including too many sites that would have essentially overshadowed the central Mediterranean small islands which are the primary scope of this study.

Pottery is a useful connection proxy because a high percentage of pottery forms are now well classified to the point where most of the common forms can be easily extracted from excavation reports across the Mediterranean. This is particularly true for amphorae and fine wares, and increasingly cooking wares.[600] What is more, many of these forms can now be sourced

[600] Other than excavation reports, handbooks and guides that provide succinct details with images of common amphora forms have become common and have been very helpful in standardising terminology and easing comparisons of forms when new assemblages are published. For examples, Peacock and Williams 1986, and Sciallano and Sibella 1991 on amphorae and, more recently, the Southampton amphora database, which

quite accurately to a particular site or region. Through this ability to source particular pottery forms, one is able to identify with some certainty a connection or link between the production site, hence origin or starting point of a form, and the end point or location of where the form ended up; this is determined by the types identified in a mixed ceramic assemblage at a given site. There is no way however, of knowing whether these pottery links are direct (they travelled from point A to B) or indirect (they travelled from A to B via C and D). Within these networks a link between two nodes is represented by the *assemblage node* (the location of the assemblage being studied; possibly also a 'consumer' node) and the *type node* representing a type or group of pots found within that assemblage (Figure 63).



Nodes	Dr. 2-4	Dr. 1	Kapitan 1	Pascual 1	Haltern 70	MRA 1b	Dr. 6
Site A	15%	25%	10%	10%	40%	-	-
Site B	35%	30%	-	-	-	20%	15%

Figure 63: Example of how amphora types and their relative proportions can be used in a network analysis graph (source: author).

In order to be able to perform some meaningful analyses each link was assigned a unique weight or value that reflected the percentage of that particular type group in the total assemblage. Thus relative proportions of each divided assemblage would determine how strong or weak the 'connection' between the *assemblage node* and *type node* is. Simply put, this translates as what percentage of an assemblage from a particular coastal city

offers an online catalogue of Roman amphora forms with images, details, fabric images and detailed references (see Keay and Williams 2005).

is coming from where. This is not a new concept, and the primary reason pottery assemblages are divided and each sherd within a class is counted is because of the usefulness of using pottery as a means of assessing various trends that represent the movement of goods within the Roman empire, and which can potentially be measured.[601]

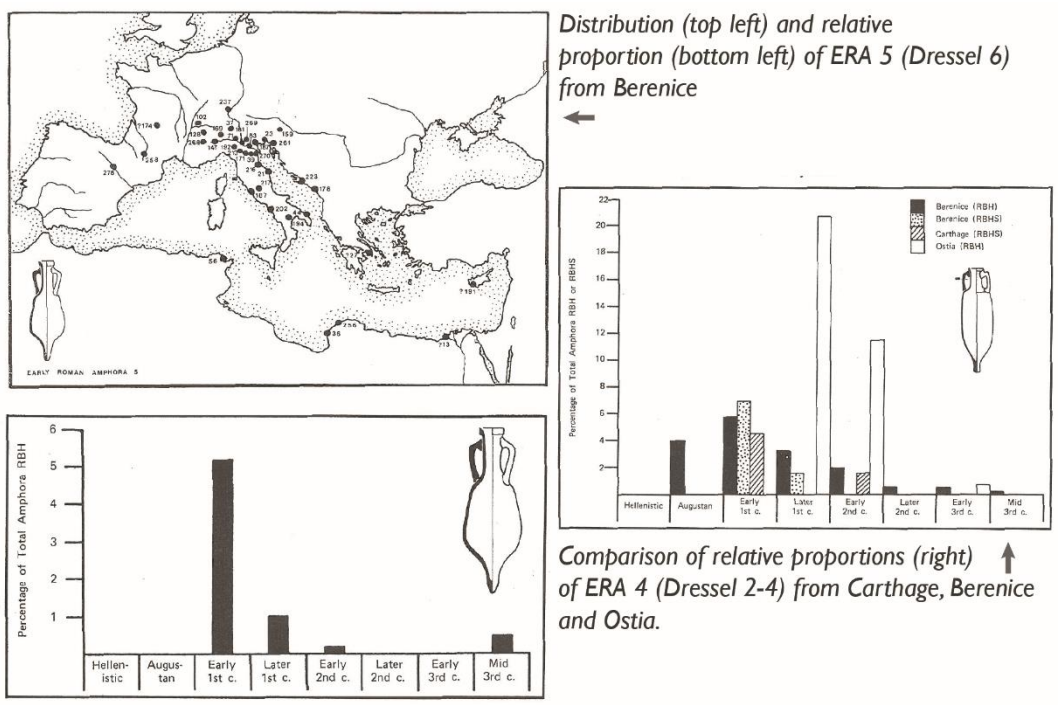


Figure 64: Distribution map of one amphora type (top left); the relative proportion of that form over time at Berenice (bottom left); and a bar-chart (right) comparing the relative proportion of one amphora form across three different sites (after Riley 1979, figs 16–18).

The fundamental use of network analysis is the network graphs that are created. These automatically generated visuals are alternative representations of organising complex data that could otherwise be lost through the use of more conventional methods. In network analysis "the most important principle states that the distance between vertices should express the strength or number of their ties as closely as possible […], a drawing should position vertices according to their ties: vertices that are connected should be drawn closer together than vertices that are not related. A good drawing minimises the variation in the length of lines. In

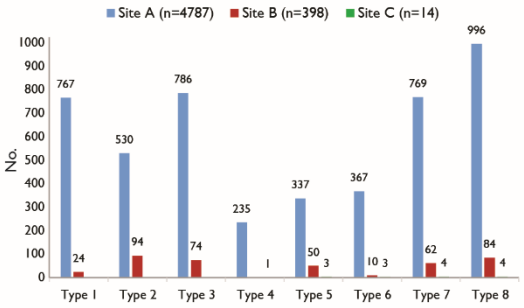
601 A. Wilson 2009, 230–244.

the case of lines with unequal values, line length should be proportional to line value".[602] This degree of attention to subtle variables can be very difficult and potentially more biased when attempted manually and certain nuances in the data can be overlooked if using a series of conventional bar-charts to illustrate multiple-site comparison (Figure 64). Network graphs have the potential to take a complex dataset out of the context of our pre-defined ideas such as physical distance and sailing conditions, which although very important to take into consideration, can also prevent us from looking at alternative connections. This does not mean that other methods are inferior, just that visual network graphs could add a further dimension to analyses.

Absolute values

the number of sherds within a site

Site	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Total
A	767	530	786	235	337	367	769	996	**4787**
B	24	94	74	0	50	10	62	84	**398**
C	0	0	0	1	3	3	4	4	**14**



Proportional values

the relative proportion of those sherds across several sites

Site	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Total
A	16	11	16	5	7	8	16	21	**100**
B	6	24	19	0	13	2	15	21	**100**
C	0	0	0	5	22	19	26	27	**100**

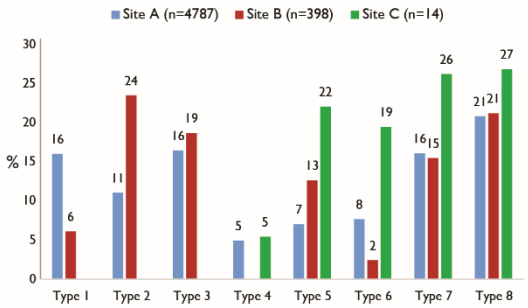


Figure 65: The (visual) difference between using absolute values (top) and proportional values (%). The former is better suited for different types of pottery within the same assemblage; whilst the latter is better suited for multi-site comparison of the forms.

Methods used to compare quantified data across different sites can be represented in a number of ways, but the general methods are tabulated sherd numbers of a type within an assemblage (Figure 65 top). As a general rule, this basic type of quantification is best used to understand trends of

[602] Nooy, Mrvar and Batagelj 2005, 14.

different classes within ones site's assemblage. When other site data are included to allow comparison of the same classes across different sites, the relative proportion of each class is calculated as a percentage of the total (Figure 65 bottom). This method is widely used and remains one of the most straightforward means of illustrating comparative fluctuations of different pottery classes (see above).

In theory, network analysis could be a useful means of visualising multi-site comparison between assemblages. However, in practice, this proved to be near-impossible, almost entirely because one cannot extract this comparative information from the ceramic assemblages. There are too many variables involved which can differ significantly. One of the most obvious, as well as frustrating, factors is the large discrepancy in assemblage sample size; how does one even attempt to reconcile one or a few sherds against a thousand? Proportional differences within groups are what are traditionally used to compare ceramic assemblages from different sites. However, when assemblage sizes vary quite significantly the proportions can be inflated depending on the total number of fragments within the assemblage; the smaller the total number of sherds making up and assemblage, the greater the proportion of a type will be.

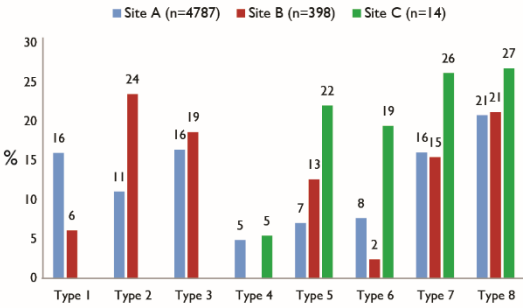
The opposite is then true for larger and more varied assemblages despite there being more sherds in total. In order to attempt equalising this large discrepancy one may try and calculate an expected value of each proportion within an assemblage. This statistical technique normalises the highly inflated relative proportions by representing proportions as a percentage of the mean within that group, and makes these values as statistically significant as the data allow. The expected value is derived by multiplying the number of sherds within a category (t) and the number of classified groups or types identified (g), then dividing this figure by the total number

of sherds that make up the assemblage (*n*). This normalisation of relative proportions potentially allows largely varying datasets to be compared as the adjusted values can now be viewed on a more similar scale (Figure 66).

Proportional values

the relative proportion of those sherds across several sites

Site	Type	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Total
A	16	11	16	5	7	8	16	21	**100**
B	6	24	19	0	13	2	15	21	**100**
C	0	0	0	5	22	19	26	27	**100**



Expected values

A statistically significant fraction of the mean of sherds within an assemblage

Site	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8
A	1.28	0.89	1.31	0.39	0.56	0.61	1.29	1.67
B	0.43	1.65	1.31	0	0.88	0.17	1.08	1.48
C	0	0	0	0.22	0.88	0.78	1.05	1.07

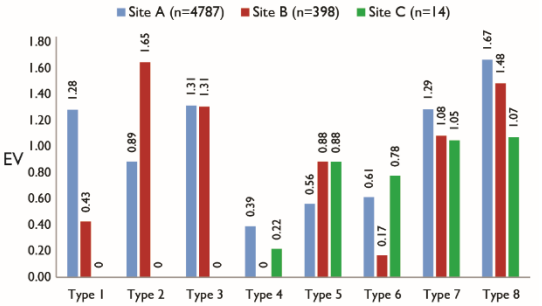


Figure 66: The difference between proportional values (top) and expected values (bottom).

The final calculations are still very much based on the original number of the sherds within the assemblage, but there are less obvious and unlikely peaks evident from the smaller assemblages. The expected value ensures that the final figure is a value that indicates how much it deviates from the mean within a group. Figure 66 illustrates how the recalculated expected values for three grouped assemblages differ from the more traditional means of comparing proportional values; the values of the types for Site C are normalised in order to ensure they are not over-represented because of the few sherds (n=14) recorded. Figure 67 and Figure 68 show the differences between eastern and western-based amphorae sources for the chosen sites. The differences shown with a comparison of the weighted values are evident for small assemblages like Lampedusa and Kerkennah where one or two sherds can make a category proportionally similar to a

much larger and more diverse assemblage like Leptis Magna where there are a greater number and diversity of sherds within the assemblage.

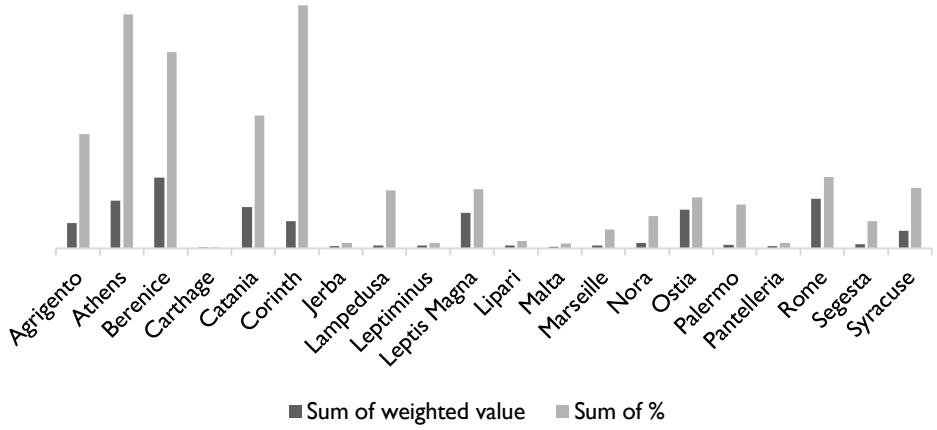


Figure 67: Relative proportion (light grey) and weighted value (dark grey) of eastern-sourced amphorae at the sites.

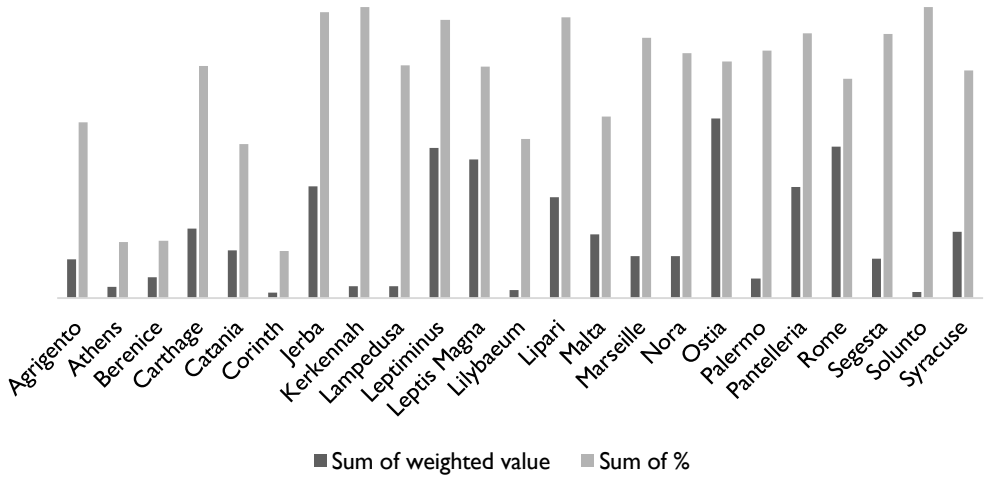


Figure 68: Relative proportion (light grey) and weighted value (dark grey) of western-sourced amphorae at the sites.

5.2.1 Using Pajek's NA software

The Pajek Network Analysis computer program was used to create the network graphs used in this study.[603] Only the most basic applications were

[603] The graphs illustrated throughout this chapter were created using the free Pajek software package found online at: http://vlado.fmf.uni-lj.si/pub/networks/pajek/. For a

utilised here in order to maintain simplicity because my main interest in this software was primarily related to generating alternative visual means of illustrating multi-site and multi-type distributions. Therefore, the full potential of the software was far from exploited.

Each graph was prepared by inputting raw tabular data prepared in an Excel spreadsheet.[604] The graphs followed the 2-mode affiliation method, where two sets of different nodes represent different variables: one represents sites and the other pottery types.[605] Sites are connected to each other via shared common links of pottery type nodes. Each link was then given a value derived from the statistical mean calculated for each quantified pottery type discussed above.[606] These values determine the 'pull' and 'push' of the lines linking nodes, which are meant to visually represent the degree of connectivity or interaction between the nodes. The primary benefit of an automatically generated network is that the program can calculate the optimal layout. The Fruchterman Reingold 2D function—an inbuilt energy command that determines the graph's layout—was used to automatically compute the position of the various nodes in relation to each other based on the weight of the links that connect them.[607] Since a final network layout depends on the position of the starting node (a fixed point relative to the rest of the nodes), the final layout should not be a result of just one energy command, but rather repeated several times. Running the layout command helps to determine the stability of a network. By repeating the command, it becomes clear that the relative position of different nodes remains more or less consistant. The layout for the final network graphs

detailed manual on how to create files and use the software, as well as run various applications on the data, see Nooy, Mrvar and Batagelj 2005.

[604] The ceramic type data used are presented in tabular format in Appendix VI.

[605] Nooy, Mrvar and Batagelj 2005, 103–104.

[606] See Section 5.2.

[607] Nooy, Mrvar and Batagelj 2005, 16–17.

featured in this chapter was based on at least 20 energy runs each in order to ensure that the relative positions of the nodes were stable and not random.

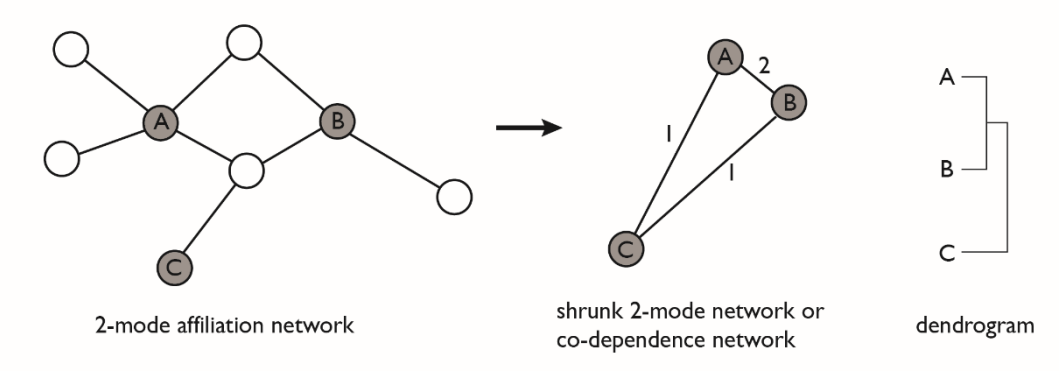


Figure 69: Simple examples of the applications used to manipulate the 2-mode network graphs (source: author).

Two simple applications were utilised to work and experiment with the data. The data were arranged to form a 2-mode affiliation network, where sites and pottery types each represented a partition or separate node groups (Figure 69). This formed the basic starting network for both the applications used. To determine how the site nodes related to each other, and which shared the most common links, the 2-mode network was shrunk into a 1-mode network or co-dependence network, which only comprises one set of nodes. In the graphs used here these selected nodes represent the sites connected together by a number of links representing shared pottery types; these links were generated once the pottery type nodes were removed from the graph, the greater the number of shared types, the closer and more 'connected' the sites nodes are (Figure 69).

Using the partitioned data visualised in the shrunk co-dependence network, the second application was made to create a dendrogram. The dendrogram ranks the sites in order of increasing dissimilarity depending on how each site node relates to each other based on how many common links they share; the greater the number of links, the greater the similarity. The fewer shared links between nodes, the more dissimilar in relative

position they are, and are thus represented further apart from each other on a dendrogram (Figure 69). For the purpose of this research, the dendrogram was included to show a possible alternative visual element to the decreasingly range of inter-site connectivity between particular sites.

5.3 Visual results and observable trends

The data collected have their flaws; these have been explained, and attempts at rationalising them have been made in Section 1.5. The ceramic data were prepared and the Pajek network analysis software was used to generate the simple node networks based on graph theory (see Section 5.2.1). It is certain that not all of these data have previously been compared together as one group or within one study. Some of the questions that are asked of this analysis are:

1) Is the quality and range of the data good enough for comparative analyses?
2) Are there any trends or patterns visible in the graphs that are a result of biased research, flawed design or non-archaeological-related causes?
3) Does an analysis of this form generate new ways of looking at 'old' data?
4) Does this form of analysis create different/similar readings of the data when compared to earlier work that uses the same or similar data?

This last section will be divided into four parts. The first three will each tackle a different group of ceramic data; amphorae, fine wares and cooking wares. Within each part various graphs illustrating various types and formats of quantified data pertaining to each ware group will be described, attempted and explored. The fourth part will bring together the various

results obtained from the analyses and discuss them in the light of recent models and studies. Throughout this section, attention is paid to seeking answers to the questions asked, and/or potentially asking further questions.

5.3.1 Amphorae

Amphorae are often used as the primary proxy for tracing economic movement and interaction, especially for the Roman-period Mediterranean. This is not the first attempt at using data of this sort to identify, as well as interpret, patterns of major movement of goods across the various regions. Important factors such as the diachronic distribution of amphorae have been instrumental in highlighting some of the major trends that explain the high mobility of goods throughout the Roman period.[608] However, a network analysis of the same data could potentially induce further discussion on the subject and explore whether the quality of the data allows for similar results when analysed through a different medium.

The amphorae data have been taken from the published excavation reports and studies listed and discussed earlier (Section 1.5.1). Straight away, several problems inherent in the published data were noticed. These relate to the chronology of the site's excavation or research, and how amphorae can be temporally grouped; and insufficient sample sizes, which make it empirically difficult, if not impossible, to compare assemblages together. As discussed previously, in order to try and overcome the problem of highly inflated values for small assemblages, the expected values for each group within an assemblage were calculated and used as the line value in the networks (see Section 5.2).

The manner in which the amphora data have been divided is based on the following process: firstly, the material within each assemblage was divided

[608] Riley 1979; Fulford 1989; Rice 2012.

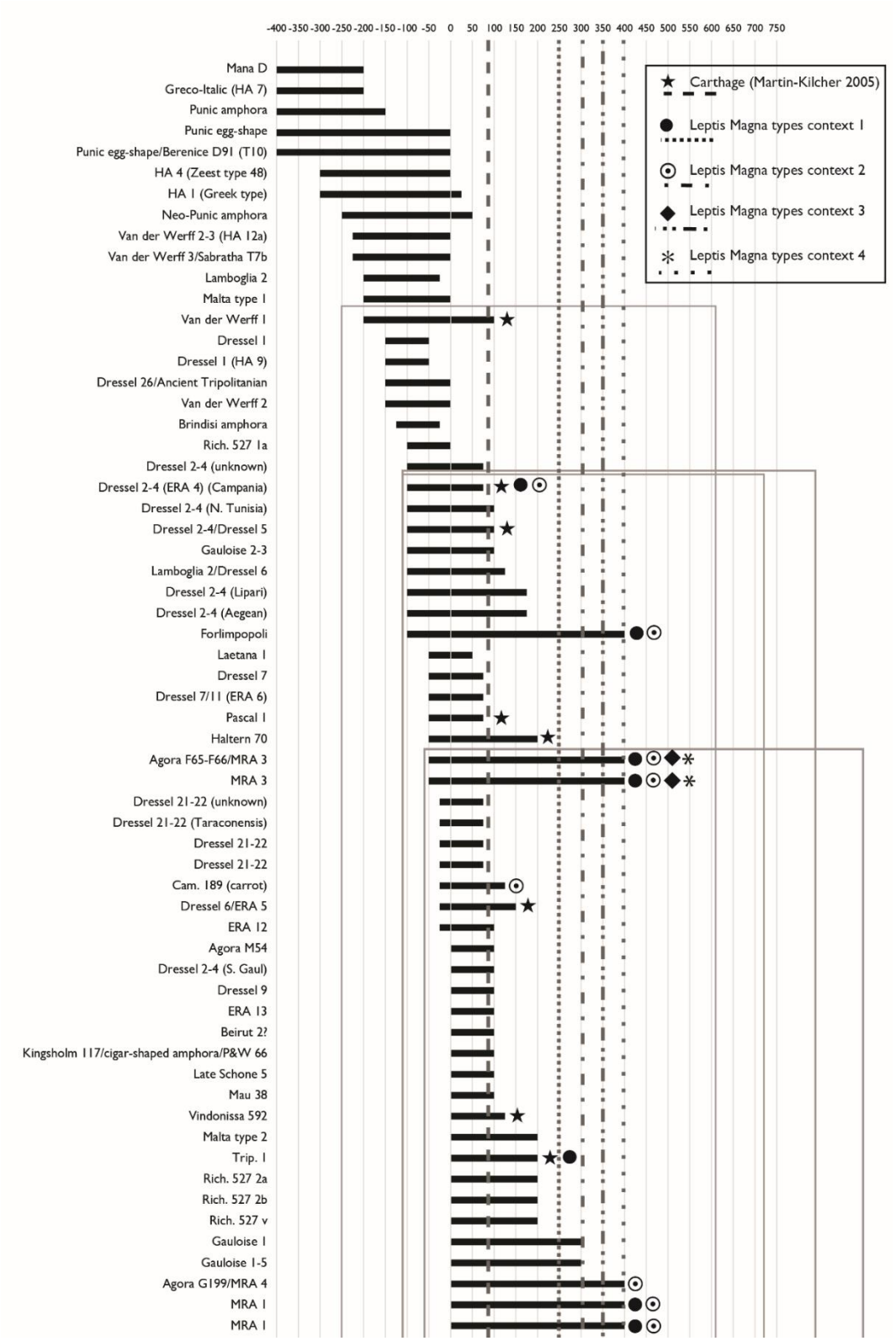
and listed according to amphora type (i.e. Dressel 1, Dressel 2-4, Africana IA etc.) together with any information relating to the type's source-origin (i.e. North Tunisia, Lipari, Tripolitania etc.). Amphorae were exported because of their contents and it is possible that the large variety in shape and form of these containers might have acted as a 'brand name' for the contents the amphorae carried.[609] Therefore, careful attention to the distribution of types of amphorae can indicate where particular products were going. A network analysis of amphora types also has the further potential of highlighting which product was imported and from which region that product originated. Many comparative studies tend to focus on the volume of amphorae based on regional sources (i.e. North Africa, Italy, Aegean etc.), which can be too general, especially for a study such as this.

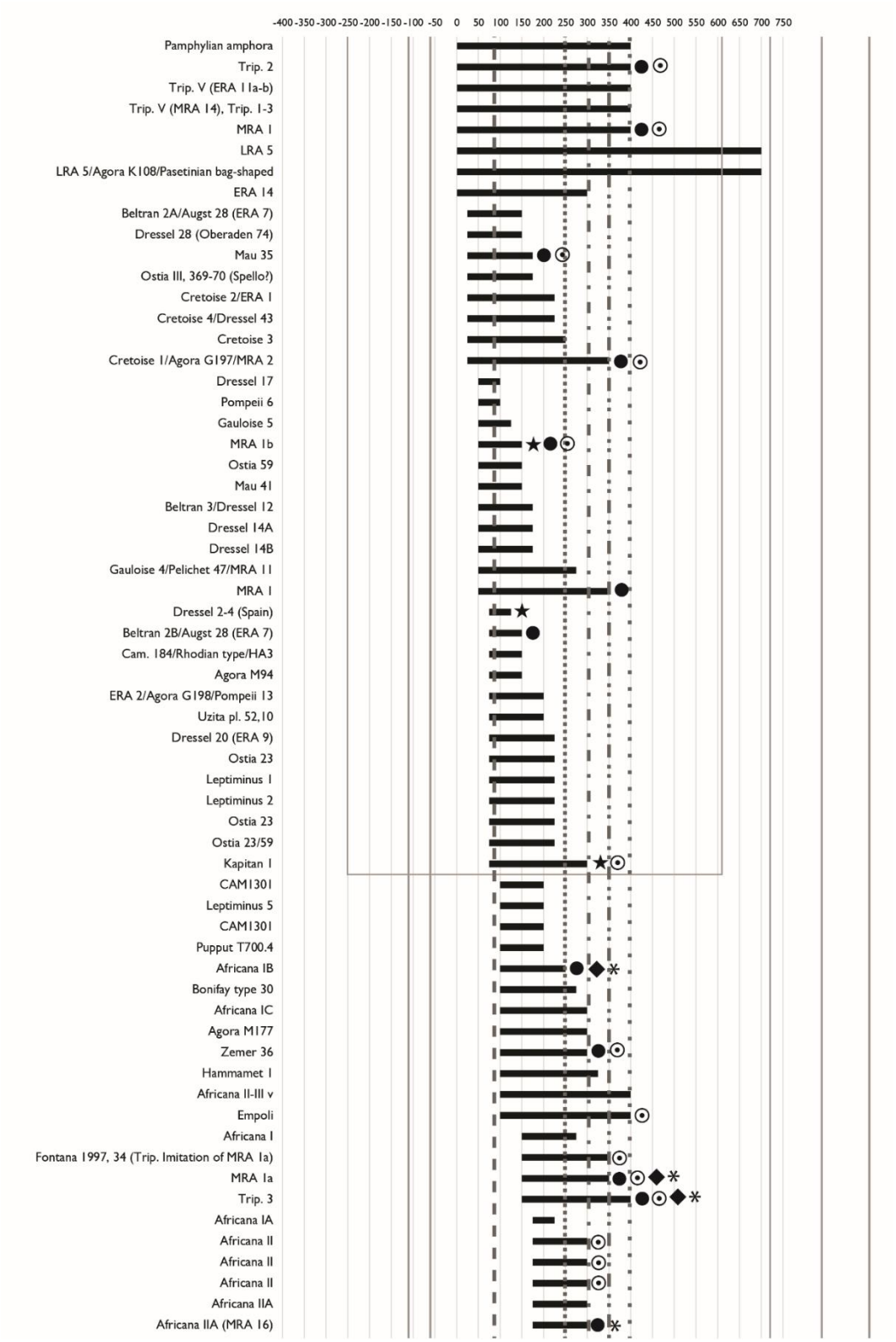
As much as possible, when vessels were classified under alternative form names, the most commonly used one was adopted and every effort was made to ensure that there was no confusion between different type-labels for the same amphora forms. Next, broad dates that are assigned to known Roman-period amphora forms were added to each separate form. The dates were taken from the recently updated Southampton University Amphora Database as this reliable source includes the broadest dates known for these common types found throughout the Roman world.[610] As some amphora types were produced over several centuries and it was difficult to decide on where to 'draw the line' for each period a list of the amphora types present within the various assemblages was used to create a chronological Gantt chart (Figure 70). Implementing a diachronic approach in the amphora networks was deemed an important facet of this exercise, however because

[609] Twede 2002, 189–190. Alternatively, the imitation of amphorae is also thought to be a way that producers 'deceived' the buyers into purchasing a product that was itself an inferior imitation of the 'original' and better-known product; see Tchernia 1980, 309; Franco 2014, 333–334.

[610] Keay and Williams 2005 [2014]; accessed on 24th November 2014.

of the nature and quality of the ceramic assemblages, this proved to be more problematic than originally thought.




-400 -350 -300 -250 -200 -150 -100 -50 0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750
Pamphylian amphora
Trip. 2
Trip. V (ERA 11a-b)
Trip. V (MRA 14), Trip. 1-3
MRA 1
LRA 5
LRA 5/Agora K108/Pasetinian bag-shaped
ERA 14
Beltran 2A/Augst 28 (ERA 7)
Dressel 28 (Oberaden 74)
Mau 35
Ostia III, 369-70 (Spello?)
Cretoise 2/ERA 1
Cretoise 4/Dressel 43
Cretoise 3
Cretoise 1/Agora G197/MRA 2
Dressel 17
Pompeii 6
Gauloise 5
MRA 1b
Ostia 59
Mau 41
Beltran 3/Dressel 12
Dressel 14A
Dressel 14B
Gauloise 4/Pelichet 47/MRA 11
MRA 1
Dressel 2-4 (Spain)
Beltran 2B/Augst 28 (ERA 7)
Cam. 184/Rhodian type/HA3
Agora M94
ERA 2/Agora G198/Pompeii 13
Uzita pl. 52,10
Dressel 20 (ERA 9)
Ostia 23
Leptiminus 1
Leptiminus 2
Ostia 23
Ostia 23/59
Kapitan 1
CAM1301
Leptiminus 5
CAM1301
Pupput T700.4
Africana 1B
Bonifay type 30
Africana 1C
Agora M177
Zemer 36
Hammamet 1
Africana II-III v
Empoli
Africana 1
Fontana 1997, 34 (Trip. Imitation of MRA 1a)
MRA 1a
Trip. 3
Africana IA
Africana II
Africana II
Africana II
Africana IIA
Africana IIA (MRA 16)

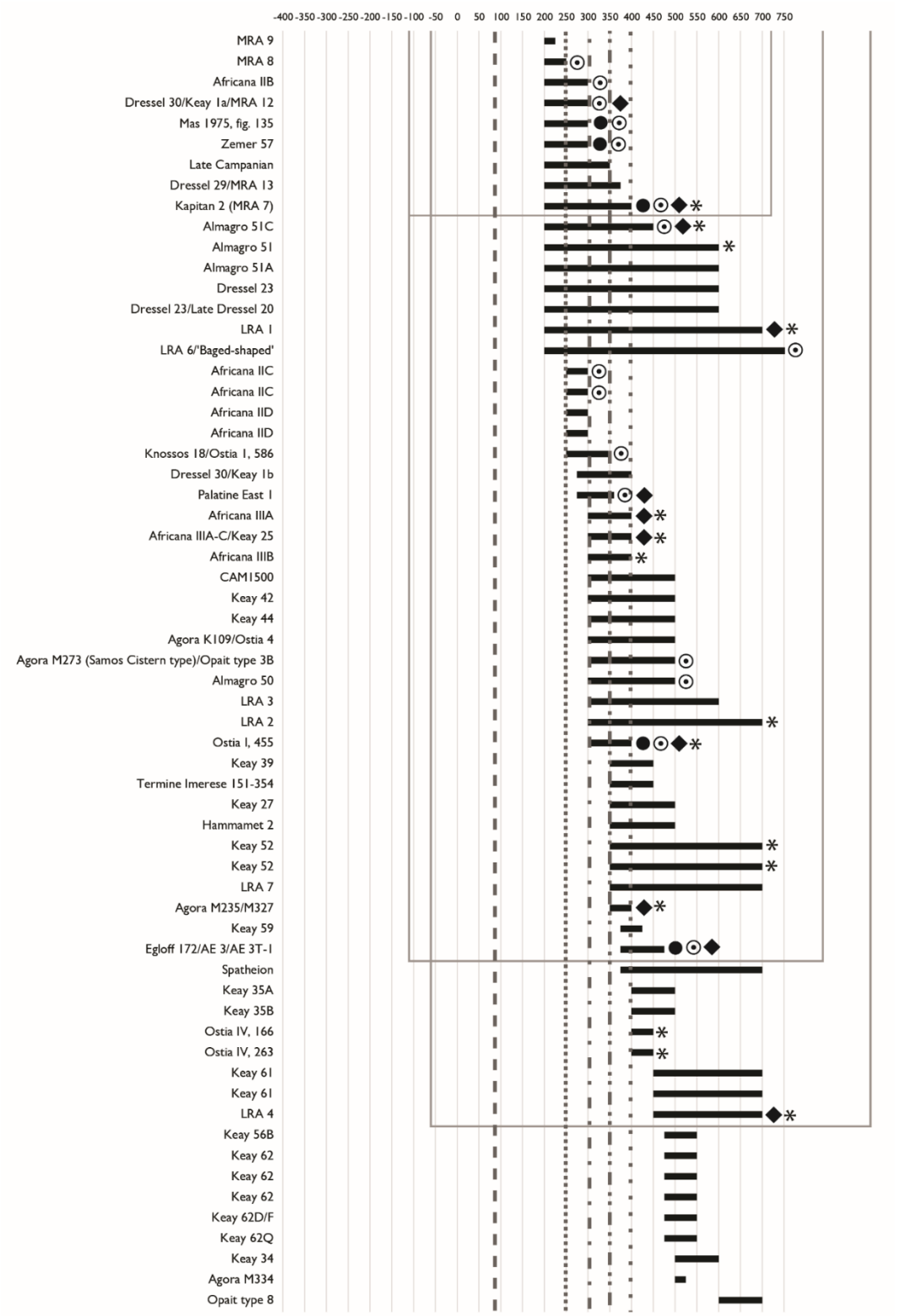


Figure 70: Gantt chart showing the dates assigned to amphora types used in the network analyses. The symbols mark the presence of a specific amphora type within each of the contexts selected; the associated dashed lines mark the approximate chronology for each particular context; and the rectangular boxes are meant to highlight the deceptive nature of 'fixed' amphora type chronologies.

Firstly, when the Gantt chart experiment was applied, it becomes clear that when trying to create groups of amphorae based on their chronology, there

exists a lot of overlap, and in some cases continuity, making it difficult to create neat groups of contemporary amphora types that can be used in network graphs. Networks need absolute categories in order for any coherent patterns to be observed. Therefore, how does one create an arbitrary group of roughly contemporary types? Figure 70 illustrates just this difficulty; the traditional dates established for each type—mostly dependent on datable contexts from around the Mediterranean[611]—are represented in this Gantt chart to give an indication of the start and terminal dates for each type. They are ordered by the earliest start and end date and the chart is intended to demonstrate the high instance of contemporaneous overlap. To demonstrate the arbitrary nature of chronological groupings, the types of amphorae from five closed contexts[612] were selected and each type's presence was marked on the Gantt chart using a key (Figure 70). This showed that despite the assumption that amphora types can be grouped chronologically, there are some forms that co-exist with others and that can also be traditionally dated to a much later period. For instance, the Kapitän 1 amphora has been found in both a mid- to late 1st-century AD context in Carthage as well as a late 3rd-/early 4th-century context in Leptis Magna.[613] Thus, pigeonholing types based on chronology can be misleading.

A second exercise was conducted where arbitrary groups were created using a sliding scale of time in which a form's date had to fit between a certain fixed series of dates (Table 13). Types that had chronologies that were very long, thus covering several centuries, were eliminated. By using

[611] Fulford also commented on this problem (1987, 62).
[612] These closed contexts come from a 1st century-AD deposit Carthage (Martin-Kilcher 1999, 403; 2005) and four contexts from Leptis Magna, which date to AD 250–260, AD 290–310, AD 350–360, and AD 400 respectively (Bonifay et al. 2013).
[613] Martin-Kilcher 2005; Bonifay et al. 2013.

a sliding scale, the types which have long or vague chronologies were weeded out.

Period	*Amphora periodization (see Figure 72)*	*Date range*
Hellenistic period	Period 1 (Late Punic/Hellenistic/Late Republican)	300 BC to 1 BC
Early Roman period	Period 2 (Late Republican/Early Imperial)	100 BC to AD 100
Mid-Roman period	Period 3 (Early/Mid-Imperial)	AD 25 to 200
	Period 4 (Mid-Imperial)	AD 125 to 300
	Period 5 (Mid-/Late Imperial)	AD 225 to 500
Late Roman period	Period 6 (Late Imperial/Byzantine)	AD 450 to 700

Table 13: Arbitrary chronological periods used to divide the amphorae types within this study.

It was immediately noticed that forms present in the context-based groups were different from the arbitrary date-based groups. Important and commonly shared amphora types were omitted because of their long chronologies thus potentially skewing the picture in favour of potentially less successful forms (with shorter chronologies). For example, the MRA 1a Sicilian wine amphora that was successfully traded throughout the central and southern Mediterranean (as well as much of the rest of the Roman Mediterranean) was automatically omitted from any of the chronological periods charted in Table 13 because the general form has such a long existence. Although forms do develop and evolve, general and over-arching 'closed' classification systems do inhibit how we collectively use amphora data. Conversely, the opposite of this—classifying the same form several times depending on obvious morphological changes over time—is true and hampers qualitative research into production and trade of a successful and long-lived form. Opaiţ demonstrated the effects this had on studying the evolution of a single form that has been variously classified as Dressel 24, MRA 18 and LRA 2.[614]

[614] Opaiţ 2007.

Finding dates for some types of amphorae proved difficult and when these were uncertain or unknown they were omitted. Similar problems were identified for unknown or miscellaneous types of amphorae. This information, however, was not discarded before their overall value as a relative proportion within each assemblage was calculated. An additional problem was that for some of the excavated sites, the amphorae were from closed contexts, thus residual and/or intrusive amphorae types were useful here in order to identify earlier- or later-dated amphorae at the site. The disadvantage of this, however, is that statistically the number of fragments of that type are not sufficient to gauge trends at that one site. This was found to be a common problem throughout, especially because of the varying nature of excavation assemblages and those collected through field-survey or through a survey of museum collection and published sources.

Primary node	Site type	Assemblage types*	Date**	Reference/s
1. Carthage	Port city (circular harbour); regional capital	AM, FW	ER, MR	Peacock 1994; Martin-Kilcher 2005.
2. Leptis Magna	Port city	AM, FW, KW	ER, MR	Reynolds 1997; Bonifay *et al.* 2013.
3. Pantelleria	Island; *emporium*?; survey and excavation	AM, FW	PR, ER, MR, LR	Bechtold 2013; Almonte 2013.
4. Jerba	Production area; coastal city; survey and excavation	AM, FW, KW	PR, ER, MR, LR	Fontana 2009.
5. Sabratha	Coastal city	AM, FW, KW	PR, ER, MR, LR	Keay 1989, 67–70; Dore 1989, 87–248; Fulford and Tomber 1994.
6. Leptiminus	Port city; production area; survey and excavation	AM, FW, KW	PR, ER, MR, LR	Dore 2011; Carr 2011.
7. Marseille	Port city; excavation (DY 09 and *secteur de l'épave*)	AM, FW, KW	MR, LR	Bonifay, Carre and Rigoir 1998.

Primary node	Site type	Assemblage types*	Date**	Reference/s
8. Malta	Archipelago (Malta and Gozo); production site (FRM08); urban domestic (RBT84); rural site (BLB12)	AM, FW, KW	ER, MR	See Chapter 3 and Appendices I–II.
9. Rome	Capital	AM	MR	Rizzo 2013.
10. Ostia	Port city for Rome; excavation	AM, FW, KW	MR	Rizzo 2013; Martin 2006; Anselmino et al. 1986; Coletti 1996; 1998.
11. Berenice	Coastal city excavation	AM, FW, KW	PR, ER, MR, LR	Riley 1979; Kenrick 1994.
12. Nora	Forum excavation	AM, FW, KW		Bonetto, Falezza and Ghiotto 2009; Franceschi 2009.
13. Catania	Port city; regional capital	AM, FW		Malfitana *et al.* 2013.
14. Segesta	Urban centre	AM,FW		Malfitana *et al.* 2013.
15. Lipari	Island; port; *emporium*?	AM, FW		Malfitana *et al.* 2013.
16. Syracuse	Port city	AM, FW		Malfitana *et al.* 2013.
17. Lampedusa	Island; garum production	AM, FW, KW	MR	De Miro and Polito 2012.
18. Kerkennah	Island; garum production	AM, FW, KW		Bonifay *et al.* 2002–2003.
19. Agrigento	Coastal city	AM, FW		Malfitana *et al.* 2013.
20. Lilybaeum	Coastal city	AM, FW		Malfitana *et al.* 2013.
21. Palermo	Coastal city	AM, FW		Malfitana *et al.* 2013.
22. Corinth	Port city; *emporium*	AM, FW		Slane 1990.
23. Athens	Urban centre	AM, FW		Robinson 1959.
*AM (Amphorae), FW (Fine wares), KW (Cooking wares) **PR (Pre-Roman), ER (Early Roman), MR (Mid-Roman), LR (Late Roman)				

Table 14: List of primary nodes (sites) used in this study.

Due to this, some sites do not feature within a network illustrating a particular period (for instance, no period-1 amphorae were identified in the literature for Lampedusa, therefore the Lampedusa site-node could not be added to the network representing Period 1, but there are some data for later periods when it could be added). Others are greatly under-represented because the assemblage context did not fall within the chronological

parameters of the arbitrary periods chosen (Table 13). Context and site information for each of the assemblages used for this study are summarised in Table 14.

5.3.1.1 Closed context assemblage or type data?

Closed contexts on an excavation—particularly ones with a sizeable sample of imported and diagnostic pottery associated with datable artefacts like coins—are probably one of the most important, and desirable, discoveries for any archaeologist. However, any 'closed context' is but a narrow time-slice in the past that makes it difficult to reconcile other, sometimes more varied assemblages that belong to slightly different past time-slices. In order to illustrate these networks, a series of graphs were created using the same general data but organised in different ways. One series of graphs will be generated using amphora types selected from a single closed well context (*pozzo 3*) located in the western insula of Cardo XIII of the Roman Colonia Iulia Karthago, excavated by the German Archaeological Institute.[615] The fill contained material that was dated by S. Martin-Kilcher to the 1st century AD.[616] The amphora types recorded from this one context will be representative of a 1st-century AD context for this network experiment, where the occurrence of these forms from other sites will be selected and the proportions of these forms will be used to generate a network (see below). This will then be compared with networks making use of the same general data but that has been divided based on the arbitrary chronological periods listed in Table 13.

[615] Martin-Kilcher 1999, 403, Abb. 1; 2005, 202.
[616] Martin-Kilcher 1999, 404.

5.3.1.2 Carthage context-based type grouping

This network (Figure 71) is a basic, simple 2-mode affiliation graph showing sites (black) connected by common shared amphora types (grey); the line values are based on the expected value of the chosen forms within the respective assemblages. The energy mode (illustrated graph layout) was run several times using the Fruchterman Reingold 2D function in order to determine the stability of the network.

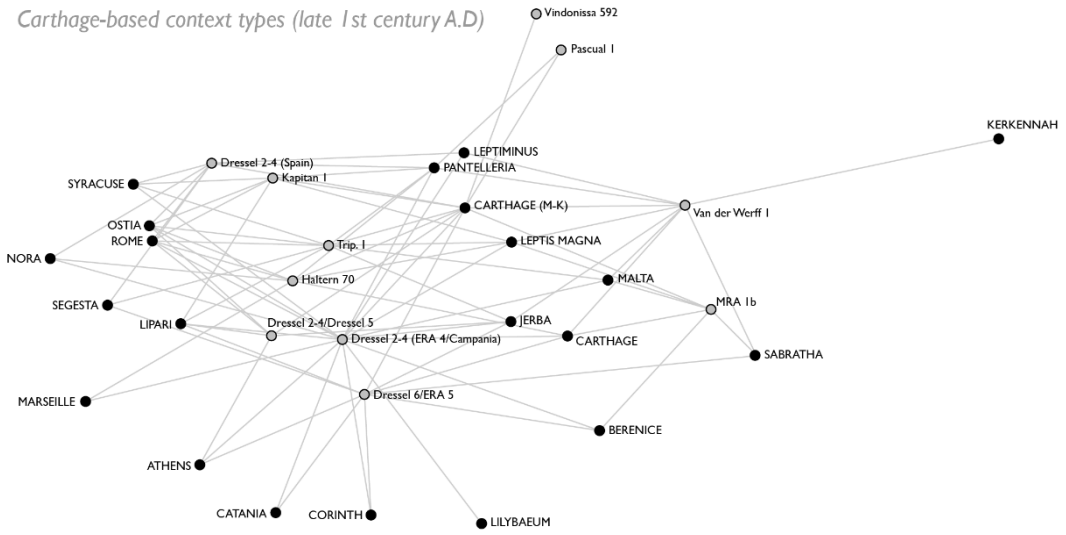


Figure 71: 2-mode network graph using amphora types based on a late 1st-century AD context from Carthage.

Eighteen sites (black nodes) contained a type that was included in the Carthage well context ('Carthage M-K' node).[617] The quantified assemblage from the British excavations of the Circular Harbour ('Carthage' node), also at Carthage, was also included within this assemblage to determine whether there are general similarities between the two somewhat contemporaneous assemblages. After several Energy runs, the graph appears to remain relatively stable. There are no obvious clusters of nodes visible on the graph, however, the general placement of certain nodes does point towards some patterns that may be insightful. Firstly, the two

[617] This particular assemblage from Carthage is labelled as 'Carthage (M-K)' in all the network graphs in this chapter. The other 'Carthage' node represents the pottery assemblage from the circular harbour in the network graphs presented in this chapter.

Carthage assemblages are not positioned next to each other as would automatically be expected of contemporaneous assemblages, although they are not markedly dissimilar. Hovering close to the Carthage (M-K) node are Pantelleria, Leptis Magna and Leptiminus. Jerba, which lies close to Malta, is slightly further away, however, their proximity to each other does suggest a commonality of types that is shared between the two sites. This is interesting considering that links between the two places is clearly seen with the Maltese ceramics recently discovered at Ghizéne, Jerba, in the late 3rd to mid-2nd century BC.[618] The traditionally eastern-oriented sites such as Corinth, Athens and Berenice loosely form a cohesive group some distance from the central Mediterranean sites noted above. Marseille and Nora are also relatively close to each other.

The clear outlier site nodes are Kerkennah and Lilybaeum. This is solely explained by the fact that there are so few sherds within the data that represent them. Predictably the nodes representing Rome and Ostia are also close together and reflect both their geographical proximity and the fact that both assemblages were classified using the same systematic classification methods and by the same person/team.[619]

Of interest is the grouping of particular types of amphora forms which lean towards particular 'consumer' nodes. Within the centre of the disparate group of site nodes (black) the most common forms that can be found across all these sites belong to three Italian wine amphorae (Dressel 2-4's from Campania and Spain, and Dressel 6). As no Lamboglia 2 amphorae were identified in the Carthage context, none of the others were included. Although Lamboglia 2 amphorae are supposedly very common, very few fragments were recorded within most of the sites. The Spanish Haltern 70

[618] See Section 3.8; Ben Tahar 2014, 90.
[619] Rizzo 2013.

amphora is also very central and is one of the main forms shared by the central Mediterranean nodes and northern and western Mediterranean sites like Marseille and Nora. Lastly, the Tripolitanian 1 amphora is the only North African form that links the central Mediterranean nodes to Sicilian sites and Rome and Ostia. Eastern forms, which include the Kapitän 1 and the Koan Dressel 5 wine amphora, are positioned in an area close to eastern Sicilian nodes, Athens and Rome and Ostia. Despite a markedly divided south-central Mediterranean zone and Sicilian zone, the only amphora form produced in eastern Sicily, the MRA 1b wine amphora, has only been recorded in the former group with none being listed in any of the Sicilian sites. This is clearly an anomaly caused by the organisation and classification of the Sicilian material.

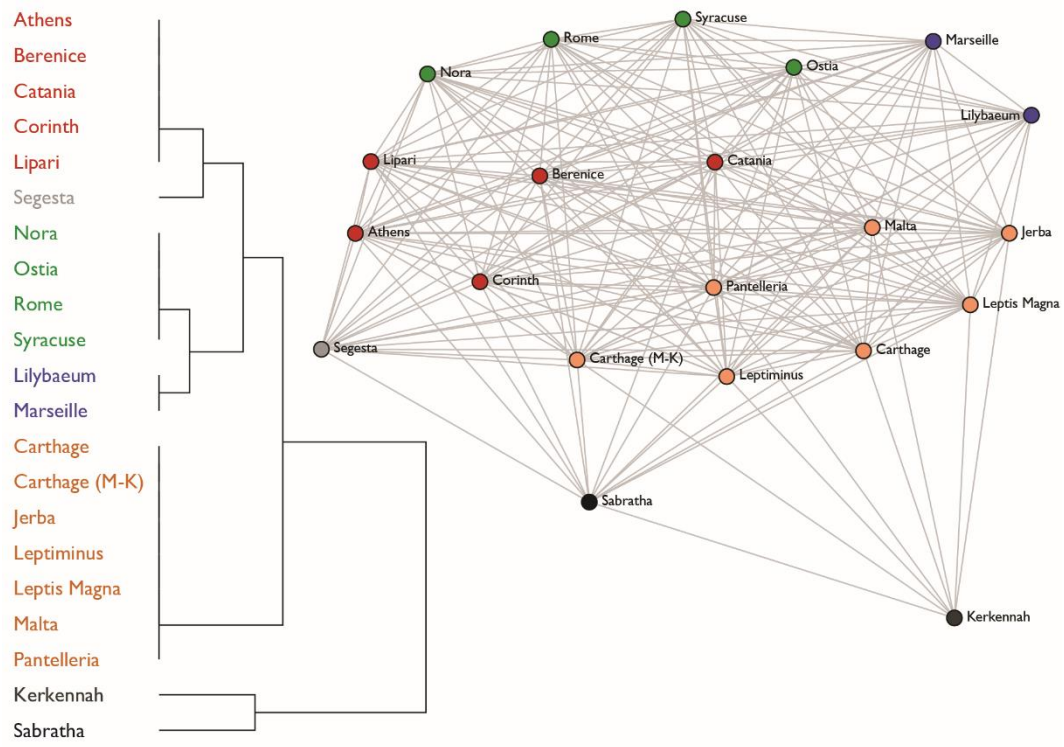


Figure 72: Dendrogram (left) and co-dependence network (right) for Carthage-based amphora network.

The significance of the dendrogram and co-dependence graph illustrated in Figure 72 lies in the ranked dissimilarity between site nodes based on the number of shared links between another. For instance, the Kerkennah node

shares links with seven other sites because all these nodes were in turn all connected to the Van der Werff 1 amphora node. The greater the number of shared forms, the more similar the sites. Thus, Figure 72 shows that the similarity between common types as represented by the different coloured nodes; each coloured group illustrated a slightly different range of common forms. Interestingly, the orange-coloured nodes consist of mainly south-central Mediterranean cities in North Africa and the small islands, whilst the red, green and blue nodes represent different groups of predominantly Sicilian and north-central Mediterranean nodes. Objectively, this network suggests that towards the end of the 1st century AD at least three 'spheres' of amphora-borne product-compositions were being imported and circulated within a particular region (Figure 73).

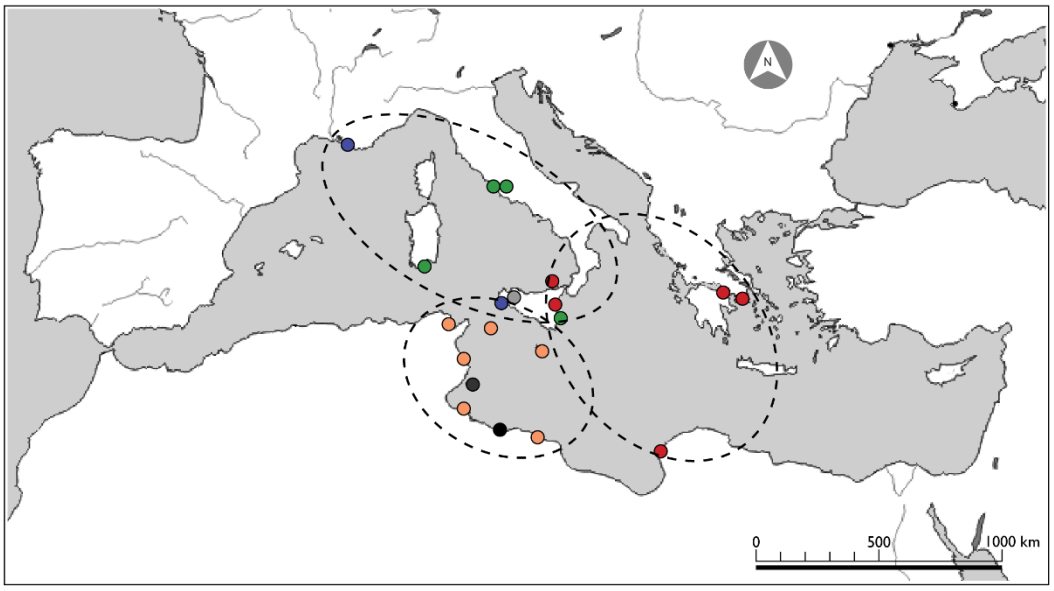


Figure 73: Map of the Mediterranean with the colour-coded nodes from the dendrogram in Figure 72. The dotted elipses indicate possible zones where particular ranges of mixed goods were regionally circulated.

Each 'sphere' would encompass a range of amphora-borne goods, which were the most commonly imported and circulated products favoured by the region. For instance, the coast of North Africa and the small islands share a particular range of goods (yellow dots), whilst the eastern cities, Corinth and Athens share a range of circulated goods with Berenice,

Catania and Lipari (red dots). One can also possibly argue that the network reflects geographic reality to a certain extent. The grey and black nodes represent the most 'dissimilar' assemblages—Kerkennah, Sabratha and Segesta—, where shared amphora types are at their lowest.

5.3.1.3 Arbitrary chronological amphora groups

The following section is an attempt at building a series of networks that illustrate shared amphora types between the chosen sites across several time scales. As was described above, this exercise is based on arbitrary chronological groups based on fixed time scales that spans one or two centuries. Amphorae with wide chronological ranges are omitted unless their date fell within the periods defined in Table 13 (Figure 74). Context-based dates assigned to types, such as that explored in the previous section, are ignored in order to determine whether the two methods of choosing reflect commonalities or significant difference in the ultimate interpretation of the resultant networks.

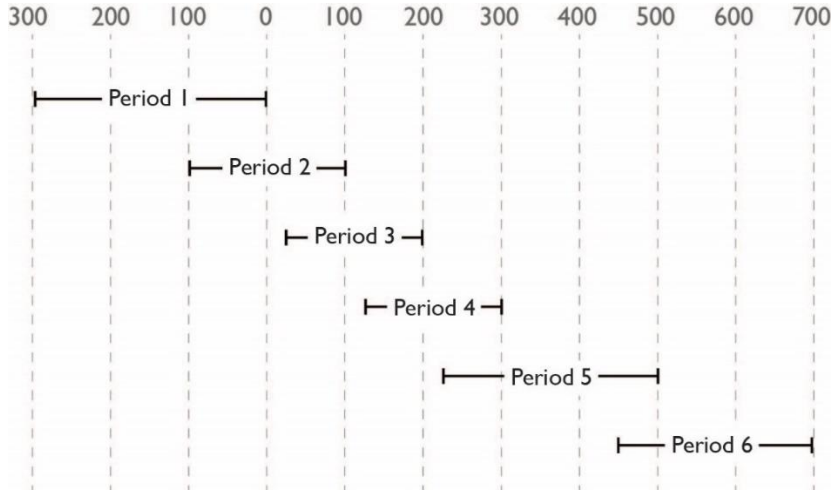


Figure 74: Sliding-scale of arbitrary chronological periods.

Period 2: Early Roman period (100 BC–AD 100)

This network graph includes amphora types that have a chronology that falls between the beginning of the 1st century BC and end of the 1st century AD; a very important period in the development of the Roman empire in

the Mediterranean. The methodology adopted to determine the chronological parameters is that of a strict time span (100 BC–AD 100). Amphora types that had an extended chronology were excluded. The line values are based on weighted values calculated for each type within an assemblage (see above).

An immediate observation for the network graph in Figure 75a is one of disorganisation and lack of discernible groups giving the impression that some amphora types do well to connect most of the site nodes without too much fragmentation and branching out of tightly knit groups.



Figure 75: 2-mode network graph for Period-2 amphorae (100 BC–AD 100); a) weighted links; b) visually weighted links.

A quick assessment of the graph reveals a few observations. Firstly, it is clear that practically all the site nodes (black) circle a few key amphora types (grey) that connect them. The Campanian Dressel 2-4 wine amphora is clearly the form that is shared by nearly all the sites and is clearly illustrated by its central position within a halo of black site nodes. The same network graph is illustrated in Figure 75b although the links connecting the nodes together reflect the line weights. The thicker and darker the line, the heavier the weighted value representing the proportion of the connecting type recovered from the original site assemblage. The Campanian Dressel 2-4 is shown to be the most numerous amphora type for this period for a number of sites (for instance that of Jerba, Leptiminus, Pantelleria and Catania). The dark and thick links attached to Segesta and Lipari are a result of the connecting type being a product of that particular area represented by the node; the Richborough 527 1a amphora produced on Lipari and a Dressel 21-22 type produced in the area of Segesta.

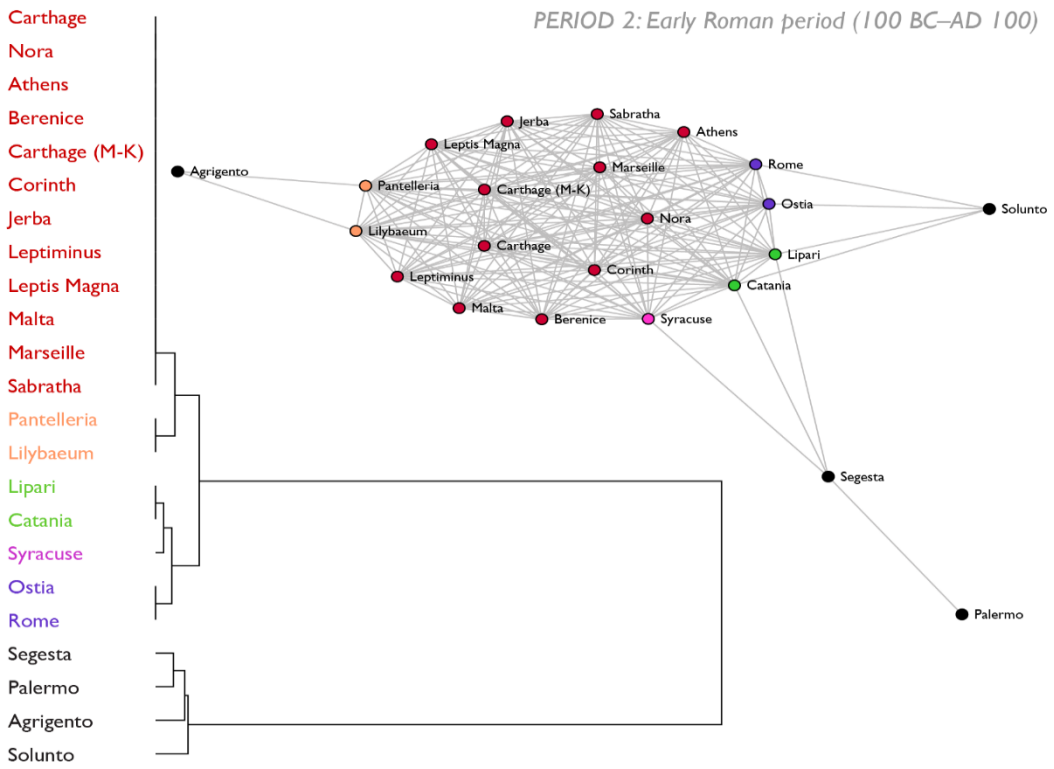


Figure 76: Co-dependence graph (left) and associated dendrogram (right) of Period-2 amphorae (100 BC–AD 100).

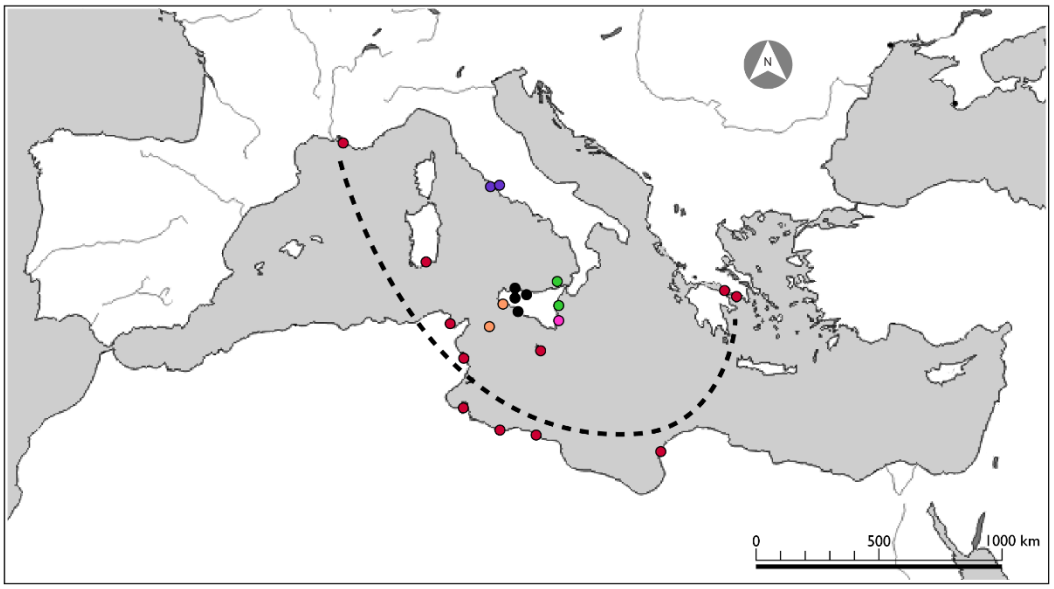


Figure 77: Map overlaid with the colour-coded nodes from the co-dependence graph in Figure 76. The dotted arc roughly represents the shared common-type coverage across the region.

Pairs of site nodes such as Malta and Berenice, Rome and Ostia, and Segesta and Palermo share at least one or more common forms thus bringing the nodes closer together. Ostia and Rome have the highest incidence of shared forms (common links) and these are illustrated by the fanning-out of types shown to the right of Figure 75a.

Agrigento, Palermo, Segesta and Solunto are the most peripheral nodes within this network because they are connected to types which are not themselves well-connected to other site nodes. This is illustrated more clearly in Figure 76 where the network graph shows the co-dependence of sites against shared types. The accompanying dendrogram shows the increasing dissimilarity between each of the site nodes and the major difference is contingent on whether the site nodes share a link with the Campanian Dressel 2-4 type or not (Figure 77).

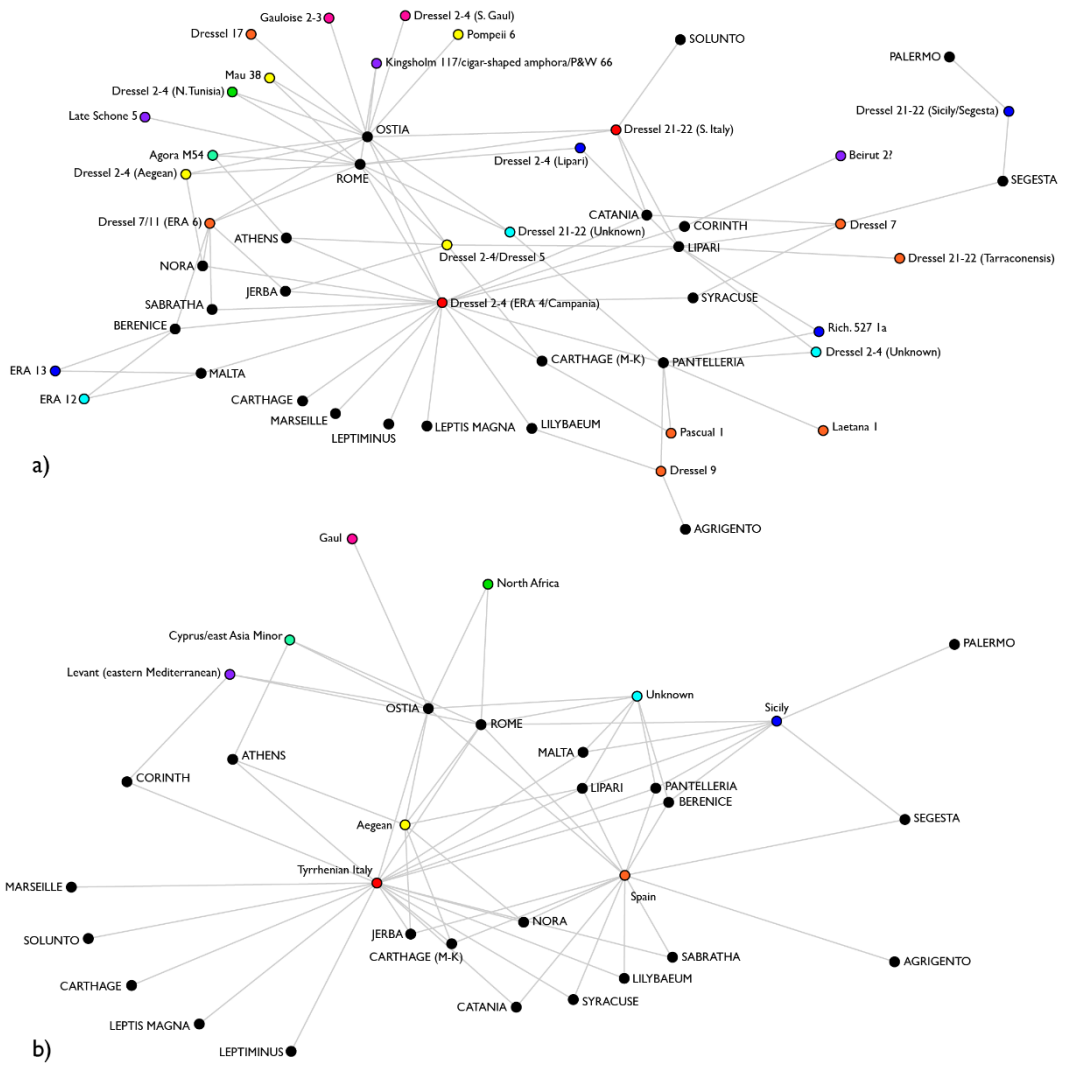


Figure 78: Regional-based clustering of Period-2 amphorae (100 BC–AD 100) representing; a) type nodes coloured according to regional source; and b) shrunk network indicating the links to regions.

A major problem with this network is that large sites (Carthage, Leptis Magna, Leptiminus and Marseille etc.) are presented as if they have very few amphorae. There are types which they should in theory be connected to but are not because they are either not represented in that particular assemblage or the assemblage which is being used to represent that site does not cover this period chronologically so that amphora types that are here representing the site are actually residual, hence their infrequency.

In Figure 78 the same amphora data are divided into regional groups based on the type's source provenance, for example the Pascual 1, Dressel 9 and Laetana 1 amphorae—all from Spanish sources—are represented as one

node representing the arbitrary geographic region of Spain. Italian, Spanish and Aegean-sourced amphora-borne products are clearly the most commonly shared types amongst the site nodes. Interestingly, for this period, eastern-sourced amphorae are only shared by Athens and Corinth and Rome and Ostia. Not surprisingly, Ostia and Rome contain the most regionally diverse sources of amphora-borne products. That Carthage has no link to any North African amphora is a result of the data, where no specific North African amphora types were classified when the quantification of the assemblage was done. North African amphorae for this period would generally be restricted to a close regional distribution but are certainly present at the sites of Pantelleria, Malta, all of the North African nodes and mostly western Sicilian nodes in forms as late Van der Werff 1 and 3s and similar variants.

Period 3: Mid-Roman period (AD 25–200)

The network graph representing period 3 (AD 25 to 200) shows a less centralised common amphora type unlike the central position of the Campanian Dressel 2-4 type in Figure 75a (Figure 79). Instead, the period-3 network has a greater range of diversity within assemblages. Of particular note are the nodes representing Jerba, Ostia and Rome which are clustered together indicating that they share a high degree of common forms than any other node. The weighted links illustrated in Figure 79b reveals the density of types occurring within the assemblages. For the three central sites, the locally produced Jerban amphora, Mau 35, is clearly quite a central product of Jerba that has its strongest presence in the empire's capital. Malta and Leptis Magna are located relatively close together on account of two shared forms although the links that draw them together are not that strong.



Figure 79: 2-mode network graph for Period-3 amphorae (AD 25–200); a) weighted links; b) visually weighted links.

Compared with Period 2, the network illustrating the co-presence of forms between sites for Period 3 indicates a higher degree of diversity than that demonstrated in Period 2 (Figure 80). A lesser range of sites share a handful of key amphora types; instead it appears that a greater range, and possibly choice, of amphora-borne products was available on the market. The contrasting visual results obtained when looking at the clustering of Jerba, Ostia and Rome, and the following dendrogram remain to be understood.

Whatever the case, the dendrogram also reflects the high degree of dissimilarity between all the site nodes.

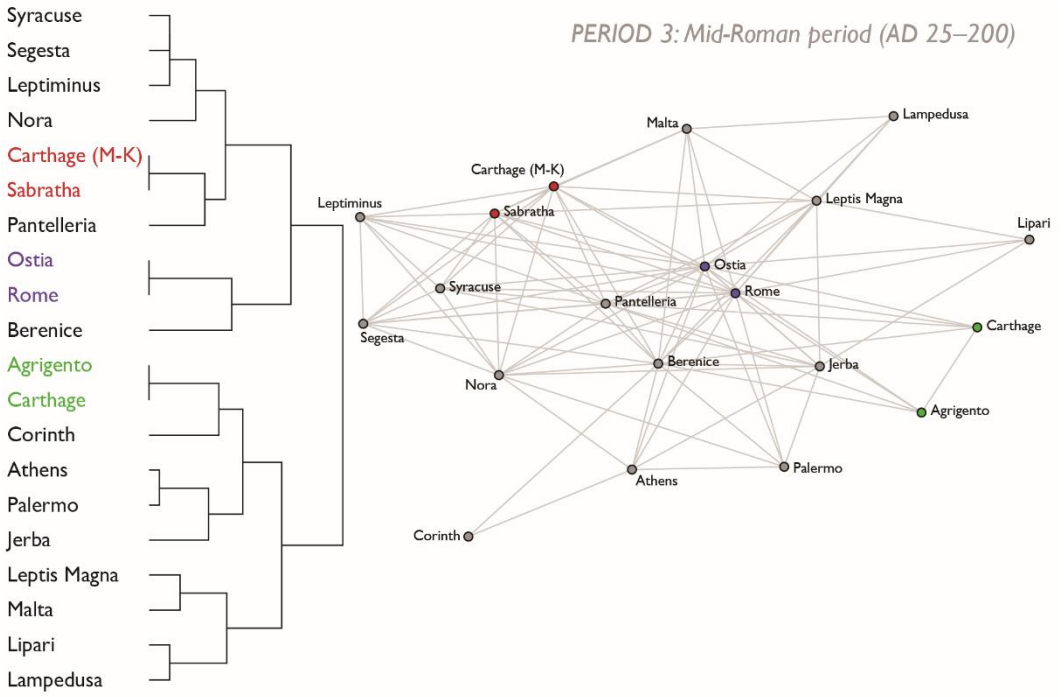


Figure 80: Co-dependence graph (left) and associated dendrogram (right) of Period-3 amphorae (AD 25–200).

When the type nodes are grouped according to production source (converted to regional nodes) most central Mediterranean nodes hover around Spanish, North African and Sicilian forms (Figure 81). Again Rome and Ostia contain highly diverse sources of amphora-borne products within their assemblages, whilst Aegean and eastern-facing nodes (such as Berenice) are better connected to Aegean and eastern-sourced products.

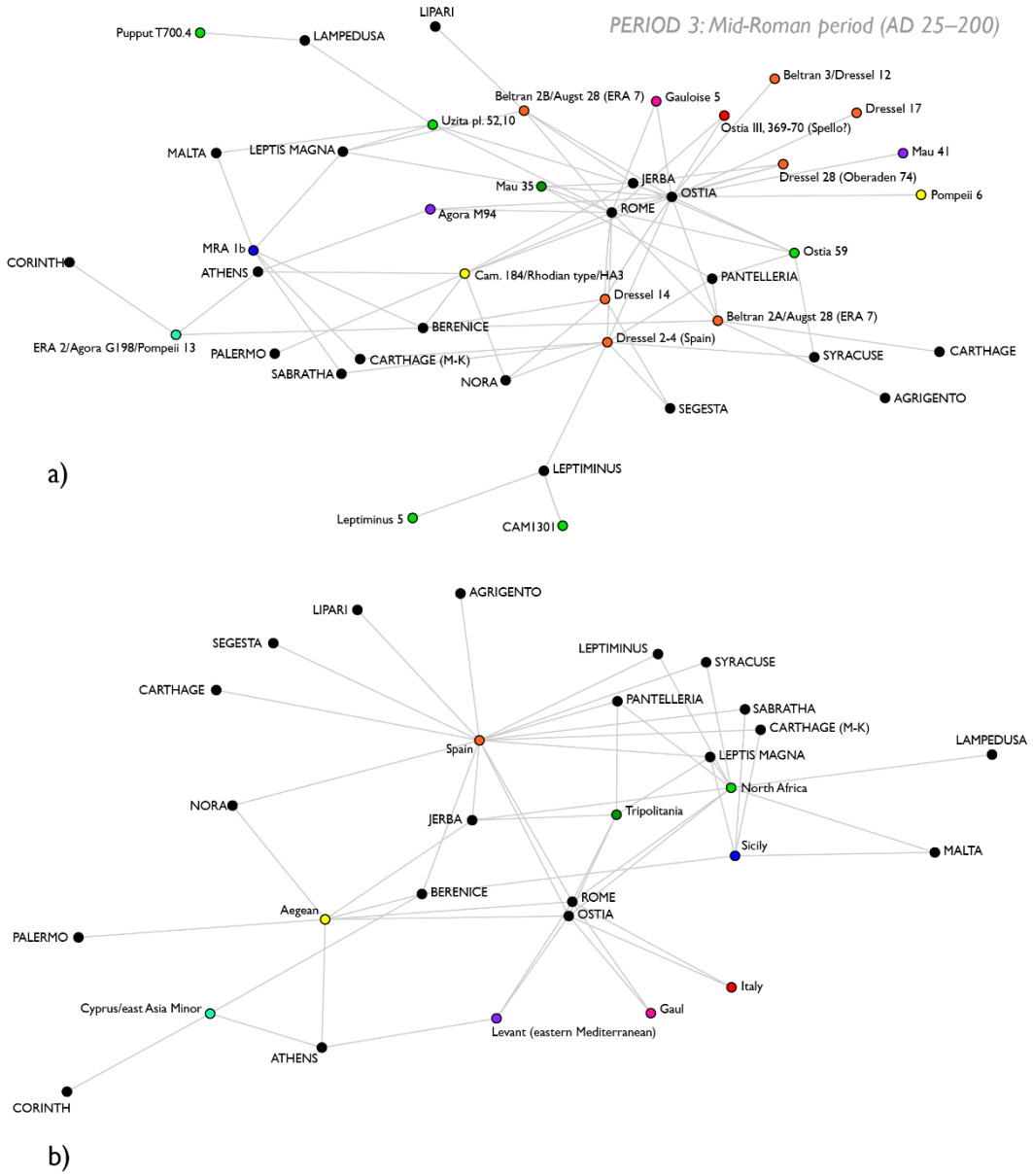


Figure 81: Regional clustering of Period-3 amphorae (AD 25–200) representing; a) type nodes coloured according to regional source; and b) shrunk network indicating the links to regions.

The Maltese islands are illustrated as having a greater pull towards North African and Sicilian sources, compared with the greater Spanish pull evidenced by the positioning of most of the other central Mediterranean nodes. Bruno's amphora data do show a Spanish presence in the Early Imperial period, however, Sicilian amphorae are represented by twice the amount, at least for Tas-Silġ, but much more for San Pawl Milqi. She also noted the strong presence of Aegean amphorae which are not illustrated in the network samples (see Section 3.6). A tiny amount of Baetican and

Lustitanian amphora fabrics were identified in the survey material further supporting the marginal 'importance' of Spanish (or far-western) sources of amphora-borne goods to the island.

Period 4: Mid-Roman period (AD 125–300)

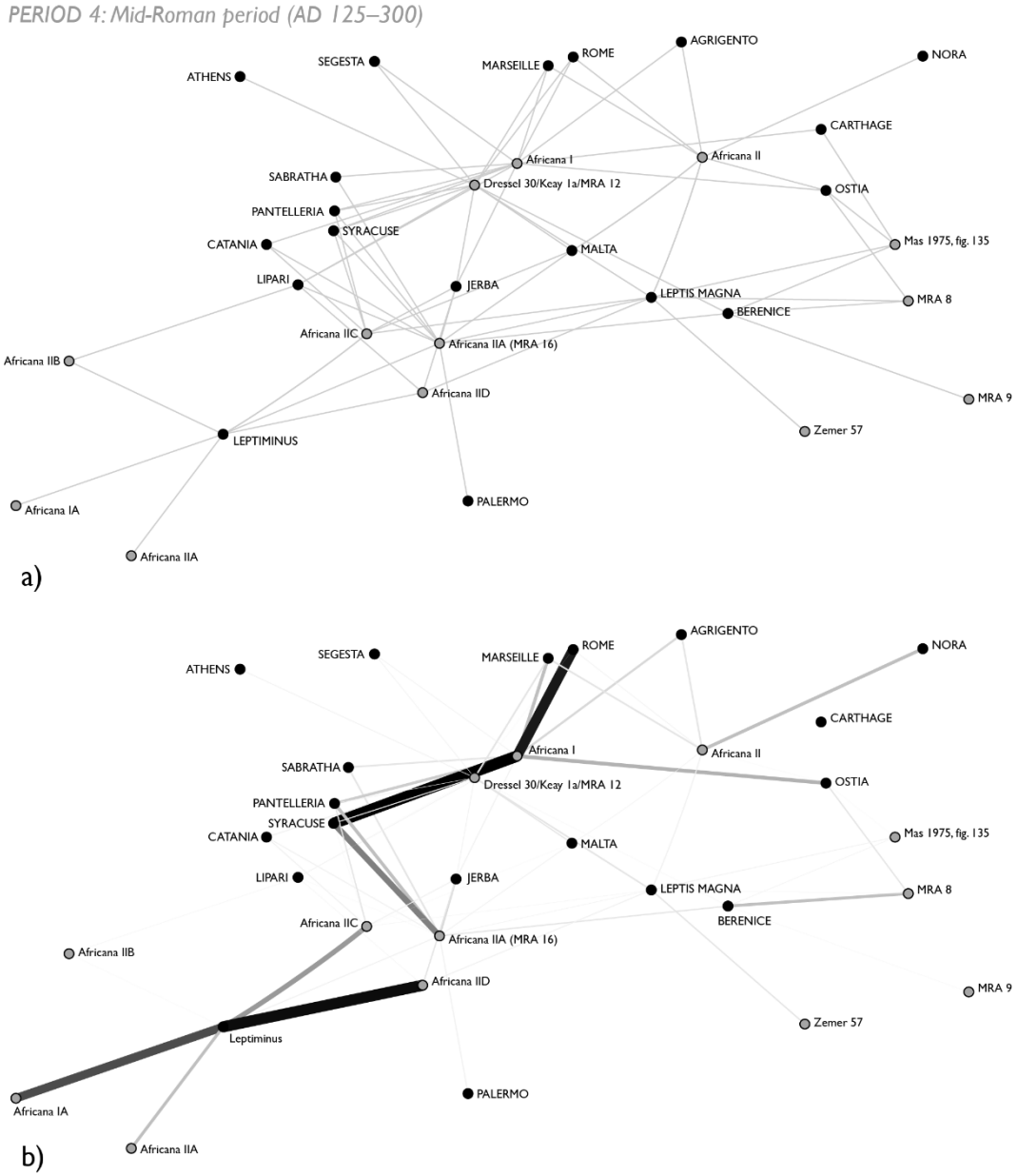


Figure 82: 2-mode network graph for Period-4 amphorae (AD 125–300); a) weighted links; b) visually weighted links.

The graph representing Period 4 (AD 125 to 300) is visually quite erratic (Figure 82a). However, North African forms are clearly the dominant amphora types connecting site nodes in this graph. Leptiminus remains a

peripheral site-node due to its links to locally produced amphora forms (Africana IA and Africana IIA). The Sicilian nodes of Lipari, Catania and Syracuse—traditionally considered 'eastern-facing' nodes—, and Pantelleria are clustered together. Rome and Marseille are in close proximity, as are Leptis Magna and Berenice.

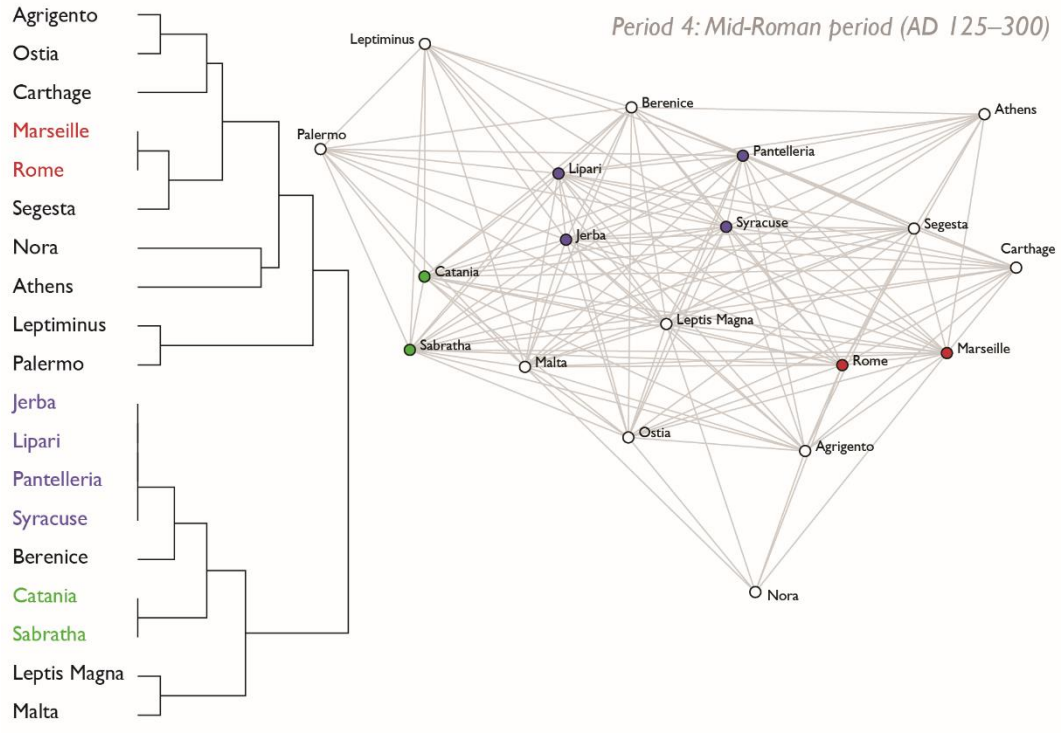


Figure 83: Co-dependence graph (left) and associated dendrogram (right) of Period-4 amphorae (AD 125–300).

The network graph illustrating the link density (Figure 82b) quite clearly indicates that some of the amphorae belonging to the Africana series are most often recovered from sites. There are considerable anomalies from sites like Carthage where very few North African amphorae appear to have been recorded. However, this is mainly due to the fact that the North African amphora fragments were not quantified according to a type-specific classification, but rather a general regional one where all North African sherds are represented by a single group. The co-dependence graph is certainly more organised than the previous period but the dendrogram showing increased dissimilarity does show high differences amongst the

site nodes (Figure 83). The small Sicilian east-facing group is partly represented here as a closely homogeneous group, but Jerba, however, has now been included here.

The regional clustering shows an overwhelmingly clear connection to North African-sourced amphorae (Figure 84). Only four site nodes (Carthage, Berenice, Ostia and Leptis Magna) are connected to types with a provenance based in the eastern Mediterranean (Aegean, Cyrenaica and the eastern Mediterranean).

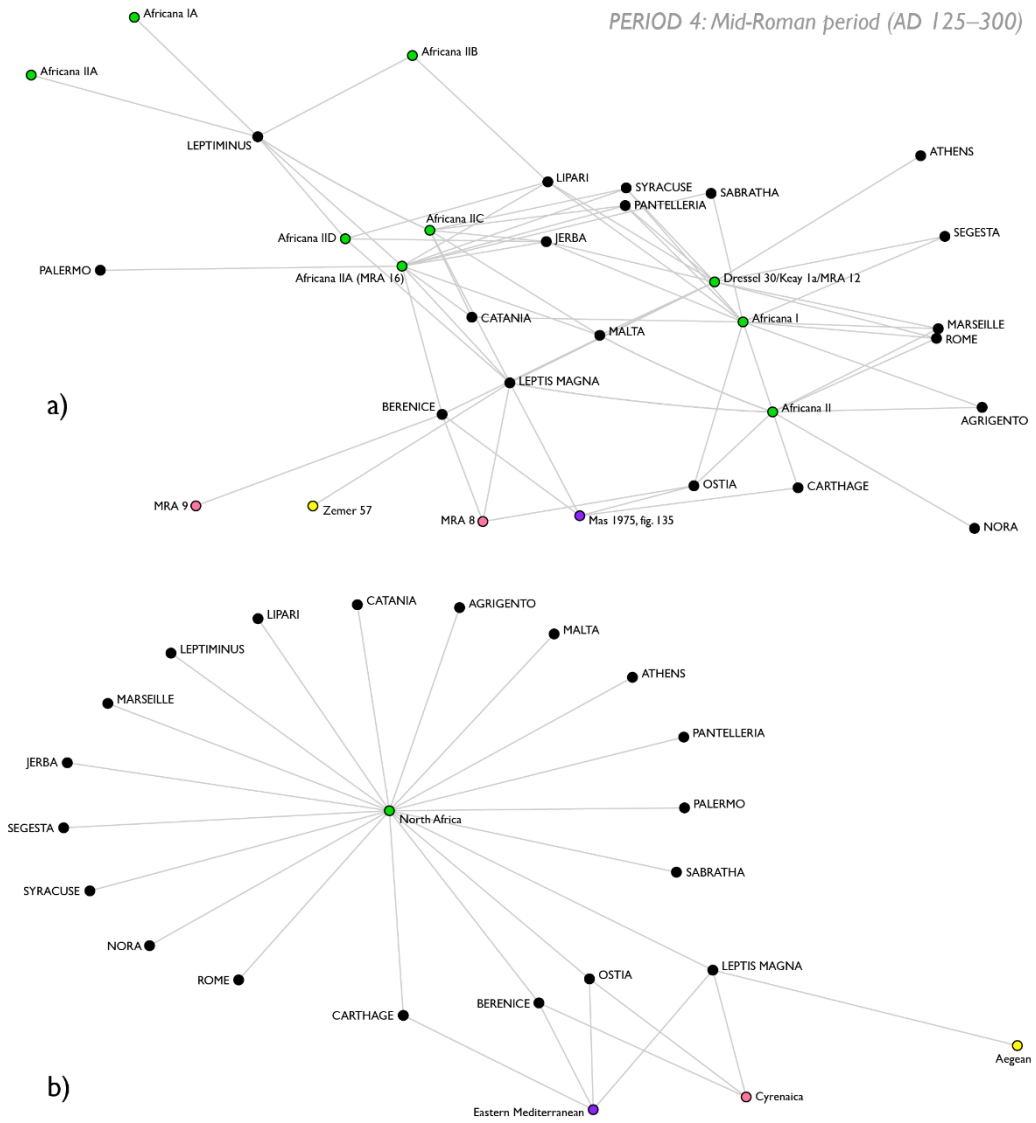


Figure 84: Regional clustering of Period-4 amphorae (AD 125–300) representing; a) type nodes coloured according to regional source; and b) shrunk network indicating the links to regions.

Compared to the previous period, Spanish amphorae are now not represented, whereas North African forms become evidently common. The difference between the marked Spanish-oriented supply pattern in the network representing Period 3 (AD 25–200), and one dominated by North African amphora sources in the succeeding period-4 network (AD 125–300), correlates with the shift in the major producers of staples charged with supplying the annona to Rome. North Africa becomes the largest producer of amphora-borne goods in the early to mid-Imperial period, and overtakes all other goods, especially at coastal centres located closer to the region.

Period 5: Mid-/Late Roman period (AD 225–500)

The graphs illustrating the data for Period 5 (AD 225 to 500) also show a high degree of disparity between many of the site nodes (Figure 85). Catania, Jerba, Lipari and Leptis Magna appear to be well-connected to forms also shared by other site nodes, thus ensuring their more central placement within the graph. Like the previous period, the densest links are those connected to North African amphorae, although the assemblage in Leptis Magna contained a high density of Cretan amphorae (Agora M235/M327).

The co-dependence graph (Figure 86) clearly shows the dissimilarity between the two Aegean sites in the sample (Athens and Corinth) and the rest of the sites geographically situated in the western and central Mediterranean.

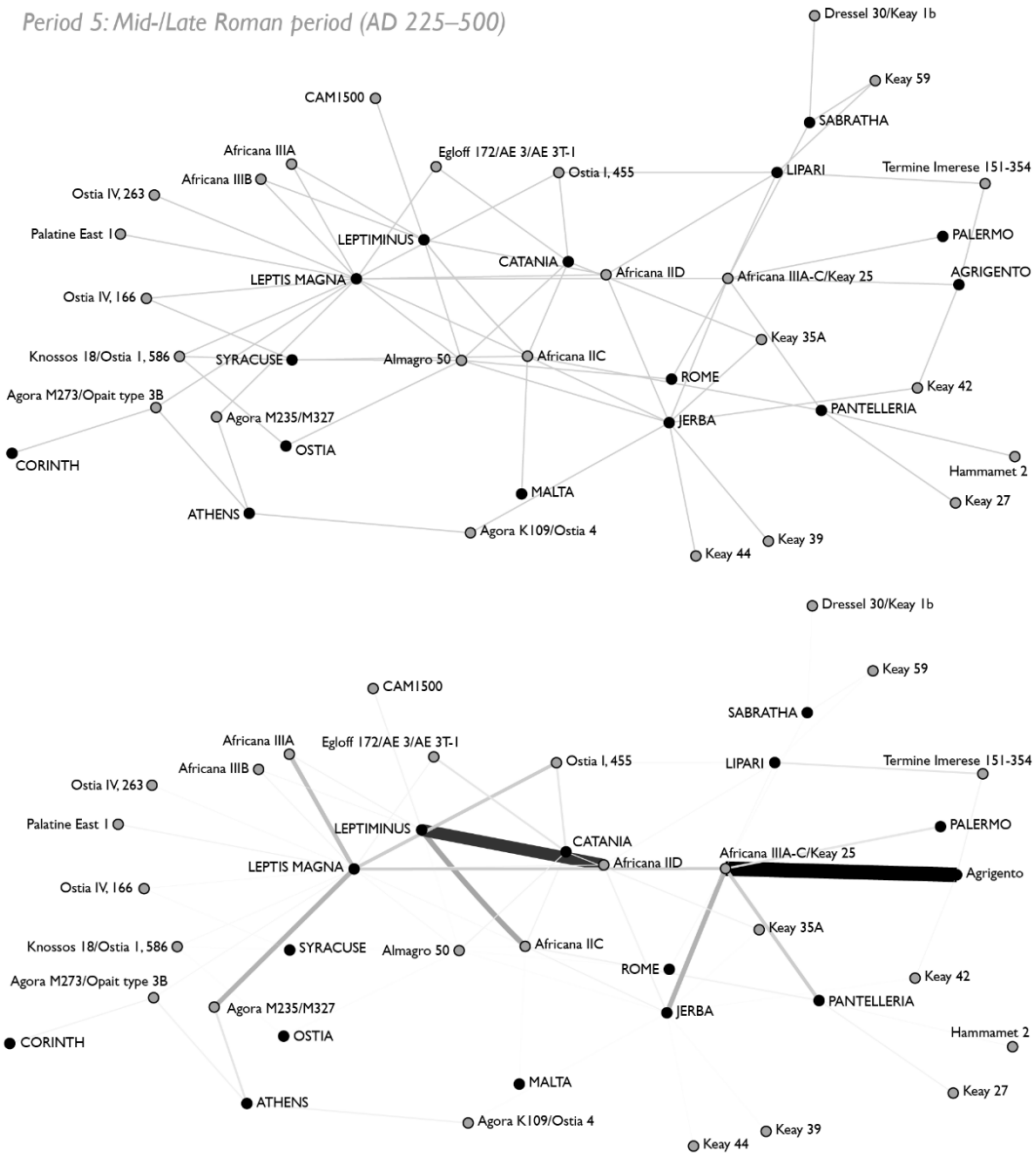


Figure 85: 2-mode network graph for Period-5 amphorae (AD 225–500); a) weighted links; b) visually weighted links.

The central Mediterranean islands and cities (Sicily, Tripolitania and North Africa) continue to import central Mediterranean goods between themselves. A resurgence of some Spanish forms connect some major North African coastal sites to north-central nodes (Rome and Ostia), but none of the small islands, suggesting trade in these Spanish goods were limited to larger centres. Interestingly, the eastern coast of Sicily (Catania and Syracuse) appear to have been open to a wider trade ambit, with the import of North African, Egyptian, Spanish and Cretan products (Figure 87).

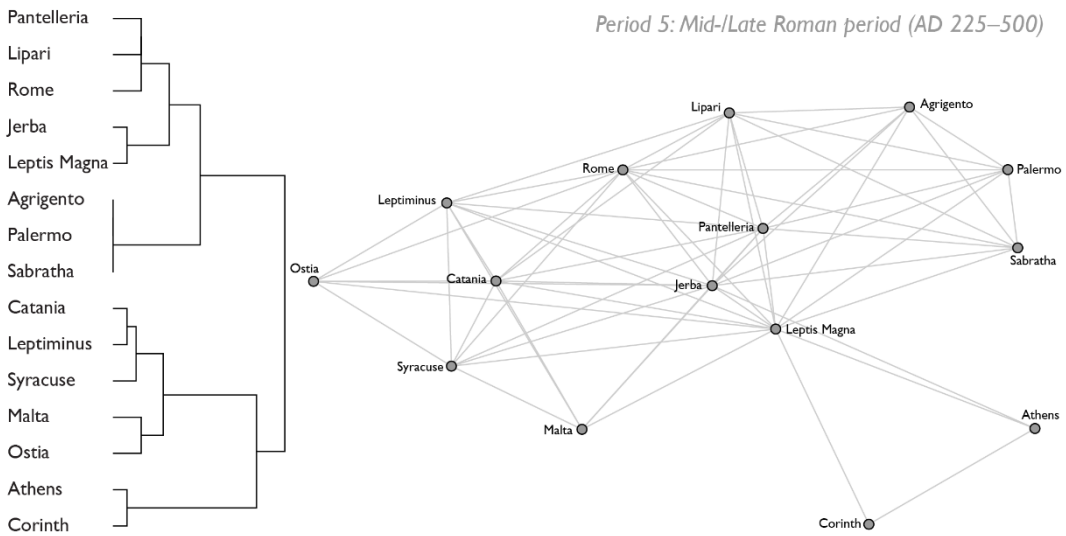


Figure 86: Co-dependence graph (left) and associated dendrogram (right) of Period-5 amphorae (AD 225–500).

It is important to note here, however, that type data for this period are not sufficient to draw substantial and robust conclusions. Data for after the mid-4th century were not found in the three Maltese assemblages studied, and so the links in the network are not particularly representative for the islands. Bruno also found that from the mid-Imperial period onwards, the volume of amphorae decreases when compared to earlier Roman periods (Figures 24, 26). Amphora data for Carthage and Berenice have also not been included for this period, thus this general graph is not wholly representative.

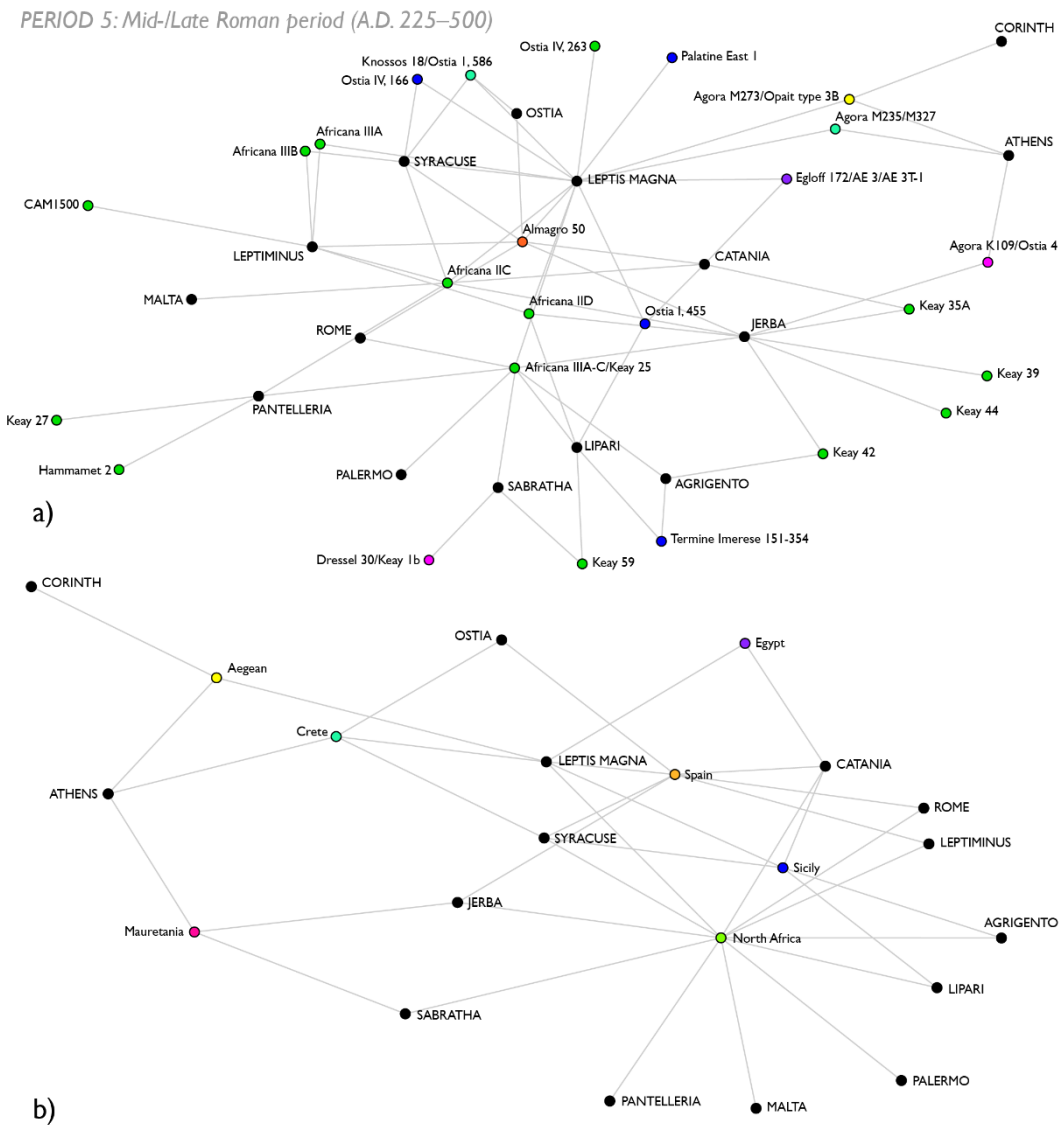


Figure 87: Regional clustering of Period-5 amphorae (AD 225–500) representing; a) type nodes coloured according to regional source; and b) shrunk network indicating the links to regions.

Period 6: Late Roman period (AD 450–700)

This final period (AD 450 to 700) is represented by quite a skeletal network with two smaller clusters that remain unconnected to the main network (Figure 88). Interestingly, these two unrelated groups fall outside the ambit of the central Mediterranean nodes that are connected together in the larger group. The only exception to this is Marseille. The co-dependence of forms between Lipari and Marseille (Figure 89) does reflect in some way the fact that Lipari is, geographically, the most northern-placed site within the central Mediterranean sample.

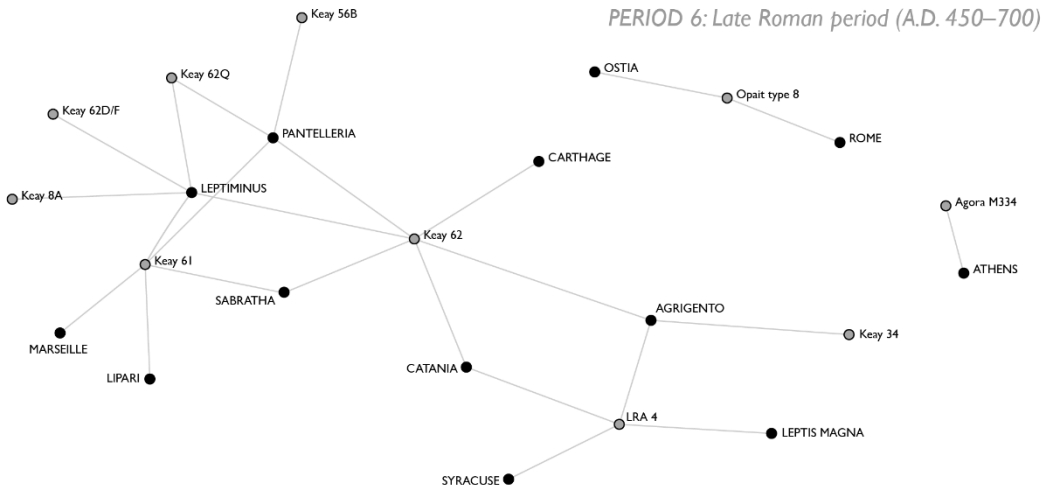


Figure 88: 2-mode network graph with weighted links for Period-6 amphorae (AD 450–700).

Within the main group Pantelleria and Leptiminus share many common forms that cluster them together. Interestingly, some of these same forms are what link these two sites to Marseille and Lipari. Catania, Agrigento, Syracuse and Leptis Magna are connected together via at least one common form and, although these links are weak and far from being truly representative (see below for the reasons why), they do reflect a potential geographic factor whereby they could potentially be located along a different, east-oriented network of trade. The regional clustering illustrated in Figure 90 illustrates known trends, however, there is a tremendous lack of assemblage material that was included for this period that will definitely have affected the positioning of many of the nodes and resulted in the omission of others altogether (see below).

Rome and Ostia are now part of a separate network, as is Athens. Although the poor quantified ceramic data used here is probably a significant contributing factor to this anomaly, one cannot help notice that this network might also represent the break-up of a pan-Mediterranean trade network typical of the High Empire.

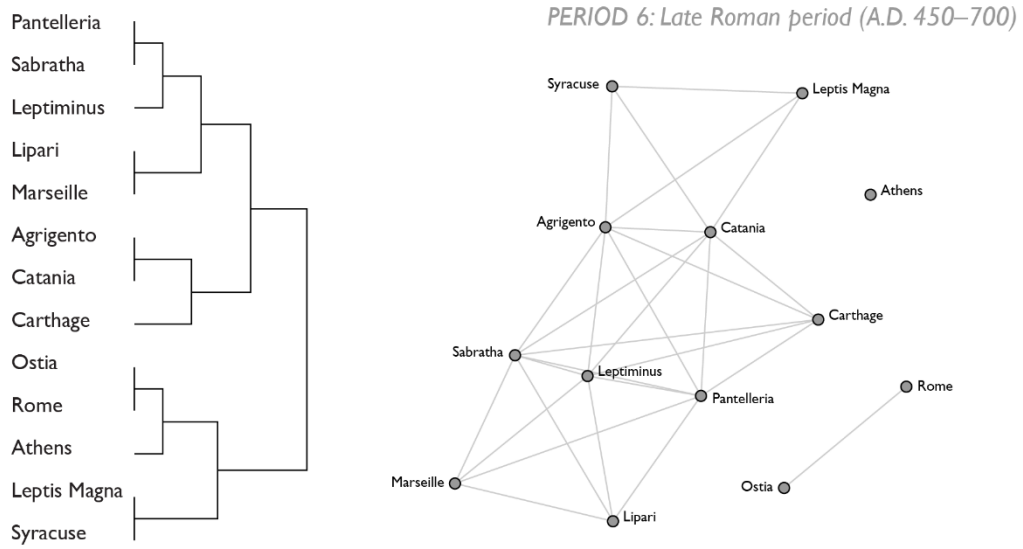


Figure 89: Co-dependence graph (left) and associated dendrogram (right) of Period-6 amphorae (AD 450–700).

No ceramic data from the Maltese islands for this period were included. Published quantified data are scarce for this period and no fragments dating after the mid-4th/5th century were identified in the three assemblages studied (see Chapter 3). Bruno's study on amphorae in the Byzantine period showed that the islands' trade was in marked decline from the 4th century, with a marked absence of North African amphora forms known to have been common elsewhere.[620] A recent survey of Late Roman and Early Medieval archaeological sites throughout the Maltese islands are showing, however, that from the mid-6th century the islands' economy recovers and strengthens with a strong reliance on imported amphorae from Aegean and eastern sources.[621]

[620] Bruno 2009, 182.
[621] Bruno and Cutajar 2013, 16.

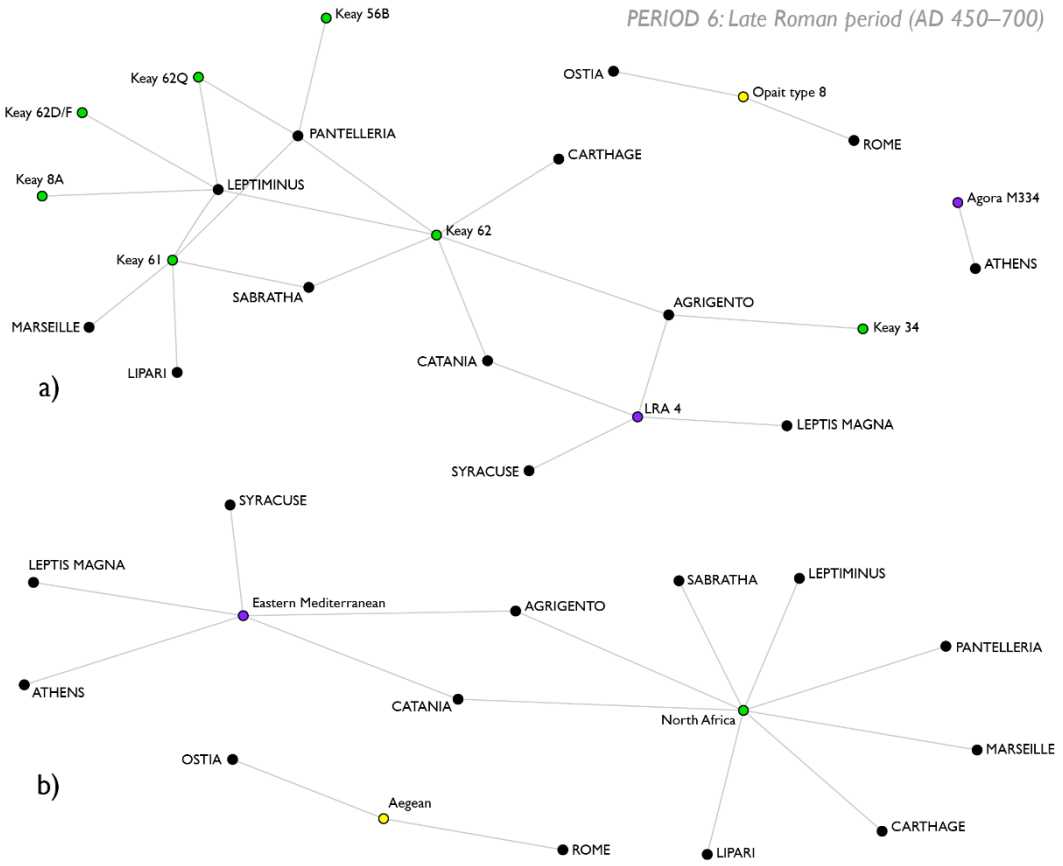


Figure 90: Regional clustering of Period-6 amphorae (AD 450–700) representing; a) type nodes coloured according to regional source; and b) shrunk network indicating the links to regions.

5.3.2 Fine wares

The inclusion of fine ware data in the network analysis software was treated differently from the amphorae. Instead of breaking down the fine ware assemblage into a list of the recorded types of fine ware vessels (i.e. Conspectus form 1, Hayes form 10 etc.), the fine ware nodes are based purely on their general production (i.e. Italian terra sigillata, African Red Slip ware, etc.). The decision to follow this method is because, unlike amphorae, fine wares were not exported for their contents but rather for the aesthetic and functional qualities inherent in the vessel.

Figure 91 represents a 2-mode affiliation network for fine wares taken from all the selected sites. The association represents the sites (black nodes) and their link with a type of fine ware (grey nodes). The assumption is that a site is deemed more or less connected to another site based on the amount of

shared fine ware types each has within its assemblage. The link is represented by a shared commonality between a site and the types of fine ware productions present within its assemblage. At least 20 attempts were made to configure the original data in order to ensure that patterns were present and not just randomly articulated by the software. This first graph was generated using the Fruchterman Reingold-Energy 2D mode and no weight links were incorporated. The graph in Figure 92 uses exactly the same data but includes weighted links.

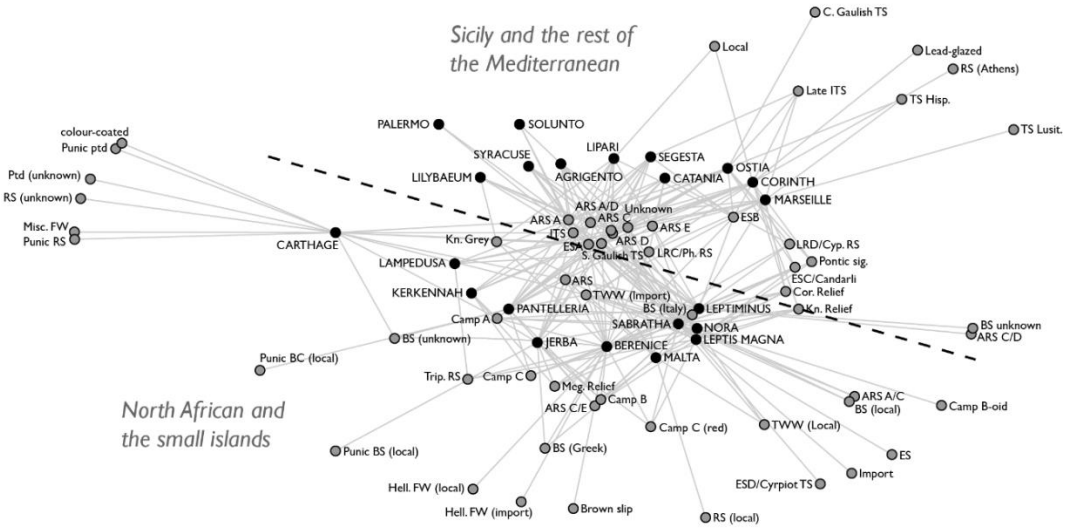


Figure 91: 2-mode network of fine wares with no weighted links.

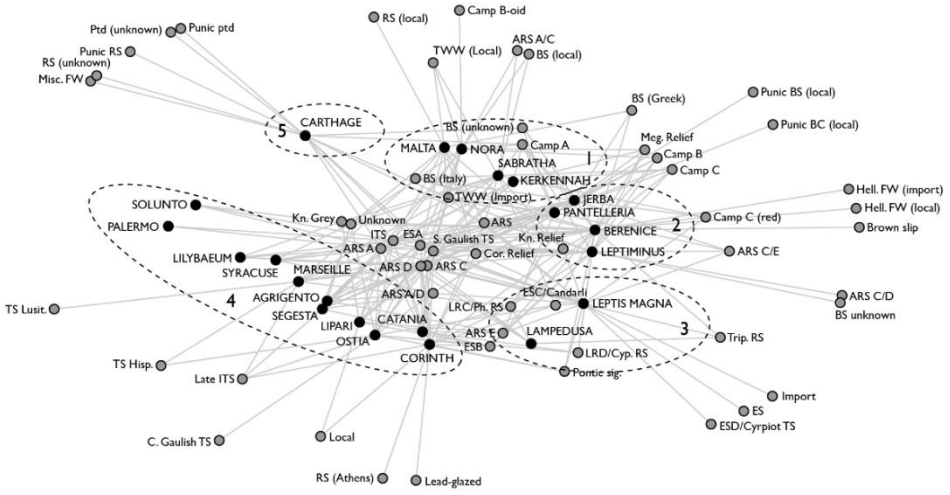


Figure 92: 2-mode network analysis of fine wares with weighted links.

Firstly, regardless of the addition of weighted links, both graphs immediately show a pattern that reflects geography (Figure 91): North African and the small pelagic islands in the central Mediterranean are quite distinctly placed compared with the nodes representing Sicilian cities and other Mediterranean sites; the dashed line in Figure 91 separates the two groups.

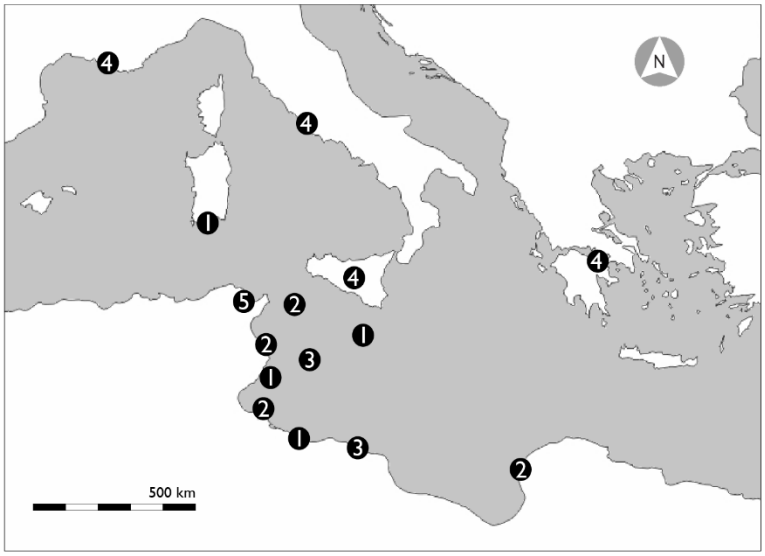


Figure 93: Network groups superimposed on a map of the region.

The inclusion of weighted links affected the position of nodes only slightly, but did aggregate certain groups (Figure 92): the dotted, black-lined circles (nos 1–4) highlight possible groups of most alike sites in terms of the combination of types of fine wares each of the site's assemblage contained. Group 1 suggests that Sabratha, Malta, Nora and Kerkennah share many common fine ware features. The same is also suggested for Group 2 where Leptiminus, Pantelleria, Berenice, and Jerba are clustered quite closely. Group 3 consists of Leptis Magna and Lampedusa and is located in a position that strongly suggests that the make-up of their assemblages are composed of material similar to Groups 2 and 4. The last group (4) consists of Sicilian coastal sites and the outliers sites of Ostia, Corinth and Marseille, and can be considered distinct from the other groups because hardly any

'stray' type-nodes are evident suggesting less diversity than any of the other groups; for instance, there are fewer single grey nodes sprouting from Sicilian city nodes than North African nodes like Carthage. Carthage (Group 5) is relatively isolated as a node probably because of its connection to fine ware types that are not present at other sites.

The most striking feature which highlights certain flaws in the use of these data for network analysis is that the groupings identified are more probably a reflection of the publications the data were drawn from. Firstly, all the Sicilian coastal cities that make up Group 4 are a reflection of the fact that all the data they contain all derive from the same synthesised paper.[622] The same standardised criteria used to divide up the different Sicilian assemblages into the fine ware types may partly be responsible for their similar spatial configurations seen in the network graph (Figure 92). In addition, none of the earlier pre-Roman, Punic or Hellenistic fine ware types was included in the paper thus creating a significant bias when being compared against sites like Carthage and Pantelleria which have their pre-Roman fine wares included. This may account for the lack of type-node fanning that differentiates the Group 4 from the other groups. If the categories are defined first, as appears to have been the case with Malfitana and Franco's publication, then it is easier to omit or crudely insert forms that do not necessarily fit. Also, and probably more relevant, fuzzily defined transitional-period Late Punic material is not often included in quantification exercises on 'strict' Roman-period excavations. Whatever the case, there is a clear correlation between what fine ware types are consciously chosen for inclusion in a publication, the classification method used, and the person or specialist that undertook the assemblage study.

[622] Malfitana and Franco 2013; see Section 1.5.1.10.

Superimposing the groups (1–5) onto a map does not reveal much in terms of connected nodes, although it does force us to question how significant a factor geography is in a regional trading setting (Figure 93). As was briefly investigated above, geographic parameters and the inclusion of sites other than those in the central Mediterranean may affect this. The greater variables affecting the 'alike' sites in North Africa, Sicily and the small islands may cause greater variance than if far-distant sites are included with highly different regional fine wares in the assemblages.

If, in theory, each site's assemblage was contemporary and we can assume that each fine ware percentage ratio is a true representation for the site, then using relative proportions based on weighted values as a link value should give us the closest visual representation for assessing inter-site comparison. However, this is certainly not the case. We know that most of the fine ware productions currently represented are not contemporary and each saw their 'heyday' at slightly different periods, thus there is no temporal aspect to this graph. Since few fine ware productions (i.e. Campanian A, ITS, ARS A etc.) overlapped significantly—major fine ware productions tended to dominate the western Mediterranean market at particular times—, illustrating temporality within these network graphs would not necessarily indicate anything new or interesting. What these visual representations do show us though is the overall pull of what a combination of all fine ware importation had for a particular site; whether sites were more likely to import western- or eastern-based fine wares, and potentially which sites were similar in their accumulation of assemblages in respect to this.

Figure 94 uses exactly the same data and site/type configurations except that all the various types of ARS fine ware fabrics (i.e. ARS A, ARS C, ARS A/C) have been grouped together, and Late Punic, Hellenistic black-slipped wares and locally produced—and thus not intended for export—have been

excluded. This has simplified the network somewhat, but it does not significantly change any of the spatial configurations.

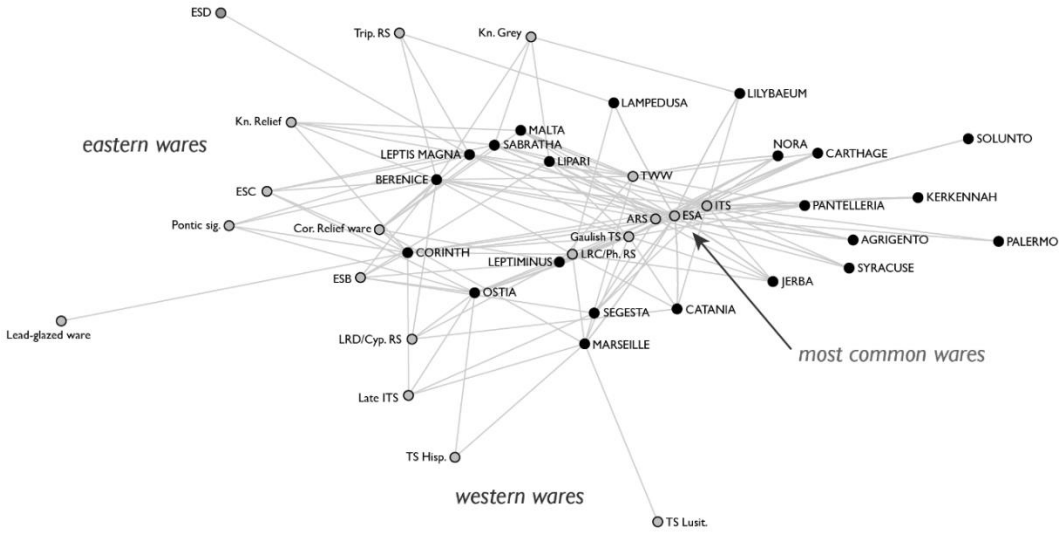


Figure 94: 2-mode network of fine wares that excludes Punic and black-slipped wares.

This was done in order to streamline and make clearer the commonly shared types. The values of each link are still represented as weighted proportions of each type within the group assemblage. What is clear and can be deduced here is that the main types of fine wares that are common to practically all sites are clustered tightly together in the centre. Similar to the earlier graphs, this new, streamlined network does show some loose clustering of eastern- and western-sourced fine ware productions based on the sites that imported them. In this graph roughly grouped sites potentially are positioned nearer to like-sites as well as closer to the types of fine wares that they share. Berenice, Malta, Leptis Magna and Sabratha are positioned in a distinct group closer to the more marginalised eastern-based types such as Knidian Relief ware, Corinthian relief ware and Çandarli ware. Although relying on some flimsy data, the proximity of these sites does fit in with the Punic trade ties that exist between the four places where Maltese ceramics have been found.[623] Berenice has been found to share similar qualities

[623] See Section 3.8.1.1.

within its assemblage to eastern cities such as Corinth.[624] The sites clustered within a second group, consisting of Sicilian and Tunisian sites, and Pantelleria, appear more homogenous and show clear common western patterns within their type assemblage.

Figure 95 illustrates little more than the previous graphs, although the regional clustering does highlight the main regions where fine wares were imported from (mainly North Africa, Italy and Syria). The less popular fine wares are represented by region-nodes that are positioned on the periphery (Spain, Gaul, Tripolitania and several eastern sources). This is hardly surprising since very little of each of these regions are represented within the assemblages' data. Generally, networks such as these show the main regions that fine wares were being imported from. Interestingly, ESA, produced in the Syrian region, is represented as a commonly shared type of fine ware, like it is for ARS and ITS. Tripolitanian and Cyrenaican cities, Malta and the outlier sites of Marseille, Ostia and Corinth hover closer to Aegean- and eastern-sourced regions, as well as regions represented by minor fine ware types (those from Spain, Pamphylia, Crimea etc.). Most Sicilian cities and Pantelleria gravitate towards the main fine ware triad of imports showing the least variation as a region in general. This could be—and most probably—a result of the classification biases highlighted earlier, however, it has been noticed that Catania, being primarily an eastern-facing city is positioned close to eastern and north-western fine ware sources. Finally, the relative positions of the small island-nodes (Malta, Lampedusa, Pantelleria and Kerkennah) do not share any particular groups or obvious commonalities; Kerkennah and Pantelleria share the same links to Italian and North African sources, whilst Malta and Lampedusa have a more diverse range of fine ware imports.

[624] Fulford 1987.

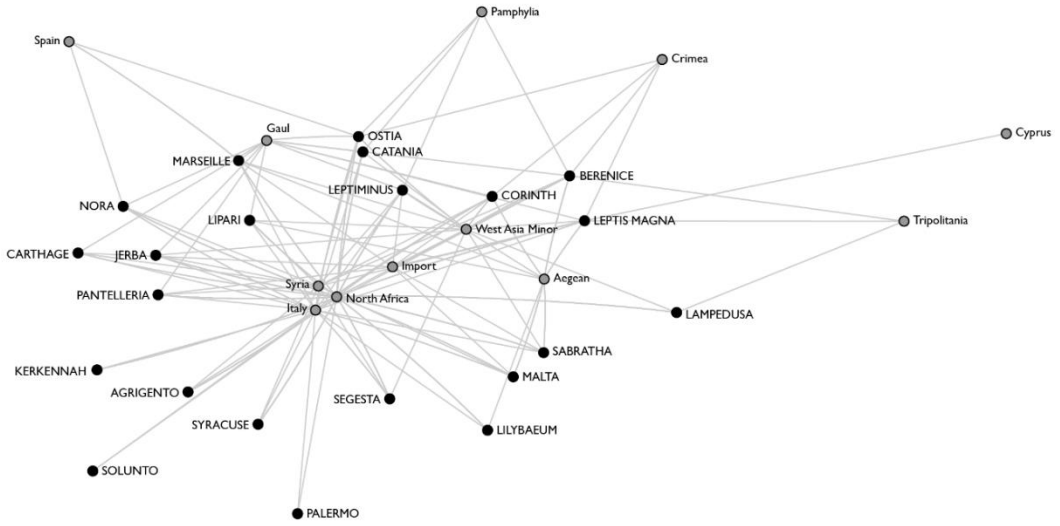


Figure 95: Regional clustering of fine wares.

Lastly, the network illustrated in Figure 96 is a general attempt, using the same data, at clustering fine wares based on whether they have a western- or eastern-based source. This exercise, inspired by the east-west trade debate in the central Mediterranean, shows that all the sites chosen, except for Lampedusa, Palermo and Solunto, imported both eastern- and western-sourced fine wares. The odd three sites appear to only have imported western-sourced wares. To some extent this stark anomaly can be explained by the poor data for the sites. The position of the nodes is partly dictated by the strength or weakness of the line value and potentially visualises where a site's assemblage is more likely to range. For instance, Berenice, Corinth and Catania are located in a more or less mid-range position, meaning that these sites imported a more balanced range of eastern and western-sourced fine wares. Carthage and Leptiminus, on the other hand—as well as most other North African, Sicilian and western Mediterranean sites—, are closer to the western node suggesting that there was a much stronger trade network between these sites. This network quite succinctly demonstrates the potential for arguing that sites were more inclined to import fine wares from geographically nearer sources, despite the clear presence of a diverse range of goods on the market. Also, Tripolitanian coastal cities, eastern

Sicilian cities (with some exceptions) and Malta appear to contain more eastern links than the other sites in the central Mediterranean. These may be the sites that fall within the central Mediterranean transhipment zone, which is being argued for by M. Harpster.[625]

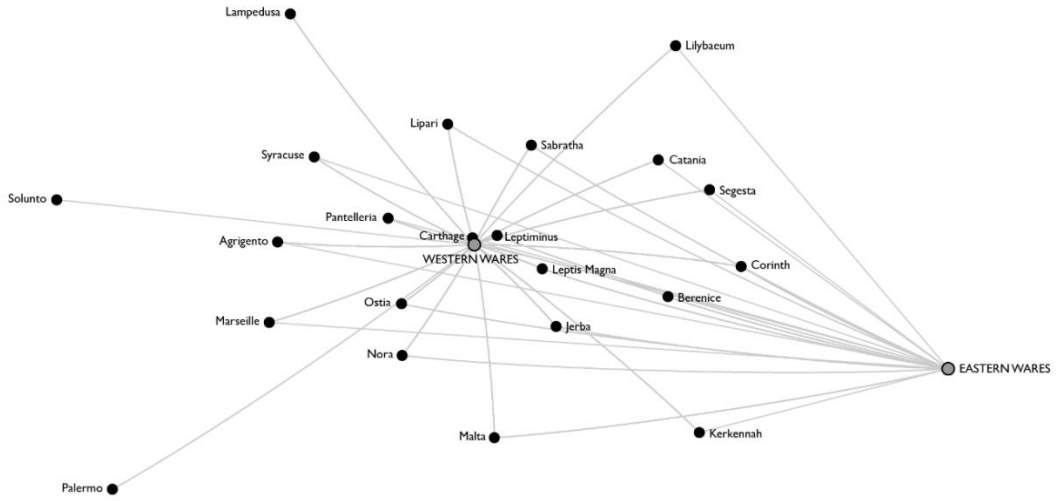


Figure 96: Eastern- and western-based clusters in a fine ware network.

A potential problem with this approach is that practically all Roman-period sites in the central Mediterranean share practically all types of fine wares essentially being a result of the wide-scale extent of trade networks and 'globalised' economy of the Roman central Mediterranean. In this sample, fine wares of practically all descriptions were able to reach even the most marginalised, remotest or smallest of cities. Immediate anomalous nodes are probably Kerkennah, Segesta and Lilybaeum as one would think that these marginal western-facing sites would gravitate more towards the western wares. The very small assemblage is probably responsible for their position. Even so, the fact that there are far-eastern sourced fine wares on Kerkennah demonstrates the highly dispersed range for exported fine wares.

[625] See Section 1.3.2.

5.3.3 Cooking wares

The last series of network graphs will be constructed using cooking ware forms identified from the assemblages studied. Cooking wares are becoming more recognised as an important component in the study of the Roman economy because a significant number of cooking wares from coastal Roman sites are usually imported. The main regions that exported cooking wares during the Roman period throughout the central/western Mediterranean were southern Italy, primarily during the Late Republican and Augustan period; North Africa, in particular north and central Tunisia, throughout much of the Imperial period; and lastly, the robust cooking vessels from Pantelleria, which start being exported from the early Imperial period, but gained momentum between the 4th and 5th century.

When compared with fine ware repertoires, cooking ware forms tend to be rather conservative and some basic forms remained in production with few changes for several centuries. The desired function of a good cooking pot is the strength of the fired clays, in conjunction with specific shapes.[626] There is little need to change the fabric of something when it functions well. Fine wares do not necessarily need to have strong fabrics, as they are not required to be placed over a fire, and their stylistic development over time is therefore more susceptible to changes in shapes. Unfortunately, the lack of change in fabric and form affects the dating of cooking wares, where a type of form can have a long production period.

The history of recording cooking wares as a ceramic category in its own right is relatively recent. Cooking wares tended to be classed as fine wares or coarse wares, thus extracting the quantity of forms from published reports for comparative analysis can be tiresome. Studies on the general type of cooking wares can tell us interesting things about the cooking and

[626] Leitch 2010, 36–38.

eating habits of the ancient world.[627] Different shapes correspond to different ways of preparing and cooking food, thus may reflect different cultural attitudes towards food within different places.

The cooking ware data were the most challenging to collect for the sites under study. The most problematic was that, sometimes, there were no data to collect from what has been published for the site. When cooking ware information was available, it tended to be catalogued in a variety of different sections, such as amongst fine wares (for instance, like Pompeian Red ware and slipped African cooking wares) and/or coarse wares.[628] Cooking wares from many of the sites under study also remain to be published; this is particularly so for sites in Sicily, where the amphorae and fine wares have only been made available because they form part of independent studies concerning specific classes and not whole contexts.[629]

For the purpose of this network exercise, quite scant quantified cooking ware evidence was available in a published format, and some sites have been omitted because of this. Owing to the lack of evidence, the following networks are intended to show the distribution of the types of cooking ware forms found on some of the sites; and to trace general trends of regional importation in the central Mediterranean. Unfortunately, no Sicilian data were included because of the lack of published material. The forms were divided into broad chronological bands that include: Early Roman (100 BC–AD 100); Mid-Roman (AD 100–400); and Late Roman (AD 400–700).[630] The

[627] For instance, Arthur 2007.
[628] Leitch 2010, 16–17.
[629] Large regional projects focussing on the African pottery in Sicily are currently underway and promise to provide new, interesting, and important archaeological evidence for North African imports on the island (Malfitana, Bonifay and Capelli 2007).
[630] For the sake of clarity, and to avoid overcrowding in the network graphs, the labels representing type-nodes have been shortened. As much as possible, the various labels given to the same form have been listed together in a type concordance and are listed within the cooking ware tables in Appendix VI.

most 'robust' networks belonged to the Early and Mid-Roman groups, and the networks for these general periods will be analysed here.

5.3.3.1 Early Roman period (100 BC–AD 100)

Compared with the amphorae and fine ware networks, the cooking ware graphs depict a greater number of type-nodes that fan out from site-nodes (Figure 97). This pattern indicates that some site assemblages have a higher number of cooking ware types that are local or unique to the site, whilst far fewer imported cooking ware types connect sites. Interestingly, Malta did not import any of the typical North African cooking ware types for this period, instead it relied quite heavily on locally produced cooking vessels, and a handful of Campanian vessels (Figure 98). No early Pantellerian ware forms, which connect North African and Tripolitanian sites to Pantelleria, connected Malta to Pantelleria. Leptis Magna, Berenice and Nora appear to have imported more North African cooking wares in this period than Malta, which is geographically closer to the production region. Not surprisingly, coastal Tunisian site nodes imported the North African cooking wares intended for export, and contained a significant range of regional products that were produced without the intention of exporting them. The small islands of Kerkennah and Pantelleria were quite reliant on North African imports, with Pantelleria particularly close to Tripolitania, primarily due to the extensive export of early Pantellerian cooking wares to Sabratha during this period.[631] Pantelleria, however, also imported a great number of early North African cooking wares, many of which were very rarely exported beyond Pantelleria (for instance the Punic/Early Roman Hayes 191 and 194 [H 194 Pun and H 194 Rom]).[632]

[631] Dore 1989, 216; see Section 4.1.1.
[632] Schmidt 2013b, 532–535.

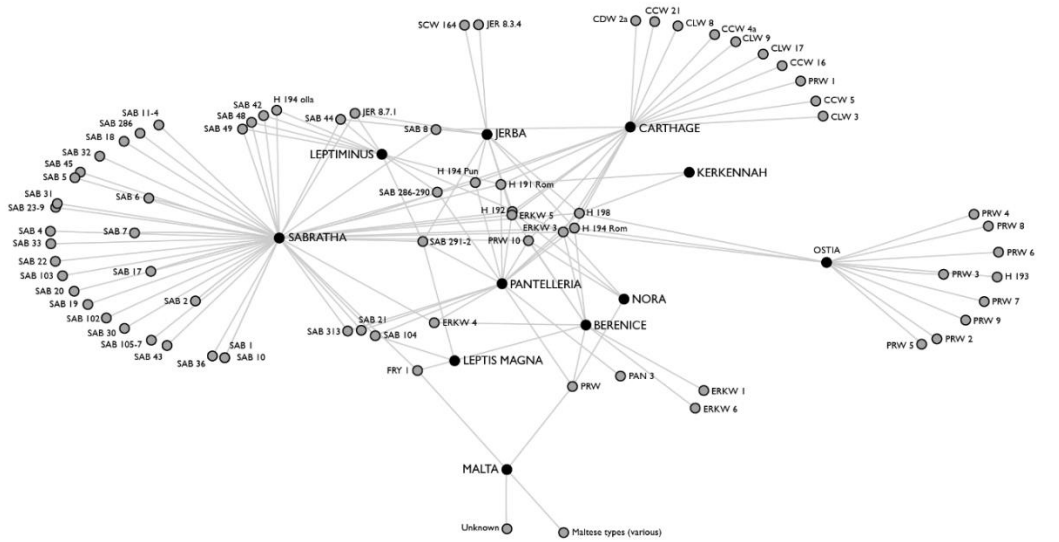


Figure 97: 2-mode affiliation network showing cooking ware types in the Early Roman period (100 BC–AD 100).

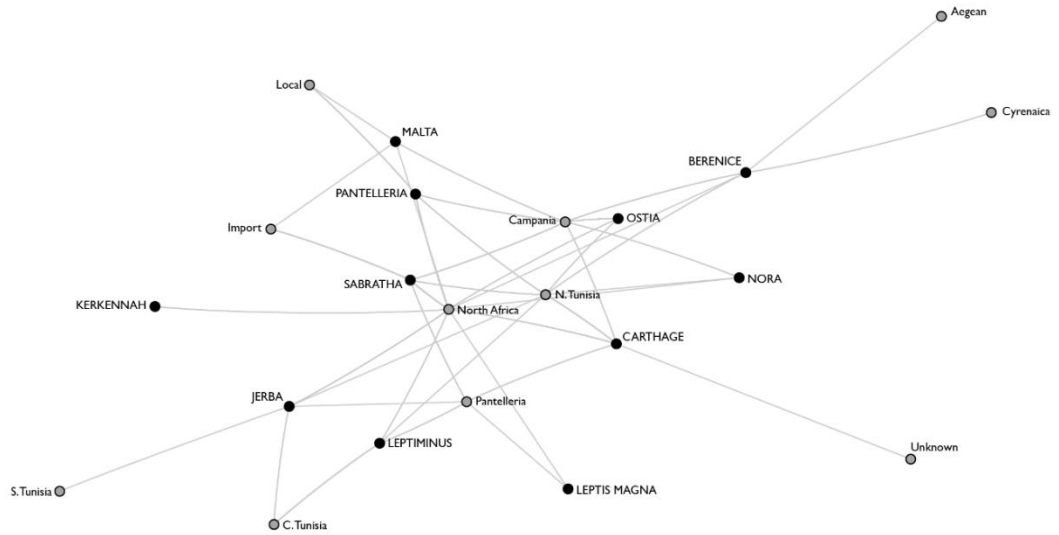


Figure 98: Regional clustering of cooking ware types for the Early Roman period (100 BC–AD 100).

A handful of Campanian cooking wares, mainly Pompeian Red ware and similar shallow pans, were also commonly shared exports to the central Mediterranean at this time. No cooking ware data were included from a site in the Campanian region that would indicate what types of North African and Pantellerian (if any) were being imported there. However, Leitch showed that African cooking wares at Campanian sites were not common at all, but were present from the 2nd century AD; the assemblages are

dominated by regional products and Aegean cooking wares instead.[633] In contrast, Ostia imported a greater range of central Mediterranean cooking wares (mainly North African, but no Pantellerian wares) from the late 1st century AD.[634]

Apart from Sabratha and Carthage, the site-nodes representing North African and Tripolitanian sites are not connected to cooking vessels from Campania. This detail could be a result of a different trade distribution for Campanian goods which reached sites in the north and central Mediterranean coasts. Sabratha's trade relationship represented by a large quantity of early Pantellerian ware forms may be responsible for the presence of Campanian ware forms, which were also reaching Sabratha in considerable numbers.

5.3.3.2 Mid-Roman period (AD 100–400)

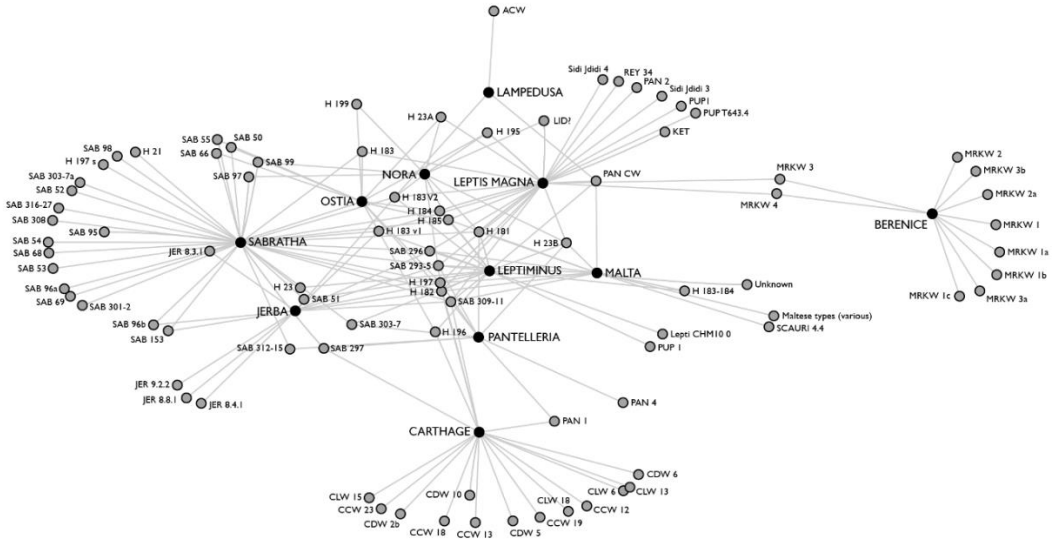


Figure 99: 2-mode affiliation network for cooking ware in the Mid-Roman period (AD 100–400).

The Mid-Roman period is characterised by a greater number of commonly shared forms, which are mainly North African and Pantellerian forms (Figure 99). Like the previous period there remains a greater tendency to

633 Leitch 2010, 312.
634 Leitch 2010, 312.

consume locally produced goods (seen by the type-node fanning that indicates that an assemblage has a greater variety of types), although there remains a reliance on some imported types. Malta, for instance now relies on a greater quantity of imported cooking wares than before (hence the node's more central position). Conversely, Berenice appears to become more marginal within the central Mediterranean context; no connections to North African exported wares were made, and contact is only maintained through the regional export of two cooking ware types to Leptis Magna.

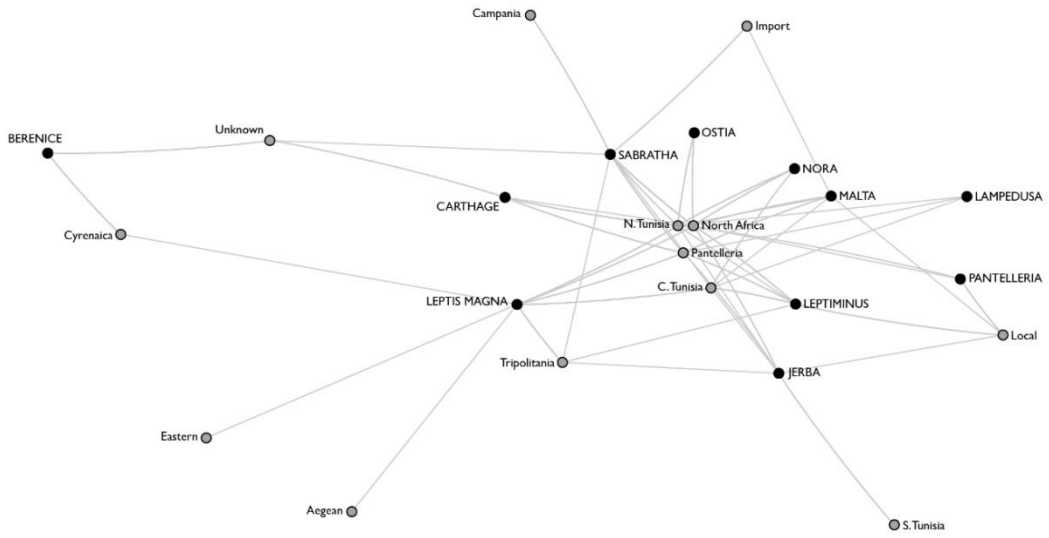


Figure 100: 2-mode affiliation network of regional clusters for cooking wares in the Mid-Roman period (AD 100–400).

Central Tunisian cooking wares increase in distribution in the Mid-Roman period, as well as Pantellerian ware vessels. Also, in terms of regional importation trends, there is a greater reliance on standard imported goods. This is inferred from the tighter halo of site-nodes surrounding the central and commonly shared type-nodes (Figures 99–100). Unlike the other pottery classes, cooking wares appear to follow a stricter regional-based distribution. Eastern and Aegean cooking wares are not present on Tunisian coastal sites and the central Mediterranean small islands. Berenice clearly demonstrates this difference, having no North African imports, and only connected to the main network via shared links with Leptis Magna, which

is geographically close. Also, whereas Malta gravitated closer to Tripolitanian and Cyrenaica (Leptis Magna and Berenice) in the Early Roman period, the island shifts its 'import reliance' closer towards central and North Africa (and with this, Pantelleria) in the Mid-Roman period. At the same time, less reliance is placed on the consumption of local cooking wares.

5.4 Trends over time

In summary, the network graphs indicate that during the Early Roman period (100 BC–AD 100), the general range of amphorae imports was restricted to Italian and Aegean wine; there appear to have been greater shared connections between all the sites in the sample. Early imported fine wares (i.e. ITS and ESA) were also very well distributed throughout the sample and further afield. For the islands in the sample, differences can be seen in the consumption patterns for local and imported fine wares; Malta relied more heavily on locally produced fine and cooking wares and very few imports; whilst Pantelleria shows the opposite, with hardly any locally produced fine wares. Malta also had a significant local amphora industry until the early 1st century AD. Conversely, Pantelleria relied quite heavily on imported ceramic goods, in particular amphorae-borne goods, fine wares, and a large proportion of cooking wares from North Africa. This trend sets Pantelleria apart from the Maltese islands. Very little can be concluded for Lampedusa and Kerkennah, although Lampedusa relied solely on amphorae and cooking wares imported from the North African mainland, but contained the usual range of multi-regional fine ware imports, which included North African, Tripolitanian and Eastern sigillata during the mid-1/mid-2nd century, suggesting that different supply systems for providing North African coastal centres with amphora-borne goods and fine wares were in place. No local ceramic productions are known on

Lampedusa indicating that the island was heavily reliant on the mainland for most amphora-borne supplies and utilitarian ceramic goods. No amphora data for either Lampedusa or Kerkennah fitted into the 1st-century AD network graphs (see Section 5.3.1.3), but the types identified for Kerkennah by the Tunisian coastal survey included typical Italian forms of the late Republican period and a southern Tunisian/Tripolitanian Tripolitanian 1 amphora form, suggesting heavy reliance on the mainland for most goods like Lampedusa. Fine wares and cooking wares for Kerkennah show the same reliance on the mainland for goods, although, fine ware imports include a wider inter-regional non-African range.

From the beginning of the Mid-Roman period (c. AD 100 onwards) imported amphora trends start to reflect the greater reliance on provincial resources, in particular oil and fish sauce amphorae from Spain and North Africa, yet sites appear to have a choice of a greater range of amphora types that most probably reflect greater choice of foodstuffs coming from these regions. The link to early ARS imports is shared by all the nodes and indicates that fine wares do not obey the same export/import patterns as amphorae. However, uncommon Aegean and eastern fine wares tended to be exported to Tripolitanian and some North African sites, more so than Sicilian ones. Malta, for instance, shared certain trend qualities with Berenice and Corinth, rather than other central Mediterranean sites.

From this period onwards, Pantelleria becomes more increasingly reliant on North African (in particular North Tunisian) imports, seen in the amphorae and cooking ware assemblages. Fine wares are mostly dominated by ARS at this time, but this fine ware becomes the dominant exported fine ware for much of the Roman empire until Late Antiquity. Local cooking ware production is common on the island at this time but its own export remains in the shadow of the blossoming and extensive North African cooking ware

export industry targeting the entire western basin, and Pantelleria's cooking ware repertoire is substantially supplemented by North African products. Indeed, North African cooking wares recovered from a shipwreck off the coast of the island could suggest that rather than consuming the majority of these North African cooking wares, the island was used as a redistribution centre for North African goods. Little change is evident for Lampedusa and Kerkennah for this period, but a sustained reliance on mainly North African imports appears to be the case. The Maltese islands on the other hand imported more amphora-borne goods towards the mid-Roman period; local amphora production appears to cease, however, local fine and cooking production continues with a strong presence. However, North African fine and cooking wares become increasingly important; as do North African and Eastern Sicilian wine amphorae.

Very few data were included for the Mid-/Late Roman period, and even fewer data were available for the islands under study. Nevertheless, what can be gleaned from the skeletal graphs is that amphora imports in the central Mediterranean region are mostly dependent on a narrower range of North African sources as well as some key Spanish and eastern-sourced goods. Cooking ware imports become more restricted to predominantly North African vessels, although, Pantellerian ware vessels increase in importance and by the 4th century begin to take over the well-established North African market in the western basin.

5.5 Other trends?

Following this attempt at using network analysis software for this type of quantified ceramic data it became clear that there were also some important negative conclusions that could be drawn. On one hand, it can be argued that the quality of the quantified ceramic data may not, in fact, be conducive to this sort of analysis. In order to generate the best and most accurate

results one would need better comparative assemblages from several sites that ideally followed similar methodological strategies, as well as similar classification criteria with attention to detail. It is all too clear that the marginalised sites identified within practically all of the networks are those that have little published literature, or unpublished surveys or excavations, thus the information we have for these sites is very limited.

5.5.1 Types of data that could be useful for this study?

Having partial and incomplete data will always be a problem for archaeologists attempting any quantitative analysis. For network analysis this is certainly true as this analysis is useful for high resolution data; inconsistencies are clearly more obvious to detect in network graphs than in other more traditional forms of visualising archaeological data. Larger datasets that are compiled on a quasi-national scale in an easily accessible database format are the way forward with network analysis of this detail. For instance, the Roman Sicily Project aims to collect and input as much published ceramic material found in Sicily as is possibly available. The more pottery types that are known from a place/site, the more feasible it is to calculate some sort of relative quantitative total for that form within that particular region. In addition, the larger the database of types, the easier it is to identify the relative frequency of a common or rare form, which will help understand, with a greater degree of resolution, how closely connected different parts of the Mediterranean were in terms of trade. Lastly, as Malfitana has already noted, a more thorough and complete survey of ceramic forms can give key indications as to what forms were *not* reaching a place.[635] Such information can only be reasonably concluded when a good thorough overview of what is present has been done. This information would have important implications concerning why certain goods were not

[635] Malfitana 2008; Malfitana et al. 2013.

reaching a particular place/port. Could it be related to differences in demand, political or social norms, or distance-related? Detailed information about particular amphora forms is a potentially important proxy for determining differences in market demands and how economic trade was organised, marketed and deployed to different cities and regions.

Well-integrated, updated and accessible data for a wide range of archaeological contexts are also key to such a method of analysis. It became apparent during the analyses that when using type data, not all forms were necessarily present at any one site. Thus, if one site assemblage was quantified and used, information from other sites that include some new types may not be represented. For instance, amphora data quantified by type were not published for Bruno's study on Maltese pottery. The same was true for Carthage where several contexts have been published but in different ways, and Pantelleria. When this happened it was important to make these omissions explicit and complement the trends with other known publications and study summaries.

Returning to the questions posed at the beginning of this section, the remainder of this chapter will seek to address them in the light of the completed analyses:

a) Is the quality and range of the data good enough for comparative analyses?

Realistically, no. Naturally, for whatever research question, the better quantified and larger the ceramic assemblage—like those from Berenice and Ostia—, the more detailed, and realistic the interpretations can be. Yet, in reality, sticking to well-quantified, large and varied assemblages is difficult, and has the potential to dictate the research agenda because of limited geographic reach and quality of the best quantified assemblages. If archaeologists were to restrict all research to areas or questions with the 'the

best data' then very few areas in the Roman empire would fit their criteria. Returning to the quandary posed earlier in this chapter, concerning whether choice of study area should come before (or after) isolating the required data needed to answer specific questions, a study focussing on small islands in the central Mediterranean is primarily dependent on the area of study, thus any available evidence (in this case pottery) has to be incorporated and used to the best of our ability; this is what there is, therefore we, as archaeologists, have to make the most of it and not disregard 'bad' or little data. This attitude would result in very little archaeological research being done, as all archaeological evidence is partial, incomplete and inconsistent. Nevertheless, it remains important to strike a balance where the conclusions drawn should not push the interpretation of the data beyond what the reliability of the data can bear.

To do this study diachronically is also very difficult because site data are not always contemporary. Survey material (i.e. Leptiminus, Jerba and Pantelleria) are probably quite good for this. Some of the key islands (Lampedusa and Kerkennah) have very little pottery information to work with so the type connections are always going to be marginal. A silver lining to this may be the incentive to motivate new archaeological research in the poorly known area. On a positive note, some 'expected' patterns were evident in the network graphs, whilst interesting trends affecting the small islands have been seen.

b) Are there any trends or patterns visible in the graphs that are a result of biased research, flawed design or non-archaeological-related causes?

These trends are probably not so much a result of flawed design, but rather a correlation between the sites and the specialist/team who studied them;

for instance, the Sicilian fine ware material collected by Malfitana et al.[636] are grouped together when plotted on the networks probably because the same criteria were used to class each form and fabric. Patterns for nodes that look marginalised, or lie on the periphery, and some that cluster in the centre or together, are probably a direct result of the size of the assemblage (number of sherds) and the amount of categories the material was divided into. Each network certainly reflects the effects of these.[637]

Incorporating two roughly contemporary assemblages (both from Carthage) within one network has, to some extent, demonstrated that assemblages have the potential to vary from excavation to excavation even within the same site, city or region. This is probably why Mediterranean-wide studies of trade usually retain a general region-based provenance for assessing trends (also always using the same large datasets). Although the importance of such methods has been essential for the wide-scale understanding of the ancient economy, our understanding of how short- and medium-scale trade within microregions is often side-lined because of 'bad data'.

c) Does this form of analysis help encourage new ways of looking at 'old' data?

It certainly does generate a new way of looking at data that have been used for many other studies, although what network graphs principally seem to do is to highlight the problems with the data, making it difficult to believe that any other comparative methods reveal any meaningful patterns. Low

[636] Malfitana et al. 2013.

[637] Similar to interpreting ceramic data, care with interpreting shipwreck data has also been highlighted primarily because of inconsistent distribution (known wrecks tend to coincide with tourist diving areas along the northern and central island coasts of the Mediterranean), as well as general chronologies (A. Wilson 2011, 38).

assemblage numbers and inflated relative proportions are easier to 'hide' using standard bar charts.

It is important to understand the research context and the limitations that are subject to particular analysis methods. I believe the visual networks generated in network analysis have some interesting conclusions to contribute towards a study of connectivity and the ancient economy. Firstly, the disentanglement of geographic maps and the pottery assemblages does, to a certain extent, provide a different and alternative way of looking at connections. Trends based on region-based pottery data are usually also depicted as bar charts or distribution maps representing either one type of form or else one site's assemblage. Networks allow multiple sites to be compared using multiple types of forms together. This is something that could only have been achieved through computational means.

Secondly, having well-balanced and comparable ceramic data for a variety of sites is very difficult, if probably impossible. A multitude of factors such as excavation agendas, funding, etc., affect where and what is studied. Therefore, the incorporation of all data should be encouraged as a little is better than nothing. For instance, any inclusion of the patchy ceramic data from Lampedusa is going to encourage this island's place in the reader's consciousness. If it were omitted because it fails to fill any pre-defined criteria (in most cases a severe lack of comparable data) then it is less likely to even be thought of as a potential part of a central Mediterranean network. Considering the potential for open-water navigation during the Roman period, and the fact that central Tunisian coastal cities and Tripolitanian cities were key producers and consumers during the Imperial period, the only landmass in a large expanse of sea would surely have been an important way-point in sea travel in this area. Indeed, the current irregular immigrant crisis in the central Mediterranean highlights the key position

this small island has in maritime crossings between Libya and central Europe. By contextualising networks, the position of particular nodes, for instance that of Lampedusa, can be supported or challenged based on additional information that is already, and eventually becomes, available.

d) Does this form of analysis create different/similar readings of the data when compared to earlier work that uses the same or similar data?

On the whole, most of the networks illustrated an interesting collective visual of complex and multi-varied data points which are more traditionally (and usually) displayed in site-by-site or type-by-type maps and charts. However, after interpretation and contextualisation, the general trends identified in the network graphs did not differ significantly from other studies. For instance, the east vs west component in Roman economic dialogues was very apparent in nearly all the graphs.[638] The gravitation of small islands and cities towards their closest regional neighbours was clearly apparent. Inter-regional exchange was most common for imported fine wares, whilst selective regional imports, with some key inter-regional imports was apparent for the trade in amphorae and cooking ware; these changed over time too. The majority of cooking wares were more conservative in the early Roman period but a heavy close-regional distribution is evident, supporting Leitch's recent conclusions demonstrating the western Mediterranean distribution of African cooking ware.[639]

Despite the insistence on incorporating quantified ceramic material, differences between site assemblages were more subtle to detect than by

[638] Fulford 1989; Rice 2012; and more recently Harpster 2013. Arnaud also indicated that long- and medium-distance sea routes were primarily determined by regional maritime topography (2007).
[639] Leitch 2010, 303–335.

more traditional means. How effective the node position was based on the line values may have been severely compromised by the inconsistent data for other nodes. Fortunately, when site-nodes were connected to particular type-nodes with a poor weight value (for instance ITS and ESA numbers in Malta), they certainly stood out when their relative position was compared to other site-nodes with significantly higher values (for instance, the markedly higher number of ITS sherds from Pantelleria, which contrasts quite starkly with the handful of ITS sherds from Malta). Having a good grounding of the material that is certainly *not* present or common on a site would be equally good *data* that could be illustrated in network analysis graphs.

Also, the multiple ways that pottery can be grouped into different chronological bands goes to show how arbitrary such methods of grouping forms based on chronological periods can be. Periodization of amphora forms is essentially required for the archaeologist and the people studying the material, especially when one is dealing with unstratified material. Chronological groups become even more important and necessary if one is trying to undertake an inter-site comparison so that at least the major forms can be shown to be contemporary between the sites being studied. Unfortunately, taking the example from Martin-Kilcher's assemblage for Carthage, it was shown that amphorae can also have a long use-life and thus can present some difficulties when trying to implement quantitative comparative analyses.

Lastly, for specific islands, Malta seems to have continuously shown more connections to nodes that have stronger links with the east and central Mediterranean, with hardly any connection with far-western regions like Spain and Gaul. Conversely, Pantelleria's assemblage appears to share more connections with North Tunisian and far-western areas. Despite their

proximity, Pantelleria and Malta are quite different in their import trends and this may reflect different governing socio-economic factors. This is an important finding, and identifying and discussing these possible factors will be the subject of the next and final chapter.

Chapter 6



CHAPTER 6: SMALL-ISLAND INTERACTION IN THE CENTRAL MEDITERRANEAN REGION

This chapter will bring together the various evidence examined in earlier chapters with the aim to explore how disparate data collected from the small islands under study can be used to create an inclusive narrative, which contextualises the reality of interaction between small islands in the central Mediterranean. Each island has been shown to have a combination of relatively unique features, determined by geography, landscape, size, and resource exploitation. These features helped islanders to exploit existing wider political and economic streams essentially dictated by the *annona* and the inter-regional trade.

6.1 The economy in the central Mediterranean

The idea that the Roman economy was solely based on agricultural production has radically evolved over the last few decades in the wake of the recognition of vast types of archaeological evidence that support a more complex and integrated economy.[640] M. Finley's and Duncan-Jones'[641] "consumer-city" model, which supposes that city territories were cellular self-sufficient units, where wide-scale agricultural production in the hinterland was intended for consumption by the main city, with only a minimal side-line trade in long-distance, luxury goods, has now largely been found to insufficiently explain the unprecedented volume of archaeological evidence that challenges the model.[642]

In addition, the significance of the lead pollution peaks registered in the Greenland ice cores,[643] the undisputedly marked increase in Roman-period

[640] Wilson 2002, 231–234.
[641] Finley 1973; Duncan-Jones 1974.
[642] Wilson 2002, 231–232.
[643] Hong et al. 1994.

shipwrecks in the Mediterranean,[644] amphorae and low-cost goods,[645] and the diversity of, and investment in, large scale, non-agricultural urban production centres throughout the empire,[646] has come to act as a proxy representing economic growth and integration of the Imperial economy, never to be reached again until the Industrial Revolution in the late 18th century. Indeed, "any all-embracing model is going to be unable to cope with the degree of complexity now recognised in the ancient economy, and in patterns of ancient urbanism in general",[647] thus where does one begin to understand the economy of the Roman peripheral zones? Horden and Purcell argued exactly this by stressing that the history of the Mediterranean did not fit into a neat series of conceptual dichotomies (i.e. urban versus rural), which would automatically marginalise 'grey zones'.[648] The importance of moving away from the "ideal type" as suggested by Wilson ensures that a place can eventually be found for the otherwise ill-fitting peripheral towns and cities where evidence, particularly literary and epigraphic, are limited.[649] For several decades now the idea that a single type of economy represented one city, or even region, has been increasingly viewed as unfounded, largely due to the discovery—and general acceptance—of multiple large or small artisanal or craft industries. North Africa has come to represent the best example of this, where for a time, ancient historians and archaeologists would classify North Africa as *the* Roman oil producer; whilst Sicily and Egypt were *the* grain producers. The importance of different pottery workshops, wine production and manufacture of fish-sauce within both these provinces has demonstrated

644 Parker 1992a; Wilson 2011, 33–39.
645 Wilson 2009, 214.
646 Mattingly and Salmon 2001; i.e. Slim et al. 2007 on fish-salthing factories in North Africa; Flohr 2013 on the economic significance of fulling in Roman Italy.
647 Wilson 2002, 233.
648 Horden and Purcell 2000, 105–122.
649 Wilson 2002, 233–234.

the varying economic nature within these regions.[650] A rather dramatic shift in thinking about the Roman economy has partly been due to the incorporation of an increasing amount of quantitative, high-resolution archaeological data, particularly evident for non-agricultural production.

None of the small islands that were studied could be said to possess any particular natural resource that encouraged and stimulated significant interest or demand from other Roman centres in the Mediterranean region. The extraction of readily available obsidian cores from Pantelleria may have been an exception, although very little evidence is currently available for this trade after the Neolithic and Bronze Age period.[651] Instead the small Mediterranean islands possessed a variety of geological and climatic conditions that supported a range of hardy, drought-resistant Mediterranean plants, and more importantly, access to a rich and infinite (at least during the Roman period) supply of marine resources. This ecology is shared by much of the mainland that defines the coastal areas of the south-central Mediterranean, thus geographically, it is apparent that these islands could very well have been perceived as extensions to the mainland. Yet, even amongst this small range of islands, there are many small differences, such as the type of geology, landscape, accessibility to fresh water, and island size, which affected how small local industries developed on these islands and how islanders may have interacted with neighbouring coastal centres. There is little scope in challenging the potentially economically or politically strategic role many of these islands played in this stretch of sea, and indeed, the significance of small-island involvement

[650] Hobson 2015.

[651] One of the only references to the trade in Obsidian in the classical period is Pliny *Natural History* XXXVI, 67. See Tykot 2002a–b and Robb and Farr 2005 for an overview of the trade of obsidian in prehistory in the western Mediterranean basin.

in maritime trade oscillates between the very positive[652] or very negative.[653] The purpose of the remaining section will endeavour to explore economic opportunism in places where 'economic opportunity' as such was not readily supported by agricultural surplus, sustained exogenous investment or high-demand natural resources. Instead, temporary or long-term symbiotic relationships developed between small islands and their closest mainland centres, which attracted better connections and integration with exploitable markets that were not within reach of the small-time local island trader alone.

6.2 Transition (3rd century BC)

Much of the basic infrastructure and internal administration found on Pantelleria and the Maltese islands after the Roman annexation at the end of the 3rd century BC can be attributed to several centuries of Punic influence and subsequent Carthaginian control. The islands of Lampedusa, Linosa and Kerkennah, although certainly under the 'Punic' sphere of general influence, show evidence for far less intense Punic occupation than Pantelleria and Malta.

On the eve of Roman annexation, at the start of the Second Punic War, the Maltese islands were already in possession of sufficient domestic infrastructure that secured them a viable, local economy. Out of several natural harbours, the south-eastern harbour at Marsaxlokk Bay appears to have been the primary Punic-period port because of its proximity to the important sanctuary to Astarte (Tas-Silġ), located on the hill overlooking the bay (Figure 7). Scores of farms in existence since at least the 4th century BC were scattered across the islands (Figure 12).[654] Evidence for viticulture

[652] Gambin 2005.
[653] Atauz 2004; 2008; Gambin 2009.
[654] See Section 2.3.2.

pre-dating the 4th century BC and the export of locally produced olive oil from at least the 6th century BC suggest that the islands were sufficiently settled with established economic investments.[655] Cereal was extensively cultivated from at least the early Punic period (c. 800–500 BC) and agricultural terracing was practised from at least the 6th–4th century BC.[656] The distribution of the several hundred rock-cut shaft tombs across the islands also prompted one scholar to argue for an extensive road network linking the main urban areas and smaller hamlets, which existed prior to the Roman period.[657] The fact that the main cities on both Malta (*Melita*) and Gozo (*Gaulos*) are found inland—a general Phoenician anomaly[658]—would further support a terrestrial transport network of some sort (Figure 101). The islands also boasted at least three substantial religious sanctuaries (Tas-Silġ, Ras il-Raħeb and Ras il-Wardija), the most famous, that of the sanctuary to Astarte at Tas-Silġ, probably attracted pilgrims from across the islands and further afield.

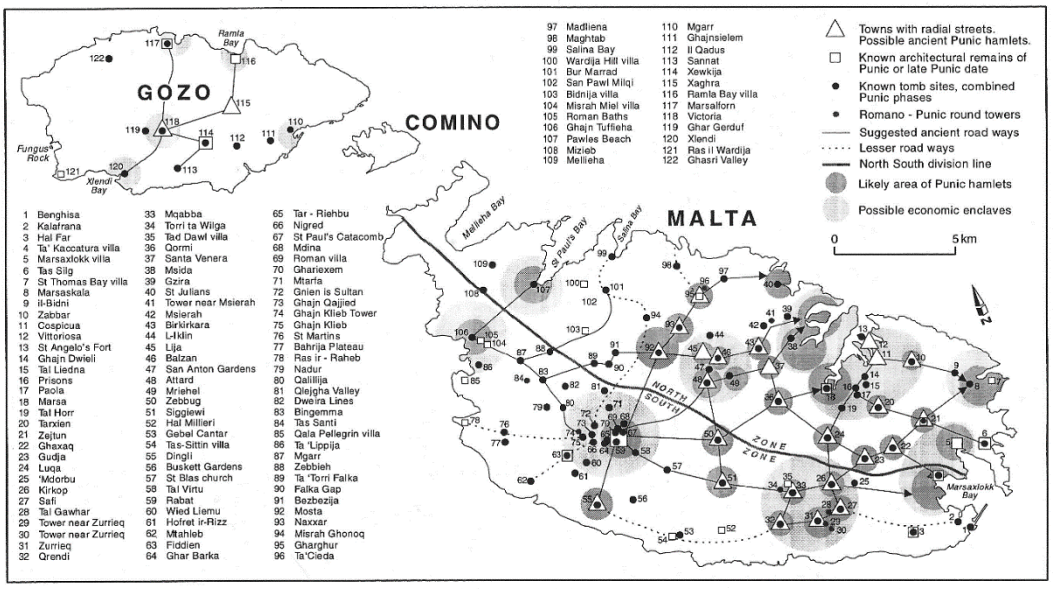


Figure 101: Proposed Punic road network on Malta and Gozo (Sagona 2002, 681, map 12).

655 See Section 3.8.
656 See Section 2.3.2.
657 Sagona 2002, 681, map 12.
658 Docter et al. 2012, 141.

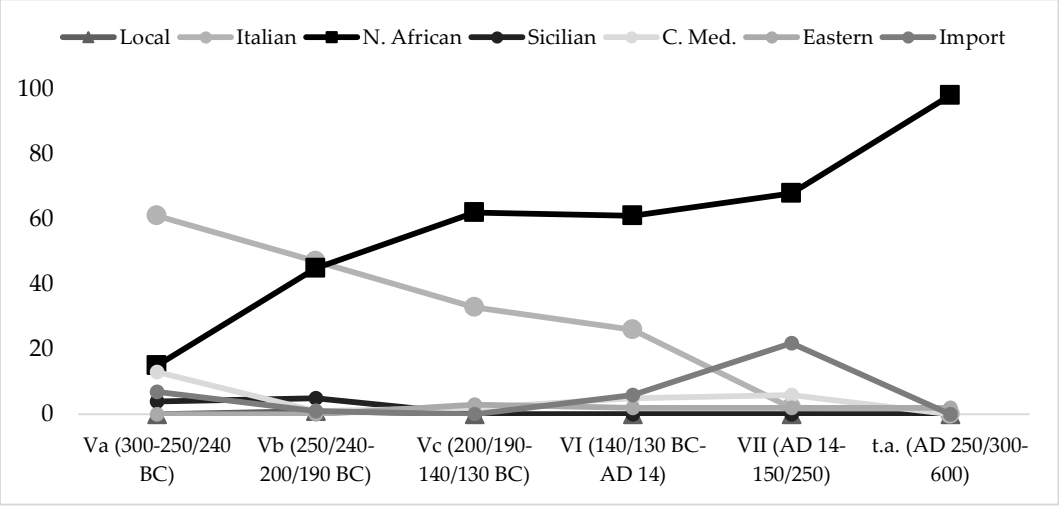


Figure 102: Proportion of amphorae from different sources found on Pantelleria over time (data taken from Bechtold 2013).

Similarly, Pantelleria also shows evidence for extensive development and infrastructure during the Punic period. Traces of the earliest occupation on the San Marco-Santa Teresa acropolis, overlooking the Punic-period harbour (modern-day Pantelleria) date to at least the 7th century BC.[659] The distribution of Punic water cisterns on Pantelleria indicates that the island was quite considerably populated, both in the urban areas (in particular around the acropolis), as well as rural areas where numerous farms are thought to have been constructed.[660] The consistent building techniques employed in the construction of these Punic-type cisterns prompted Castellini and Mantellini to argue that this extensive network of cisterns was a result of organised urban and rural planning of the island, dating to the Punic period, and were a product of a centralised planning authority, rather than *ad-hoc* organic constructions excavated on demand.[661] It is tempting to think a Carthaginian impetus for developing the urban and rural landscape of Pantelleria, primarily for the strategic benefit of Carthaginian hegemony, may have been in effect here. This does, however,

[659] Almonte 2005; de Vincenzo, Osanna and Schäfer 2005.
[660] Castellini and Mantellini 2006.
[661] Castellini and Mantellini 2003, 55.

seem unlikely and can alternatively be explained as the work of standardised, and tested, building techniques employed by locals or itinerant masons using ideas and knowledge obtained from overseas.

The amphora evidence, however, suggests a more autonomous Punic settlement, independent from, but working symbiotically with Carthage; more so, in fact, than any other Punic settlement in the western Mediterranean at this time. During the Punic wars, Carthage's reliance on the island as a stronghold and important naval base is accentuated by the increasing reliance on North African amphora-borne goods on Pantelleria (Figure 52), the patterns of which appear to mimic those on the mainland. With the loss of Punic centres in Sardinia and Sicily, Carthage was forced to draw more of its resources from its own hinterland.[662] A construction date for the fortified walls surrounding the island's main urban centre can be dated to the Second Punic war (218–202 BC). In addition, L. Abelli has argued that the maritime remains surrounding the island demonstrates that it was an important naval stronghold throughout the Second and Third Punic wars, and was appropriated by the Romans because of the advantageous position it secured against Carthage, located a short sail away.[663]

The low-lying islands of Kerkennah also saw some of the earliest Punic settlement along the central Tunisian coast as indicated by the findings from the Tunisian coastal survey.[664] Although traces of Punic presence are known on the islands (and also acknowledging the fact that far less intense archaeological investigations, especially inland, have taken place on the island group when compared to Malta, Pantelleria and Jerba), the remains

[662] Docter and Bechtold 2010, 88, fig. 3.
[663] Abelli, Secci and Spanu 2014.
[664] Bonifay et al. 2005, 128.

are substantially more sparse than Malta and Pantelleria suggesting that the islands supported a drastically smaller population. The discovery of at least one Punic-period tomb[665] and regionally imported pottery dating to at least the 3rd century BC confirms this.[666] There is little evidence for extensive Punic occupation on the southern Tunisian coast, except for on the island of Jerba, where survey and excavations have confirmed the presence of substantial Punic settlements, mainly in the north (Ghizéne) and south (Meninx) of the island, with foundations dating to at least the 6th century BC at Ghizéne and the 4th century BC at Meninx. These investigations have confirmed the evidence of a busy Punic emporium carrying out trade with far-flung Greek and Punic colonies in the Mediterranean.[667] The active trade taking place at Ghizéne could conceivably have passed through the Kerkennah isles en route to Carthage, Pantelleria and western Sicily. The islands, although claimed by a few Punic settlers, would have been more suited as a temporary stop-off. When compared to other islands in the central Mediterranean, including Linosa, far fewer cisterns for all-important water storage are found, and those that have been are located along the coast, presumably near anchorages.

In the last decade Lampedusa has come to represent *the* stepping-stone island *par excellence* linking the African continent to mainland Europe for thousands of refugees seeking economic and political security. This geographic position, much like Pantelleria, must have been exploited to some degree in the Punic period. A Punic-period tomb and a series of bell-shaped cisterns found throughout the island are indicative of some degree of settlement and occupation in the Punic period, but not to the degree witnessed on Pantelleria and the Maltese islands. A more detailed

[665] Fantar 1997.
[666] Bonifay et al. 2005, table 1.
[667] Fentress 2001, 253; Ben Tahar 2014.

assessment of the island's settlement density will only be known once the results of the archaeological investigations that have been undertaken on the island are eventually published.[668] Nevertheless, the sheltered natural harbour located on the low-lying, south-facing tip of the island, as well as the historical evidence for the potential of sufficient local agricultural production, also support the likelihood of a small resident community on the island. The bell-, bottle- or carafe-shaped cisterns that characterise the water-management systems on Lampedusa, Linosa, and possibly even Lampione, are very similar in shape and profile to those recorded in the Maltese islands, and which date from the Punic period.[669] Bell-shaped cisterns are known from North African sites too, but are greatly outnumbered by another type, the 'cigar-shaped', elongated cistern, which characterises Pantelleria and Kerkennah's water-management infrastructure.[670] The latter cistern type is typical of Punic and early Roman sites along the Tunisian coast including Carthage and Utica, western Sicily and Sardinia.[671] Although probably rather obvious, it can be mentioned that Carthaginian (or at least North African) influence was felt more so on the islands in closer proximity to the Tunisian coast than the latter more isolated pelagie islands.

There is increasing archaeological evidence that Malta and Gozo benefited from a local and export economy in wine and olive oil, more so in fact than any of the islands under study. However, despite the evidence, the islands were remarkably insular in their interaction with their neighbouring region when compared with the remarkably high rate of importation of ceramic goods elsewhere. The lack of any evidence for local ceramic production

[668] Pers. comm. Michel Bonifay, 6th October 2014.
[669] Ashby 1911, 26; cf. ft. 568; Wilson 1997, 49.
[670] Wilson 1997, 49–50.
[671] Marano 2014, fig. 4 (Tharros); Bonetto, Cespa and Erdas 2012, 2597.

during the Punic period on Lampedusa, Linosa and Kerkennah, and the high rate of imported Punic-period goods on Pantelleria, are in sharp contrast to the ceramic findings from the Maltese archipelago. There is evidence for an overwhelmingly localised ceramic industry where only a fractional amount of pottery was being imported in the later Punic period. This was particularly marked at the sanctuary of Tas-Silġ where imports constituted about 2% of the entire assemblage (n=81,893), the majority of which were made up of amphorae;[672] but also on practically all other Punic-period sites. A surprisingly low percentage of imported Punic-period fine wares (Punic and Campanian/Sicilian black-slipped pottery) reached the islands, where instead similar shapes were imitated using a local cream-slipped burnished finish (Figure 18.1–5). In contrast Pantelleria's fine ware assemblage is almost exclusively made up of imported black-gloss fine wares, both from southern Italy and eastern Sicily, as well as Carthage. Imported amphorae to Malta during the Late Punic period are present, but scarce; yet they do represent a degree of interaction with Greek and Punic settlements in Sicily and North Africa. The odd Maltese Punic amphora probably carrying olive oil was exported across the central Mediterranean as far west as Ibiza (Figure 36). This does suggest that some foreign exchanges were being conducted. That imported fine ware and amphora-borne products were not in any significant demand on Malta and Gozo can be partly explained by the subdued traffic passing through the Maltese shores at this time, therefore encouraging local inhabitants to ensure that locally produced table wares and foodstuffs (oil, wine, cereals etc.) could sate the large proportion of domestic demand. The occasional movement of local amphora-borne goods—most probably oil and wine—has been explained as small consignments of local produce being sent to small

[672] Sagona 2015, table 1.1; Bruno 2009, 132.

communities of Maltese residents living abroad.[673] There is a possibility that itinerant Maltese craftsmen or masons livied on neighbouring islands or cities, which is also a popular way of explaining the small number of Maltese Punic goods identified abroad.[674] Historically, Maltese migrants travelled to eastern Sicily, Lampedusa and even Spain to set up businesses or find work.[675] Thus it is very possible that services were also an important component of generating personal wealth for islanders. Diodorus Siculus also generously complimented Maltese craftsmen for their expert skills, making particular reference to their ability to manufacture "remarkable" textiles, and to decorate buildings with "*stucchi* crafted with uncommon mastery", further supporting a well-established service industry on the island.[676] Economic transactions between the Maltese islands and neighbouring regions are also apparent by numismatic evidence, primarily with the discovery of Carthaginian, Sardinian and Sicilian mints as well as Greek Sicilian coins on Maltese sites.[677] The highly restricted circulation of coins (on a local or regional level), and the very low incidence of large numbers of coins found associated with shipwrecks, suggests that trade transactions and the selling of one cargo and purchase of a return one took place within the same port emporia or entrepôt, thus coins did not circulate widely between ports.[678]

[673] This has long been the explanation for the dissemination of a handful of Late Punic-period Maltese amphorae in the Mediterranean originally suggested by Ciasca 1985a; see Section 3.8.
[674] Ciasca 1985a.
[675] Ashby 1911, 15.
[676] Dio. Sic. *Histories*, V, 12, 2; quotations taken from the translations made by Bruno (2009, 224).
[677] Frey-Kupper 2015, 368–383.
[678] Howgego 1994, 7; A. Wilson 2013, 125; Parker 1992a, 39.

6.3 Late Republican period (early 2nd to late 1st century BC)

The Late Republican period marks an important 'turning point' in the economic history of the Maltese islands and Pantelleria. The existing domestic infrastructure for local industries on Malta appears to have been maintained or were added to as there is evidence for an increase in agricultural investment related to the cultivation and pressing of olive oil. Traces of at least 22 complete or fragmented *trapeta*[679] have been discovered on Malta and Gozo, many of which are associated with substantial farms and other structures related to the pressing of olives, such as the large limestone block that anchored the *prelum* and exerted pressure on the press bed; and several deep settling vats. The cost of transporting and installing a complete *trapetum* was considerable, thus installing this equipment on farms must have promised a decent return on the landowners' investment.[680] The type of olive mill, with two hemi-spherical *orbes*, is originally Greek but spread westwards during the Late Republican and early Roman period.[681] The rotary mill, characterised by two rotating cylindrical mills, common on later North African sites and which is synonymous with the boom in olive oil production from the 2nd century AD, is not found on Malta or Gozo, or as of now, on any other of the small islands under study here. In Africa, the distribution of the *trapetum* is limited to the Cape Bon area[682] and may be associated with the Late Punic and early Roman olive oil production that supplied Carthage before it was sacked. The large number of Carthaginian oil amphorae recovered from

[679] Bonanno 1977; a recent survey of olive pressing equipment carried out by myself and N. C. Vella has led to several more *trapetum* fragments and potential sites being identified (Anastasi and Vella, in preparation).
[680] White 1975, 229.
[681] Brun 2003, 148–149; 2004, 94–96.
[682] Mattingly 1996, 578, fig. 1.

pre-146-BC deposits at Carthage, accounting for as much as 80–95% of the amphora assemblage in the city, suggests this.[683]

Between the 2nd and 1st centuries BC Maltese amphora production appears to have increased suggested by the manufacture of the Late Punic egg-shaped types (Sagona form VI: 1; type 1.1.1) and the more Romanised form, the Malta type 1 (type 1.1.2). Just under half of the amphorae found at the large olive pressing farm at San Pawl Milqi can be attributed to these types during the Late Republican period (Figure 27), whilst local vessels accounted for the majority of amphorae attributed to Phase 1 at Bulebel (Figure 42). The Xlendi Bay wreck, with a cargo of several hundred egg-shaped forms and another containing a consignment of Malta type 1's attest to the wide-scale potential for export of Maltese oil, however, as Maltese exported goods are not often found in the Late Republican period, these wrecks could more possibly belong to the transport of domestically produced oil between Malta and Gozo. Very few imported oil amphorae were being imported to Malta during the Late Republic when compared to the large amount of Italian wine containers. The evidence suggested by the limited export of the only other archaeologically attested Maltese product—probably wine—up until at least the mid-2nd century BC indicates that local wine was still being produced, but demand for foreign wines of a variety of vintages (as suggested by the wide range of wine containers as opposed to bulk imports of a few types) hints at slight economic growth, and raised living standards on Malta, where local consumption habits extended beyond the need for staples. The sanctuary at Tas-Silġ saw a massive increase in Italian wine containers, mainly Dressel 1s and Lamboglia 2s,

[683] Bechtold and Docter 2010, 100, table 2.

whilst rural areas (Bulebel and the Żejtun villa) also saw a marked increase in the consumption of Italian wine.

Increased economic prosperity may account for the large building works that took place at the sanctuary between the end of the 2nd and beginning of the 1st century BC where a large colonnaded portico was erected above a floor in *opus signinum* and large open-air court.[684] A large ashlar building belonging to a possible tower-like structure to the north of the temple was found to be contemporary to the wider restructuring effort.[685] Independent excavation and dating of the southwards extension of the sanctuary has also been dated to 300–100 BC.[686] The Maltese capital, Melita, also witnessed considerable urban development during this period. The construction of the buildings associated with the UCLA Museum Esplanade excavations cannot be dated with certainty because of the unavailability of the pottery associated with the foundation deposits, but a *terminus ante quem* of the end of the 1st century AD or earlier has been suggested due to the alleged discovery of an ITS platter.[687] Whether this particular building was built in the Late Republican or Early Imperial period remains to be determined, but remains of other urban dwellings within the vicinity also attest to a construction 'boom' around turn of the millennium. A tiled floor supported by tightly packed up-turned wine amphorae (predominantly Dressel 1 and Lamboglia 2 types) was discovered at Is-Saqqajja, Rabat, located a short distance from the UCLA trenches (Figure 103).[688]

[684] Rossignani 2004–2005, 355; 2009, 121.
[685] Semeraro 2004–2005, 312–313.
[686] Mason et al. 2015, 58–59.
[687] See Section 3.5 and Appendix V.
[688] Bonanno 2005, 216; Antico Gallina 2004.



Figure 103: Aerial view of Mdina and Rabat, Malta indicating the location of other Roman-period excavations and finds; and (bottom) a plan of the Roman domus and other houses in Rabat (after Gouder 1983).

At least two other sites displaying similar construction techniques were also recorded within the vicinity of Mdina.[689] The building of the nearby domus, well-known for its well-preserved Late Hellenistic mosaic floors, dates to the 1st century BC on the basis of the floors' stylistic features, similar to those found at Morgantina and which were inspired by Alexandrian models.[690] Adjacent to the domus, and roughly aligned with it, are a series of smaller

[689] Bonanno 2005, 216.
[690] R. Wilson 2013, 85.

insula blocks of houses, probably contemporary with the buildings discovered across the road on Museum Esplanade (Figure 103).

It is these buildings that T. Zammit linked to the 'textile workshops' referred to by Cicero. In reality there is very little evidence aside from a handful of bone needles and loom weights to suggest this.[691] Nevertheless, the manufacture of woollen textiles may have featured quite significantly in the local economy from at least the 1st century BC if we take account of Cicero's numerous references,[692] and the potential for sheep rearing.[693] It is very possible that the relative economic growth on Malta and Gozo from the Late Punic period was due to the manufacture and export of textiles rather than oil, wine or other archaeologically visible economic proxies. The small number of Maltese amphorae found in foreign contexts most probably are the only visible remnants of a more intensive Maltese textile trade, where small numbers of oil and wine amphorae were stowed alongside a primary cargo of textiles.[694]

In spite of the apparent increase in visible wealth on Malta in the Late Republic, and in stark contrast to Pantelleria, where Italian imports are also comparably high, the import of Late Republican black-slipped fine wares to Maltese sites remains negligible. Well-made local imitations of Hellenistic forms, either coated in a smoothed cream-coloured slip or a thin red slip (by the end of the 1st century BC) become commonplace and must account for the gap left in the fine-ware market. Indeed, fine wares were imported, but in comparison to Pantelleria's massive supply of black-slipped vessels and Malta's influx of Republican wine amphorae, the shortfall in imported fine wares on Malta may be explained by either different supply routes in place

[691] See Section 2.3.1.
[692] Cicero *In Verrem* II, 2, 176; 183; 4, 38–41; 103–104; 5, 27.
[693] See Section 2.3.1.
[694] See Section 3.8.

at the time; or a lack of island demand for some goods over others. It remains clear, however, that a demand in local fine wares was stimulated enough to warrant the manufacture of numerous local imitations. Additionally, it would appear that the mechanisms behind the supply and demand of goods to and from Pantelleria and the Maltese islands during this time were very different and were indeed part of largely different trade networks, which overlapped to some degree because of the exchange of a small amount of Pantellerian cooking wares and Maltese flat-bottomed amphorae at least from the mid-2nd century BC.

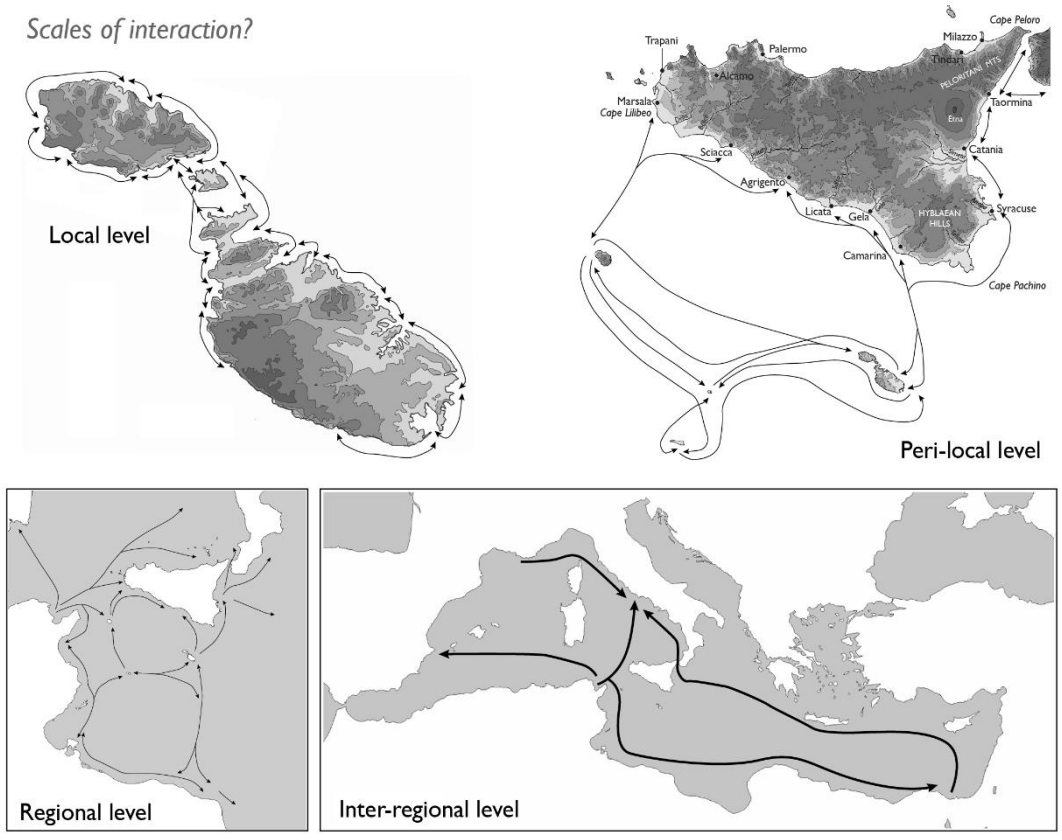


Figure 104: Hypothetical levels of travel routes from a local to inter-regional scale (source: author).

On Pantelleria, the Late Republican period sees the start of cooking ware exports to the Tripolitanian coast, particularly at Sabratha and other neighbouring centres on a 'peri-local' scale (Figure 104). Historically the strong link between Carthage and the island would have been temporarily severed, although the proportion of imported North African amphora-

borne goods, most probably from the unaffected hinterlands surrounding Carthage, are maintained even after Carthage's fall.[695] Like the Maltese islands and Lampedusa, Pantelleria also starts to issue its own bronze coins, suggesting an increased degree of autonomy. The historical 'break' from Carthage may also account for the greater importance of Pantelleria in the redistribution of North African and Italian goods for the central Tunisian and Tripolitanian coastal centres. The appearance of Pantellerian cooking wares in many of these nearby centres may have reached these areas after forming part of larger return cargoes carrying North Tunisian and Italian products back with them.

The diffusion of Late Punic/Early Roman African cooking wares might also suggest the general directional flows of goods within the central Mediterranean at this time. These forms have been classified by Punic specialists as Vegas forms 68.3 and 69 and Hayes forms 191 and 194 by Roman ceramicists. Production starts in the Carthage area from the 3rd century BC but continues into the mid-2nd century BC and the form develops into a slightly thicker-walled version by the 1st century AD.[696] The typological differences between the supposedly chronologically distinct forms are slight, but 1st-century-AD contexts containing lots of these cooking pots have been found in Pantelleria,[697] Carthage,[698] but far fewer in Sabratha.[699] One could crudely conclude that the further away from the source (Carthage area) the lower the number of imports. Only one example of this early cooking ware type has been identified on Gozo[700] suggesting

[695] Dossey 2010, 41-42.
[696] Vegas 1999, 197–198; Hayes 1972, 205–207.
[697] Schmidt 2013b, 543–544.
[698] Vegas 1999, 197–198; Hayes 1975, context XI.
[699] Dore 1989, types 34–35.
[700] Quercia and Anastasi 2008–2009, fig. 13.7; see Section 3.6.2 and Appendix III, (Figure 17.12).

that these forms were not being imported to the Maltese islands in great numbers. It could be argued that in the early Roman period, the Maltese islands maintained a trade link with Pantelleria similar to the one seen earlier by the export of Maltese products until at least the mid-2nd century BC. This link would probably have been partly maintained by what Arnaud referred to as "collective memory",[701] but also a trade in archaeologically invisible goods like textiles. Therefore, we could hypothesise that Pantelleria acted as a redistribution centre for some Maltese products, as well as North African cooking wares, which were then being exported to Sabratha, by-passing the Maltese islands altogether. This may also explain how the small number of Maltese forms were disseminated and found their way to Sabratha, Jerba and Leptis Magna. Therefore, this confluence of specific regional distribution of particular goods suggests a primary peri-regional, north-south trade corridor that serviced mainly former Punic colonies from Pantelleria to their north. Indeed, the presence of Maltese ceramics within this primarily north-south distribution may also suggest the central place of Pantelleria's emporium-like status within the region.

Lampedusa, like Malta, Gozo and Pantelleria, also minted its own coins during the Later Republican period. The distribution of coinage does not in itself reflect the movement of traded goods,[702] but on such a small, relatively economically insignificant island as Lampedusa, the issuing of such a mint does put into question the degree to which Late Republican locally minted coins represented economic prosperity or local autonomy. In any case, the fact that local coins were minted by a central authority on the island does at least imply that there was a small community resident on the island during this period and an incentive to stimulate local exchange. No other

[701] Arnaud 2007, 327.
[702] Howgego 1994, 7–8.

archaeological evidence pertaining to this period has been reported, however, the discovery of later houses near the main harbour and the 2nd-century AD fish-salting vats at Cala Salina may have developed out of early Roman structures. The presence of a tuna fish on the reverse-side of the coins also attests to an existing local tradition of fishing, which may have been central to the economy of the small island at this time. The Greek legend in place of a Punic one aligns the island's cultural affinities with eastern Sicily and Malta, and may offer some clue as to the island's earlier colonists or at least most regular interaction. It is generally considered that Punic and Greek coins of the 5th and 4th centuries BC reflected, in part, political reality on account of the stark distribution of Punic coins on western Punic sites, and Greek coinage limited to Greek sites.[703] However, on occasion coins did move beyond these political divides. Out of the handful of coins issued on Lampedusa, a single coin was found abroad amongst a small coin hoard in Contessa Entellina (ancient Entessa), c. 80 km from Palermo.[704]

Due west, the establishment of a series of fish-salting vats on the islands of Kerkennah's western coasts can be linked to the Late Punic/early Roman period on account of the association with Van der Werff forms from Byzacena.[705] The shallow waters along the south/central coast of Tunisia and the Gulf of Gabes, in combination with low tidal phenomena, most probably led to the large-scale exploitation of fish products, which would come to characterise this part of the Mediterranean in the later Roman period. Unlike the other islands, the Kerkennah isles never issued any of its

[703] Frey-Kupper 2014, 77. Carthaginian coins only appeared after during the 4th century BC and are believed to have been introduced as a method of military payments above anything else. During the First Punic War (264–241 BC) a considerable amount of coins were struck both in Carthage and eastern Greek Sicily (Frey-Kupper 2014, 82).
[704] Rossini 2005, 372.
[705] Slim et al. 2004, 128; Bonifay et al. 2005, 155.

own coins in the Late Republic suggesting that a localised central authority or at least small-change local economy never quite existed there. For now, however, numismatic data are not available for the islands. No evidence for local ceramic production, in particular workshops related to the manufacture of amphorae for packaging, storing and transporting the fish products produced on the islands have been found either. The largest fish-salting plant at Borj el Hasser, where traces of port facilities are also located,[706] may be the location for the islands' main centre. The landward-facing centre may have reflected the link between Kerkennah and the mainland.

The 2nd century BC saw the start of the gradual settlement and exploitation of central Tunisian agricultural land, and with it, the settlement of the coastal areas.[707] In consequence of this relatively new settlement pattern, the strategic function of the Kerkennah isles, integral to trade and sea-travel in the Punic period, gradually became of less importance. Nevertheless, the geographic advantages of the off-shore islands were still utilised during the African Civil wars (49–45 BC), where one of the few literary references mentioning the island group describes the use of the islands for storing grain supplies for Caesar's military campaign.[708] The rather isolated nature of the island group is also represented by Tacitus as an island of exile for Sempronius Gracchus during the reign of Augustus.[709] Presumably this would imply that the island was relatively habitable insomuch as local produce (most definitely including fish) was available and cultivated by a small locally residing population, but also that the island was relatively 'isolated' from frequent visits by high-ranking individuals, travellers and

[706] See Section 4.3; Stone 2014, 118, table 1.
[707] Fentress and Docter 2008, 126–127.
[708] *Bellum Africum* 3.8; 34.1; 34.3; Syme 1964, 37.
[709] Tacitus *Annals*, I, 59; Sempronius Gracchus was eventually executed on the island at the behest of Tiberius in AD 14 (Rogers 1968).

official traders, and constituted a place very far-removed from the political centres in Rome.[710] The 'isolated' nature of Kerkennah is later reinforced by the reference to Sempronius' son Caius who grew up on the island and due to the isolation and lack of prospects became a petty trader, dealing in illegal trade between the island and the wider region.[711] Incidentally, no mention has ever been made of the use of the more 'autonomous' and densely settled islands of the Maltese archipelagos, Pantelleria or even the Pelagie islands as places of exile.

6.4 Early Imperial period (Augustan period to early/mid-3rd century)

The radical geopolitical transformations that characterise the Mediterranean during the Late Republican period paved the way for an unprecedented economic boom across North Africa over the course of the first three centuries of the empire. The pan-Mediterranean *pax romana* ushered in opportunity for investment, production and regular supply prompting marked economic growth throughout the empire. The provinces of Africa and Sicily benefitted most significantly during this time, assisted by imperial incentives and tax-credits in the organisation and supply of the annona to Rome's growing urban population.

The general nature of the Maltese islands during the first few centuries of the empire is based on the assumption of continuity in the urban and rural areas settled and occupied from the previous period. Overall, far less archaeological excavation of sites dating from the first century has been undertaken, and the few sites that have been excavated, remain unpublished. Markers for sustained prosperity are indicated by an increase in local production of olive oil between the end of the 1st century BC and

[710] Washburn 2013, 135–136.
[711] Tacitus *Annals*, IV, 13.

late 2nd century AD at the villa of San Pawl Milqi (Figure 26).[712] Imported amphora-borne goods are also shown to increase within the same assemblage. The pattern was not, however, demonstrated at the sanctuary of Tas-Silġ, where the proportion of imports drastically decreases at this time. The ceramic evidence obtained from the Bidnija survey, which incidentally was conducted within the surrounding landscape of San Pawl Milqi, indicated a high proportion of local amphora production (Hellenistic/Roman), but the fabrics suggest a far greater proportion of Punic or Republican local amphora forms (Local Fabric 1). In addition, a more or less equally high proportion of imported fragments was registered, although diagnostic Imperial-period amphorae are not as numerous as the earlier Republican period (Figures 20–21). Significant investment in the organisation of oil production took place at the villa where the evidence suggests at least five presses were in use. The simultaneous use of both windlass and screwpress technology is apparent with the existence of both anchor-block types present. One windlass anchor block-type was further modified by adding another limestone slab atop it. The top was then altered to accommodate a screw mechanism (Figure 105). This desire to convert press technology was typical of provinces in France and Spain, but was not followed in North Africa.[713] The adoption of screwpress technology may have signalled an attempt by land owners on Malta to invest further in oil production. Although the sample remains small, farms with screwpress equipment are more common than the windlass presses. Indeed, Mattingly has warned that the adoption of screwpress oil pressing technology did not correlate with increased production as the overall majority of industrial oil-producing sites across North Africa from the 2nd century used the 'simpler' windlass technology but still achieved immense surplus and profitable

[712] Locatelli 2008; Bruno 2009, 158–159; Gambin 2005, 108–114.
[713] Mattingly 1996, 594–595.

returns on the oil produced.[714] In addition, Wilson has also highlighted that the lever-press was partially automated, where multiple presses could be operated with fewer workers.[715] The screwpress was more labour intensive thus would probably be better suited to smaller, low-yield farms rather than large-scale industrial-sized factories like those in North Africa. This would further support the more 'industrial-scale' production of oil at San Pawl Milqi, which also contains unusually high numbers of local oil amphorae and the larger concentration of olive-pressing equipment when compared to other villa sites. Further work is required to better date oil production sites. Recent excavations at the Żejtun villa have indicated a Late Roman re-organisation of the northern industrial area and the pottery does suggest a Late Roman date associated with a screwpress anchor block.

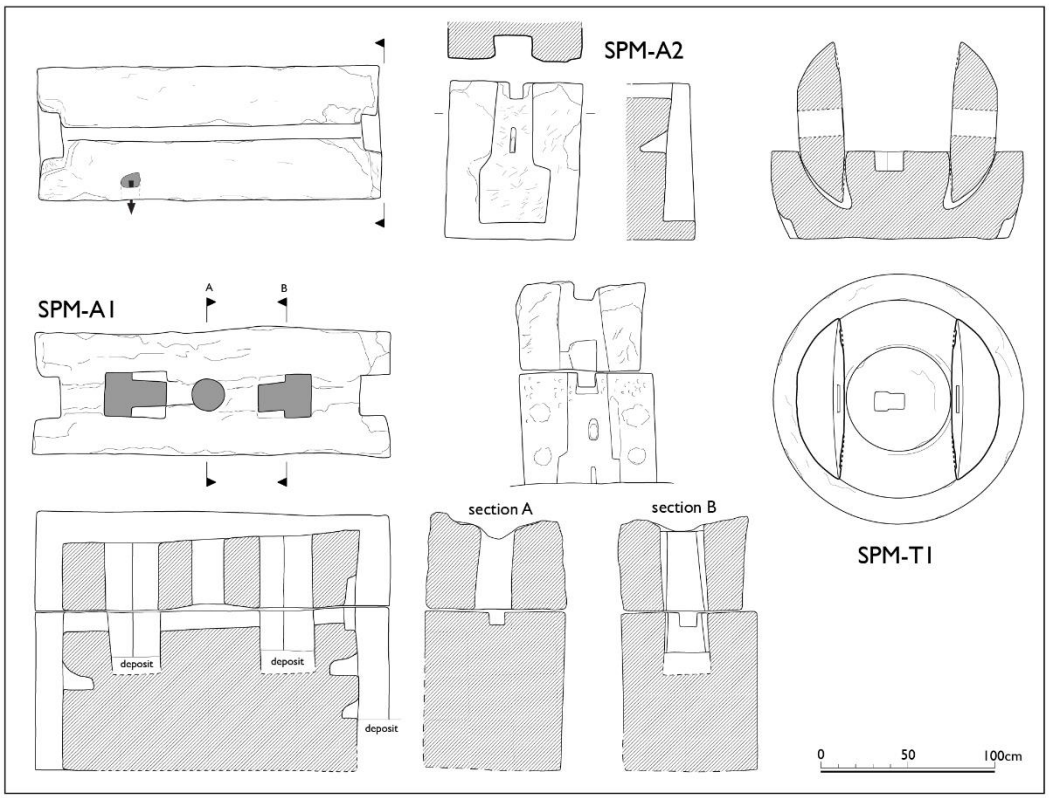


Figure 105: Examples of a windlass and screw press anchor blocks and a trapetum from the San Pawl Milqi villa, Malta.

[714] Mattingly 1996; see Marzano 2013b and de Vos 2013 on oil and wine pressing production and investment.
[715] Wilson 2008, 359–360.

Although local oil production at the San Pawl Milqi villa is attested by the high proportion of locally produced Malta type 2 amphorae, not a single one of these containers has been identified outside of the Maltese islands. By the end of the 1st century AD, the manufacture of the Late Republican forms (egg-shaped, Malta type 1 and the flat-based Punic form; types 1.1.1, 1.1.2 and 4.4.2 respectively) appears to cease, and there is no archaeological evidence for any export industry for the remainder of the Roman period. Also, at no other site on the islands have Imperial-period local amphorae been found in the quantities attested at San Pawl Milqi, singling it out over other villa sites. Indeed, it is possible that locally pressed oil may have been stored in a different type of container that has not survived in the archaeological record. Overall, the proportion of imported wine containers is significantly greater than that for oil amphorae further supporting that local oil could sufficiently satisfy local demand, but might not have been necessarily exported, possibly with the exception of San Pawl Milqi.[716]

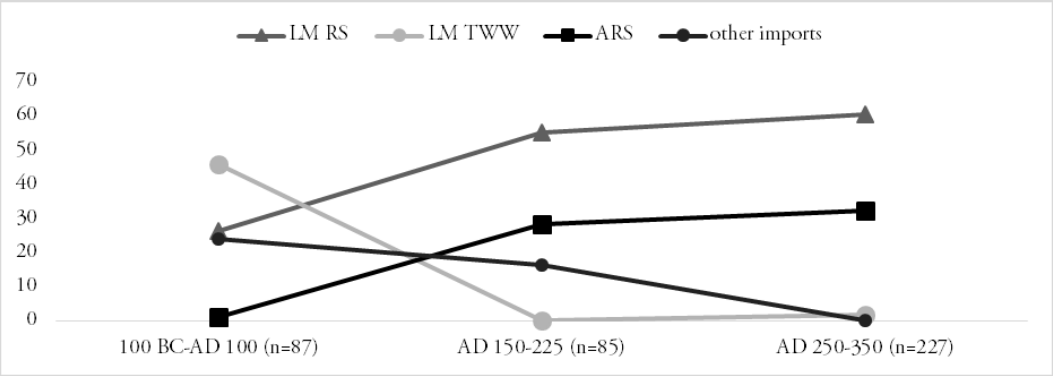


Figure 106: The variation in the proportion (%) of local and imported fine wares on the Maltese islands.

New ceramic data for the first three centuries of the Roman empire have clearly demonstrated that the Maltese islands remained intense producers of utilitarian pottery solely manufactured for local consumption. Locally produced red-slipped and thin-walled pottery bowls and cups continue to dominate the fine ware assemblages from the 1st to mid-4th century,

[716] Gambin 2005, 132.

although from the mid-/late 2nd century African Red slipped wares increase quite significantly and constitute the only significantly important fine ware group ever to be imported into the islands (Figure 106). It is now well acknowledged that the organisation behind the export of fine wares was different from that for amphora-borne goods and cooking wares. It is accepted that fine wares were more likely—although not exclusively—to be shipped as cargo filler on grain ships, whilst cooking wares 'piggy-backed' along with amphora cargoes.[717] This would certainly explain the apparent rise in ARS, yet unimpressive quantity and range of amphora-borne goods from North Africa.[718] It is certainly very possible that the Maltese islands required a supplement of grain. T. Gambin calculated the potential output of grain cultivation and local yield and concluded that local output would not suffice to feed the local inhabitants.[719] Therefore the need to import grain was very real. The increase in ARS could reflect the rise in grain supplies required to feed a growing Maltese population who could no longer rely on local crop yields to satisfy demand. This would, however, presuppose that grain ships from Africa sailed directly to Malta.

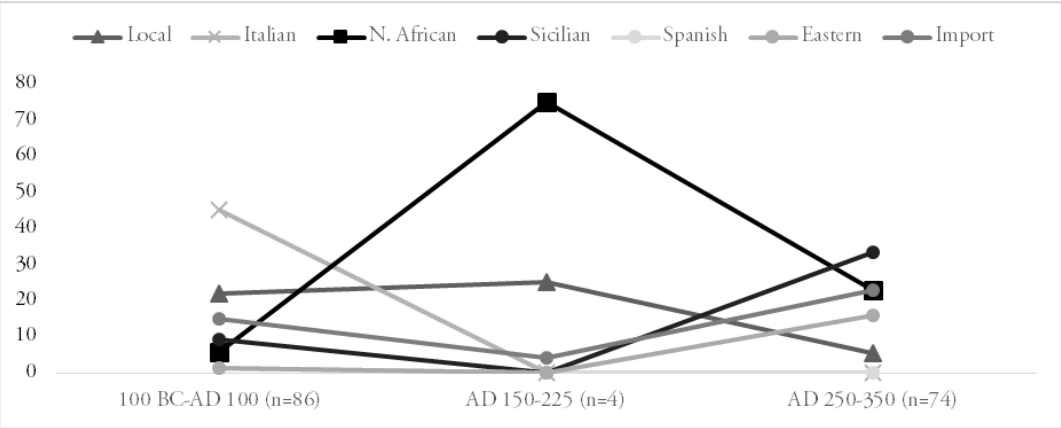


Figure 107: Proportion of amphorae from Maltese sites (RBH).

[717] Leitch 2013, 289; Bonifay 2004, 477–479.
[718] Possible exceptions to this are the assemblages at Tas-Silġ for the early Imperial period (Figure 25), and the assemblage from Foreman Street, but the latter site's sample is not statistically viable; see Section 3.4.2.
[719] Gambin 2005, 115.

It would be more probable that grain was shipped in directly from eastern Sicilian ports, most probably those of Catania and Syracuse. Eastern Sicilian wine amphorae manufactured at workshops in the Catania and Naxos region are relatively common on many Maltese sites in the 1st century and again in the mid-3rd/mid-4th century AD. At all the sites studied, there is an interesting pattern emerging regarding the trends related to the proportion between North African and Sicilian containers. Currently, there are very few data available for a more accurate reading of the mid-2nd to mid-3rd century. The sharp peak recorded for the rise in North African amphorae dated AD 150–225 (Figure 107) is not at all representative of Maltese amphorae in that period mainly because of the small sample.[720] In any case, the general impression that we get from the pattern in Figure 107 is the close correlation between the proportion of Sicilian and North African imports. The earliest and latest phase shows similar proportions but Sicilian amphorae are slightly more numerous. The anomaly is obvious in the middle period, where no Sicilian forms are recorded and a very large peak in North African imports is recorded. The data from San Pawl Milqi (Early Imperial period) reflect a similar slight difference between Sicilian and North African proportions (13.4% and 11.9% respectively), but the data from Tas-Silġ show a high proportion of North African amphorae (41.5%) when compared with the 8.9% of Sicilian forms (Figure 25). The somewhat steady supply of various eastern-sourced amphorae mixed in with the assemblages and the dramatically low incidence of Spanish imports throughout the Roman period would certainly indicate that trade routes were not reaching Malta directly from North Africa or indeed the west. A

[720] The data for this period (AD 150–225) are taken from the Foreman Street assemblage. Only 4 diagnostic fragments (rims sherds) were recorded together with a total of 95 body sherds. The overall proportion of the amphorae sources do not generally change when either the diagnostic or all the sherds were counted. Compare Figure 45 and Figure 107. Nevertheless, ideally more data are needed to confirm the above trends.

general mixture of North African wine and oil (possibly even fish-sauce considering the total lack of evidence for local production), and Cretan and Aegean wine when purchased at ports in eastern Sicily, together with a fair consignment of Sicilian wine and brought to Maltese ports. A similar cargo could also have reached Malta from Catania/Syracuse on voyages to Leptis Magna. This particular sea-route has also recently been supported by the overwhelmingly clear archaeological evidence for east Sicilian wine amphorae being transported from Sicily to Leptis Magna due to the supporting distribution of the known forms.[721] Specific amphora forms that are shared by Leptis Magna and the Maltese islands have also shown a close network position between the two nodes for the mid-Roman period (Figure 81).

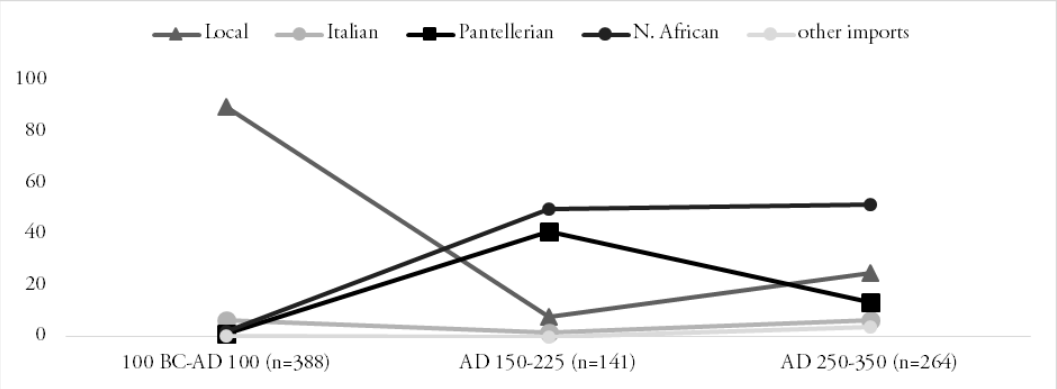


Figure 108: The proportion (%) of local and imported cooking wares from the Maltese islands.

The cooking wares show a slightly different trajectory from the demand of fine wares throughout the Roman period. It is clear that the import of cooking wares coincides with the sharp decrease in locally manufactured vessels (Figure 108). The slight recovery noticed for the later mid-3rd/mid-4th is due to the increased rise in handmade vessels, some of which were clearly imitating Pantellerian ware forms (type 3.2.1.4).

[721] Franco 2014, 416.

The import trends visible for the three major classes of vessels exported throughout the Roman period clearly show that local production of amphorae (most probably for oil) and cooking wares decline after the 1st century AD, whereas although fine ware imports from North Africa increase quite significantly, they are never close to overtaking the local market in Maltese red-slipped wares. I would venture to say that the decrease in local oil containers and cooking wares (which are traditionally associated together in North Africa), and the simultaneous rise in ARS could reflect a general overall decline in local agricultural production on the islands, where increasing reliance on imported amphora-borne foodstuffs, including oil and grain, inadvertently stimulated local demand for foreign goods. Alternatively, textile production could have reached 'cash-crop' proportions, stealing islanders away from agricultural-based activities, thereby leading to an increased demand for imported goods. If cooking wares were also tied to agricultural production, then the decrease in their local production can be accounted for.

The connection between the Maltese islands and the east Sicily-Leptis Magna route might also explain the infiltration of 'peculiar' eastern fine wares, such as Corinthian relief ware and Knidian Grey ware, which are less common on North Tunisian and west Sicilian sites, suggesting that a small range of eastern-sourced fine wares were arriving from emporia in eastern Sicily.[722]

From the Augustan period, it is thought that Pantelleria continued to maintain a strong link with North Tunisia (and presumably also western Sicily although data regarding coarse wares after the mid-2nd century BC remain scarce) demonstrated by the high proportion of African amphorae

[722] Malfitana 2005, 89–90, fig. 11.

present on the island (Figure 102). In general, all amphora-borne goods, fine wares, and a large quantity of cooking wares, were imported to Pantelleria despite the clear attestation of locally manufactured local cooking and coarse wares. Early Imperial fine wares (in particular ITS and ARS A) are very well represented; a staggeringly different picture from the ceramics recorded on Malta (Figure 109).

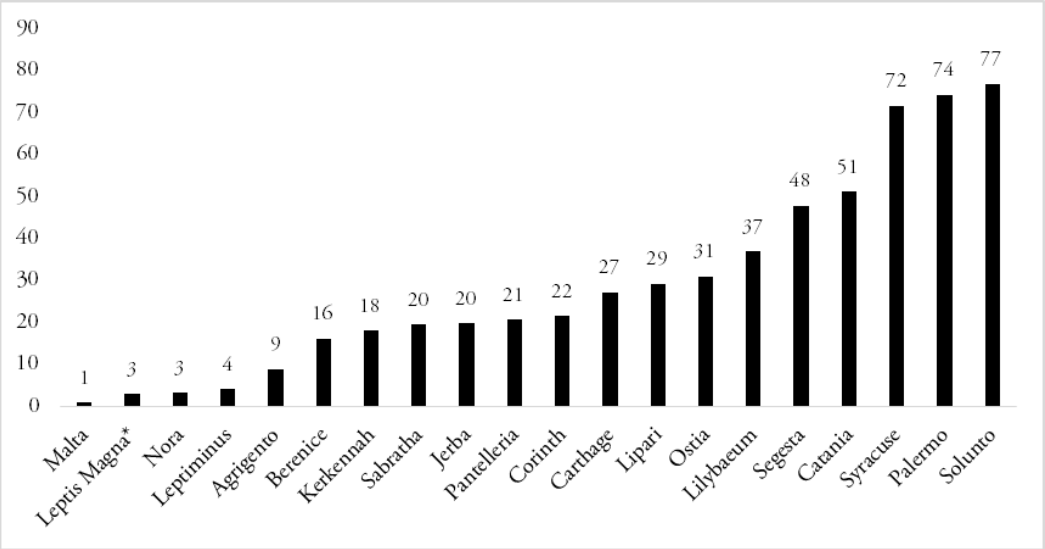


Figure 109: Proportion (%) of ITS fragments within the fine ware assemblages in the central Mediterranean. *The proportion could be much higher as this figure is taken from later-dated contexts. ITS is the most common fine ware in a 1st century-AD context recorded by P. Reynolds (1997, 50).

The proportion of ITS amongst the fine ware assemblages within the above graph shows a very similar arrangement for Pantelleria, Corinth and Jerba, the latter two centres possibly representing strategically placed and well-known emporia stops within the Mediterranean.[723] Clearly the flow in ITS from its production centres in Italy was via ports situated along the north and eastern coasts of Sicily where it was most probably directed towards the Aegean and east instead of continuing south towards Leptis Magna. From north-western Sicily, goods are directed towards Carthage, and possibly redistributed from Pantelleria towards the southern coast of Sicily and south, along the coast of Tunisia towards Jerba and Tripolitania. The

[723] For instance, Slane 1987 and 2000 on Corinth.

Maltese islands and possibly Leptis Magna were mostly bypassed by trade routes carrying ITS altogether. Although current evidence is scarce, the fact that no ITS has yet been recorded on Lampedusa also supports this assertion, but further archaeological research might change this.

The local economy on Pantelleria at this time was probably mostly dedicated to the intermediary role played in the redistribution of goods arriving at her port. Cooking wares were already being produced and exported in small numbers to the immediate region, and further north to Sardinia, Corsica and the Tyrrhenian coast of Italy (Figure 55). It is not surprising that the expansion of 2nd–4th century-AD Pantellerian cooking wares correlate with the distribution of North African amphora-borne goods directed towards Rome as part of the annona.[724] However, the Skerki wreck F, dated to the 1st century AD, would suggest that Pantellerian cooking ware distribution was also dependant on other forms of redistribution, other than a primarily state-incentivised trade organisation that is believed to be the case for the North Africa-Rome annona route.[725] Overall, the volume of Roman-period amphorae found on Pantelleria is relatively low when compared with the preceding periods, although how this relates to the general presence and degree of connectivity on Pantelleria during the early imperial period remains unclear. The German excavations at the San Marco acropolis and the recent Canadian investigations at the Late Punic sanctuary at Lago di Venere have both demonstrated a marked decline in occupational density from the late 1st/early 2nd century AD. Indeed, it is now known that the Pantelleria Acropolis was abandoned in the 2nd century AD.[726] This causes one to reconsider the degree of connectivity between the island and major Roman-period trade routes, in

[724] Leitch 2013, 291.
[725] McCann 2001; Hurst 2008; see Section 4.1.1.
[726] Schäfer 2013, 5032.

particular the annona, in the Roman period. The island was frequented, but it was not part of the direct trade route connecting North Tunisia to Rome.

Alternatively, the relative scarcity of Roman-period amphora finds on Pantelleria can be interpreted as the majority of amphora-borne goods never actually having left the port before being exchanged for other goods—maybe archaeologically untraceable goods like grain?—and then were packed on return cargoes heading towards other destinations along the southern Tunisian coast. A general degree of economic prosperity in the first half of the 1st century is attested by the installation of a series of Imperial marble statues depicting Claudius, which were originally located in the Pantelleria acropolis.[727] Another collection depicting Claudius and members of the Julio-Claudian family is associated with the finely decorated domus in the main city on Malta.[728] Evidence on Pantelleria between the end of the 1st and 3rd/4th century is generally scarce, but an imperial-period maritime villa, which underwent expansion in the 2nd century, was built within the vicinity of the port of Scauri. R. Baldassari concluded that the increased maritime contact that the villa maintained with North Africa from the 2nd century onwards probably led to the dramatic economic changes that paved the way for the transformation of the island's cooking-ware production from the 4th century onwards (see below).

The clearest indicator of economic activity for the islands of Kerkennah and Lampedusa is the installation of fish-salting vats. The dating of the Kerkennah vats relies on surface pottery, so some of the vats may have been in use from the Late Punic/Late Republican period (see above), whilst the use of the fish-salting vats on Lampedusa has been dated to the 2nd

[727] Schäfer 2013, 5032; Weiss, Schäfer and Osanna 2004.
[728] Bonanno 2005, 221–225.

century.[729] The recent excavations of the extensive fish-salting factory at Neapolis (Nabeul, North Tunisia) demonstrated that the site's expansion and greatest period of productivity was between the 2nd and 3rd century before being relocated further along the coastline.[730] The expansion of the urban centre associated with the factory may have been one of the direct consequences for the economic profitability of exploiting marine resources this way, and fish products in the Roman period are considered as an important commodity for the Roman lifestyle, just as oil, wine and grain are known to be.[731] It is possible that the fish-salting factories and smaller vats located along the Tunisian coast aggregated at least by the 2nd century. This would coincide with the general economic prosperity and overall dominance within the entire region. Scores of new colonies and cities appeared along this stretch of coast, together with numerous ports,[732] ceramic-producing factories and organised bottling and redistribution points for large quantities of oil, wine and grain, amongst many other things, arriving to the coast aimed at coastal and overseas markets. It would not be problematic to imagine that the Kerkennah isles gradually merged into the rest of the central Tunisian coastal landscape, and they do not in themselves appear to have held any particular autonomous status. On neither island was evidence for amphora production found, but the archaeological and ceramic evidence from Neapolis has demonstrated that amphora workshops located within the vicinity of fish-salting plants were not necessarily owned or organised by the same *officinae*.[733] Remarkably detailed evidence for the bottling of fish products in amphorae, typically associated with other contents like wine and oil comes from the Grado

[729] De Miro and Polito 2012, 267.
[730] Slim et al. 2007, 42.
[731] Slim et al. 2007, 41–42.
[732] Stone 2014.
[733] Slim et al. 2007, 41.

wreck and has demonstrated that amphorae were recycled.[734] This indicates that it is possible for places like the relatively far-removed island of Lampedusa to have re-utilised containers in lieu of locally produced ones. Presumably clay and fuel for the firing was not abundant—or even available—thus reusing unbroken containers was deemed acceptable. Alternatively, new and unused containers could have been imported from the mainland for bottling of local fish sauce; or else amphorae were not essentially required on Lampedusa for bottling fish sauce as it might have been primarily intended for local distribution.

The same wreck is also thought to have contained an on-board fish-tank, complete with a pump designed to oxygenate a *vivarium* containing live fish.[735] The owners of a handful of coastal fish ponds along the central coast of Tunisia might have utilised such a vessel for importing or exporting live fish within the central Mediterranean region as might have been the case in the Italy, the Adriatic and the eastern Mediterranean.[736]

The Maltese north-eastern coastline is also scarred with numerous rectilinear 'ponds', measuring on average about 3 x 3 m with at least two channels connecting them to the sea (Figure 110). Although no systematic study investigating these maritime 'ponds' has been undertaken—and it would certainly be tempting to attribute some of these features to the Roman period—, it is more accurate to attribute the large majority of these features to the Knights' period and Early Modern period. Indeed, an interesting group of rock-cut features along the Sliema coast have been

[734] Auriemma 2000. The amphorae consisted of central Tunisian, Tripolitanian, Cretan and Italy forms that has all be sealed by the same type of stoppers.
[735] Beltrame, Gaddi and Parizzi 2011.
[736] Slim et al. 2007, fig. 1; Marzano 2013a, 213–234.

identified as 19th-century swimming baths despite their typological similarity to Roman-period fish ponds (Figure 110)![737]



Figure 110: 19th-century swimming baths on the Sliema seafront, Malta (source: Google Earth).

There remains no evidence for fish-salting production on the Maltese islands, Pantelleria or Linosa (Figure 111). This is probably not terribly surprising since the three islands are geographically situated in relatively deep waters compared to the Sicilian and North African coast, where fish-processing plants were clearly present (Figure 111). The nature of the coastline where fish-salting factories are located corresponds to known fish migratory routes, in particular that of tuna, where the strait between North Tunisia and western Sicily acted as a corridor through which migratory fish were directed towards the shallow lagoons within the region, ideally suited for feeding and seasonal spawning.[738]

[737] Pers. comm. Timmy Gambin.
[738] Slim et al. 2007, 21.

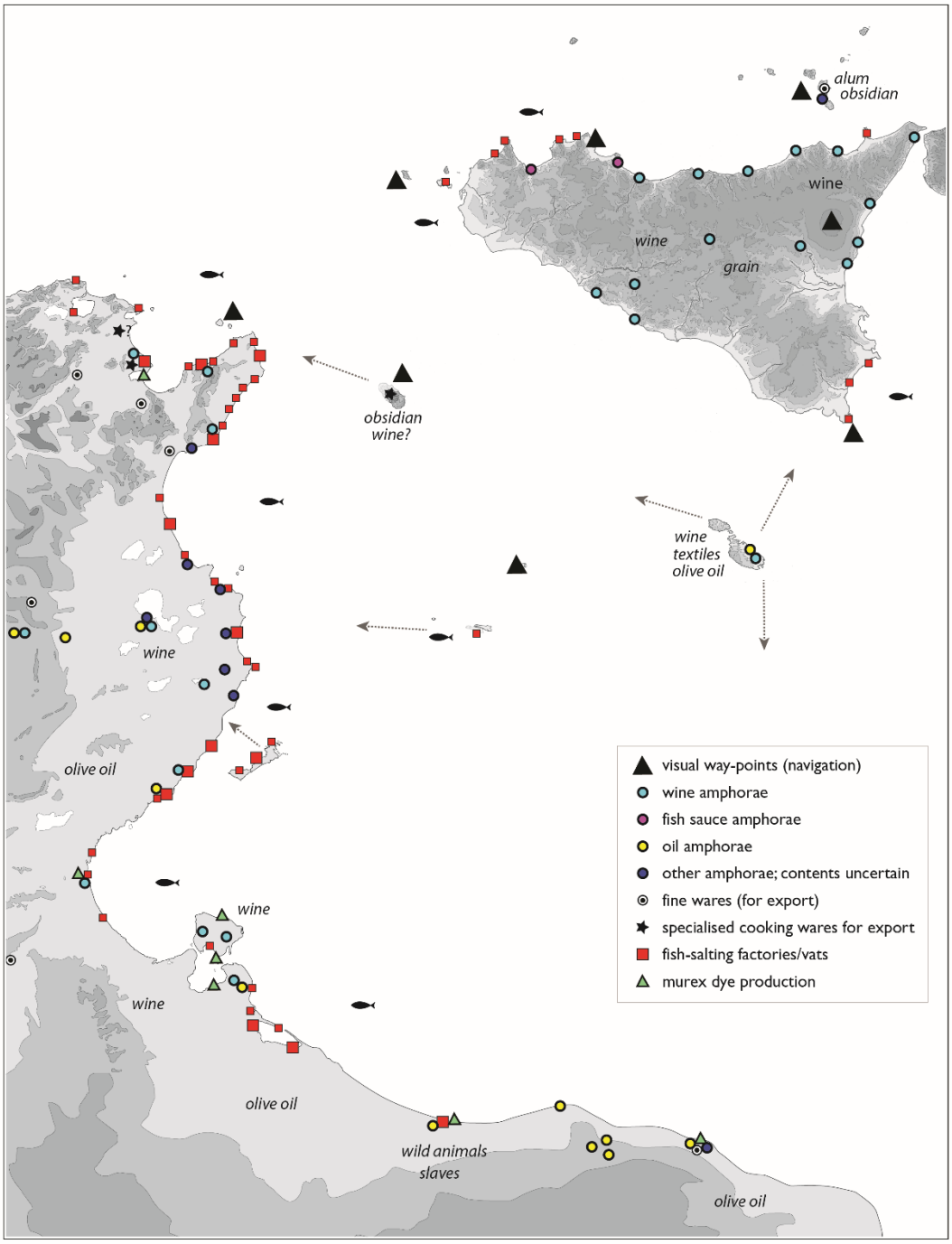


Figure 111: General distribution of sites associated with production in the central Mediterranean.

6.5 Later Imperial period (early/mid-3rd century to early 5th century)

The economic growth and relative political stability that characterises the period from the Late Republican period onwards came to a head in the Severan period (AD 193–235), and is visible in the many lavish construction works commissioned for by private, public and imperial funds.[739] Despite

[739] Wilson 2007b, 290.

the appearance of ostentation evident in the embellishment of buildings in Rome, Leptis Magna and many other cities in North Africa, the general economic and political stability was under increasing pressure and paved the way for the political, social and economic turmoil that characterises the 'Third-Century Crisis' (AD 235–284). Archaeologically however, the alleged upheaval of the 'Crisis' is difficult to detect in the central Mediterranean, and there is increasing evidence, in particular economic, to suggest that regional economics and movement in the region was not radically affected.

The archaeological remains from many cities along the North African coast indicates some interruption in the supply of some goods (for instance, the pause in ARS distribution in the 3rd century), whilst the distribution of African cooking wares and amphora-borne goods (oil, fish-sauce and wine) reach unprecedented coverage throughout 3rd and 4th century, and dominated much of the economic market in the Roman empire.[740] The province of Sicily also experienced increased prosperity under the Severans, in part due to its increasingly strategic position directing goods from the east and North Africa towards Rome.[741] The increase in wealth in Sicily and North Africa during this period is apparent with the expansion of the countryside and the re-direction of the bulk of the annona flow from the resource-rich African hinterlands.

One would expect that the wealth visible in the neighbouring regions would be apparent on the islands that linked the African coast to Sicily. The archaeological landscape on the Maltese islands is not nuanced enough to identify particular signs of economic prosperity over the course of the 3rd and 4th century. Presumably some of the rural farms that prospered during the early Imperial period continued to produce oil for local consumption,

[740] Leitch 2013, 284; Reynolds 2010b, 89.
[741] Malfitana et al. 2013, 420–422.

as Sicily is reportedly supposed to have done too.[742] However, 3rd- and 4th-century occupation of many of the farms in Malta demonstrate a decline rather than prosperity. The dateable pottery from the 1972 material at the Żejtun villa gradually decreases after the farm's peak of occupation registered for the period 300–100 BC. Indeed, far more utilitarian pottery can be dated from the Late Punic period than to later periods, which relied solely on characteristic imported vessels, which are quite scarce.[743] Imported pottery dating to the 3rd century onwards is either under-represented because of later activity or past excavations, or actually reflects decreased occupation at the site. Although the excavations remain on-going, the ceramic evidence from the recent University of Malta's interventions at the site is not contradicting the 1972 material. A small coin hoard of 44 bronze coins was found in the 1970s in one of the small rooms with a date range of AD 222–361.[744] Archaeological evidence for the occupation of the San Pawl Milqi villa indicates the destruction of the farm by fire sometime between the end of the 3rd and beginning of the 4th century.[745] A dramatic decrease in imported amphorae has also been recorded by Bruno for the San Pawl Milqi villa and a marked decline in the rate of imports at the sanctuary of Tas-Silġ. No amphorae are known to have been produced on the islands, but red-slipped fine wares and practically all utilitarian pottery were still being produced locally. The Bidnija survey also demonstrated that Late Antique pottery finds were also comparatively low in the northern rural areas of Malta.[746]

The material associated with the pottery production site at Foreman Street does suggest a sizeable urban 'industry' for the island of Gozo. The late 2nd

[742] Malfitana et al. 2013, 423.
[743] Anastasi 2010, 127, fig. 85a.
[744] Bonanno 1981, 508.
[745] Locatelli 2008, 1353.
[746] See Section 3.6.3; fig. 17.

to mid-3rd century-AD pottery is indicative of a relatively prosperous period for the smaller island and the local economy. Imported cooking and fine wares are well-represented but the overall majority of the ceramics studied reflect a different pattern of consumption on Gozo when compared with Malta, which has always demonstrated a greater prosperity in the Late Punic and early Imperial period. Knowledge of Roman-period Gaulos remains patchy, but there are some interesting pieces of evidence that set it apart from its larger counterpart of Malta. Whether this is a consequence of chance or reality, many more rock-cut tombs on the outskirts of the main town were found to contain Roman-style sarcophagi, glass cinerary urns and many more Late Roman coins (AD 138–260).[747] Another hoard of about 4000 coins was also discovered in a cistern, also in Rabat, Gozo, 20 of which could be identified as *sestertii* of the Gallic empire (AD 259–273).[748] That the citizens of Gaulos maintained a link to the early Severans is suggested by two inscriptions referring to the Severan dynasty: one mentions Septimius Severus' wife, Iulia Domna as *Mater Castrorum*, probably carved in recognition of the erection of a public monument dated to AD 193–195;[749] another inscription, also from Gozo, which honours Geta, did not escape the *damnatio memoriae* issued by his brother shortly after his murder.[750]

The Foreman Street assemblage shows a marked increase in imported fine wares and cooking wares during this period and remains proportionally similar in the assemblage from the spoliation of the urban structures in Melita a few decades later (Figure 106). The pottery associated with the burials at Bulebel also contained a mixture of locally produced and imported pottery forms. Like practically all other sites within the western

[747] Sagona 2002, 1119–1124; Azzopardi 2007.
[748] Bonanno 1981, 508; MAR 1936–1937, 14.
[749] *CIL* X, 7502; Bonanno 1981, 506.
[750] *CIL* X, 7503; Bonanno 1981, 506; Busuttil 1976, 273–277.

Mediterranean, imported African red slipped ware increases from the mid-2nd century, although local fine wares remain in production and circulation, never ceasing to be the dominant table ware. Local cooking wares, however, decrease rather dramatically after the 1st century and never recover; the classical African forms, Pantellerian wares and lesser numbers of Aegean and Italian vessels were also an important component of an urban and funerary assemblage.

As mentioned briefly above, the export of east Sicilian wine in flat-bottomed containers manufactured in Naxos and the Catania region passed through the Maltese islands between the mid-1st century BC and mid-1st century AD. Following a lull between the end of the 1st century and mid- to end of the 3rd century, Sicilian wine resumes its flow through the islands, possibly en route to Leptis Magna as has recently been suggested by C. Franco.[751] Alongside the relatively high number of eastern Sicilian imports arriving during the 3rd century, are a number of Dressel 30 amphorae of possibly Mauritanian production.[752] The otherwise ubiquitous Tunisian amphorae (i.e. Africana IIA and IID) are present but are far from being very common on the Maltese islands. Proportionally, eastern Sicilian wine amphorae account for a greater proportion of amphorae containers than other types, whether from the eastern Mediterranean or North Africa. The convergence of these forms in the Catania region, together with the heterogeneous assemblages certainly points towards ports in this region being the origin of at least part of the imported containers reaching the island.

General economic decline is evident on the Maltese islands from about the 4th century, with the marked decrease in imported pottery specifically

[751] Franco 2014, 117.

[752] The Levanzo 1 wreck carried a similar cargo containing the range of amphorae forms common in Maltese assemblages suggesting that small heterogeneous cargoes primarily supplied the islands with imported goods (Royal and Tusa 2012).

dating to this period, and the abandonment, destruction and spoliation of urban dwellings by the mid-4th century in Melita.[753] The houses surrounding the mosaiced domus might also have been abandoned around this time but the discard of the pottery and the early 20th-century excavation methods makes it difficult to know this for certain.[754] The pattern of collapse recorded by the excavators of the Museum Esplanade excavations (1983–1984) appears to indicate that the buildings collapsed at the same time before being covered over by fast-accumulating debris containing material dating to the mid-3rd/mid-4th century. The next activities that are recorded are associated with stone robbing, which dates from the Islamic period onwards. It is tempting to suppose that a large tsunami that occurred shortly after a massive earthquake near Crete in AD 365 may have affected the island and neighbouring regions, including eastern Sicily and Leptis Magna, and may have hampered trade routes for a short while.[755] Any tidal surges triggered by this earthquake—and which have recently been compared to the 2004 Asian tsunami—with an epicentre close to Crete and to the east or south of the Maltese islands would have temporarily devastated the low-lying eastern shores and any marine-based industries along it.[756] Low-lying agricultural zones would also have been affected. Lastly, the pollen analysis conducted on the cores from the Marsa area indicate a marked decrease in cereal production from the 3rd/4th century

[753] See Appendix V.
[754] Zammit 1923, 221.
[755] Stefanakis 2006. Archaeological evidence for damaged buildings in Sicily and Leptis Magna have also been identified (Franco 2014, 110–111).
[756] Guidoboni, Comastri and Traina 1994; Polonia et al. 2013, 8–9. A series of other earthquakes triggered by the Cretan one near Sicily and Cyprus have also been postulated to explain the widescale devastation recorded by ancient writers in Egypt and Libya (Stiros 2010). Nevertheless, strong seismic activity is certainly recorded in the mid-4th century.

further supporting a decline in the overall prosperity and population on the islands.[757]

The late 4th and early 5th century on Pantelleria saw the development of the village at Scauri, complete with a small port and fully equipped, specialised workshops for the manufacture and firing of the island's famous cooking wares.[758] Scauri faces Cape Bon and may have grown out of the success of intensive contact with traders sailing towards or from the North African coast. The early 5th-century wreck located within the vicinity of the Scauri port was carrying a mixed cargo of primarily local cooking wares and North African amphorae. The presence of tiles from North Africa, Campania and Sicily,[759] and a considerable amount of ARS dating to the late 4th and 5th century attest to the increased frequency of vessels carrying a wide range of goods from North Africa, probably to be redistributed from the Scauri port.[760]

Shortly before the Vandal period, Pantellerian ware was indeed relatively successful. As mentioned earlier, the correlation between the distribution of 'classic' North African cooking wares and Pantellerian wares, in addition to the evidence of increased North African contact at Scauri from the 4th century, indicate that the success of the island's cooking ware production probably developed on the back of the North African industry, where some African traders would temporarily dock at Pantelleria to redistribute/collect goods from there. Over time, more and more Pantellerian wares were stowed on merchant ships heading to different ports, mainly to the west towards Spain, north towards Sicily, France and Italy, and south towards

[757] Fenech 2007, 110–111.
[758] Abelli 2009a, 336.
[759] These tiles constituted 1% of the material found within the port's excavated area and amounted to 410 fragments (Baldassari 2009e, 112).
[760] Baldassari and Mannelli 2009, 145.

Tripolitania. The wider distribution of Pantellerian ware forms correlates with later dates and may reflect additional trust and market opportunities that opened up after the Vandal invasion. The later-dated forms that are now made also correlate with a more standardised ceramic repertoire that stream-lined the manufacture process and made stowing easier.[761] It is important, however, to keep in mind that so far, Scauri is the only workshop that has been identified that produced Late Roman cooking wares. The Acropolis[762] and the Lago di Venere area[763] are devoid of late-dating material that would suggest organised occupation and production by this time, thus the production site at Scauri is a unique and isolated production site that might not necessarily represent an island-wide incentive towards the manufacture and sale of cooking vessels.

Presumably salted fish products continued to be produced on the Kerkennah islands, alongside other forms of marine exploitation and the harvesting of dates. The west-facing coast contained a great deal more archaeological structures, features and Roman-period pottery, certainly indicating that the proximity to the mainland was integral for contact and supply of staples. Little is known about structures further inland, however, the lack of reports over the century at least mentioning remnants of public buildings or an aggregated centre further imply the definite lack of autonomy for the islanders, and a greater reliability on the mainland cities for public institutions and the sale or redistribution of any goods produced. The identification of a square structure at El Abassia (Figure 59) was interpreted as a possible watch tower.[764] Since this structure is situated close to a small landing place, it could have formed part of a system of look-out

[761] Guiducci 2009, 372.
[762] Schäfer 2013, 5032.
[763] See Section 4.1.
[764] Slim et al. 2004, 128.

posts or even lighthouses for approaching vessels heading towards the southern African coast. The remnants of classical-period material at El Guedaia, also close to a bay, may have marked another tower or structure occupying the southern tip of the island for approaching navigating sailors.[765] Indeed, the absence of any prominent natural landmarks in this very low-lying part of the region would have necessitated navigational aids for merchants and visitors.

6.6 Vandal period (AD 435–533) and Byzantine reconquest (AD 533–554)

The Vandals conquered most of North Africa and Tripolitania, as well as Sardinia, Corsica and the Balearic islands over the second quarter of the 5th century, and contrary to assumptions that the west suffered economically, the archaeology suggests otherwise. The African fine ware industry appears to have been largely unaffected, with distribution covering all coastal areas of the entire eastern and western Mediterranean basin.[766] African and Sicilian amphorae containing oil, wine and garum were still being manufactured and exported to regional coastal areas.

The Scauri cooking ware production site remained successful throughout the Vandal period and the density of 5th-century finds increase in Vandal-occupied coastal centres in particular.[767] The similar and seemingly continuous distribution of Pantellerian ware forms alongside classic African cooking wares from the 3rd and 4th century do, however, indicate that the processes that determined Pantellerian ware distribution were ultimately not a direct consequence of the Vandal conquest, but rather the result of differing production and trade organisation, which affected

[765] Slim et al. 2004, 128.
[766] Tortorella 1987; Bonifay 2004, fig. 252.
[767] Guiducci 2009, 370–371.

African cooking wares, but not the workshop at Scauri. The production and export of the cooking wares continued throughout the 5th century until the entire village at Scauri was abandoned in the first few decades of the 6th century, and the abandonment of the village has been attributed to the Byzantine reconquest in AD 533 by General Belisarius.[768] Conclusive evidence for this however, remains lacking.

The correlation between the distribution of 3rd–4th-century African cooking wares and the 3rd–5th-century Pantellerian ware is apparent and clear. Throughout the 5th century, North African cooking wares were in marked decline, and V. Leitch has suggested that this might be due to an overall re-organisation of methods of production and increased transport costs, but also a consequence of a general economic recession in North Africa in AD 440–475.[769] One of the significant factors partly responsible for the decline in Africa was the relocation of production centres inland, away from the coast. A combination of increased transport costs from Africa and the dissolution of the annona, one of the primary mechanisms of trade exploited by cheap pottery manufacturers, left a temporary gap in the market for larger consignments of Pantellerian ware products.[770] In many large port cities during the 5th century, proportions of Pantellerian ware overtake those of African cooking wares, which were dominant under a century earlier, but the distribution of large concentrations of Pantellerian ware forms are found at regional ports along the southern coast of Sicily, Malta and Leptis Magna, suggesting a contraction in the distance travelled on a single journey. Nevertheless, 5th-century Pantellerian ware forms were still reaching coastal centres across the western Mediterranean. Pantellerian ware never travelled beyond the coast, unlike some African cooking ware

[768] Abelli 2009a, 336.
[769] Leitch 2013, 295.
[770] Leitch 2013, 294–295.

forms, which did extend along major river routes as part of army supply routes.[771] The difference in routes after arrival at an overseas port could suggest that parts of trade routes were in the hands of different organisers, and despite the fact that mixed cargoes were travelling together to a particular destination, on arrival, different parts of the cargo were indeed bought, exchanged or collected by different agents, some expecting certain consignments, whilst others were sold to the highest bidder. It is possible that Pantellerian cooking wares initially belonged to the less organised trade network and thus, following the Vandal occupation, the dissolution of the annona and state-wide organised trade, the successful, and now highly specialised industry located close to a fully functional port, was able to continue its overseas export relatively unhindered for another century, and most certainly profited in certain areas with the gap in the market left by African cooking wares.

Pantellerian ware vessels continued to be exported in much smaller numbers to some parts of the Mediterranean during the Byzantine period, until at least the 7th century. However, since Scauri was already mostly abandoned from the early 6th century, production centres elsewhere on the islands must have sprung up, producing similar cooking vessels in an attempt to continue supplying coastal centres in the region. Despite the exogenous evidence of post-6th-century production, archaeological evidence for these remain to be found.[772]

Archaeologically, very little is evident for the Vandal period on the Maltese islands, whilst no pottery assemblages were available to study for this

[771] Leitch 2013, 287–289.

[772] For instance, some Pantellerian ware forms were found in a 7th-century context at the Marsa harbour area in Malta alongside a larger share of Aegean and eastern cooking wares (Bruno and Cutajar 2013, 19); and early 7th-century forms found at Leptiminus (Dore 2011a, 296).

period. Between the Byzantine period and the 10th century Maltese local production declines quite significantly; no cooking or fine wares are being produced and thus the islands becomes mostly dependant on regional supplies from Africa, Pantelleria, Sicily and also the Aegean.[773] As was mentioned earlier, the general economy of the Maltese islands was in overall decline from the 4th century and continued throughout the 5th century until the mid-6th century when the islands regain noticeable trade connections with the east and west. This noticeable decline from the 4th to early 6th century was identified by the amphorae data gathered by B. Bruno and N. Cutajar for the Byzantine and Early Medieval period on the island. They specifically notice the relative absence of otherwise common African amphora forms at Maltese sites (such as Africana IID forms and spatheia), which were circulating elsewhere around the Mediterranean.[774] Presumably this is linked to the consequences of the Byzantine reconquest and the re-integration of eastern and western markets.

The ever-shrinking link between the Maltese islands and North Africa could be traced towards the early 4th century and appears to correlate with the shifting trade link between Malta and eastern Sicily (see above). Sicilian Keay 52 amphorae on Maltese sites are generally very scarce, but their presence, nevertheless, indicates that at least some low-level trade was occurring between the Maltese islands and Sicily. A small amount of Pantellerian ware is also reported to have reached Tas-Silġ during the 5th century,[775] probably reaching the island by a route that connected Pantelleria to Agrigento,[776] then Malta[777] and onto Leptis Magna.[778]

[773] Bruno and Cutajar 2013, 15.
[774] Bruno and Cutajar 2013, 16.
[775] Quercia 2006, 1607, fig. 7.
[776] Franco 2014, 401; Guiducci 2009, 370.
[777] Quercia 2006, 1607, fig. 7.
[778] De Miro and Polito 2005.

Numbers of African red slipped wares from Maltese sites are also low indicating an overall drop in all forms of purchasing power.[779] Interestingly though, a prominent ceramic industry locally supplying fine and cooking wares like the previous centuries is nowhere evident in the archaeological record. Indeed, comprehensive ceramic analyses of all classes of pottery and other material finds remains to be done. The general economy appears to pick up from the mid-6th century onwards, and is attested by the increase in locally produced and imported amphorae forms discovered from a number of small excavations in the surrounding areas of the Marsa harbour. This same area is also known for the discovery of an extensive Late Antique warehouse, discovered in the 18th century, and which can now be dated more accurately to the 6th–7th centuries. The warehouse contained hundreds of North African and Aegean amphorae most probably due to be redistributed elsewhere.[780]

The recent excavations of a palaeochristian hypogeum near the harbour on Lampedusa have brought to light 5th–6th-century burials with a series of North African Christian lamps and a range of African and Aegean/eastern amphorae.[781] The presence of a burial place on the island and clear evidence for imported ceramic goods indicate that the island remained integrated to some degree within the wider regional network, even at this time. The results of the recent excavations and survey carried out on the island, which also include the results of the excavation of the fish-salting vats at Cala Salina will hopefully furnish the little we know about the island's role within the region after the 2nd century with more detailed archaeological and ceramic evidence.

[779] Bruno and Cutajar 2013, 17.
[780] See Section 2.3; Bruno and Cutajar 2013, 21–22.
[781] De Miro and Polito 2012.

Surface finds on the coastal areas along the Kerkennah islands indicate that the coast was frequented throughout the Vandal and early Byzantine period.[782] In the Vandal period the island were under the see of Bishop Athenius of Cercina, and in AD 532, St Fulgentius, former Bishop of Ruspe, built a monastery somewhere on the larger island.[783] To date, however, no archaeological evidence pertaining to this particular site has been identified.[784]

6.7 Sea routes connecting small islands

Pascal Arnaud's exhaustive collection of ancient itineraries indicates that the Maltese islands were situated along two main sea-routes that linked Rome to North Africa, and Alexandria to Rome. The former routes would have involved an eastward journey from Syracuse, passing through the Maltese islands, along several cities along the southern Sicilian coast towards Pantelleria, then onto Carthage.[785] An emporia zone involving sailing connections between Syracuse, Malta, Lampedusa, Kerkennah and Lilybaeum is also hypothesized.[786] A west-east route from Carthage to Rome was more likely to have by-passed these islands with ships sailing north-west from Cape Bon across the Sicilian channel directly towards the eastern tip of Sicily, and continued on to Rome from there.[787] This is due to the known dangers and notorious navigational constraints brought about by the currents and winds in that stretch of sea.[788] One of the shorter, yet seasonally dependent, eastern routes from Alexandria to Rome supposedly

[782] See Section 4.3.
[783] Morcelli 1816, 141; Feuille 1953, col. 160.
[784] No mention appears to have been made to the discovery of any remains of this monastery during the Tunisian coastal survey, but this could be due to the fact that the monastery might have been located inland and not along the coast (see Slim et al. 2004, 125–130).
[785] Arnaud 2008, 27.
[786] Arnaud 2013, 133.
[787] Arnaud 2013, 133.
[788] Arnaud 2008, 24–25.

also includes passing through the Maltese islands as a primary stop-off after crossing from Leptis Magna (after coasting along the North African coast westwards from Alexandria), then onto Sicily before passing through the Straits of Messina.[789] The chances of by-passing the Maltese islands however, were high, although written evidence does show that on a route such as this, the islands offered a suitable stop-off for wintering ships.[790] The relative absence of Levantine amphorae dating to the Roman period on Maltese sites does however suggest that stops on the island were unplanned and more possibly spontaneous, rather than as a planned part of an itinerary. Indeed, shipping routes from the east that passed more regularly through the Maltese islands may have just carried grain and therefore archaeological evidence in the form of ceramic containers is lacking in the archaeological record of the island.[791] Essential revictuallating without the desire to off-load or purchase ceramic-based goods would also have left little archaeological trace.

The same seems apparent for Pantelleria; the volume of north African pottery is significantly lower in the Imperial period than the Late Republican period, whilst occupation of the main centre, the Pantelleria acropolis and surrounding area, indicate a reduction in island connectivity after the late 1st/2nd century AD.[792] The predominant north-westerly winds and the uninviting volcanic coastline do make sailing towards the island quite difficult, probably discouraging traders from visiting the small island, who instead sailed directly to eastern Sicily or Rome from Carthage. Like the Maltese islands, Pantelleria's trading 'hey-day' seems to have petered

[789] Arnaud 2007, 333.
[790] Acts of the Apostles 28, 7–14.
[791] Arnaud 2013, 134, fig. 6.1.
[792] Arnaud 2008, 31–32; Baldassari and Fontana 2002, 970–981, 987.

out by the 1st century AD. Imports did however continue to reach the island, but not in the large quantities expected of a major trading emporium.

Since the 10th century, and until relatively recently, the inhabitants of Pantelleria carved a relatively self-sufficient life for themselves by living on small farms (*dammusi*), each with provisions to mill their own flour and press their own wine and olive oil. Presumably small orchards and fields were cultivated to supply their own food.[793] The majority of single-press farms identified on the Maltese islands, with the exception of the San Pawl Milqi villa, might also have followed a similar model. The size of the Maltese islands and the more favourable winds, accessible coastline and more accessible terrain might have encouraged more visiting traders than Pantelleria. In addition, the possibility for improved open-water navigation, ship design and artificial harbour facilities from the 1st/2nd century AD might have also cut sailing times for profit-seeking traders who did not need to make as many stops along a single journey.[794]

It would be presumptuous to assert that new sea routes can be surmised or proved unlikely in the light of the new ceramic evidence, but a closer look at the nuances evident for the role small islands played over the course of the Roman period does not appear to suggest any significant, long-standing trading links during the Roman period. The slight differences in the proportion of particular goods found incorporated within island assemblages indicate fluctuations that would suggest that none of the small islands under study here were indeed integral to any major annona trade routes linking North Africa and Sicily to central Italy and Rome. The ceramic types, along with their relative densities, do not seem to reflect any significant trends that are suggestive of any crucial involvement within any

[793] See Section 4.1.
[794] Wilson 2011.

inter-regional trade network. This is not to discount however, the intermittent and sometimes essential role of revictuallating stops or as a shelter during bad weather. Neither of these shipping events is likely to have left any significant trace in the archaeological record such as continuous and repetitive long-term trading activities would be expected to leave. Large quantities of commonly imported amphora types signal a regular supply of quasi-homogenous cargoes arriving from other particular production centres (i.e. for instance the proportionally high number of Tripolitanian and Spanish oil amphorae at Monte Testaccio, Rome). Few proportionally significant peaks in the range of types found amongst the small-island assemblages were shown to reflect this. Indeed, the proportion and type range of pottery forms from the Maltese islands and Pantelleria, in particular, also indicate the somewhat dependent nature of Pantelleria on external sources, whilst the Maltese islands were at least in demand of a sizeable local ceramic industry. These small differences were also quite clearly visible in the position of the small-island nodes in the network analysis graphs analysed in the previous chapter.

6.8 General summary

The above discussion concerning the economic nature pertaining to the small islands within the central Mediterranean has shown that each island developed quite differently from the others, with no over-arching singular currents dictating the ebbs and flows of prosperity and opportunism. The basic characteristics of the ways these particular small islands interacted between themselves and their regional neighbours can be tentatively summarised as follows:

1. The degree of pre-Roman presence and investment on islands dictated the immediate level of autonomy and economic output, mostly facilitated by external prosperity, particularly between

northern Tunisia and Sicily. The Maltese islands and Pantelleria prospered mostly from earlier Punic activity.

2. The physical proximity to the mainland does suggest a correlation with decreased island autonomy, but appears to have spurred economic prosperity nevertheless, possibly as a result of external control or investment. Yet these larger routes were subject to change depending on the direction of supply and demand between newly emerging regional centres.
3. Regional and inter-regional trade routes certainly played a significant role in affecting the increase or decrease in connectivity between islands and the wider region.
4. Possibly, improvement in open-water navigation could have had a detrimental effect on pelagic islands over time because this allowed traffic to flow from main ports, especially from east Sicily to the east and Tripolitania without necessary or frequent stops on smaller islands.

Horden and Purcell have already argued that small islands became part of the "Mediterranean-wide network", albeit intermittently, but nevertheless each with a role to play in the wider Mediterranean world.[795] General shifts in trade directions, and decline or surplus in city-level or regional economies, which are either linked to political changes or resource management and economic opportunism (such as the manufacture of high-profit, low-cost goods like cooking wares) are generally heavily responsible for affecting the more dependent centres like small islands. For instance, any decline in the fish-salting and amphora production centres along the central Tunisian coast would surely have had economic and social consequences for any islanders residing on the Kerkennah isles. However,

[795] Horden and Purcell 2000, 121.

as was illustrated for Pantelleria, the investment in a highly specialised cooking ware production flourished at the expense of another massive market decline (North African cooking wares) and demonstrates a striking example of economic opportunism and regeneration.

State incentivised trade routes (annona) are generally interested in larger profits and thus are not necessarily interested in smaller places; there is very little evidence that suggests heavy traffic making use of direct routes were passing through the smaller islands in the Mediterranean. Minor peri-local sea-routes appear to have changed over the course of the centuries, but from the evidence presented by previous Maltese and Pantellerian exports, and that many of these islands do appear to have sustained a sizeable economy, they were essentially Mediterranean "backwaters" in that they were not necessarily involved in the annona system in any significant way. However, on a smaller regional and peri-local level, the islands were more actively involved in low-level frequent trade, but were also largely self-sufficient for a large proportion of their own goods, probably more so than in the earlier Punic period, when semi-autonomous island colonisation was the *modus operandi* rather than wide-scale territorial expansion, and Punic colonised centres reflected the basic stepping-stone routes from the Phoenician homeland in the Levant, along the north African coast towards the southern coast of Spain and Atlantic coast. The archaeological evidence shows that unfavourable winds and currents might not have been completely responsible for the lack of traffic passing by an island. Goods were still reaching areas located in meteorologically undesirable areas like the volatile currents passing through the Strait of Messina, where important harbours were purposely constructed along the coast of eastern Sicily and the south-western coast of Calabria to provide suitable anchorages/sheltered ports for ships passing through. The fluxes in the

tides and current direction changed regularly and it was well-known to sailors that at least one stop every six hours or so was required when sailing through the strait.[796] Trade was not re-routed because of this hurdle, but rather artificial changes were made and driven by streamlining trade and profit. The promise of surplus and profit was surely a big incentive (as it has always been) to overcome and re-route any trade corridor.

[796] Arnaud, P. 2015, Harbour-design: geographical determinism, geo-politics and economic models. Paper delivered at the *Portuslimen Oxford Seminars*, All Souls College, University of Oxford, on 12th June 2015.

Conclusion



CONCLUSION

The scope of this study was to explore the economic role of small islands within the more marginal zones of the central Mediterranean during the Roman period. Particular attention was paid to the Maltese islands and how they interacted with their nearest island neighbours—specifically Pantelleria, Lampedusa and the Kerkennah isles—, and larger regional centres along the coast. The main archaeological evidence used was quantified pottery assemblages from each of the islands and coastal centres investigated, together with any additional archaeological material that could be garnered.

A series of inter-related studies were undertaken in pursuit of this thesis's objective: firstly, three Roman-period pottery assemblages were studied, quantified and used to represent the economic trade proxies for the Maltese islands from the late 1st century AD to the mid-4th century AD. Of significant importance here is that a detailed quantified study of stratified fine ware, cooking ware and coarse ware data for the Roman period has never been undertaken for the Maltese islands until now. These assemblages were essential for ensuring that some useful comparative data could be used to represent the Maltese islands in addition to the oft-cited, slightly out-dated, and sometimes over-interpreted archaeological literature available for the islands' Roman history.

Secondly, experimenting with network analysis and stripped-down type-data for amphorae, fine wares and cooking wares have generated some very interesting results and conclusions, where the potential for multi-site comparative visual results offers an alternative to more traditional static means of presenting complex data. Interestingly, the analyses also highlighted how different study methodologies can affect how pottery data

are represented, and sometimes bias the visual results. Nevertheless, the results do highlight how different representational formats can disguise certain methodological biases and will encourage future research to review data more carefully before interpreting them.

Lastly, a wide range of archaeological material culture for the islands of Pantelleria, Lampedusa, Kerkennah and the Maltese islands was explored using more traditional means in order to understand the impact of small local economies on the islands themselves and how they functioned and participated within the wider central Mediterranean regional economy.

Maltese pottery in the Roman period

The pottery study presented here has contributed greatly to our knowledge of the Maltese islands during the Roman period. This work dramatically builds on the seminal work by C. Sagona for the Phoenician, Punic and Late Punic tomb material form across Malta and Gozo.[797] The new data analysis of Roman-period pottery also complements the important amphora study undertaken by B. Bruno for the sanctuary of Tas-Silġ and the San Pawl Milqi villa.[798] For the first time, a detailed catalogue of an entire pottery assemblage and local fabrics (including amphorae, fine wares, cooking ware and most importantly, associated coarse wares) has been compiled that follows a chronological development (Appendix I).

Another important contribution to the local Maltese ceramic craft industry is a re-evaluation of Maltese exports of ceramic containers, probably carrying local olive oil and wine, until the mid-2nd century BC. Our knowledge of the distribution of Maltese-made pottery containers has increased since A. Ciasca's important contribution regarding the export of

[797] Sagona 2002.
[798] Bruno 2009.

Maltese goods in the central Mediterranean in the Punic period. Since then, additional stratified Maltese material has been identified outside of the Maltese islands, with the discovery of new find spots (i.e. Pantelleria, Velia and Utica), with larger quantities being found in some areas (i.e. Pantelleria and Jerba). These new data clearly show that the Maltese islands were certainly capable of some degree of archaeologically visible trade, especially during the Late Punic/Early Roman period (c. mid-2nd century BC). Increasing evidence for a relatively extensive wine and olive oil production on the islands is now also available and indicates a marked period of sustained economic growth for the islands by the end of the Second Punic War.

The export industry on the islands appears to cease after this time, but domestic production continues to persist quite strongly throughout much of the Roman period. Local fine and cooking ware production remains significant for the local economy, and is especially strong between the 1st century BC and end of the 1st century AD. Viewed together, the export and local production trends for pottery in the Maltese islands has highlighted the strong local and somewhat insular nature of the Maltese islanders. The contraction in archaeologically visible exports—a small amount of wine and olive oil—also has to be viewed alongside the potential for a strong export in Maltese textiles, which are known to us because of numerous classical writers who refer to the quality and international renown of Maltese cloth. Wine and oil might have been exported in small quantities as secondary cargo filler for a larger, more profitable cargo consisting of textiles. This might explain the small and sporadic numbers of Maltese containers finding their way to different central Mediterranean port cities. Changes to the trade in textiles must have taken effect after the end of the Second Punic War when ceramic finds dating to after the mid-2nd century BC are scarce or

nowhere to be seen. Textile production most probably continued throughout the early Roman period but archaeological evidence becomes increasingly difficult to trace.

Nevertheless, additional economic proxies such as the import/local trends for different types of ceramics have shown that the importation of certain goods such as African cooking and fine wares increase from the mid-2nd century AD onwards, reflecting a more 'disposable' income on the part of locals where increasing grain cargoes (whether from nearby eastern Sicily or directly from eastern north Africa, i.e. Leptis Magna or indeed Alexandria) are being delivered to Maltese ports, which is probably reflected in the substantial increase in fine ware imports. The heterogeneous, almost *ad hoc* range of small quantities of a wide range of amphora-borne goods together with a steady range of 'classic' North African cooking ware forms might also represent low-level regional trade connections between the Maltese islands and smaller, less official trade routes.

Differing island roles

Tha islands investigated in this thesis did not all function in the same ways. Indeed, each of the small islands analysed demonstrated different social, economic and geographical focusses that make them distinct from one another. Islands that experienced earlier intensive Punic colonisation, such as the Maltese islands and Pantelleria, went on to develop on a more autonomous level, despite the evidently decreasing integration throughout the course of the Roman period. Conversely, the Kerkennah isles and Lampedusa appear to have been far less autonomous, and were seemingly more dependent on neighbouring North Africa. A correlation between mainland dependency and local pottery production was also evident between the main two groups of islands (Malta and Pantelleria versus

Kerkennah and Lampedusa). Resource availability (i.e. clay sources), as well as environmental (availability of perennial water sources) and geographical factors (general distance from major ports hubs) might also have affected these distinctions.

Small islands and the annona

One of the most important conclusions drawn from this study is the lack of any small-islands' significant participation in the annona trade routes. The general over-exaggerated tendency to assume that large trade ships regularly stopped off on these islands en route to other major ports, as well as Rome, is not supported archaeologically, and when supply patterns are compared with other areas in the Mediterranean, it becomes clear that small-islands were relatively insignificant in the volume and trade links between regions. On the other hand, small islands featured more in low-level, proximity based trade with neighbouring centres. This is not in itself unexpected, but it does help with adjusting expectations concerning the centrality and importance of islands as integrally strategic places. This is particularly true for balancing the perception of academics who are in fact islanders themselves. On the other hand, the attempt at including whatever data are available for small, otherwise backwater islands, helps to counter the complete marginalisation of liminal zones in the Mediterranean, which are often glossed over when discussing trade and connectivity in the Roman period.

Future considerations

There is much scope for continuing to build and refine a typology of Roman pottery for the Maltese islands. Further stratified material will be essential for identifying period-specific variants and refining chronologies. A broader range of assemblages from different sites areas and contexts

(public, urban dwellings, rural, ports, funerary, etc.) across Malta and Gozo can only increase our current dataset, but also improve the resolution of the data to allow more nuanced and well-buttressed interpretations for the islands' involvement in the central Mediterranean economy. More stratified imported fragments will no doubt corroborate, but also expand on existing conclusions about the breadth and density of import trends on the islands, whilst also offer opportunities for 'testing' the existing dating associations for local pottery forms, in particular the start and end dates for the production of certain forms.

Broadening the dissemination of local fabric descriptions and images will also increase the probability that specialists studying pottery assemblages in the central Mediterranean, and even further afield, are able to identify Maltese fabrics. The launch and continual updating of the FACEM website already includes a range of Maltese fabrics dating to the Punic period, and a push towards including Roman-period fabrics in a similar Mediterranean-wide project for *all* major classes of pottery (in particular fine wares, cooking wares and major coarse ware categories) could prove to be a valuable research tool for ceramic specialists working on pottery assemblages along the central Mediterranean coast. The ability to identify imported coarse and cooking wares, in particular from island assemblages, will be made easier and will allow better integration of 'marginal' pottery data from backwater sites not usually associated with exporting ceramic goods.

Finally, the illustrative capabilities of network analysis graphs have shown that irregular ceramic data are quite useful for visualising connectivity and abstract relations between a large range of sites using multiple and differing types of data. Network graphs have also been shown to be helpful in identifying certain pitfalls with regards to data collection and study methods adopted for assemblages. There is potential to continue to explore

these method biases by adding more data to each network and see, over time, whether general positions of nodes change over time or remain the same.

* * *

PART II: APPENDICES & BIBLIOGRAPHY

APPENDIX I: CATALOGUE OF MALTESE POTTERY

This catalogue lists and describes the three Maltese pottery assemblages used in this study. The methodology used to study this assemblage is described in Chapter 3. The first part will describe the main types of local fabrics identified across the three assemblages together with each fabric's proportion within each class and assemblage.

Fabrics

Basic geology of the Maltese islands

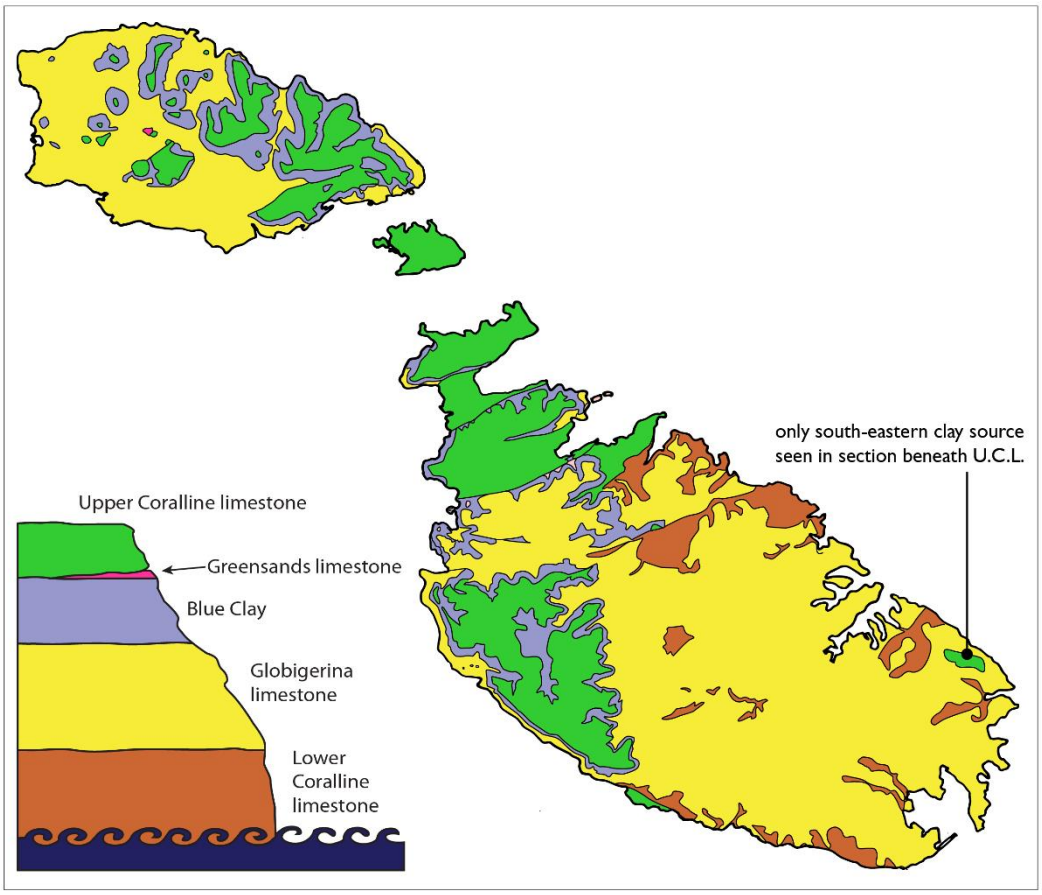


Figure I.1: Schematic diagram showing the five main geological layers of the Maltese islands.

The Maltese islands are made up of a series of five layers of sedimentary rock— Upper Coralline limestone, Blue Clay, Globigerina limestone and Lower Coralline limestone—, with the thinnest formation, Greensands, sandwiched between Upper Coralline and the Blue Clay beds (Figure I.1). The islands' geology is relatively young, formed by sediments that accumulated within the shallow epicontinental sea bed during the

Oligocene and Miocene epochs (c. 30–5 million years ago).[799] Each layer is composed of cemented sediments that are mostly made up of lime-rich skeletal remains in the form of shells and skeletal debris from aquatic plants and animals. The finer components of the sediments are composed of a mixture of very fine wind-blown clay particles, land-based dust and volcanic material.[800]

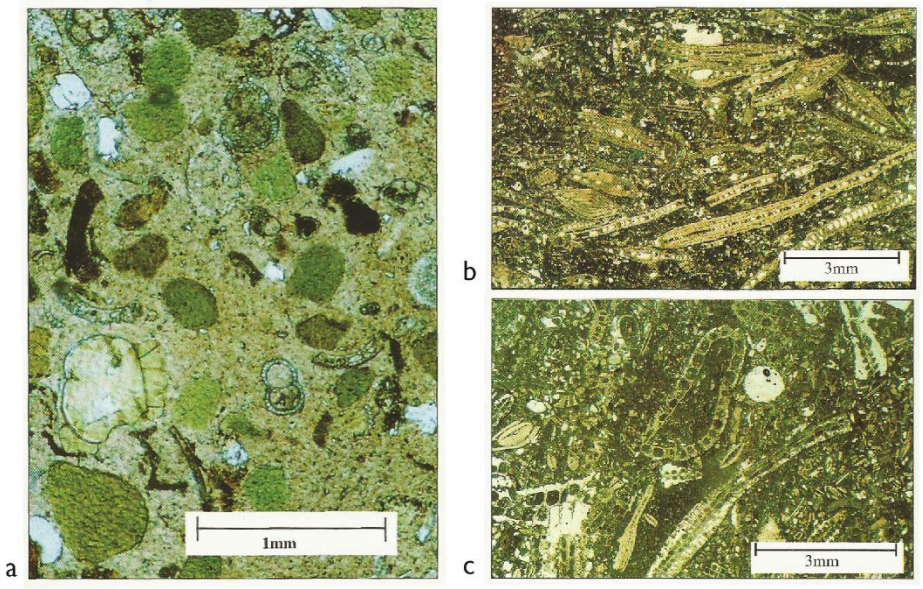


Figure I.2: Glauconite grains (a) foraminifera and microfossils seen under high magnification (b–c); (source: Pedley and Clarke 2002, figs 44–45, 67).

The **Blue Clay** formation is the only clay source on the island and is composed of "a marl and limey clay, mostly with more than 50% calcium carbon content".[801] In addition to this predominantly calcium carbonate-based content, a significant amount of "crystallized spherules" of **gypsum** are present (Figure I.3).[802] Frequently mixed into the top few feet of Blue Clay, as well the dry clay content collected at the base of loose eroding clay slopes, is the thin layer of Greensands limestone, which when eroded, is the source of the **glauconite** mineral characteristic of several local Roman-period fabrics. The Greensands layer is usually no more than a few millimetres thick, but reaches about 11 m at Il-Gelmus outcrop in Victoria, Gozo (Figure 29).

[799] Pedley and Clarke 2002, 41.
[800] *Ibid*.
[801] *Ibid*.
[802] Techer et al. 2013, 831.

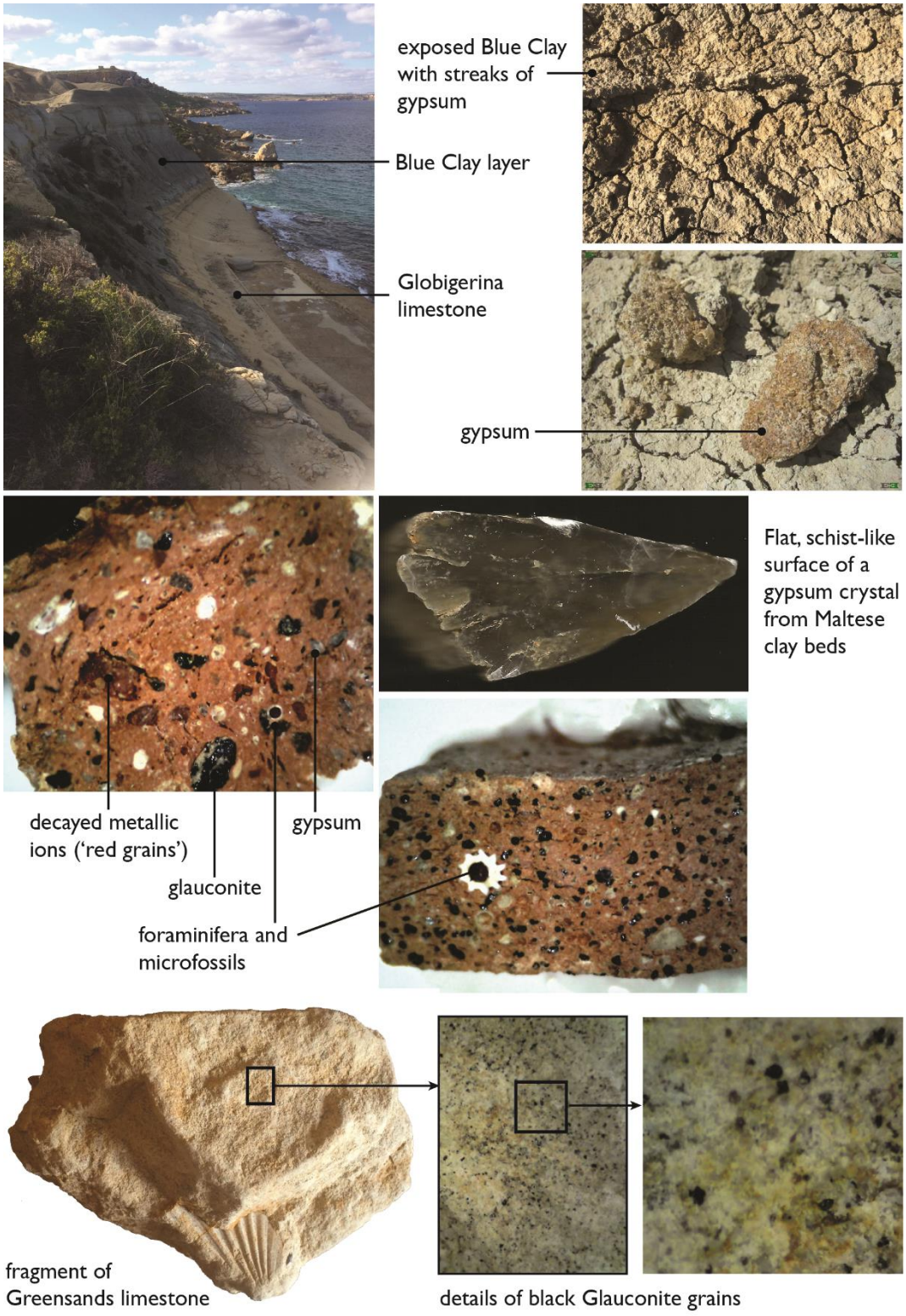


Figure I.3: Various sources and types of local inclusions found in Maltese fabrics.

The material is a form of sand conglomerate composed of fossil detritus combined with brown phosphatic and rounded **glauconite** grains (Figures I.2–I.3).[803] **Glauconite** grains are green in colour when looked at through a

[803] Pedley and Clarke 2002, 56.

microscope but appear black or brown when seen by eye or under low magnification.

The predominant calcium carbonate content is made up of lots of fine white **foraminifera**; the remains of deep-sea unicellular organisms that form a calcium carbonate shell. The organism's size can range between under a 1 mm, but can be larger.[804]

Local Maltese fabrics

Five common fabrics were identified across the three assemblages and are believed to be local in production. Currently, there are no known pottery kilns or related structures dating to the Late Punic or Roman periods on the Maltese islands. Evidence for a local pottery industry remains is teased through the clays, wasters and the inscribed vessels from the sanctuary of Tas-Silġ, where thousands of bowls, plates and cooking pots were inscribed to the Punic goddess Astarte before they were fired.[805] Fortunately, the Foreman Street assemblage belonged to a pottery workshop dump as the mixture of ash and pottery wasters suggests this.[806]

The fabrics were identified and classified using a x20 handheld lens. Small samples of each selected and illustrated sherd were taken (only from the Bulebel and Foreman Street assemblage) and stuck next to a copy of the illustration to be used as a reference aid (Figure I.4). There was little scope at this early stage in the study to undertake detailed archaeometric analyses of the local fabrics.[807] The vast majority of fabrics and forms were quite clearly identifiable as local products through knowledge of the basic local geology and comparison with ubiquitous local pottery forms from tomb and ritual contexts. However, it is hoped that this study will offer an adequate basis, in the form of a local fabric classification, for future petrographic and archaeometric studies of the local material as has already started to be done for some Punic-period samples.[808]

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[804] Pedley and Clarke 2002, 46.

[805] See Section 3.7.

[806] See Section 3.4.

[807] An attempt was made by Kristian Chetcuti Bonavita and Nick Vella in 2000 to undertake a study of the local clay sources throughout Malta. Several samples were taken from various locations, together with stratigraphic and geological details. The study never continued beyond the collection stage, however there is scope to proceed with the analysis of the samples in the near future.

[808] See http://facem.at/map/production_site.php?id=61. Last accessed on 24/08/2015.

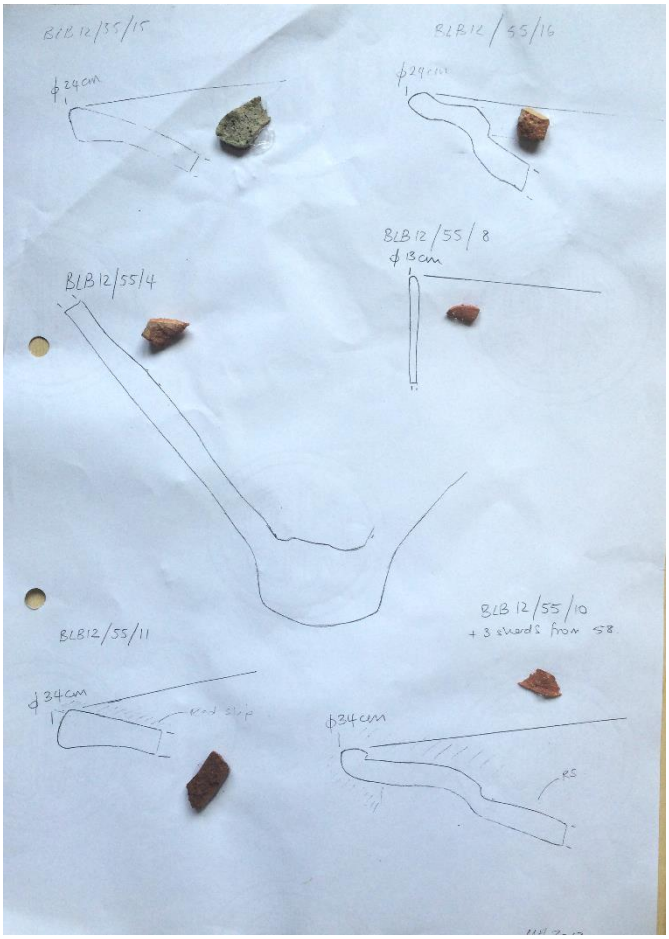


Figure I.4: Example of fabric samples stuck next to the respective sherd illustration.

Local fabric 1

This fabric makes up the overall majority of classical-period pottery on the Maltese islands, both in Malta and Gozo. Vessels are made in a pale red/orange clay, sometimes with a reduced pale grey core. The matrix generally is coarse with small to large voids. The clay contains white or yellow-coloured lime and white foraminifera fossil inclusions (Figure I.5). Red iron ore grains are also sometimes found mixed within the clay, as are small pale red clay pellets or grog. The surfaces of vessels made in this fabric can be coated in a white or cream-coloured slip or salt-slip. Late Punic and Roman-period coarse ware pottery tends to have an unslipped, wet-wiped surface, which is sometimes dry-shaved or burnished/polished to render the surface smooth. Most often, however, the surfaces are left untreated and are rough and gritty to the touch due to the coarse tempering.

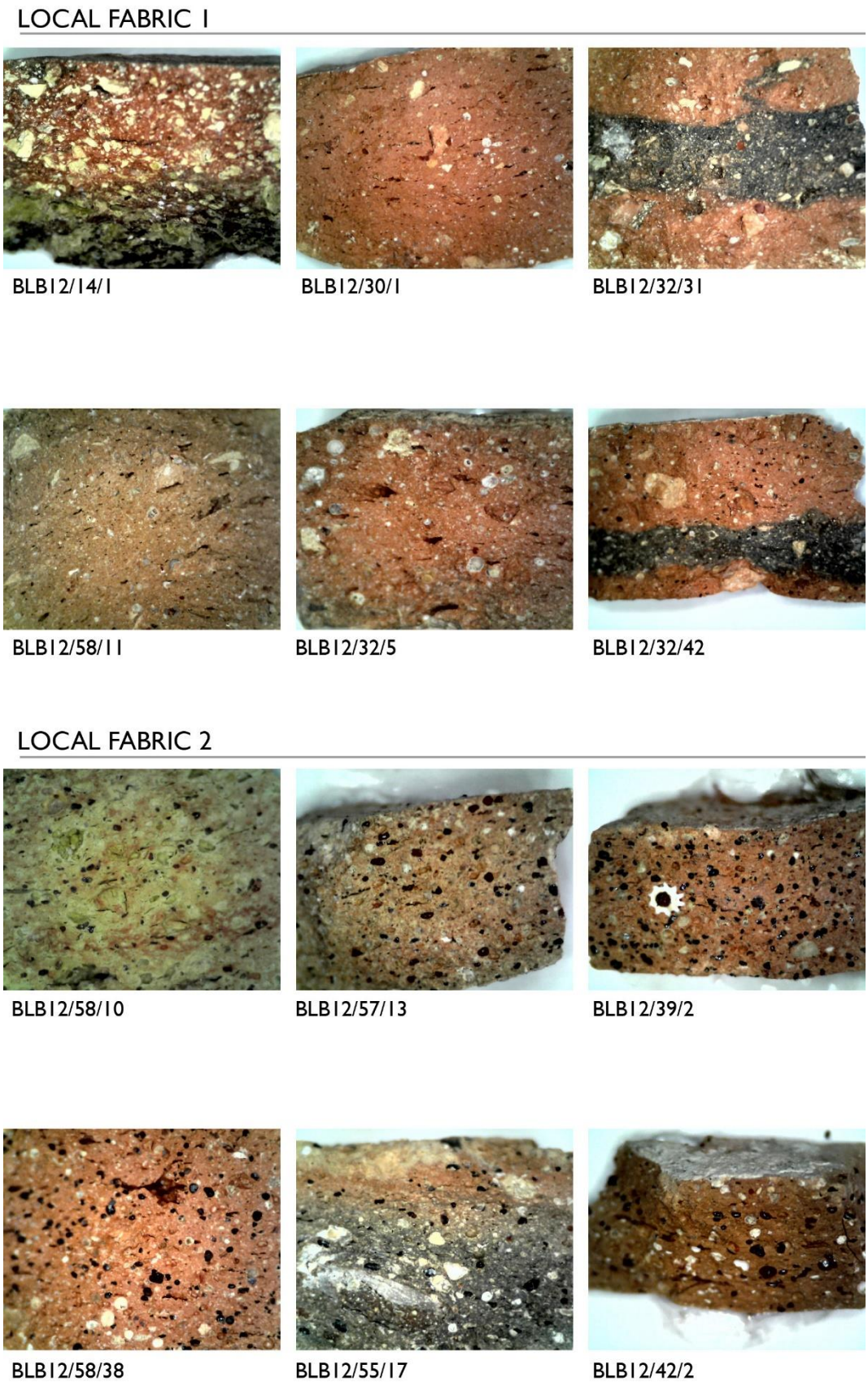


Figure I.5: Local Maltese ceramic fabrics.

Little is known about the methods involved in the firing of local vessels because of lack of structural evidence, however, vessels are generally well fired in oxidising conditions, probably up to temperature reaching c. 800°C. Fluxes in temperature, probably due to bonfire-type firing, probably account for the highly variable mottled surface colours typical of local pottery. Colours range from white, grey or cream to pale red, pink and yellow. In the Roman period, red-slipped vessels in this clay can also be found.

C. Sagona classified this generic fabric as "Crisp ware" for the Punic and Late Punic pottery from the tombs discovered throughout Malta and Gozo and from the sanctuary at Tas-Silġ.[809] B. Bruno identified this general fabric as the fabric used for Late Punic amphorae (egg-shaped forms) and the majority of Malta type 1 forms. Together with C. Capelli, Bruno characterised the clay composition in Malta type 1 forms from Tas-Silġ and San Pawl Milqi and classed them as group A (*generico*).[810] More recently, B. Bechtold and K. Schmidt have characterised some Punic-period Maltese pottery fragments from the 5th–4th-century BC deposits at the Żejtun villa, which also exhibit similar fabric qualities.[811]

Coarse wares [BLB12: 903 (62.2%); FRM08: 30 (2.1%); MLT84: 522 (35.8%)]
Amphorae [BLB12: 72 (76.6%); MLT84: 22 (23.4%)]
Cooking wares [BLB12: 9 (81.8%); MLT84: 2 (18.1%)]
Fine wares [BLB12: 7 (8.9%); FRM08: 1 (1.3%); MLT84: 71 (89.9%)]
Thin-walled wares: [BLB12: 1 (33.3%); MLT84: 2 (66.7%)]

Local fabric 2

This fabric is the second most common type of Maltese fabric, which starts appearing in the Late Punic period, but becomes very common from the Late Republican period onwards. The Roman-period local pottery on Gozo, at least during the 2nd and 3rd century AD, appears to be almost exclusively made using this type of fabric. The fabric is characterised by a soft-to-medium hard, well-fired clay with white or yellow lime fragments, white foraminifera fossil, and fine, round and shiny, black glauconite inclusions (Figure I.5). The general structure of this fabric is similar to *Local fabric 1* except that the matrix tends to be much finer and there is the added

[809] Sagona 2002, 80–81; 2015, 50–67.
[810] Bruno and Capelli 2000, 60–61; Bruno 2009, 109.
[811] Schmidt and Bechtold 2013.

characteristic glauconite tempering. From at least the 1st century BC, this fabric makes up a significant part of coarse ware vessels including plates, bowls, jars, thin-walled cups and red-slipped fine wares. In general, coarse and fine ware shapes in this fabric tend to have thinner walls, and may be an added Roman-period characteristic.

This fabric is like that identified and classified by Bruno (Group GL) for some Malta type 1 and 2 forms, which starts to be used in a small percentage of Malta type 1 amphorae from at least the 2nd century BC.[812] Sagona attributes this glauconite fabric to the early Roman period as "Black gritty ware", and it does not appear to be common in Maltese tombs of the Late Punic period.[813] The majority of vessels at Foreman Street were made in this fabric, including the majority of red-slipped fine wares, and it is now thought to be close to the area where this pottery was produced on Gozo. Foreman Street is also located within a short distance from the largest Greensands outcrop on the Maltese islands (Figure 29).[814]

Coarse wares [BLB12: 712 (17.7%); FRM08: 3216 (79.8%); MLT84: 101 (2.5%)]
Amphorae [BLB12: 11 (64.7%); FRM08: 1 (5.9%); MLT84: 5 (49.4%)]
Cooking wares [BLB12: 7 (58.3%); MLT84: 5 (41.7%)]
Fine wares [BLB12: 16 (11%); FRM08: 46 (31.7%); MLT84: 83 (57.2%)]
Thin-walled wares [BLB12: 26 (96.3%); MLT84: 1 (3.7%)]

Local fabric 3

This fabric appears to be a combination of *Local fabrics 1* and *2*, and contains both lime and foraminifera inclusions as well as added angular gypsum crystalline inclusions (Figure I.6). Some variants of this fabric may also contain some glauconite content too, although, in far less quantities than that seen for Local Fabric 2. The surfaces tend to remain unslipped and exhibit a rough texture, where most of the inclusions remain visible. Very often, the gypsum inclusions give the surface a shiny, glittering look, and on occasion has been mistaken for a micaceous or quartz-rich fabric.[815] Only a few examples in this fabric belong to thin-walled and red-slipped vessels, but it is more common in Late Republican/early Imperial coarse ware bowls

[812] Bruno 2009, 104–105; Bruno and Capelli 2000, 61–62.
[813] Sagona 2002, 80.
[814] See Section 3.7.3.
[815] For instance, see Sagona 2015, 80.

and plates from central and southern Maltese contexts, in particular Imperial-period deposits from Tas-Silġ.

Coarse wares [BLB12: 86 (78.2%); MLT84: 24 (21.8%)]
Amphorae [BLB12: 1 (100%)]
Cooking wares [BLB12: 1 (50%); MLT84: 1 (50%)]
Fine wares [BLB12: 2 (100%)]
Thin-walled wares [BLB12: 1 (100%)]

Local Fabric 4

This is a very fine, hard-fired red to dark orange clay, which contains distinctive matt black spherical inclusions, possibly decomposed glauconite grains, and occasional white or yellow limey fossil inclusions (Figure I.6). The first published reference recognising this fabric comes from the pottery report of the residual Roman-period material from Ħal Millieri, where the fabric was classified as "Fabric A".[816] Quercia does not tackle local cooking ware fabrics in his studies, whilst Sagona's references to "imported [?] Red Bricky Ware" for the classification of the islands' funerary material are rather vague and non-committal.[817] Her more recent study of the material from the University of Malta's excavations at the sanctuary of Tas-Silġ assigns the fabric the label of "Late Red Bricky ware" and concludes that it is a local fabric primarily used for the manufacture of thin-walled cooking vessels.[818]

This fabric is typical of local red-slipped fine wares, thin-walled wares and cooking wares, and can be mistaken for imported African and Sicilian wares because of the fine, granular nature of some examples. The presence of fine white foraminifera and the distinctive black inclusions do, however, betray its local source. Indeed, higher magnification of this fabric shows the same general inclusions seen in the coarser Local Fabric 5 samples (Figure I.6) indicating that the Local Fabric 4 clays were intentionally better levigated.

[816] Blagg, Bonanno and Luttrell 1990, 54–56, fabric A.
[817] Sagona 2002, 83.
[818] Sagona 2015, 77.

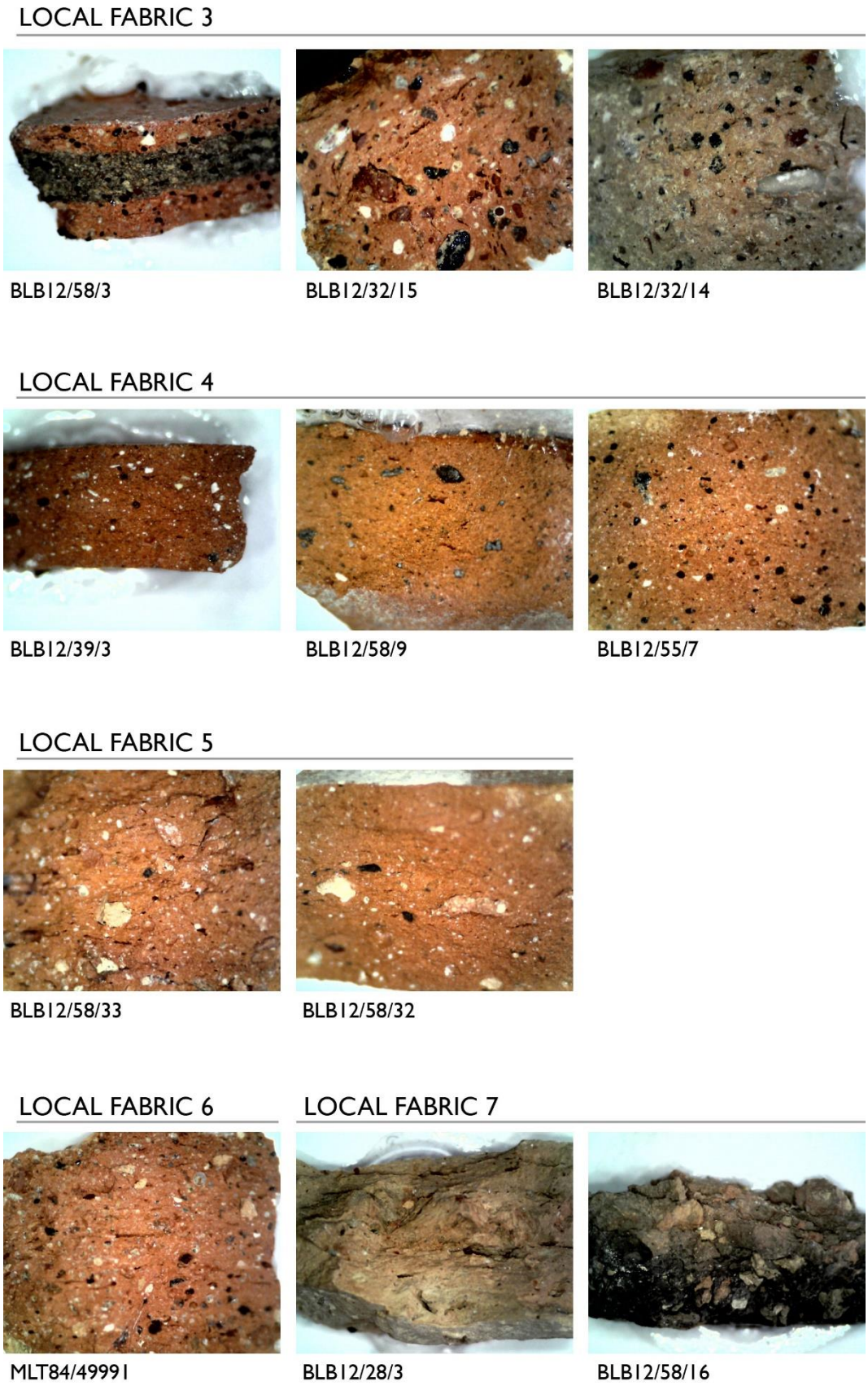


Figure I.6: Local Maltese ceramic fabrics.

Coarse wares [BLB12: 12 (60%); FRM08: 1 (5%); MLT84: 7 (35%)]
Cooking wares [BLB12: 27 (45.8%); MLT84: 32 (54.2%)]
Fine wares [BLB12: 2 (100%)]
Thin-walled wares: [BLB12: 9 (64.3%); MLT84: 5 (35.7%)]

Local fabric 5

This fabric is a coarser version of Local fabric 4, characterised by a deep rust-coloured red/brown to brick-red coloured clay peppered with fine to large coarse white and yellow lime, foraminifera and fossil inclusions. Some black glauconite inclusions are also sometimes found (i.e. 3.1.3.1-3). Paste voids are common and the breaks are generally clean, but rough. Sagona classified this fabric as "Bricky Red ware" for the University of Malta's material from the sanctuary at Tas-Silġ, where it was found mostly associated with round-bottomed cooking pots (predominantly Quercia's olla type B) dated to the 4th/3rd–2nd century BC.[819]

Vessels made in this fabric are wheelmade and were either left unslipped or salt-slipped, where a thin white scum coats the surface. A large proportion of fabric-5 cooking vessels from Tas-Silġ contained Punic inscriptions evoking the Semitic goddess Astarte. These inscriptions were incised onto leather-hard vessels *before* firing, thus supporting a local Maltese source for this particular fabric. This local source has since been further supported by the fabric analysis undertaken on a series of samples from the same site.[820]

Within this sample it is clear that this fabric is not common in the Roman period at all. Indeed, early Roman cooking wares tend to use the finer version (Local fabric 4), only adopting this fabric for a select number of forms (mainly types 3.1.1.7 and 3.1.3.1).

Cooking wares [BLB12: 8 (80%); MLT84: 2 (20%)]

Local Fabric 6

This fabric represents one amphora rim sherd identified in the Melita assemblage in the form of a Malta type 2 container (1.1.3-2). Capelli and Bruno have identified and classified this particular fabric as "Group VQ" or the 'volcanic-quartz' group, which is characterised by a dark orange/brown

[819] Sagona 2015, 74–77; Quercia 2002, 410–411, fig. 2.
[820] Mommsen et al. 2006, 86.

clay with lots of fine yellow and white foraminifera and fossil content, some rounded quartz, fine angular gypsum and fine black volcanic sand (Figure I.6).[821] According to Bruno's description of the fabric "the abundance of rounded quartz granules strongly characterises the clays used in this group," however rounded quartz granules are not clearly present within the single Melita sample. Instead, fine angular flecks of transparent glass-like gypsum are in relative abundance, together with fine black, shiny volcanic glass. The lack of a larger sample of sherds in this fabric make it difficult to explore the composition of this fabric any further.

The type of quartz and volcanic material present within Bruno's VQ fabric group—mostly associated with Malta type 2 amphorae—are not to be found in Maltese geological strata or beach sand. Bruno and Capelli surmise that the rounded marine, fluvial or wind-blown sand is akin to geographical areas like North African, Syrian and Palestinian desert regions. In spite of this, it cannot be excluded that some of this quartz content derived from material blown onto the Maltese islands from overseas. The *sirocco* wind that carries red Saharan sand does pass over the Maltese islands quite often, and when the dust clouds fall mixed within rain—blood rain—, the gritty red sand falls to the ground, and does leave a significant amount of desert sand on the ground. A similar phenomenon is known when volcanic material falls to the ground following volcanic activity form Mount Etna in nearby Sicily. Nevertheless, Bruno concluded that the quantity of the volcanic and quartz material was too high to support a local source for the tempering agents and suggests that sand was imported into the islands and subsequently mixed with local clay and used to manufacture amphorae.[822] Interestingly, Bruno reports that this fabric group made up about 90% of the Malta type 2 amphorae from her sample, but only 4 examples were actually from the sanctuary of Tas-Silġ; the overwhelming majority were exclusively from the San Pawl Milqi villa. Therefore, the suggestion that ballast was imported and used specifically at San pawl Milqi is quite probable, and unpicks the apparent (or presumed) uniformity of this fabric across the island. Also, the link between the VQ fabric identified by Bruno for this single amphora type, and the plates she refers to from Tas-Silġ, which she believes are also made in a similar volcanic-quartz fabric, might

[821] Bruno and Capelli 2000, 62–63; Bruno 2009, 110.
[822] Bruno 2009, 110–111; Bonanno 2007, 522.

actually be in Local Fabric 3 because she does not elucidate the type, quantity, source and nature of the coarse ware vessels she refers to, and from personal observations of material from University of Malta's excavations at the same site. It is hoped that further macroscopic and scientific analysis of coarse ware vessel fabrics might offer an opportunity to tease out the true extent of the source of tempering agents found in some Maltese vessels.

Amphorae [MLT84: 1 (100%)]

Local Fabric 7

This last fabric represents a rather common and generic coarse limey clay typical of all local handmade vessels. The colours range from pale pink, to pale brown, grey and even black. Mixed within the clay are large bits of lime, microforaminfera, microfossils and other mixed gritty inclusions associated with an unpurified clay source. Vessels are usually left unslipped, although at least one example had red and black painted surfaces (3.2.2-2). This fabric is ubiquitous in history and unless surface treatments and shape are taken into consideration, it is difficult to determine the difference between prehistoric, Punic, Roman and Medieval fragments made in variants of this fabric.[823]

Coarse wares [BLB12: 2 (25%); FRM08: 2 (25%); MLT84: 4 (50%)]
Cooking wares [BLB12: 285 (80.5%); FRM08 11 (3.1%); MLT84: 58 (16.4%)]

Imported fabrics

At least of 15% of the entire assemblage was made up of imported fabrics with a wide variety of sources (see Chapter 3). A wide range of different sources and fabric types identified, and as much as possible, representative samples of this fabric range were recorded by cataloguing their respective shapes. Thus detailed fabric descriptions have been included within the catalogue.

[823] Blagg, Bonanno and Luttrell 1990, 66–68.

Pottery catalogue

The following catalogue is intended to display a wide range of pottery fragments from three different sites in Malta and Gozo. Each site was active during different periods of the Roman era, although some overlap is evident. The scope of this exercise was to detail important new and existing local and imported forms obtained from good Roman-period archaeological contexts as no comprehensive Roman pottery assemblages have ever been catalogued for the Maltese islands to date.

The material has been divided into four main groups: Amphorae, fine wares, cooking wares and coarse wares. Within each group, the representative fragments were further divided according to logical criteria such as general source (imported or local), provenance (North Africa, Italian etc.) and most importantly shape (bowl, jug, amphora etc.). The criteria within each section were however adjusted to take into consideration typological distinctions that are more apparent in one group rather than another. Figures I.7–I.9 illustrate a 'map' tracing the different types within the following catalogue.

Each catalogue entry follows with a general description of the type, followed by any general local and foreign parallels, and any dating evidence available. A list of representative examples then follows with fabric and surface details, context information and any additional features that characterise that particular sherd. All measurements are taken in centimetres (cm). Where necessary additional comments, type information, references and dates are included within an entry.

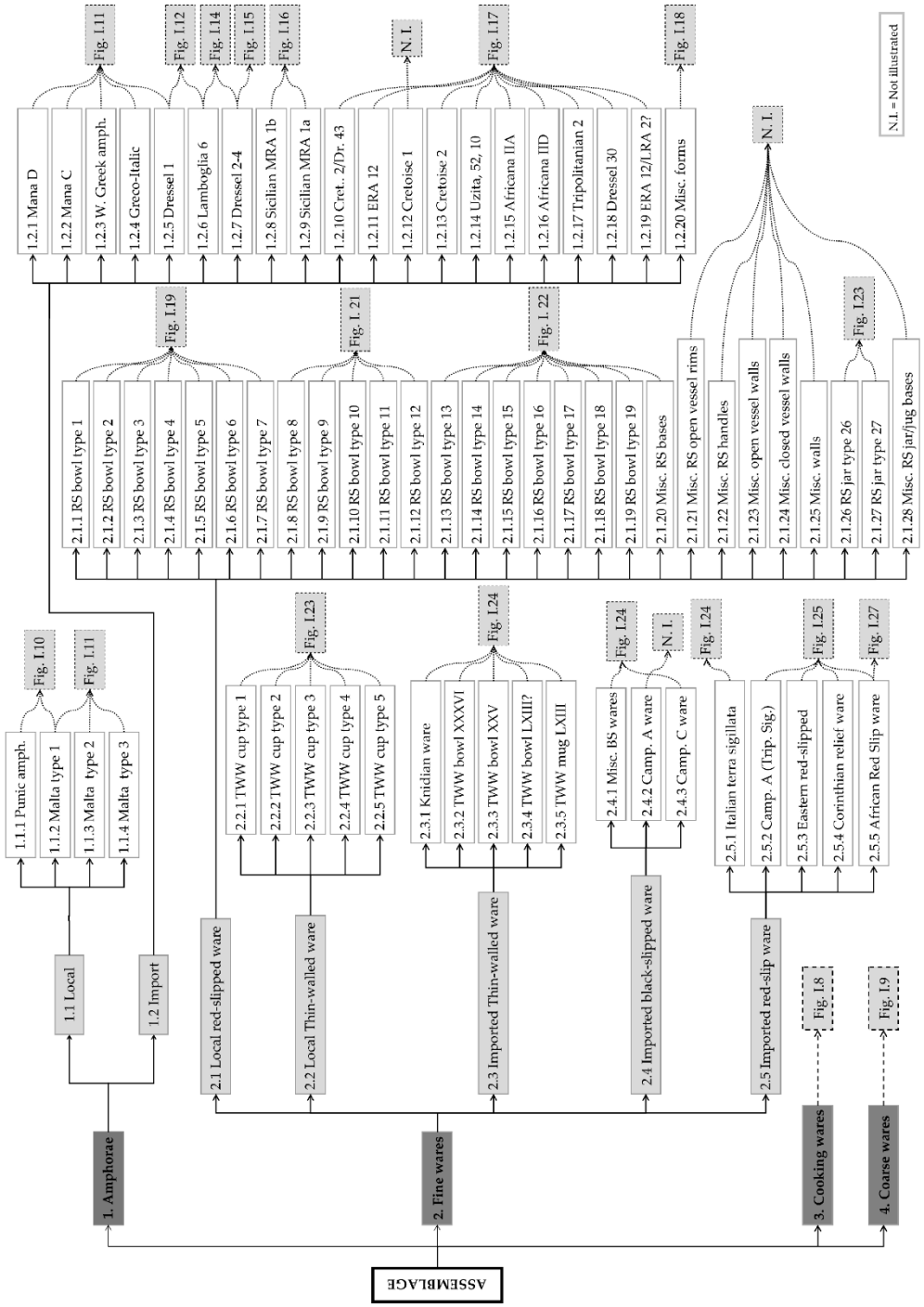


Figure I.7: Map of amphora and fine ware types within this catalogue.

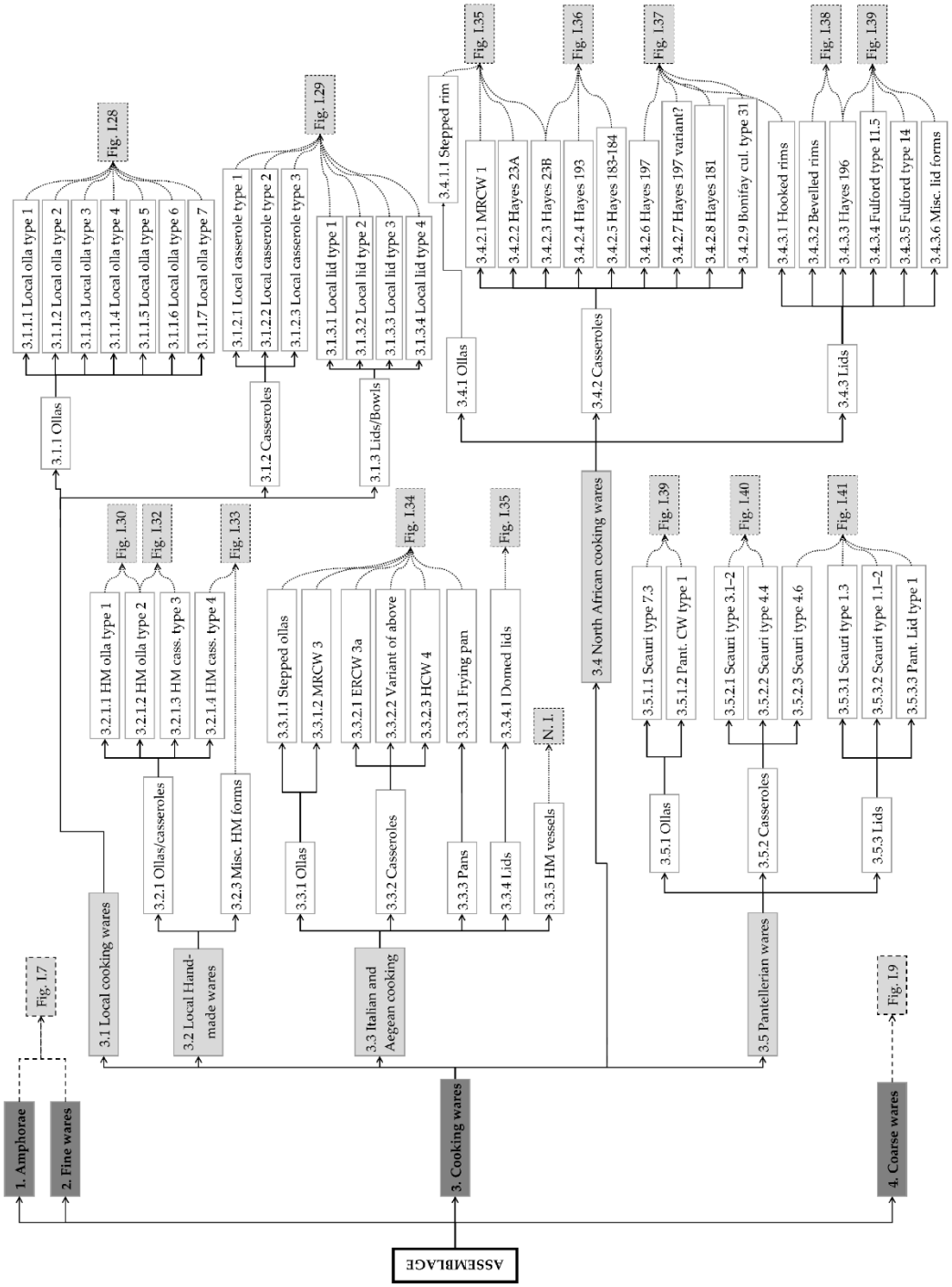


Figure I.8: Map of cooking ware types within this catalogue.

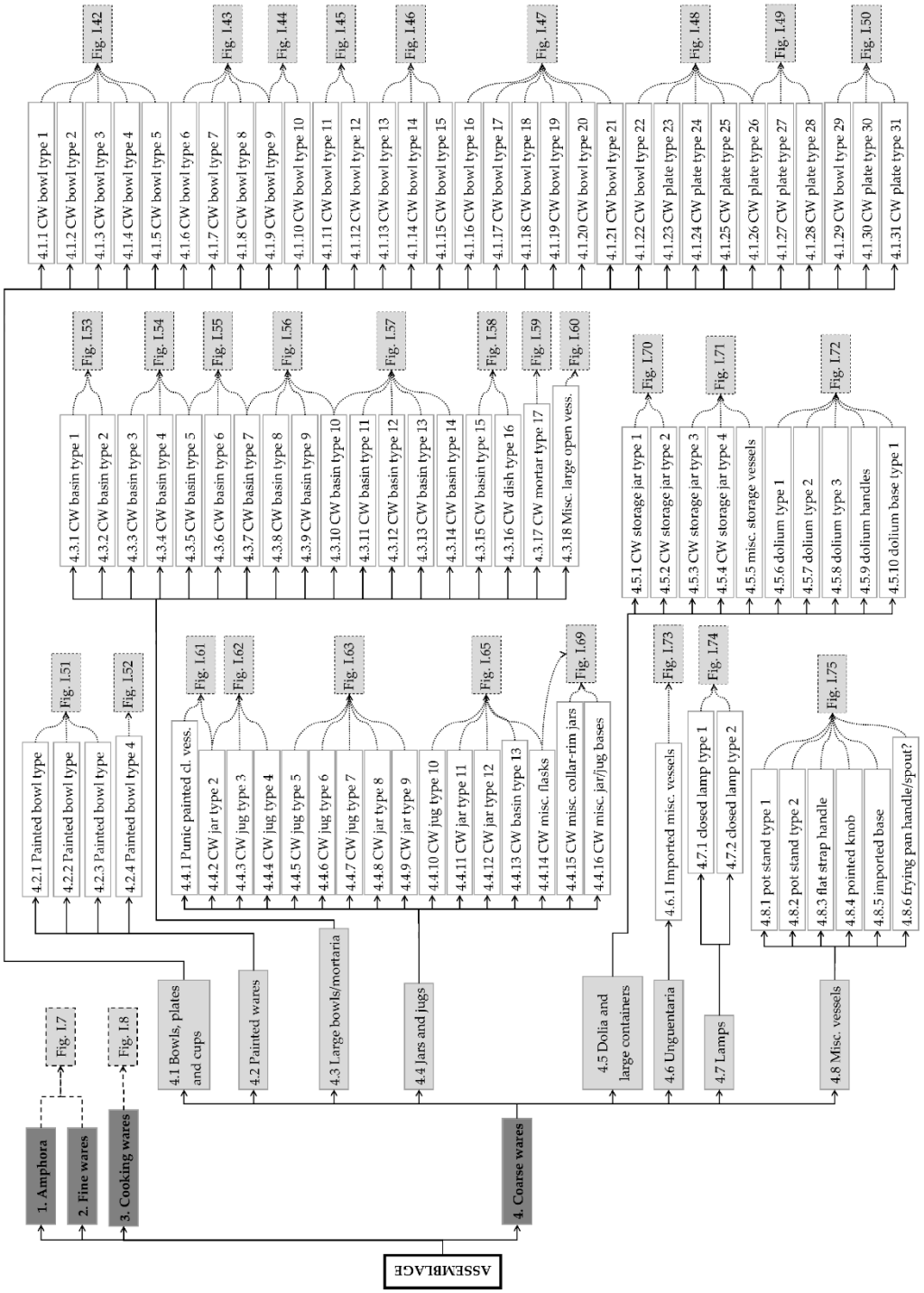


Figure I.9: Map of coarse ware types within this catalogue.

1.1 Local Amphorae

1.1.1 Maltese Punic egg-shaped amphora *Figure I.10*

This form is characterised by a short collared rim, either slightly everted (1.1.1-1–4) or beaded (1.1.1-5). When complete the body is egg-shaped in profile with no distinct neck and a round bottom. Two oval-section handles are usually attached to the widest part of the body beneath the rim. The former type is similar to Sagona's amphora forms IV-V: 1 and V: 1 (and Ramon's T-3.2.1.2) and has been dated on the basis of tomb contexts from the late 2nd/1st century BC to the first half of the 1st century AD.[824] The latter type (1.1.1-5) is similar to Sagona's amphora form IV: 1 (and Ramon's type 2.2.1.2), dated to the 3rd–1st century BC, potentially making it an earlier residual piece within the assemblage.[825] All the fragments identified are made in a local lime fabric (Local Fabric 1). It is this type of form that was occasionally exported overseas between the 7th and mid-2nd century BC and remained the primary local storage and transport container for the entire Punic period on the islands.[826] Their local production is verified by the discovery of several complete examples showing severe firing defects in tomb contexts across the islands.[827] Sherds 1.1.1-1–3 could certainly be contemporary to the remaining mid- to late 1st-century AD material at Bulebel, however the remaining two fragments (1.1.1-4 and 1.1.1-5) from the Melita contexts are probably residual. The mostly likely liquid carried in these vessels was olive oil,[828] however, wine, fruit and a variety of other liquids cannot be excluded since few studied have been conducted to explore local amphorae contents.

[824] Sagona 2002, 92–93, figs 347.1 and 348.1. More stratigraphic data are needed to determine more secure dates for these forms as currently only amphorae from tomb contexts—which not secure contexts for dating associations to be made—, and the secondary contexts from Tas-Silġ have been published and used to determine chronologies for local amphorae.
[825] Sagona 2002, 90–91, fig. 346.1.
[826] See Section 3.8.1.
[827] Bruno 2009, 100.
[828] See Section 3.8.5.

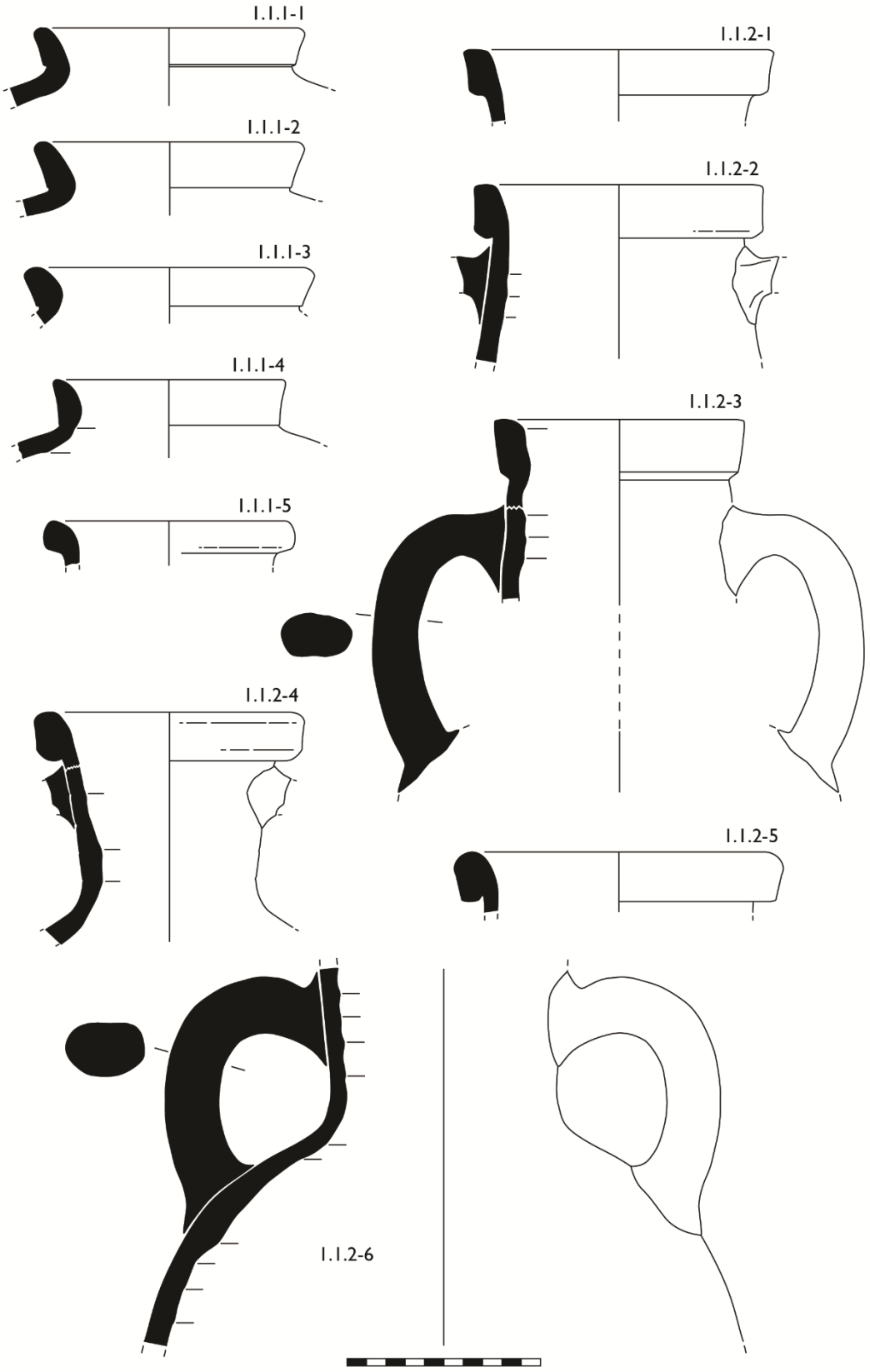


Figure I.10: Local Punic and Roman amphorae, types 1.1.1–1.1.2.

1.1.1.1 BLB12/23/3: Rim, d. 14. Local Fabric 1: Hard-fired, coarse red clay with thick dark grey core with large yellow lime, fine foraminifera and occasional red ore grain inclusions; rough pale grey skin. Type: Sagona amphora form IV-V: 1. Date: c. 200 BC–AD 50. Context: Bulebel SU 23, phase 2.

1.1.1.2 BLB12/30/1: Rim, d. 14. Local Fabric 1: Hard-fired, coarse orange clay with fine yellow lime and foraminifera inclusions; thin pale yellow/cream slip. Type: Sagona amphora form IV-V: 1. Date: c. 200 BC–AD 50. Context: Bulebel SU 30, phase 2.

1.1.1.3 BLB12/58/1: Rim, d. 15. Local Fabric 1: Hard-fired, coarse orange clay with lots of fine to medium yellow, and fine white foraminifera inclusions; thin, matt pale yellow/cream slip. Type: Sagona amphora form IV-V: 1. Date: c. 200 BC–AD 50. Context: Bulebel SU 58, phase 1.

1.1.1.4 MLT84/8426321: Rim, d. 12. Local Fabric 1: Pale orange clay with yellow lime and foraminifera inclusions; pale yellow/orange slip/skin. Type: Sagona amphora form IV-V: 1. Date: c. 300 BC–AD 50. Context: Melita SU 1100, phase 2.

1.1.1.5 MLT84/8449355: Rim, d. 13. Local Fabric 1: Hard-fired pale orange clay with lime and foraminifera inclusions; unslipped. Type: Sagona amphora form IV: 1/Ramon T- Date: c. 300–100 BC. Context: SU 1093, phase 4, residual.

1.1.2 Malta type 1 *Figure I.10*

This form was first formally identified and classified by B. Bruno as Malta type 1; the first locally manufactured Early Roman amphora type for the islands.[829] The form is characterised by a vertical collared rim, distinct neck atop an ovoid body with a stub peg, with two oval-section handles attached below the rim to the shoulder (Figure 40).[830] Two rim variants were identified within these assemblages, both resembling Ancient Tripolitanian/Dressel 26 forms: the first is long and rectangular in section (1.1.2-1–3); the second is a more rounded, squatter version (1.2.2-4–5). Bruno describes the new morphology of this Roman type as a break from the local Punic tradition, which takes on typological qualities that are more akin to Republican-period amphorae.[831] Compared to the Punic forms, the Malta type 1 now has a distinct neck and elongated body that tapers into a short peg or toe (1.1.2-7 and 1.1.2-8). Two handles are attached under the rim to the shoulder (1.1.2-3 and 1.1.6-6). A Late Republican date (c. beginning of the 2nd to late 1st century BC) was assigned to this form by Bruno and are believed to be the principal oil amphorae manufactured close to several of

[829] Bruno 2002; 2009, 101–105.

[830] See Section 3.8.6.

[831] Bruno 2009, 102.

the olive-pressing farms known on Malta.[832] This type is found in two fabrics (Local Fabrics 1 and 2) and further serves to demonstrate the shift in choice of clay tempering from the late 2nd/early 1st century BC from a predominantly lime-based tempered clay to one that starts contained black glauconite inclusions, thereby giving the clay a black, speckled appearance.

1.1.2.1 BLB12/32/35: Rim, d. 16. Local Fabric 2: Grainy, yellow fabric with black glauconite and small red inclusions; pale green, possibly underfired surface. Context: Bulebel SU 32, phase 2.

1.1.2.2 BLB12/55/5: Rim and neck, d. 15. Local Fabric 2: Hard-fired, dark orange fabric with lots of fine black glauconite, fine yellow lime and foraminifera inclusions; thick, matt, pale yellow/cream slipped surface. Context: Bulebel SU 55, phase 1.

1.1.2.3 BLB12/55/6: Rim, neck and handle, d.13. Local Fabric 1: Hard-fired, dark grey mixed with green-coloured clay (over-fired?) with thin pale orange edges with fine burnt foraminifera and lime inclusions; unslipped pale orange/pink skin. Context: Bulebel SU 55, phase 1.

1.1.2.4 BLB12/58/38: Rim and neck, d. 14. Local Fabric 2: Hard orange fabric with lots of black glauconite, fine yellow lime and fine white foraminifera inclusions; thin pale yellow-slipped exterior surface. Context: Bulebel SU 58, phase 1.

1.1.2.5 MLT84/8449943: Rim, d. 16. Local Fabric 1: Coarse pale orange clay with lime and foraminifera inclusions; pale cream-brown slip. Context: Melita SU 1098, phase 5; residual.

1.1.2.6 BLB12/55/3: Neck, handle and shoulder. Local Fabric 1: Pale orange/pink clay with large yellow lime, fine white foraminifera and darker red grog inclusions; thick pale yellow/cream slipped surfaces; thick, oval-section handle. Context: Bulebel SUs 55 and 54 (vessel composed of six joining fragments within two contexts), phase 1.

1.1.2.7 BLB12/55/4: Peg, Local Fabric 2: Hard-fired, pale orange clay with fine and large yellow lime, foraminifera and some fine black glauconite inclusions; unslipped pale pink/orange surface. Context: Bulebel SU 55, phase 1.

1.1.2.8 MLT84/8426339: Peg, Local Fabric 1? Soft pale brown fabric with lime and foraminifera inclusions; unslipped. Context: Melita SU 1100, phase 2; most probably residual in this context.

1.1.3 Malta type 2 *Figure I.10*

This form is a local Early Imperial amphora that typologically developed from the Malta type 1. Many variants, differing in shape and size were identified by Bruno, however, she notes that "the flared square-collared rim, flat on top, and often with a sea-urchin [ad echino] profile" is a

[832] Bruno 2009, 104–105.

recurring characteristic for this type.[833] Very few profiles were found for this type (only those recorded below) but their absence from any of the Bulebel contexts reinforces Bruno's prediction that this form was produced in the Imperial period, and well into the mid-2nd century AD. Bruno associated this form with a third chemically isolated fabric (Group VQ) that contains black volcanic inclusions within a typically local lime clay.[834] Rim sherd 1.1.3-2 was made in a similar fabric, whilst sherd 1.1.3-1 is in Local Fabric 2. The source of the Group VQ fabric (Local Fabric 6) remains uncertain, but the typological characteristics evident in the shape of the rim, and the fact that no similar amphorae are known outside of the islands suggest that this is a local product that incorporated potentially imported tempering within its fabric make-up.[835] It remains unclear whether 1.1.3-2 is contemporary to the latest forms in the Melita context (mid-3rd to mid/late 4th century AD) and too few were found to suggest a more detailed chronology for the form.

1.1.3.1 FRM08/42/87: Rim, d. 16. Local Fabric 2: Hard-fired pale yellow/orange fabric with lots of fine to large yellow lime, fine white foraminifera and red and black glauconite inclusions; pale grey/cream-slipped surface. Context: Foreman Street SU 42.

1.1.3.2 MLT84/8449991: Rim, d. 18. Local Fabric 6: Hard dark orange clay with fine white lime, angular gypsum/quartz (?) and fine black volcanic inclusions. Context: Melita SU 1097, phase 5.

1.1.4 Malta type 3 *Figure I.11*

These two examples are small versions of the Malta type 2 and may be considered possible table amphorae like those identified by Bruno.[836] They are characterised by thinner walls and are more akin to the Foreman Street rim profile (1.1.3-1), with a more rounded rim and a slightly concave interior. No complete example, or any associated handles or bases were identified that can be tied to this form so the entire profile remains a mystery. Both examples (1.1.4-1 and 1.1.4-2) are made in Local Fabric 2. A precise date for this form is not known, however, they are most probably contemporary with the Malta type 2, therefore Imperial in date. Both fragments recorded here were found in contexts dating from the mid-3rd to mid/late 4th century AD.

[833] Bruno 2009, 105.
[834] Bruno 2009, 110; see section on fabrics above.
[835] Bruno 2009, 110–111.
[836] Bruno 2009, 105.

1.1.4.1 MLT84/8449325: Rim, d. 12. Local Fabric 2: Hard pale red fabric with lime and black glauconite inclusions; unslipped. Context: Melita SU 1084, phase 4.

1.1.4.2 MLT84/8449884: Rim, d. 13. Local Fabric 2: Hard pale orange fabric with fine lime and black glauconite inclusions. Context: Melita SU1085, phase 3.

1.2 Imported amphorae

1.2.1 Imported Punic amphorae: Maña D *Figure I.11*

These large torpedo-shaped amphorae are very common on coastal sites throughout the Punic western and central Mediterranean from about the 4th to 3rd century BC. Major production centres of a wide variety of variants have been identified in North Tunisia, in particular the Carthage area, and the southern coast of Spain. Examples of these forms are known on Malta and Gozo but compared with other Punic-period assemblages in the central Mediterranean, very few imported Punic forms like these have been identified.[837] The examples listed here are few (only two) and are also residual fragments.

1.2.1.1 MLT84/8449944: Rim, d. 13 (internal). Fabric: Pale orange fabric with fine quartz inclusions; cream salt-slipped surface. Source: North Tunisia. Type: Similar to Ramon type T-4.2.1.5 or T-5.2.3.2/Sabratha type 4. Date: mid-4th–mid-3rd century BC or mid-3rd–early 2nd century BC respectively. Context: Melita SU 1098, phase 5; residual.

1.2.1.2 MLT84/84/26244: Rim, d. 12 (internal). Fabric: Hard-fired pink clay with lots of fine rounded quartz inclusions; pale yellow/cream slipped surface. Source: Carthage area, North Tunisia. Type: Similar to Ramon type T-5.3.3.1/Sabratha type 4. Date: 4th/3rd century BC. Context: Melita SU 1099, phase 5; residual.

[837] With the exception of the San Pawl Milqi villa, where Bruno says Sabratha type 3 and 4 were imported in "significant quantities" (2009, 172). The recent study of the material from the University of Malta's excavations at the sanctuary of Tas-Silġ and the Żejtun villa do not contain any significant quantities of imported Punic forms (see Sagona 2015, 78–79; pers. comm. Dr Babette Bechtold). Individual examples come from tomb contexts, in particular when used as sarcophagi like the child burial at Tal-Virtù (MAR 1968, 6–7; Sagona 2002, 1089, burial no. 625), or private collections (Sagona 2002, fig. 317.4). Certainly more examples exist but remain unpublished. Nevertheless, relatively speaking, the rate of imported Punic forms remains insignificant for the majority of the islands.

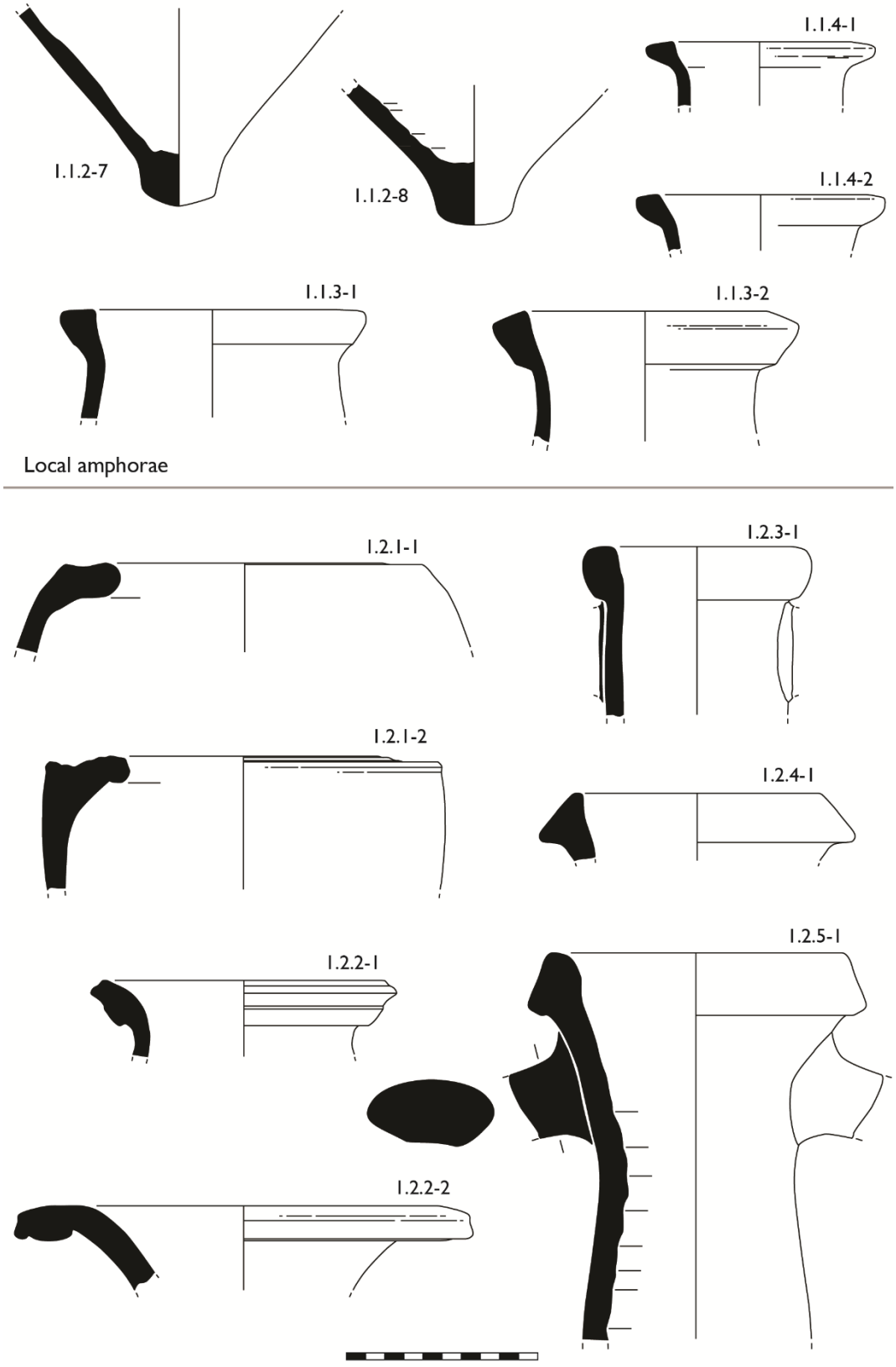


Figure I.11: Local and imported amphorae, types 1.1.2–1.2.5.

1.2.2 Imported Punic amphorae: Maña C *Figure I.11*

This general group belongs to a second, slightly later, common Punic form widely distributed throughout the central and western Mediterranean form about the 3rd century BC until at least the early 1st century BC.[838] Production centres are common in North Africa, southern Spain and western Sicily. This form is more common on the Maltese islands than the earlier imported Punic form (type 1.2.1), although, again, the proportion of vessels never reaches any relatively significant range when compared with other central Mediterranean sites for the period. North African examples have been identified at the Żejtun villa, San Pawl Milqi and Tas-Silġ.[839]

1.2.2.1 BLB12/14/3: Rim, d. 16. Fabric: Hard-fired, gritty red clay with abundant fine round quartz, some fine white lime and occasional black inclusions; pale yellow skin. Source: North/Central Tunisia. Type: Van der Werff form 2/Martin-Kilcher type B2/Maña C2/Ramon T-7.2.1.1. Date: mid-2nd to 1st century BC. Context: Bulebel SU 14, phase Q2, mixed context.

1.2.2.2 MLT84/84/26320: Rim, d. 24. Fabric: Pink/pale red clay with fine round quartz inclusions; cream-coloured exterior surfaces. Source: North Tunisia. Type: Van der Werff /Martin-Kilcher type A/Ramon T-7.4.2.1. Date: c. 2nd century BC.[840] Context: Melita SU 1100, phase 2, residual.

1.2.3 Western Greek amphora *Figure I.11*

This category is reserved for an imported 4th–2nd century-BC amphora typical of western Greek (mainly Greek Sicilian) and Aegean centres. Forms such as this are often found in assemblages also containing North African Punic amphorae and like the imported Punic forms, Greek amphorae have been found on Malta but in small numbers.[841]

1.2.3.1 MLT84/26271: Rim, d. 12. Fabric: Hard red/brown fabric with mica and occasional, large black volcanic inclusions; unslipped. Source: Imported; Southern Italy/Sicily? Type: Gassner 'Randform' 3/'greco-occidentale 1'.[842] Date: c. 4th–2nd century BC. Context: Melita SU 1099, phase 5, residual.

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[838] For a detailed overview of the wide range of forms and variants see Ramon Torres 1995, 205–216, types T-7.2.1.1–7.5.2.3; Martin-Kilcher 1999; Bonifay 2004, 89–90; and the relevant pages on the University of Southampton Roman Amphora Database (Keay and Williams 2005[2014]).

[839] Anastasi 2010, 293, fig. 129.14 (Żejtun villa); Bruno 2009, 175–176, figs 36.8–12 (San Pawl Milqi and Tas-Silġ).

[840] Martin-Kilcher 1999, 416-417.

[841] Bruno 2009, 171–172.

[842] Polizzi 1997, 99, fig. 5.7; Bechtold 2012, pl. 5 no. 5.7; Gassner 2003.

1.2.4 Greco-Italic forms *Figure I.11*

Several studies detailing the form, chronology and distribution of this Early Republican amphora are available.[843] The single example found in the Bulebel phase-1 assemblage is Campanian in origin and probably belongs to the D series classified by E. Will and dates to first half of the 2nd century BC.[844] Like the previous forms, these amphorae are also found on Maltese sites but in small numbers.[845]

1.2.4.1 BLB12/32/30: Rim, d. 12 Fabric: Campanian black sand. Source: Campania. Type: Greco-Italic form D? Date: early 1st century BC. Context: Bulebel SU 32, phase 1.

1.2.5 Dressel 1 *Figures I.11–I.12*

This form is synonymous with the apex of the Late Republican Italian wine trade that is represented by an unprecedentedly wide distribution of mass produced containers found in large volumes across the Mediterranean region and beyond, from the mid-2nd century BC.[846] A relatively large number of these containers were imported to the Maltese islands and are always well represented in local assemblages.[847] A wide range of fabrics, most of which are from southern Italian sources, have been identified within the assemblages studied. Campanian black-sand fabrics are the most common, however, some Adriatic (1.2.5-1) and Spanish (1.2.5-2) sources are also possible.

1.2.5.1 BLB12/58/50: Rim, neck and handle, d. 16. Fabric: Fine pale brown fabric with small brown and red inclusions; unslipped. Source: Adriatic coast? Type: Dressel 1A. Date: Mid-2nd to mid-1st century BC. Context: Bulebel, SU 58, phase 1.

1.2.5.2 BLB12/58/21: Rim, d. 14. Fabric: Dark pale orange/brown clay with mica, irregular large quartz and white and grey inclusions; unslipped. Source: Imported, possibly Spanish? Type: Dressel 1A. Date: Mid-2nd to mid-1st century BC? Context: Bulebel SU 58, phase 1.

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843 See Will 1982; and relevant references in Peacock and Williams 1986 and Keay and Williams 2005 [2014].

844 Will 1982, 356.

845 Bruno 2009, 173.

846 A large body of published research exists for this wine container. See the references in Keay and Williams 2005 [2014].

847 Tas-Silġ and San Pawl Milqi (Bruno 2009, 173); Rabat, Malta (Antico Gallina 2004); Żejtun (Anastasi 2010, fig. 129. 10).

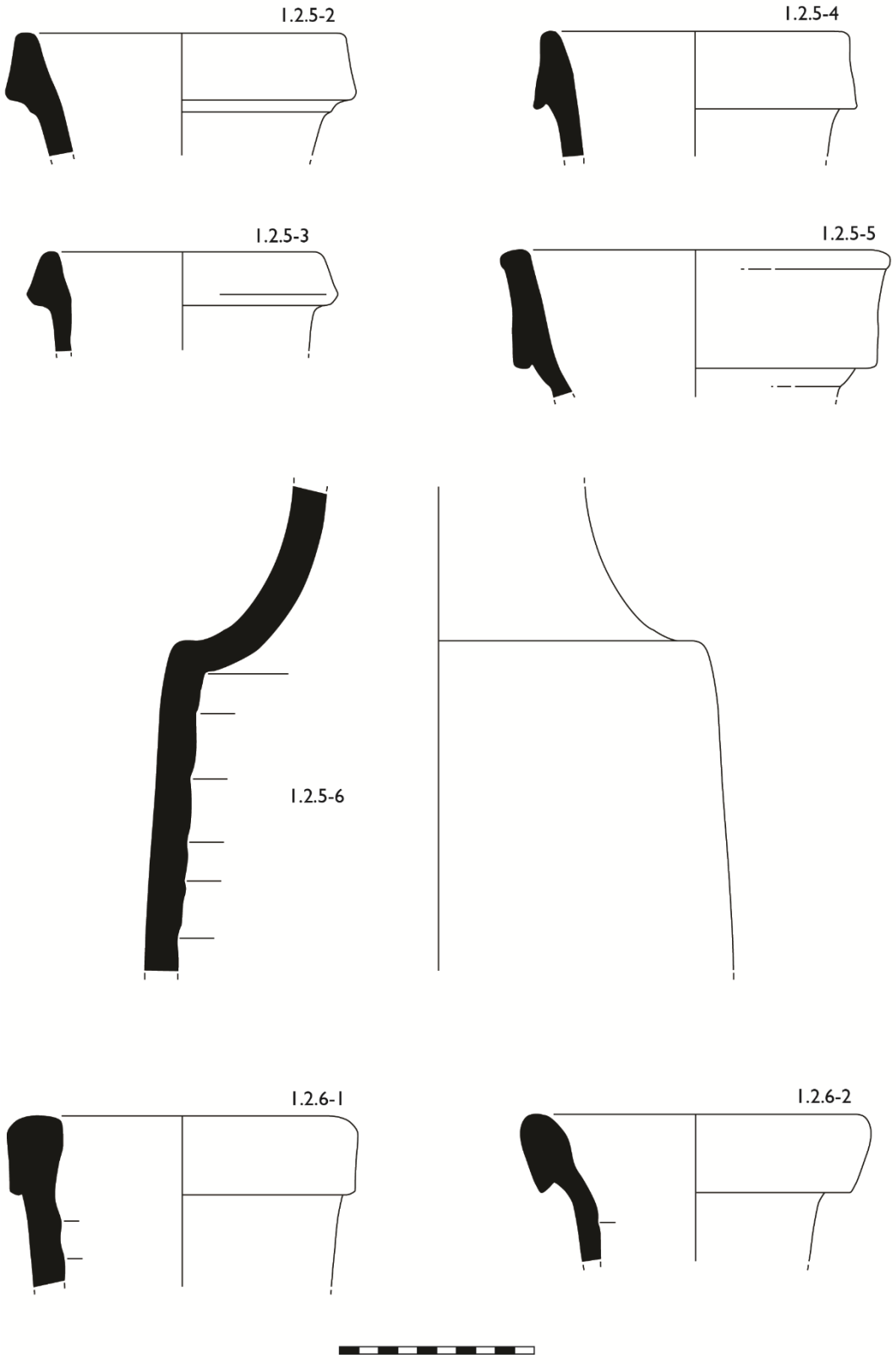


Figure I.12: Imported amphorae, types 1.2.5–1.2.6.

1.2.5.3 BLB12/58/46: Rim, d. 16. Fabric: Campanian black sand. Source: Campania. Type: Dressel 1A. Date: Mid-2nd to mid-1st century BC. Context: Bulebel SU 58, phase 1.

1.2.5.4 BLB12/58/18: Rim, d. 14. Fabric: Campanian black sand. Source: Campania. Type: Dressel 1A. Date: Mid-2nd to mid-1st century BC. Context: Bulebel, SU 58, phase 1.

1.2.5.5 BLB12/40/4: Rim, d. 20. Fabric: Pale red fabric with black sand and yellow lime inclusions. Source: Campania. Type: Dressel 1C. Date: Late 2nd early 1st century BC. Context: Bulebel SU 40, phase 2.

1.2.5.6 BLB12/32/46: Shoulder, d. 30 (widest internal diameter). Fabric: Pale red to grey hard fabric with black sand, quartz and white lime inclusions. Source: Campania? Type: Dressel 1? Context: Bulebel SU 32, phase 2.

1.2.6 Lamboglia 2 *Figures I.12–I.14*

This Adriatic form is also a very common early Roman container that was also widely diffused across the Mediterranean from the 2nd to late 1st century BC. The form is found on most Maltese sites too.[848]

1.2.6.1 BLB12/40/3: Rim, d. 18. Fabric: Fine pale brown/pink fabric with mica and fine black inclusions. Source: Adriatic? Date: 2nd–late 1st century BC. Context: Bulebel SU 40, phase 2.

1.2.6.2 BLB12/32/7: Rim, d. 18. Fabric: Fine, buff fabric with mica, white and black inclusions; there is a faint and illegible stamp on the rim (Figure I.13). Source: Adriatic. Date: 2nd–late 1st century BC. Context: Bulebel SU 32, phase 2.

1.2.6.3 BLB12/32/49: Rim, neck and handle, d. 18. Fabric: Fine cream fabric with quartz, red and fine black inclusions. Source: Adriatic. Date: 2nd–late 1st century BC. Context: Bulebel SU 32, phase 1.

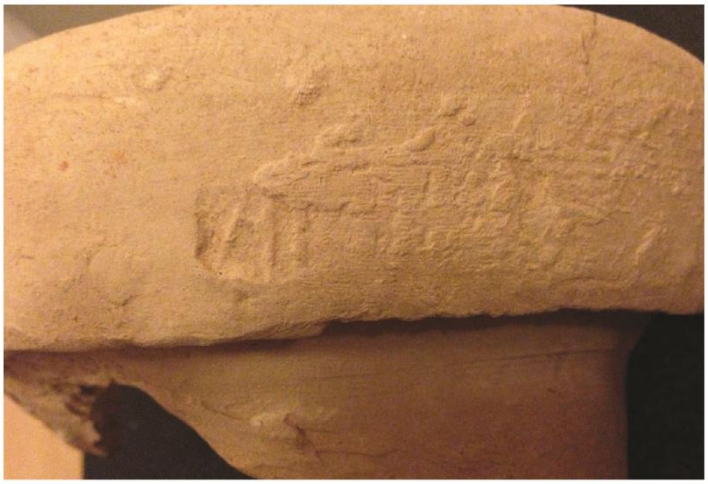


Figure I.13: Detail of possible stamp on an imported Lamboglia 2 amphora form (1.2.6-2) from Bulebel.

[848] Bruno 2009, 175.

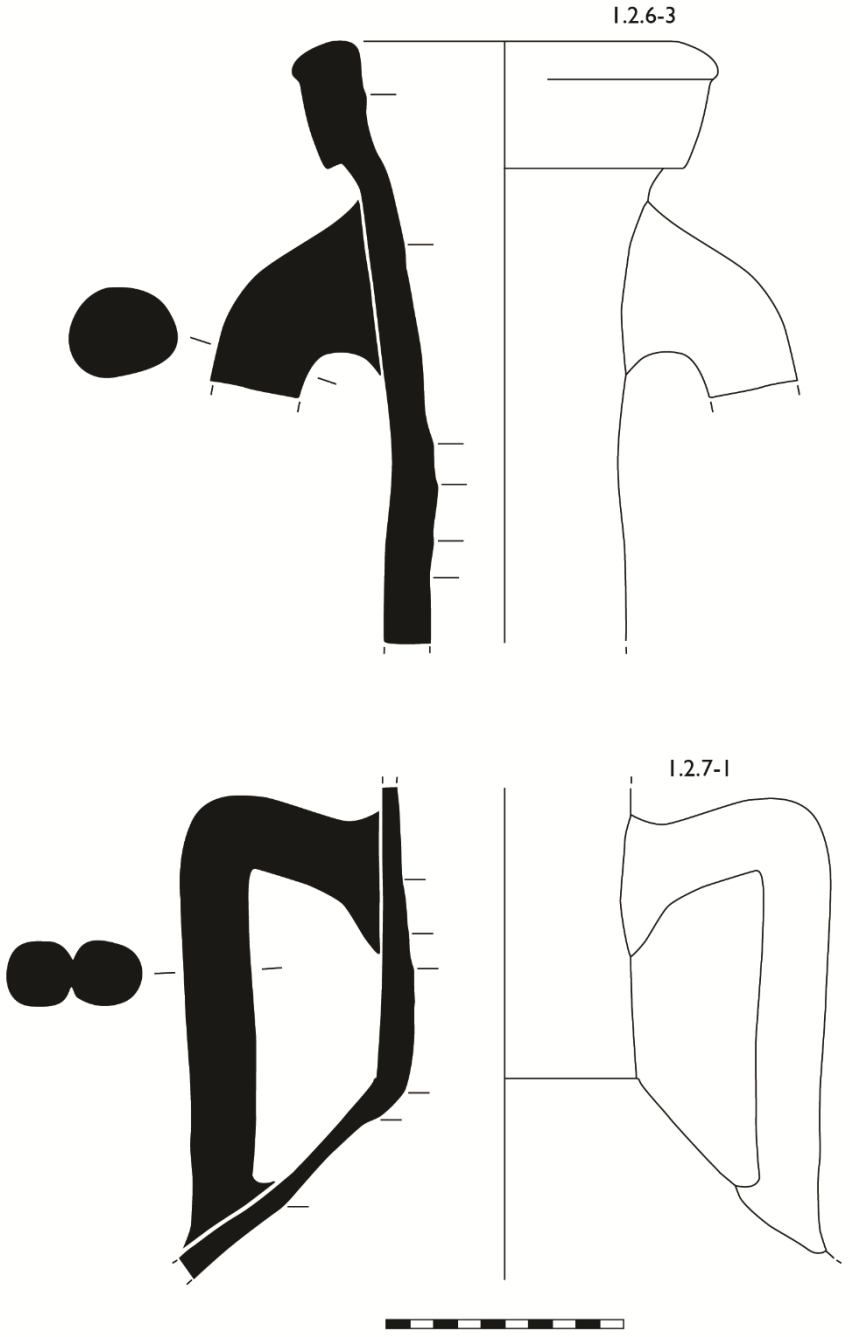


Figure I.14: Imported amphorae, types 1.2.6–1.2.7.

1.2.7 Dressel 2-4 *Figures I.14–I.15*

The Dressel 2-4 amphora is the latest in the range of common and widely diffused Italian wine containers exported in huge quantities after the end of the Third Punic war.[849] The characteristic double-cordon strap handles

[849] A large body of published research exists for this wine container. See the references in Keay and Williams 2005 [2014].

make identification of this, and related, forms relatively straightforward. Campanian Dressel 2-4 amphorae are the most common on Maltese sites, but a handful of other sources have also been identified.[850]

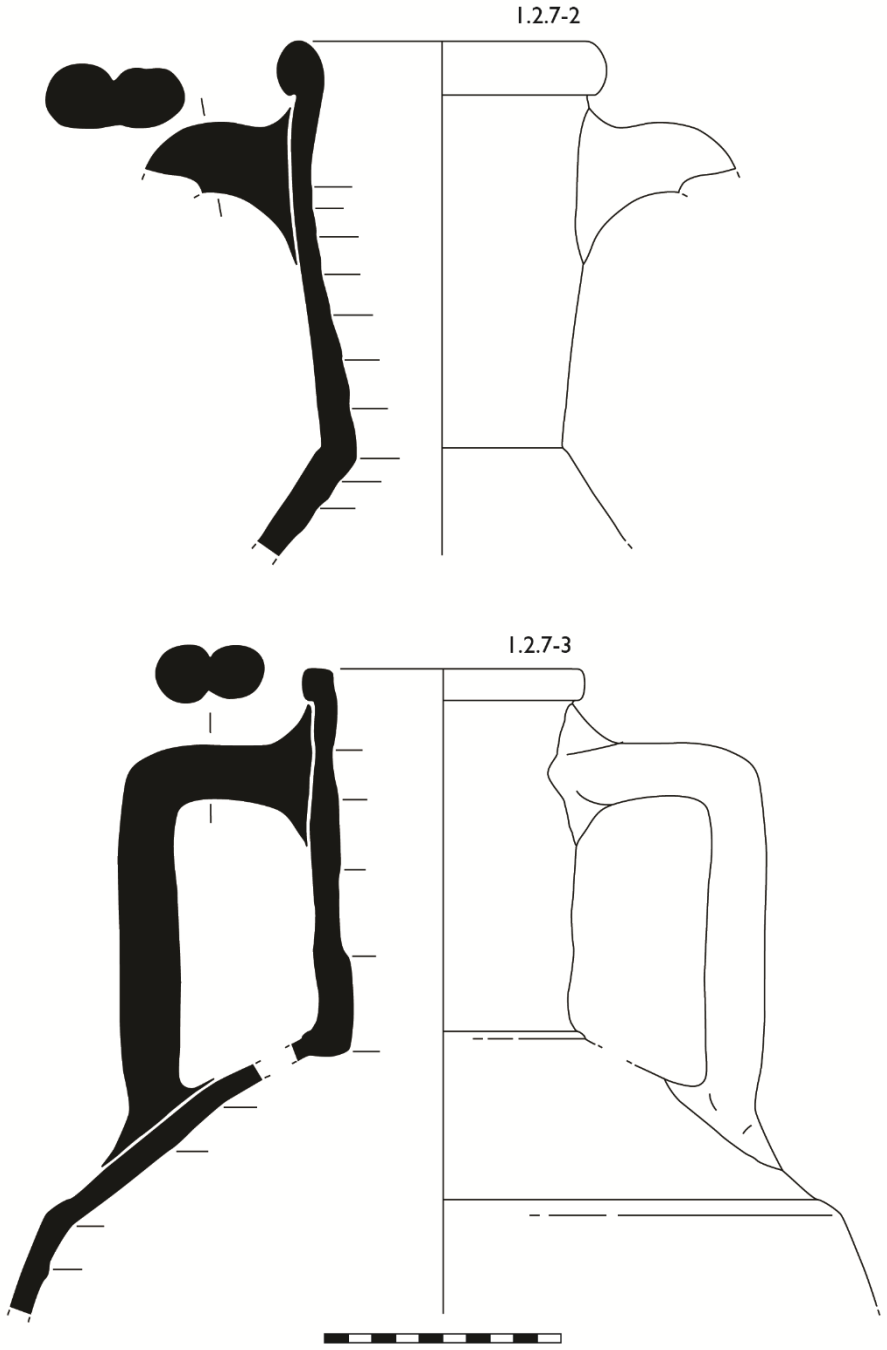


Figure I.15: Imported amphora type 1.2.7.

[850] Bruno 2009, 177.

1.2.7.1 BLB12/32/29: Neck and handles. Fabric: Campanian black sand. Source: Campania. Date: mid-1st century BC to end 1st century AD. Context: Bulebel, SU 32, phase 1.

1.2.7.2 BLB12/65/1: Rim, neck and handles, d. 14. Fabric: Pale orange fabric with round grey, red grains and white inclusions and fine gold mica; unslipped cream skin. Source: Imported, possibly Spain? Crete? Date: Mid-1st century BC to end 1st century AD? Context: Bulebel SU 65, phase 2.

1.2.7.3 MLT84/26357: Rim, neck and handles, d. 12. Fabric: Hard, pale pink fabric with large red and black (not volcanic) angular grog or stone inclusions, and white lime inclusions; cream/pale pink slipped exterior. Source: Imported. Date: Mid-1st century BC to end 1st century AD? Context: Melita SU 1100 and 1086, phase 2.

1.2.8 Sicilian MRA1b *Figure I.16*

This flat-bottomed 'table amphora' is characterised by a wide, troncoconic body with a tall, narrow, ribbed neck culminating into a thick-lipped rim. Two loosely ribbed handles are attached to the neck and shoulder, and the body sits on a narrow ring base. Up until quite recently these amphora were believed to have been a North African production, mainly on account of the similarity in fabrics, but also the distribution patterns that showed large concentrations in Cyrenaica, Tunisia and Tripolitania.[851] More recently, petrographic analysis has shown that many of these amphorae (and the later variants, MRA1a) were manufactured in Sicily for the storage and transport of Sicilian wine trade.[852] North African variants of this form do exist alongside the Sicilian productions, however, in smaller numbers and with a more limited distribution, which is mostly restricted to North African cities.[853] On the other hand, Sicilian amphorae have a wide and sometimes dense distribution around the western, central and eastern Mediterranean and attest to a strong Sicilian export trade in wine, alongside that of grain. Sicilian MRA1b amphorae are quite common in the Maltese islands and have been found in tomb contexts as well as both rural and urban excavations, for instance at San Pawl Milqi and Tas-Silġ,[854] Żejtun,[855] Ħal Millieri[856] and Għar ix-Xih, Gozo.[857] All the examples of this form from the

[851] Riley 1979, 177–179.
[852] Franco 2014.
[853] Franco 2014, 252.
[854] Bruno 2009, 176–177.
[855] Anastasi 2010, fig. 130.7; more recently a rim belonging to this form was found in a stratified context of the new University of Malta excavations (pers. comm. Babette Bechtold, July 2015).
[856] Bonanno, Blagg and Luttrell 1990, 63, fig. 15.84–86.
[857] Anastasi and Quercia 2008-2009; see Figure 17.6–7; see Appendix III.

Bulebel and Melita assemblages originated from workshops in the Catania region, which have recently been included in a more detailed typology as Catania Flat-Bottomed form 1.[858] One example (1.2.8-4) was identified by Franco as a possible Naxos Early Roman type from the Naxos area of eastern Sicily, but the identification remains uncertain.[859]

1.2.8.1 BLB12/24/13: Rim and ribbed neck, d. 9. Fabric: Fine brown fabric with fine quartz, red and white inclusions; pale brown exterior surface. Source: East Sicily, Catania. Type: Riley's Mid-Roman Amphora 1b[860]/Franco's Catania Flat-Bottomed form 1.[861] Date: Mid-1st to mid-2nd century AD. Context: Bulebel SU 24, phase 2.

1.2.8.2 BLB12/32/27: Rim and ribbed neck, d. 9. Fabric: Hard orange/brown with fine quartz, lime and black inclusions; pale brown exterior surface. Source: East Sicily, Catania? Type: Riley's Mid-Roman Amphora 1b/Franco's Catania Flat-Bottomed form 1. Date: Mid-1st to mid-2nd century AD. Context: Bulebel SU 32, phase 2.

1.2.8.3 MLT84/26569: Rim, d. 9. Fabric: Brown quartz clay with white lime and black volcanic inclusions; streaky pale brown/white skin; ribbed neck. Source: East Sicily. Type: Riley's Mid-Roman Amphora 1b/Franco's Catania Flat-Bottomed form 1. Date: mid-1st to mid-2nd century AD. Context: Melita SU 1071, phase 5, residual.

1.2.8.4 BLB12/39/17: Rim, d. 9. Fabric: Orange quartz clay with fine grey, white and occasional black inclusions; streaky pale brown/white skin. Source: East Sicily, Naxos production? Type: Naxos Early Roman type/Early Roman Amphora 13.[862] Date: last quarter of the 1st century AD. Context: Bulebel SU 39, phase 2.

1.2.8.5 BLB12/23/8: Ring base, d. 11. Fabric: Hard, fine red/brown clay with fine black and white inclusions; surface of lower body covered with pale yellow 'dribbled' slip. Source: East Sicily, Catania production. Type: Mid-Roman Amphora 1b/Catania type 1.[863] Date: Mid-1st to mid-2nd century AD. Context: Bulebel SUs 23, 28 and 30, phase 2.

1.2.8.6 MLT84/49607: Handle. Fabric: Red clay with dark grey/purple core with fine lime and black volcanic inclusions; grey, streaky skin; round, slightly ribbed handle section. Date: Mid-1st to late 2nd/early 3rd century AD. Type: Ostia I, 453-454.[864] Context: Melita SU 1109, phase 5, residual?

858 Pers. comm. Carmela Franco; Franco 2014, 227–229.
859 Pers. comm. Carmela Franco.
860 Riley 1979, no. 216.
861 Franco 2014, 227–229.
862 Riley 1979, 172; pers. comm. Carmela Franco.
863 Franco 2014,
864 Panella 1968, 100, tav. XXVI, 453–454.

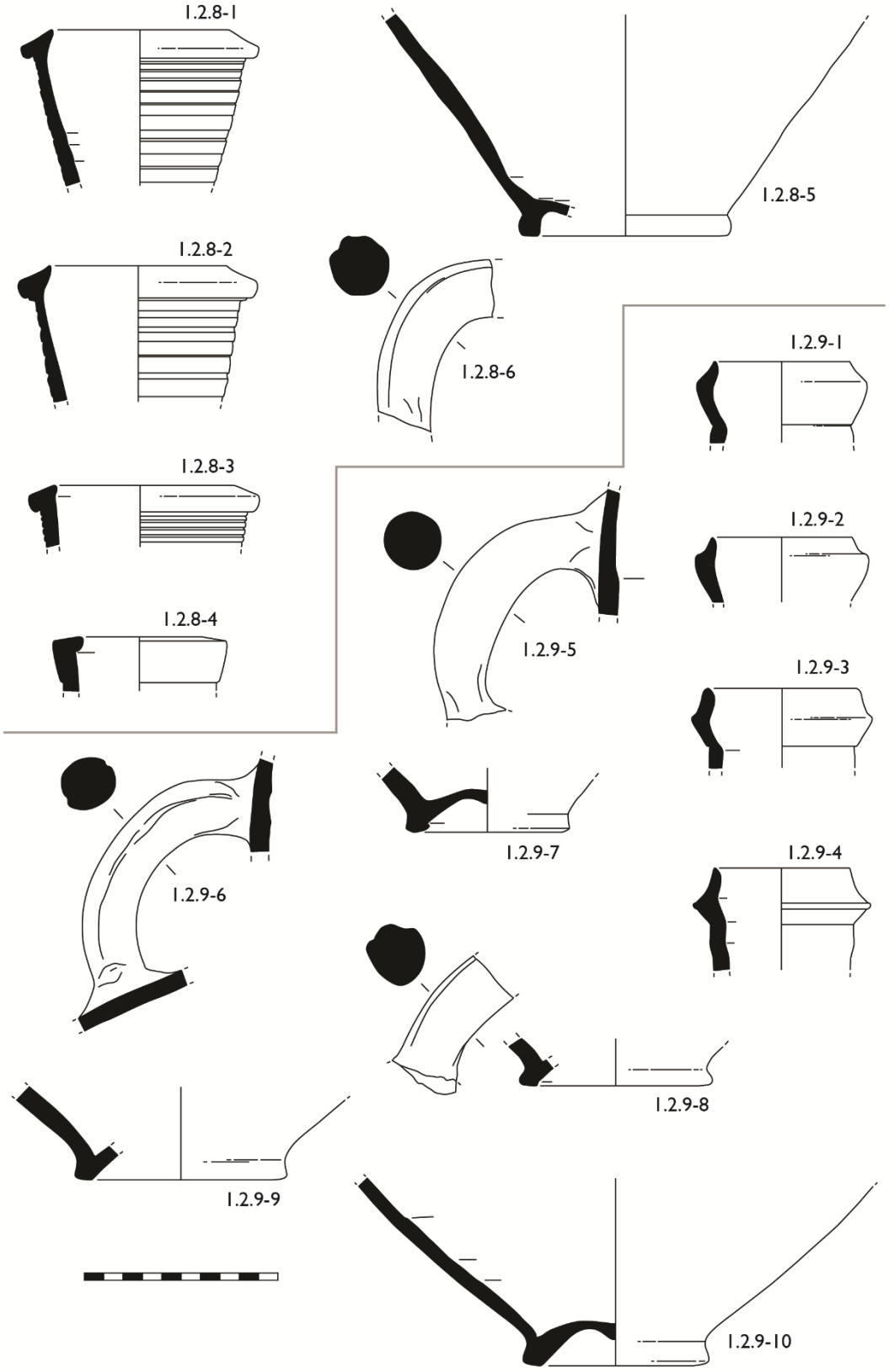


Figure I.16: Imported eastern Sicilian amphorae, types 1.2.8–1.2.9.

1.2.8.7 BLB12/24/14: Handle. Fabric: Pale brown fabric with lime, red and black inclusions that are quite large and spaced out; unslipped, ribbed, round-section handle. Source: East Sicily, Catania production. Type: Mid-Roman Amphora 1b. Date: Mid-1st to mid-2nd century AD. Context: Bulebel SU 24, phase 2 [not illustrated].

1.2.8.8 BLB12/30/5: Handle. Fabric: Brown fabric with white lime, black volcanic inclusions and some mica; pale cream/brown skin; ribbed, round-section handle. Source: East Sicily, Catania production. Type: Mid-Roman Amphora 1b. Date: Mid-1st to mid-2nd century AD. Context: Bulebel SU 30, phase 2 [not illustrated].

1.2.8.9 BLB12/39/18: Handle. Fabric: Dark brown/purple fabric with black volcanic and quartz inclusions; pale yellow slip. Source: East Sicily. Type: Mid-Roman Amphora 1b; Ostia II, 523. Date: 1st century AD. Context: Bulebel SU 39, phase 2 [not illustrated].

1.2.8.10 BLB12/14/2: Handle. Fabric: Fine, pale brown fabric with mica and black, dark red and fine white inclusions; unslipped, ribbed handle section. Source: East Sicily, Naxos production. Type: Mid Roman Amphora 1b. Date: Mid-1st to mid-2nd century AD. Context: Bulebel SU 14, quarry 2 (Q2) [not illustrated].

1.2.9 Sicilian MRA1a *Figure I.16*

This form is morphologically similar to the earlier MRA 1b form except that the rim is cupped and biconical. The general form has a long history with slight morphological changes happening to the rim over the centuries.[865] A recent doctorate study has created a chronological and morphological typology for this type of amphorae, which has been able to source many of these forms to particular sites in Sicily and has also established a detailed chronology for the form and its variants.[866] A clear morphological development in the ridged rims can be traced in examples from the Melita (1.2.9-1–4), which clearly show the characteristic ridges becoming more distinct. Like the previous Sicilian amphora form, this form was also thought to be a North African product, until recent petrographic analysis was made available. All the Maltese examples were produced in the Catania region along Sicily's eastern coast and were imported to Malta in statistically significant numbers.[867] The examples identified in the Melita assemblage date to the late 2nd/early 3rd century to the early to mid-4th century AD.

1.2.9.1 MLT84/49988: Rim, d. 6. Fabric: Fine pale brown clay with quartz, mica and black volcanic inclusions; unslipped. Source: East Sicily. Type: Mid Roman

865 Bonifay et al. 2013, 114–116; Franco 2014, 233.
866 Franco 2014; pers. comm. Carmela Franco.
867 See Section 3.9 and Chapter 6.

Amphora 1a/Franco Form 1. Date: Late 2nd to mid-3rd century AD (AD 190–250?). Context: Melita SU 1097, phase 5.

1.2.9.2 MLT84/49290: Rim, d. 7. Fabric: Gritty, orange fabric with quartz, round grey inclusions, lime and occasional black volcanic inclusions; thin, pale cream slip; small, heavily damaged rim fragment. Source: East Sicily. Type: Mid Roman Amphora 1a/Franco Form 1. Date: Late 2nd to mid-3rd century AD (AD 190–250?). Context: Melita SU 1084, phase 4.

1.2.9.3 MLT84/49720: Rim, d. 7. Fabric: Hard, red fabric with fine lime and black, volcanic inclusions; thin, white/cream skin. Source: East Sicily, Catania production. Type: Mid Roman Amphora 1a/Franco Form 2. Date: First half to end of the 3rd century AD (AD 230/250–290). Context: Melita SU 1101, phase 5.

1.2.9.4 MLT84/26116: Rim, d. 7. Fabric: Red quartz fabric with lime and black volcanic inclusions; pale cream exterior. Source: East Sicily, Catania production. Type: Mid Roman Amphora 1a/Franco Form 3. Date: Early to mid-4th century AD (AD 310/320–360). Context: Melita SU 1096, phase 5.

1.2.9.5 MLT84/25226: Handle. Fabric: Dark red/brown fabric with white lime, fine quartz, mica and black volcanic inclusions; pale cream skin; rim has been worn away; round section. Source: East Sicily, Catania production. Type: Mid Roman Amphora 1a/Ostia I, 453-454. Date: 2nd-3rd century AD. Context: Melita SU 1071, phase 5.

1.2.9.6 MLT84/49777: Handle. Fabric: Hard red quartz fabric with fine lime, mica and black volcanic inclusions; pale grey/cream slip; round section handle with two shallow grooves; slightly ribbed neck. Source: East Sicily, Catania production. Type: Mid Roman Amphora 1a/Ostia I, 453-454. Date: 2nd-3rd century AD. Context: Melita SU 1105, phase 5.

1.2.9.7 MLT84/49938: Ring base, d. 8. Fabric: Fine pale orange fabric with occasional large translucent quartz and some fine mica inclusions; pale yellow slip. Source: East Sicily. Type: Mid Roman Amphora 1a, late variant. Date: First half of the 4th century AD. Context: Melita SU1098, phase 5.

1.2.9.8 MLT84/49361: Ring base and handle, d. 9. Fabric: Hard fine dark orange fabric with fine quartz, mica, fine white shell/lime and black volcanic inclusions; slightly ribbed round section handle; off-white thin slip on exterior surface with 'dribbled' thicker white slip on base exterior. Source: East Sicily, Catania production? Type: Mid Roman Amphora 1a/Ostia I, 453-454. Date: Mid-1st to 3rd century AD? Context: Melita SU 1093, phase 4.

1.2.9.9 MLT84/23172: Ring base, d. 11. Fabric: Fine pale red/brown fabric with white lime, quartz and black volcanic inclusions; pale cream/brown skin. Source: East Sicily. Type: Mid Roman Amphora 1a. Date: Mid-1st to 3rd century AD? Context: Melita SU 1020.

1.2.9.10 MLT84/49255: Ring base, d. 11. Fabric: Hard orange fabric with fine lime, some mica, grey quartz and occasional black volcanic inclusions; Thicker cream 'dribbled' slip on a thin cream surface. Source: East Sicily. Type: Mid Roman Amphora 1a, variant 1 or 2 (like MLT84/ 49289 which is not illustrated). Date: Mid-1st to 3rd century AD? Context: Melita SU 1081, phase 4.

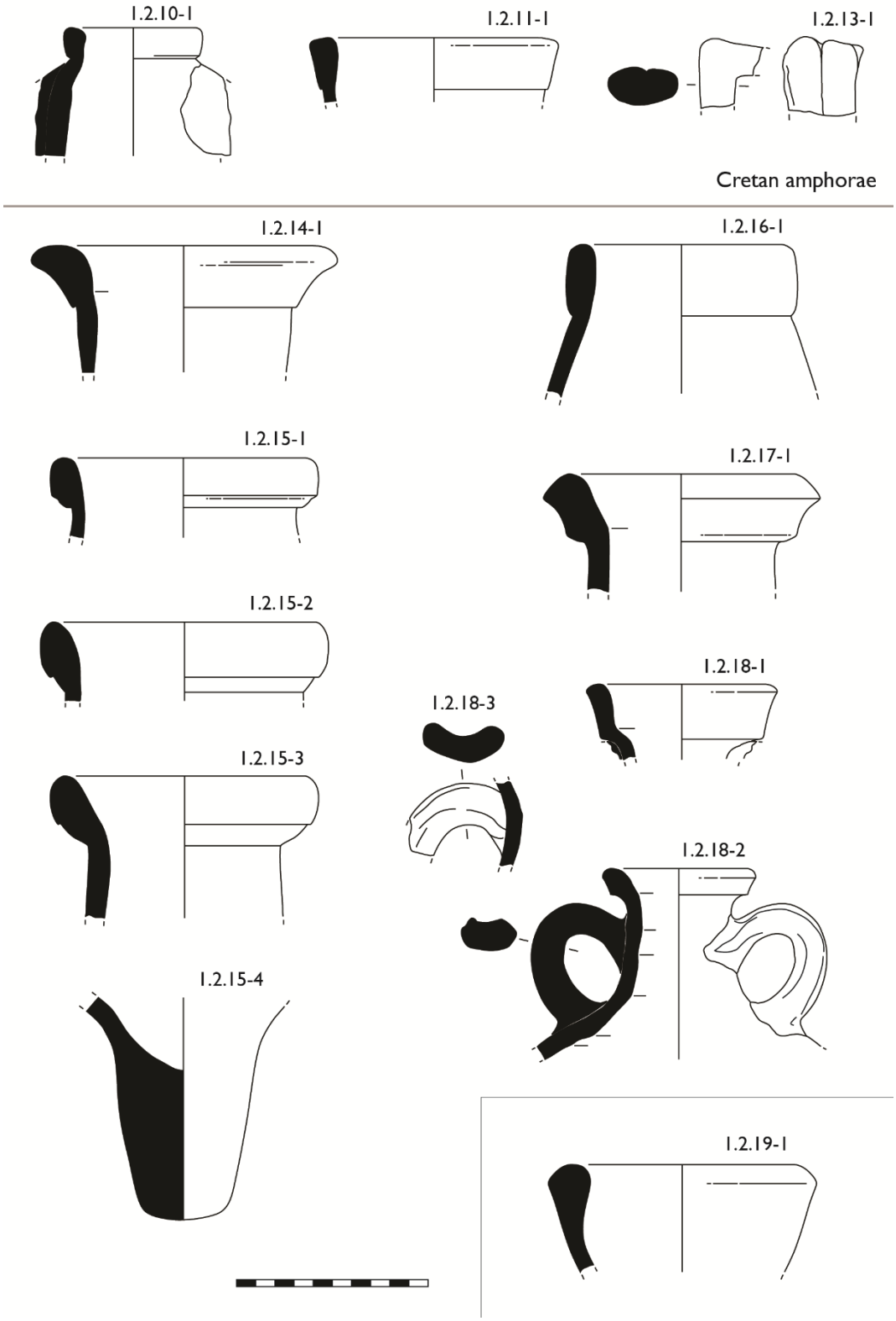


Figure I.17: Imported amphorae, types 1.2.10–1.2.19.

1.2.10 Crétoise 4/Dressel 43 *Figure I.17*

Only a single rim fragment of this form was identified in all three assemblages, however, this type has a sporadic presence on some other Maltese and Gozitan sites.[868] This Cretan amphora, with its distinctive horned, round-sectioned handle is a common form well diffused across the central and western Mediterranean, and has been dated from the early 1st to first half of the 3rd century AD.[869]

1.2.10.1 BLB12/30/6: Rim with bulbous neck, d. 7. Fabric: Fine red/brown fabric with fine white and grey inclusions and some fine mica; yellow/cream exterior surface. Source: Crete. Type: Hayes 1983 fig. 21.21; Riley 1975, fig. 73.105. Date: Early 1st to first half of the 3rd century AD. Context: Bulebel SU 30, phase 2.

1.2.11 Early Roman Amphora 12 (ERA 12) *Figure I.17*

This form, first identified and classified by Riley in Berenice, is characterised by a short collared rim. Only one rim fragment was identified within the three Maltese assemblages and appears to have a fabric that is similar to the one described by Riley (Benghazi Local Fabric 2). To my knowledge no other fragments belonging to this form have been identified elsewhere on the archipelago, and their wider distribution remains unclear. This form is not common at Berenice or the rest of Cyrenaica.[870] Based on the Berenice contexts, Riley found that this form first appears in the Augustan period and its presence peaks during the second half of the 1st century AD.[871] The general dating of the Bulebel context does not contradict Riley's ascribed date.

1.2.11.1 BLB12/39/14: Rim, d. 13. Fabric: Dark, rich brown fabric with fine red, grey and lime inclusions; unslipped. Source: Import, Benghazi, Cyrenaica? Type: Riley 1979, ERA 12, nos 168, 170. Date: Augustan to second half of the 1st century AD. Context: Bulebel SU 39, phase 2.

1.2.12 Crétoise 1 (AC 1) *Figure I.17*

This form is a relatively common Cretan wine amphora found throughout the central Mediterranean.[872] Bruno recorded an increase in Aegean-sourced Imperial forms like this at Tas-Silġ and San Pawl Milqi.[873] A small number

[868] Bruno 2009, 178.
[869] Hayes 1983, 143.
[870] Riley 1979, 168.
[871] Riley 1979, 168.
[872] Markoulaki et al. 1989, 554–566.
[873] Bruno 2009, 178, fig. 38.5–6.

of handle fragments belonging to at least two vessels were recorded within the Melita assemblage. The arched, oval-section strap handles were assigned this this particular Cretan form with some doubt—larger and more diagnostic fragments would have been most welcome—, but the distinctive fabric is clearly form a Cretan source.

1.2.12.1 MLT84/49320: Handle. Fabric: Hard, fine, chalky dark orange fabric with fine lime, some mica and fine black inclusions; unslipped, oval strap handle. Source: Crete. Date: Early 1st to mid-3rd/4th century AD? Context: Melita SU 1084, phase 4 [not illustrated].

1.2.13 Crétoise 2 (AC 2) *Figure I.17*

This form is quite similar to the previous one (1.2.12) in general shape, possible content and sources, but handles share morphological traits with Dressel 2-4 wine amphorae which contain double-cordon handles. Like the AC 1 type, Bruno also recorded an unspecified number of these forms at Tas-Silġ and San Pawl Milqi,[874] whilst a recent discovery of a 2nd/3rd-century AD necropolis within the St Paul's Catacomb complex, Rabat, Malta, contained a complete Cretan AC1 form, which had been reused as a coffin.[875] Only two handle fragments were identified in the Melita assemblage in contexts dating to the mid-3rd/mid-4th century AD (phases 3–5).

1.2.13.1 MLT84/49769: Handle. Fabric: Hard pale orange fabric with darker orange core, contains occasional large translucent, angular quartz grains, fine white, some black, and white shell (?) inclusions; rough, double-cordon, slightly peaked/horned strap handle; unslipped. Source: Crete. Date: Early 1st to beginning of the 3rd century AD. Context: Melita SU 1105, phase 5, residual?

1.2.13.2 MLT84/49861: Handle. Fabric: Fine, pale orange/brown fabric with mixed fine red, grey and white inclusions with some fine mica; small double-cordon handle that sits on shoulder; pale cream/white slipped exterior. Source: Crete. Date: Early 1st to beginning of the 3rd century AD. Context: Melita SU 1085, phase 3; [not illustrated].

1.2.14 Uzita, 52, 10 *Figure I.17*

This central Tunisian form is not commonly found outside Tunisia, but is attested in Tunisia itself (Sfax, El Jem, Rougga, Salakta, Uzita, Hergla and Carthage), Rome and Byllis, Albania.[876] Production of this form is believed

[874] Bruno 2009, 178.

[875] Pers. comm. David Cardona, July 2015.

[876] Bonifay 2004, 103, type 18, fig. 54; Keay and Williams 2005 [2014].

to be a product of Salakta on account of the fabric, and it is thought to have carried fish sauce. One fragment of this form was also identified on Lampedusa.[877] To date, no other fragments of this form have been recorded on Malta.

1.2.14.1 MLT84/49824: Rim, d. 16. Fabric: Hard, pale red fabric with quartz and lots of yellow 'salt halo' inclusions; grey/off-white-coloured skin (Peacock fabric 2.6). Source: Salakta/*Sullechtum,* central Tunisia. Type: Bonifay 2004, 103-105, type 18, fig. 54. Date: End of the 1st to 2nd century AD. Context: Melita SU 1086, phase 3.

1.2.15 Africana IIA *Figure I.17*

This classic African form is very common throughout much of the Mediterranean basin and carried wine or fish sauce to practically all coastal areas of the central Mediterranean from the end of the 2nd to the mid-/end of the 3rd century AD. Variants of this common form were produced along the north and central coast of Tunisia.[878] Several examples have been identified in Maltese excavations; including tomb contexts[879] and urban and rural settlements.[880]

1.2.15.1 MLT84/49326: Rim, d. 14. Fabric: Hard red quartz fabric with a white salt-slipped skin (Peacock fabric 2.2). Source: North Tunisia/*Zeugitana.* Type: Bonifay amphora type 22. Date: End of the 2nd to the end of the 3rd century AD. Context: Melita SU 1084, phase 4

1.2.15.2 MLT84/49540: Rim, d. 15. Fabric: Coarse grey/brown fabric with quartz and lots of white inclusions (Peacock fabric 2.6). Source: Central Tunisia/*Byzacena.* Type: Bonifay amphora type 22. Date: End of the 2nd to the end of the 3rd century AD. Context: Melita SU 1110, phase 5.

1.2.15.3 MLT84/26270: Rim, d. 14. Fabric: Dark brick-red/black fabric with white lime/'salt halo' inclusions (Peacock 2.6). Source: Central Tunisia/*Byzacena*. Type: Bonifay amphora type 22. Date: End of the 2nd to the end of the 3rd century AD. Context: Melita SU 1099, phase 5.

1.2.15.4 BLB12/21/1: Body and peg. Fabric: Pale red fabric with quartz and fine white inclusions; white skin. Source: Salakta/*Sullechtum* (Central Tunisia). Date: End of the 2nd to the end of the 3rd century AD. Context: Bulebel SU 21, phase 2.

1.2.16 Africana IID [Bonifay's variant 1] *Figure I.17*

This classic form, like IIA form, belongs to the 'Africana grande' series and was widely diffused throughout the central and western Mediterranean.

[877] De Miro and Polito 2012, 267.
[878] Bonifay 2004, 111, fig. 57–58.
[879] Sagona 2002, fig. 259.31, Żejtun tomb [748].
[880] Bruno 2009, 182.

Production sites associated with this form have been identified along the north and central Tunisia coast.[881] Only one example was identified within this sample and has a fabric that would suggest it originated in central Tunisia. One other example, also from a central Tunisian production centre, was also identified within the Għar ix-Xih material on Gozo (Figure 17.2).[882] In general, this amphora form is not common on the islands and does not appear to have been identified by Bruno within either of her samples.[883]

1.2.16.1 MLT84/49256: Rim, d. 11. Fabric: Pale red quartz fabric with lots of yellow lime 'salt halo' inclusions (Peacock fabric 2.6); white skin. Source: Central Tunisia. Date: Mid-3rd to first quarter of the 4th century AD. Context: Melita SU 1081, phase 4.

1.2.17 Tripolitanian 1 *Figure I.17*

One amphora fragment was found belonging to this type from the Melita assemblage, and can be compared with the well-known Tripolitanian series produced in southern Tunisian and Tripolitanian centres, from about the 1st to 3rd and early 4th century AD.[884] Amphorae of this type are known from Tas-Silġ and San Pawl Milqi, where only "a modest number" have been recorded.[885]

1.2.17.1 MLT84/49990: Rim, d. 10. Fabric: Red/pink quartz fabric; white skin. Source: West Tripolitania? Type: Tripolitanian 1; only the rim profile survives there is no way of knowing where the handles attached on the body. Date: 1st to mid-3rd century AD? Context: Melita SU 1097, phase 5.

1.2.18 Dressel 30 *Figure I.17*

This amphora classification covers a wide range of variants of a North African ring-based table amphorae imitating the Gaulish Gauloise 4 form.[886] Most of the examples listed below are probably Mauritanian wine amphorae, however, the fabrics from this region are not very well-known or clearly defined. Other red quartz fabrics are akin to North Tunisian production sites, whilst one example (1.2.18-1) shares morphological and

[881] Bonifay 2004, 115–119, fig. 62a.
[882] See Section 3.6.
[883] Bruno 2009, 182–183.
[884] Bonifay 2004, 90–92, fig. 47, amphora type 4.
[885] Bruno 2004, 179.
[886] These include Keay 1A and 1B (Keay 1984, 95–96; Bonifay 2004, forms 60–62; Panella 1973, 601–605).

petrographical similarities with the Gauloise 2 amphorae produced in southern France.

1.2.18.1 MLT84/26261: Rim, d. 10. Fabric: Fine pale brown/beige fabric with fine mica, fine red and white inclusions and long black augite inclusions; unslipped. Source: Import, North Africa/Mauretania (Algeria)? Narbonne? Type: Dressel 30? Gauloise 2? Date: Second half of the 1st century BC to late 2nd/early 3rd century AD? Context: Melita SU 1099, phase 5.

1.2.18.2 MLT84/24832: Rim, d. 8. Fabric: Red quartz fabric with white skin. Source: North Tunisia. Type: Dressel 30. Date: 3rd century AD? Context: Melita SU 1066, phase 4.

1.2.18.3 MLT84/49318: Handle. Fabric: Hard pale pink to cream fabric that contains large round quartz, lime and red inclusions; cream skin; U-shaped handle section. Source: Mauretania (Algeria)? Type: Dressel 30/Keay 1A. Date: 3rd century AD. Context: Melita SU 1084, phase 4.

1.2.18.4 MLT84/49260: Handle. Fabric: Hard pale red quartz; cream skin (Dressel 30 fabric); U-shaped handle section. Source: North Tunisia. Type: Dressel 30/Keay 1A. Date: 3rd-4th century AD. Context: Melita SU 1081, phase 4 [not illustrated].

1.2.18.5 MLT84/49317: Handle. Fabric: Pale red fabric; white skin (Keay 1B fabric); U-shaped handle section. Source: North Africa. Type: Dressel 30/Keay 1B. Date: 3rd-4th century AD. Context: Melita SU 1084, phase 4 [not illustrated].

1.2.19 ERA 14? LRA 2? *Figure I.17*

Only one example of this simple, cupped amphora rim was recovered from all the assemblages. No close parallels have been identified, however, the profile resembles Riley's Early Roman Amphora 14 (ERA 14), produced within Cyrenaica in about the 2nd–3rd centuries AD;[887] or a Late Roman Amphora 2 (LRA 2) rim, common after the mid-4th century AD.[888] That this rim form might belong to variants of an eastern Dressel 24 type is also possible,[889] however, the identification of this form remains open to speculation. The fabric is similar to that of other Cretan amphorae (see 1.2.12–13).

1.2.19.1 MLT84/49713: Rim, d. 16. Fabric: Pale red/brown micaceous fabric with quartz, fine grey stone (?) and lime inclusions (Benghazi local fabric 5? or Cretan fabric?); unslipped pale brown surfaces. Source: Import. Context: Melita SU 1101, phase 3.

[887] Riley 1979, 170–171, nos 175, 178, figs 78–79.
[888] Riley 1979, 217–218, nos 348–349, figs 91–92.
[889] Opaiţ 2007, figs 2–3.

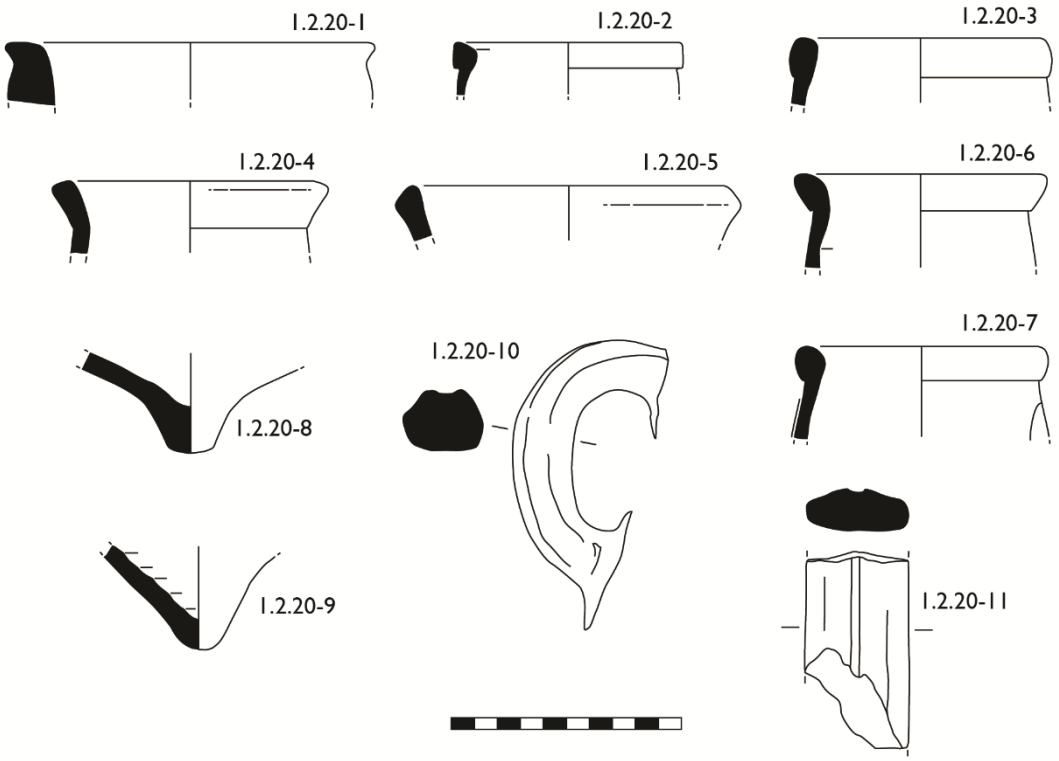


Figure I.18: Imported amphorae, type 1.2.20.

1.2.20 Miscellaneous imported amphorae *Figure I.18*

1.2.20.1 FRM08/57/28: Rim, d. 16. Fabric: Hard red quartz fabric with a white skin/slip (Peacock 2.2); very small fragment. Source: North Tunisia. Type: Unknown. Date: 2nd-3rd century AD? Context: Foreman Street SU 57.

1.2.20.2 FRM08/57/26: Rim, d. 10. Fabric: Red quartz fabric with a white skin/slip (Peacock 2.2). Source: North Tunisia. Type: Unknown. Date: 2nd-3rd century AD? Context: Foreman Street SU 57.

1.2.20.3 FRM08/59/27: Rim, d. 11. Fabric: Red/brown quartz fabric (Peacock 2.1); unslipped. Source: North Tunisia. Type: Unknown. Date: 2nd-3rd century AD. Context: Foreman Street SU 59.

1.2.20.4 MLT84/49316: Rim, d.12. Fabric: Very gritty pink fabric with round quartz and lots of mixed sandy inclusions (Dressel 30 fabric?); cream skin. Source: North Africa, Algeria? Type: Dressel 30/Keay 1A? Date: 3rd century AD? Context: Melita SU 1084, phase 4.

1.2.20.5 MLT84/49758: Rim, d. 15. Fabric: Gritty brown fabric with lots of large quartz inclusions, mica and occasional black and white inclusions; unslipped. Source: Import. Type: Unknown. Date: Unknown. Context: Melita SU 1105, phase 5.

1.2.20.6 MLT84/23210.4: Rim, d. 11. Fabric: Pale orange fabric with quartz, white, red and occasional black volcanic inclusions. Source: East Sicily? Type: East Palatine 1? Date: Beginning of the 2nd century AD. Context: Melita SU 1024.

1.2.20.7 MLT84/49862: Rim, d. 11. Fabric: Fine pale brown/beige fabric with fine quartz, mica and mixed white, red and grey inclusions; unslipped pale brown/beige surfaces; circular section handle scar 1cm below the rim. Source: Aegean? Rhodes? Type: Rhodian type? Date: Hellenistic/Roman period? Context: Melita SU 1085, phase 3.

1.2.20.8 BLB12/32/10: Small button peg. Fabric: Hard dark brown/red fabric with black inclusions. Source: Import. Type: Unknown. Date: Unknown. Context: Bulebel SU 32, phase 2.

1.2.20.9 BLB12/32/28: Small button peg. Fabric: Dark red/brown fabric with yellow lime, 'salt halos' and quartz inclusions (Peacock 2.6). Source: Central Tunisia. Type: Unknown. Date: Unknown. Context: Bulebel SU 32, phase 2.

1.2.20.10 MLT84/49362: Handle. Fabric: Hard pale red fabric with lots of fine quartz, larger angular quartz, black volcanic inclusions, white lime and red (iron ore?) inclusions; ridged strap handle; unslipped. Source: Import. Type: Unknown. Date: Unknown. Context: Melita SU 1093, phase 4.

1.2.20.11 BLB12/30/6a: Handle. Fabric: Fine red/brown fabric with fine white and grey inclusions and mica; yellow/cream exterior; centrally ribbed flat strap handle. Source: Crete? Type: Unknown. Date: Unknown. Context: Bulebel SU 30, phase 2.

2.1 Local Red slipped ware

2.1.1 Red-slipped bowl type 1 (Sagona bowl form V:2a) *Figure I.19*

This bowl form is characterised by a straight rim with a sharp carination at the shoulder. The vessel sits on a small flat base, however, no bases have been associated with this form in any of the three contexts analysed. The surfaces are coated in a thin and sometimes streaky dull red slip (Figure I.20). The examples recorded are from Bulebel and Foreman Street and were made in the fabric typical of the Early Roman period (Local Fabric 2). Sagona first classified this form in her 2002 publication *The Archaeology of Punic Malta*, where it is associated with Early Roman tomb contexts dating to between the 1st century BC and first half of the 1st century AD.[890] Another example comes from the San Pawl Milqi villa.[891] This date fits well with the two examples in an early to mid-1st century AD context at Bulebel (2.1.1-1 and 2.1.1-2), whilst a third variant (2.1.1-3) could potentially date to the late 2nd/early 3rd century AD based on its Foreman Street context. The shape is morphologically similar to Early Roman black slipped fine wares produced in southern Italy and Sicily and imported throughout the Mediterranean basin between the 3rd to the end of the 1st century BC, such as shapes inspired by Morel's black slipped bowls, types 2275 or 2284.[892]

2.1.1.1 BLB12/28/10: Rim, d. 16. Local Fabric 2: Pale brown clay with fine black glauconite and mixed grey, red and white sandy inclusions; both interior and exterior surfaces coated in a dark red flaky slip. Context: Bulebel SU 28, phase 2.

2.1.1.2 BLB12/28/11: Rim, d. 16. Local Fabric 2: Pale brown with a faint pale grey core with fine grey and white (lime?) sandy inclusions and fine black glauconite inclusions; coated in a thin streaky, matt, red slip on interior and exterior surface. Context: Bulebel SU 28, phase 2.

2.1.1.3 FRM08/42/130: Rim, d. 26. Local Fabric 2: Pale red fabric with glauconite, fine white lime, foraminifera and occasional red ore; bright red slip on interior and exterior surface. Context: Foreman Street SU 42.

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890 Sagona 2002, 182–183.

891 Cagiano de Azevedo et al. 1965, fig. 10.4.

892 Morel 1994, pls 43 and 45.

2.1.2 Red-slipped Bowl type 2 *Figure I.19*

Hemispherical bowl with squared flat-top rim and thick ring base. Only one example of this type was identified within the assemblages. The shape is quite typical of eastern Hellenistic/early Roman bowls, however the fabric, slip and context of this particular example (2.1.2-1) indicates that it is clearly datable to the Early Roman period of the island, from around the early to mid-1st century AD, possibly until the early 3rd century. No comparable examples were identified in any of the islands' tomb contexts.

2.1.2.1 BLB12/32/20: Profile, d. 14 (rim), d. 5 (base). Local Fabric 2: Dark orange clay with lots of fine black glauconite, fine yellow lime and some white foraminifera inclusions; thin red-slipped interior and exterior surface. Context: Bulebel SU 32, phase 2.

2.1.3 Red-slipped Bowl type 3 *Figure I.19*

Small bowl with ridged rim. Only a single example of this type was identified. Again, no comparable vessels have been published on the islands. The fabric and surface treatment are like that of the previous type (2.1.2-1) and based on their shared association could be dated to the same period.

2.1.3.1 BLB12/32/19: Rim, d. 12. Local Fabric 2: Dark orange clay with lots of black glauconite and yellow lime and foraminifera inclusions; red-slipped interior and exterior surfaces. Context: Bulebel SU 32, phase 2.

2.1.4 Red-slipped Bowl type 4 *Figures I.19–I.20*

Shallow bowl or plate with a double-grooved, flat-top rim, resting on a shallow ring base. This form is quite clearly a local red-slipped imitation of an imported Hellenistic black gloss form similar to the one from Berenice.[893] Kenrick dated the imported form to the first half of the 3rd century BC on the basis of the impressed decoration on the interior floor. However, like the previous local examples, the fabric and slip suggest that local production dates from at least the first half of the 1st century.

2.1.4.1 BLB12/54/3: Profile, d. 16 (rim), d. 6 (base). Local Fabric 2: Dark orange clay with black glauconite, occasional red grains and fine to medium yellow lime inclusions; thin and matt red-slipped interior and exterior surfaces (Figure I.20). Context: Bulebel SU 54, phase 1.

[893] Kenrick 1985a, 33, fig. 5.23.

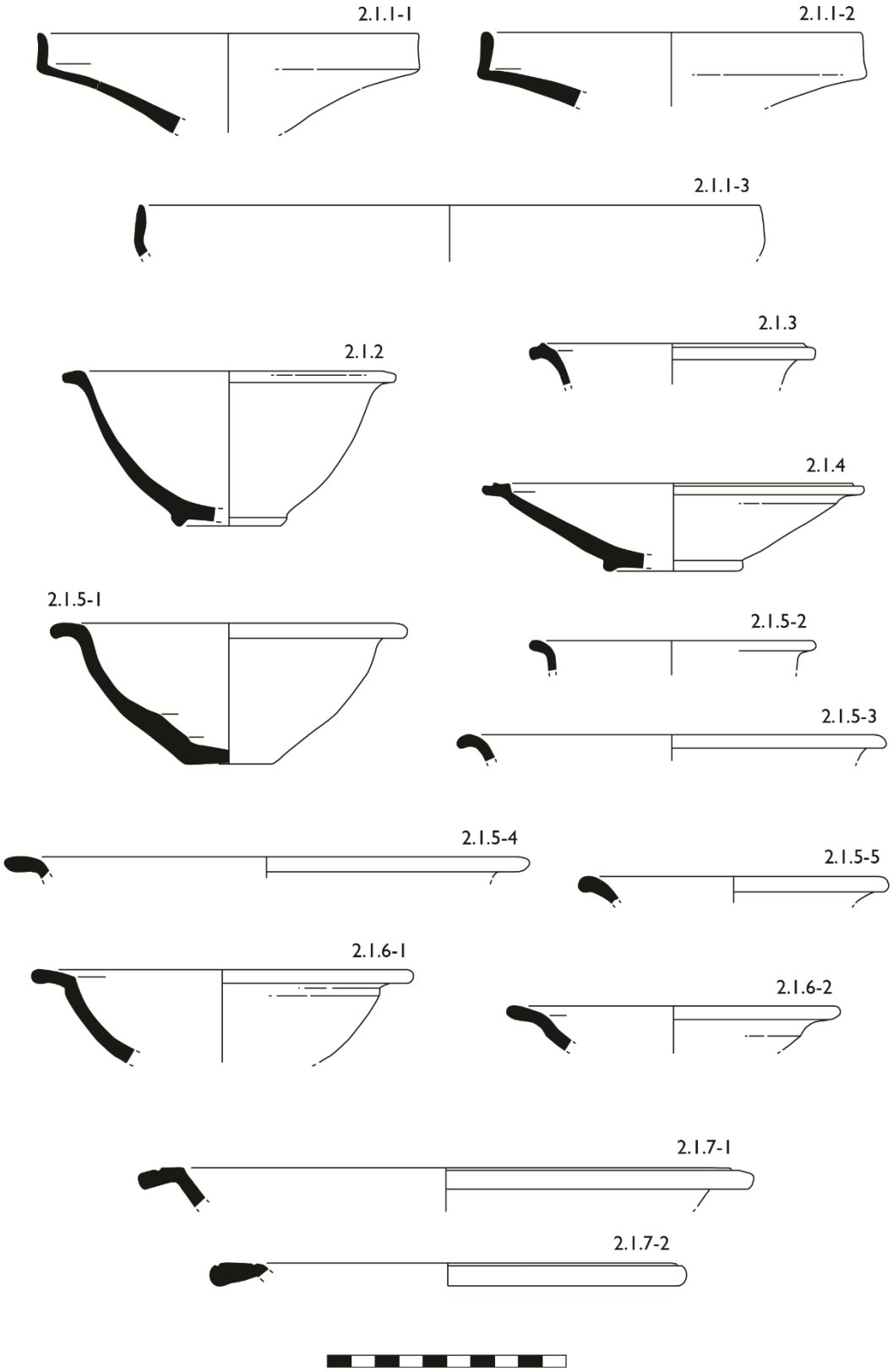


Figure I.19: Local red-slipped ware, types 2.1.1–2.1.7.



Figure I.20: Local red-slipped bowl forms 2.1.1 and 2.1.4.

2.1.5 Red-slipped Bowl type 5 *Figure I.19*

This hemispherical bowl has a flared and everted simple rim and rests on a simple, flat, string-cut base (2.1.5-1). The interior wall contains a slight step towards the base, and since this feature is only found on bowls from the Foreman Street assemblage, it can be linked to a peculiar characteristic of this Gozitan production series, as both slipped and unslipped bowls (type 4.1.10) contain this interior ledge. No Maltese vessels, slipped or unslipped, have been found to contain this detail and may thus be specific to a Gozitan Roman production. Further studies on assemblages from Gozo could provide further comparative literature for this. Although most probably unrelated, a bowl with a very similar morphology was recovered from a disturbed context in Berenice (Benghazi).[894] The context for this form has been dated to the end of the 2nd to mid-3rd century AD. Association with later Hayes 197 casseroles (type 3.4.2.6), and its presence in a phase-4 context at Melita could push the date a little later.

2.1.5.1 FRM08/42/131: Profile, d. 15 (rim), d. 5 (base). Local Fabric 2: Hard orange clay with lots of fine black glauconite, fine yellow lime and fine foraminifera

[894] Riley 1979, 369, fig. 133, no. 1079. The fabric is unlikely to be Maltese but the shape might suggest some shared influence.

inclusions; thin, matt red slip coating interior and exterior. Context: Foreman Street SU 42.

2.1.5.2 FRM08/42/128: Rim, d. 12. Local Fabric 2: Hard pale orange/brown clay with fine black glauconite and fine yellow lime inclusions; thin, red slipped surfaces. Context: Foreman Street SU 42.

2.1.5.3 FRM08/42/129: Rim, d. 18. Local Fabric 2: Pale yellow/brown clay with fine black glauconite, white lime and foraminifera and round red ore grain inclusions; thin, matt bright red slipped surfaces. Context: Foreman Street SU 42.

2.1.5.4 FRM08/59/24: Rim, d. 22. Local Fabric 2: Pale yellow/brown clay with fine black glauconite, white lime and foraminifera and round red ore grain inclusions; thin, matt bright red slipped surfaces. Context: Foreman Street SU 59.

2.1.5.5 MLT84/49378: Rim, d. 15. Local Fabric 1: Hard-fired pale brown fabric with white and yellow lime inclusions; thin red slip on interior and exterior surfaces. Context: Melita SU 1093, phase 4.

2.1.6 Red-slipped Bowl type 6 *Figure I.19*

This form is morphologically similar to the previous form (2.1.5) except that the rim is flatter and exhibits a slightly sharper angle offset from the body. The context, date and finish are like those of the previous vessel and thus are contemporary and probably just different variants to each other.

2.1.6.1 FRM08/59/26: Rim, d. 16. Local Fabric 2: Hard orange clay with a thin pale grey core with fine black glauconite, yellow lime, fine foraminifera and fine red ore grain inclusions; thin and worn matt red slipped surfaces. Context: Foreman Street SU 59.

2.1.6.2 FRM08/42/127: Rim, d. 14. Local Fabric 2: Pale yellow/brown clay with fine black glauconite, fine yellow lime, foraminifera and large red inclusions; thin matt red slipped surfaces. Context: Foreman Street SU 42.

2.1.7 Red-slipped Bowl type 7 *Figure I.19*

This bowl form is not very dissimilar to the previous two types (2.1.5 and 2.1.6) except that the flattened rim contains a groove. From the shape, this type appears to be a local imitation of the ARS bowl form, Hayes 6, which also exhibits a groove on the flat part of the rim. Both Local fabric 1 and 2 are associated with this form. A couple of locally produced bowls of this form were identified in the Gozo assemblage in association with original ARS Hayes 6 sherds (2.1.7-1). Another local sherd (2.1.7-2) is from the Melita assemblage, from a context dating to the mid-3rd and mid-4th century. The Forman Street example (2.1.7-1) can be dated to the end of the 2nd to mid-3rd century AD. The original ARS form and imitated local forms could be contemporary, as the Hayes 6 has been dated to the end of the 1st to the end

of the 2nd century AD,[895] however, like the local Roman-period imitations of earlier Hellenistic black-slipped forms, imitations can be several centuries later then the form that inspired their shape.

2.1.7.1 FRM08/42/126: Rim, d. 22. Local Fabric 2: Pale brown clay with fine white foraminifera, black glauconite and some fine red inclusions; pale red-slipped surfaces. Context: Foreman Street SU 42.

2.1.7.2 MLT84/49377: Rim, d. 22. Local Fabric 2: Hard-fired pale brown clay with lime inclusions; thick red slip on interior and exterior surfaces. Context: Melita SU 1093, phase 4.

2.1.8 Red-slipped bowl type 8 (Sagona bowl form IV-V: 3b) *Figure I.21*

This small cup is characterised by a flared simple rim (2.1.8-1) with a carinated bell-like body that tapers into a flat base (2.1.8-2). Very few red-slipped examples were found associated with a base, however, non-slipped coarse ware examples (4.1.5) were found complete and with a flat, sting-cut base. This small bowl form is known—but not common—in Late Punic and Early Roman tomb contexts dated to the 1st century BC, but a supposedly later-dated form (type 4.1.5; Sagona's bowl form V: 4), which shares the same general morphology except for a ring base, has been dated to at least the 1st century AD.[896] The few slipped examples identified within the assemblages could point towards an extended chronology, at least until the end of the 2nd century AD on the basis of the examples from Foreman Street, where an over-fired fragment may suggest a production waster (2.1.8-1). The fabric type, however, that of Local Fabric 1, is not typical of the vessels produced *en mass* at Foreman Street, thus this single example could very well represent an earlier mid-1st-century AD residual fragment, like the coarse ware examples found in the Early Roman contexts at Bulebel.

2.1.8.1 FRM08/42/125: Rim, d. 10. Local Fabric 1: Coarse, hard-fired grey fabric with white lime inclusions; thin, flaky red slipped exterior and interior; over-fired grey?; rim very small so may affect calculation of the vessel's diameter and inclination. Context: Foreman Street SU 42.

2.1.8.2 BLB12/28/13: Base, d. 3. Local Fabric 2/3: Coarse hard-fired red fabric with fine gypsum, white lime and foraminifera and fine black glauconite inclusions; thin and bright red slipped interior and exterior surfaces. Context: Bulebel SU 28, phase 2.

[895] Hayes 1972, 31.

[896] Sagona 2002, 180–181; see type 4.1.5.

2.1.9 Red-slipped Bowl type 9 (Sagona bowl form VI: 4a) *Figure I.21*

This wide, shallow bowl is characterised by a sharp (2.1.9-1) or soft (2.1.9-2) carinated body flaring into a simple, yet grooved, rim, and sitting on a flat, string-cut base. The slipped version of this form is common in tomb contexts throughout the Maltese islands and has been dated to after the mid-1st century AD by Sagona—her Phase VI.[897] Unslipped, coarse ware versions are also common (see 4.1.18) and are also associated with tomb contexts.[898] A more precise date to that first given by Sagona can be given based on the context dates for the examples identified within the assemblages studied here: based on the tomb contexts from Bulebel and the Melita excavation contexts, this form can be confidently dated to as late as the mid-2nd and mid-3rd/4th century AD, and demonstrates the longevity of this vessels production, as one example (2.1.9-6) was recovered from a mid-/late 1st-century AD context. It is also clear from the association of both complete examples from Bulebel (2.1.9-1 and 2.1.9-2) that both variants and fabrics (Local Fabric 1 and 2) are contemporary.

2.1.9.1 BLB12/11/4: Complete profile, d. 14 (rim), d. 5 (base). Local Fabric 1: Soft, pale brown fabric with yellow lime, green grog and grey inclusions; eroded dull red slip; flat, string-cut base. Context: Bulebel, SU 11, tomb 3 (T3).

2.1.9.2 BLB12/71/1: Complete profile, d. 13 (rim), d. 3.5 (base). Local Fabric 2: Pale yellow/brown clay with fine black glauconite, fine white lime and foraminifera and few red ore inclusions; worn and thin red slipped interior and exterior surfaces. Context: Bulebel SU 71, tomb 3 (T3).

2.1.9.3 MLT84/26796: Rim, d. 16. Local Fabric 2: Pale red clay with black glauconite, white lime and foraminifera inclusions; red slipped surfaces. Context: Melita SU 1075, phase 3.

2.1.9.4 MLT84/26908: Rim, d. 15. Local Fabric 2: Hard-fired red clay with fine black glauconite, fine lime and foraminifera inclusions; thinly applied, dull red-slipped surfaces. Context: Melita SU 1075, phase 3.

2.1.9.5 MLT84/26830: Base, d. 5. Local Fabric 2: Pale red/brown clay with black glauconite and fine white lime/foraminifera inclusions; dark red-slipped exterior and black interior surface; string-cut flat base. Context: Melita SU1075, phase 3 [not illustrated].

[897] Sagona 2002, 188, fig. 349.42.

[898] Sagona 2002, 188.

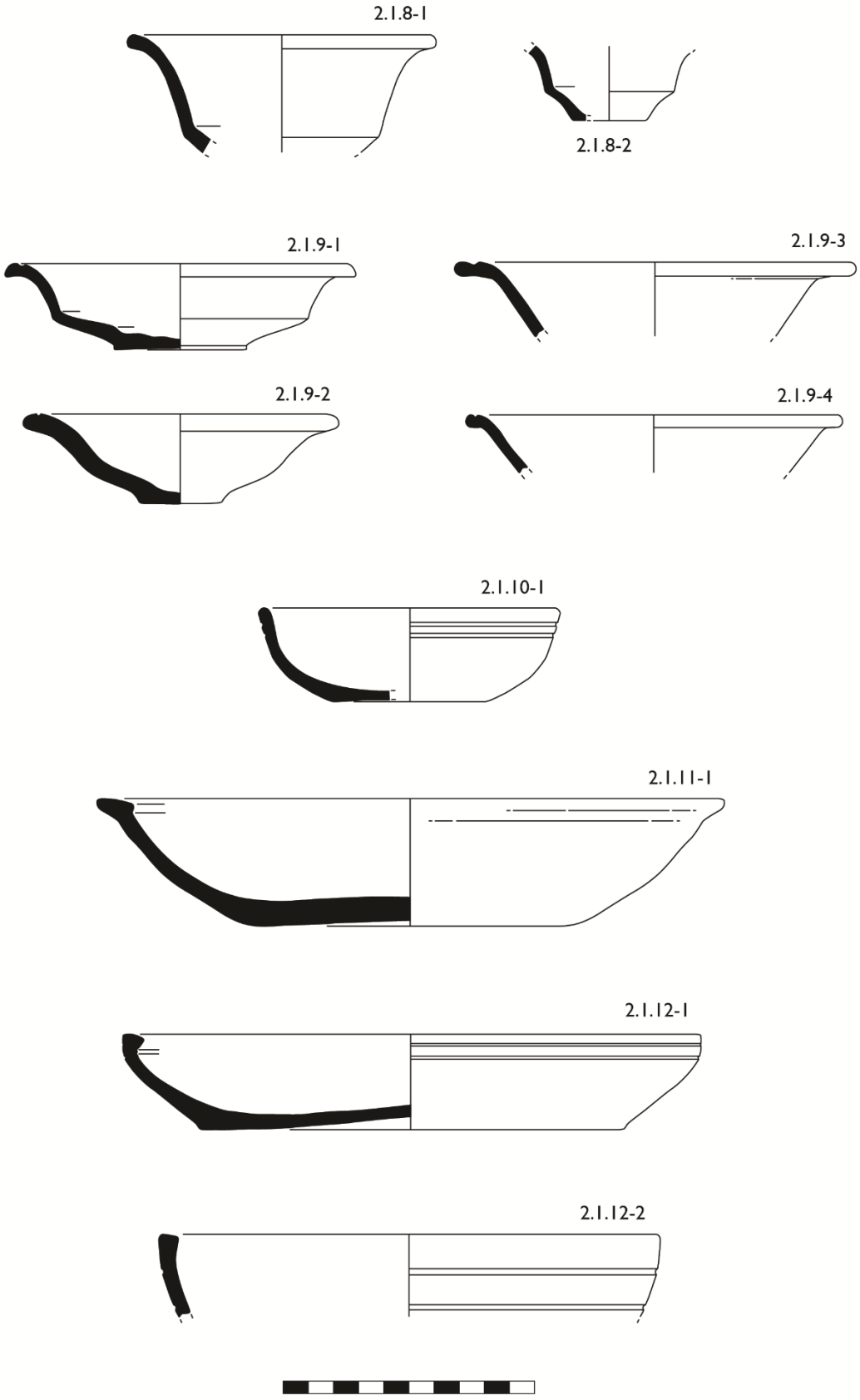


Figure I.21: Local red-slipped ware, types 2.1.8–2.1.12.

2.1.9.6 MLT84/49795: Rim, d. 15. Local Fabric 2: Fine pale brown fabric with black glauconite and white lime and foraminifera inclusions; dull red-slipped surfaces. Context: Melita SU 1086, phase 3 [not illustrated].

2.1.10 Red-slipped Bowl type 10 (Sagona bowl form VI: 1d) *Figure I.21*

A simple red-slipped bowl with a flat base. The walls curve slightly and end in a simple rim with a double incised groove just below the exterior rim edge. This form is known from several tomb contexts and has been found associated with a Tripolitanian II amphora that contained a bronze coin dated to 98–117AD.[899] The single example recovered from the studied assemblages is also from a tomb context associated with pottery dateable to the end of the 2nd to mid-3rd century AD (see types 2.1.9 and 2.1.11).

2.1.10.1 BLB12/11/3: Profile, d. 12 (rim), d. 6 (base). Local Fabric 2: Pale red/brown fabric with fine black glauconite, fine white lime, foraminifera and fine few red ore inclusions; eroded red-slipped interior and exterior surfaces. Context: Bulebel SU 11, tomb 3 (T3).

2.1.11 Red-slipped Bowl type 11 *Figure I.21*

Large red-slipped dish with a wide flat base and flat-topped rim with slight interior over-hang. No comparable vessels have been found in the literature or other Maltese tomb contexts. The association with types 2.1.9, 2.1.10, 2.1.12 and an imported ARS form Hayes 31 (2.5.5.4-1) dates this form to between the end of the 2nd and mid-3rd century AD.

2.1.11.1 BLB12/11/5: Profile, d. 25 (rim), d. 12 (base). Local Fabric 2: Soft pale brown fabric with yellow lime, grog and occasional glauconite inclusions; very eroded thin, dull, red slip. Context: Bulebel SU 11, tomb 3 (T3).

2.1.12 Red-slipped Bowl type 12 *Figure I.21*

Large red-slipped dish with a wide flat, and slightly domed, base with an inward-curving triangular rim and two thin grooved incisions on the exterior surface below the rim. Like the previous dish type, this vessel also has no known parallels and is associated with the same tomb furniture as the example above, suggesting that they share a similar date (see type 2.1.11). One fragment (2.1.12-2) could be intrusive in its context (Melita, phase 2) or could indicate a long-lived production of this form. The additional augite or black glass-like inclusions within the second example

[899] Sagona 2002, 185, 941–943, fig. 118.5

could mean that it belongs to a different, possibly imported series and thus may not be typologically similar to the first example (2.1.12-1). The slight similarity, however, between the two examples below could also be coincidental.

2.1.12.1 BLB12/71/2: Complete profile, d. 23 (rim), d. 17 (base). Local Fabric 1: Plain buff-coloured fabric with fine mixed white and red inclusions; worn red-slipped surfaces; string-cut base. Context: Bulebel SU 71, tomb 3 (T3).

2.1.12.2 MLT84/26294: Rim, d. 20. Local Fabric 2/3?: Pale brown fabric with white, red, black glauconite inclusions, and some possible augite (long glass-like) inclusions; red-slipped surfaces. Context: Melita SU 1100, phase 2.

2.1.13 Red-slipped Bowl type 13 *Figure I.22*

This type loosely groups a range of red-slipped hemispherical bowls with simple rims. They have been dated, based on stratigraphic association, to between the first half of the 2nd and mid-4th century AD.

2.1.13.1 MLT84/49796: Rim, d. 12. Local Fabric 2: Fine pale brown clay with black glauconite and lime inclusions; red-slipped interior and exterior surfaces. Context: Melita SU 1086, phase 3.

2.1.13.2 MLT84/49383: Rim, d. 10. Local Fabric 2: Pale orange clay with fine lime and black glauconite inclusions; thick, waxy red slip on interior and exterior surfaces. Context: Melita SU 1093, phase 4.

2.1.13.3 MLT84/49275.1: Rim, d. 13. Local Fabric 2: Pale brown clay with black glauconite, fine lime and white foraminifera inclusions; thin red-slipped interior and exterior surfaces; straight-walled rim. Context: Melita SU 1081, phase 4.

2.1.13.4 MLT84/49275.2: Rim, d. 16. Local Fabric 2: Pale brown fabric with black glauconite and fine lime inclusions; thin red-slipped surfaces. Context: Melita SU 1081, phase 4.

2.1.13.5 MLT84/25276: Rim, d. 15. Local Fabric 1: Pale brown clay with white foraminifera, lime and grey inclusions; thin matt red slip on interior and exterior surfaces. Context: Melita SU 1072, phase 6 (mixed context).

2.1.14 Red-slipped Bowl type 14 *Figure I.22*

Red-slipped small bowl or cup with a lenticular-shaped beaded rim. Only a single example of this type was identified within the assemblages studied, however, similar coarse ware examples are known from Late Punic and Early Roman contexts throughout the Maltese islands, although none come from reliable stratigraphic excavations.[900] This example is associated with a

[900] Cagiano de Azevedo et al. 1965, fig. 6 (Tas-Silġ); Anastasi 2010, fig. 142.4 (Żejtun villa).

context that dates to between the mid-3rd and mid-4th century, but since no other parallels are known, this date is provisional.

2.1.14.1 MLT84/26073: Rim, d. 12. Local Fabric 1: Pale brown clay with white lime and foraminifera inclusions; dull red-slipped surfaces. Context: Melita SU 1096, phase 5.

2.1.15 Red-slipped Bowl type 15 *Figure I.22*

Shallow bowl with simple inverted and grooved rim. Only a single example was slipped, whilst the same form is also found unslipped (see coarse ware type 4.1.17). No local parallels have been identified. This single slipped example, as well as the coarse ware fragments, are associated with contexts from Melita that date to between the mid-3rd and mid-4th century.

2.1.15.1 MLT84/24828: Rim, d. 24. Local Fabric 2: Pale brown clay with black glauconite, fine white lime and foraminifera inclusions; dark red/brown lustrous slip on interior and exterior surfaces. Context: Melita SU 1066, phase 4.

2.1.16 Red-slipped Bowl type 16 *Figure I.22*

This category covers a wide range of various small mug or cup rims. All examples are red slipped; made in Local Fabric 2; and share morphological traits with Thin-walled ware examples (see below). They have been grouped together here because of their slightly thicker walls and the nature of their slip. All sherds have also been dated to between the end of the 2nd and mid-4th century AD because of their context association (Foreman Street and Melita, phase 3). Similar examples are known from elsewhere in the Maltese islands, in particular tomb contexts such as type 2.1.16-4, which is similar to Sagona's cup form VI: 1a dated to after the mid-1st century AD onwards.[901] No complete examples were recovered within the three assemblages therefore we have no knowledge of what the rest of the body and base looked like and whether there were any handles attached to the vessels.

2.1.16.1 FRM08/59/25: Rim, d. 10. Local Fabric 2: Pale red/brown clay with fine black glauconite, fine white foraminifera and few red grog/ore inclusions; matt, dark red-slipped surfaces. Context: Foreman Street SU 59.

2.1.16.2 MLT84/49856: Rim, d. 8. Local Fabric 2: Hard-fired pale orange clay with black glauconite and lime inclusions; dull red-slipped exterior surface. Context: Melita SU 1085; phase 3.

[901] Sagona 2002, 191–192, fig. 349.49.

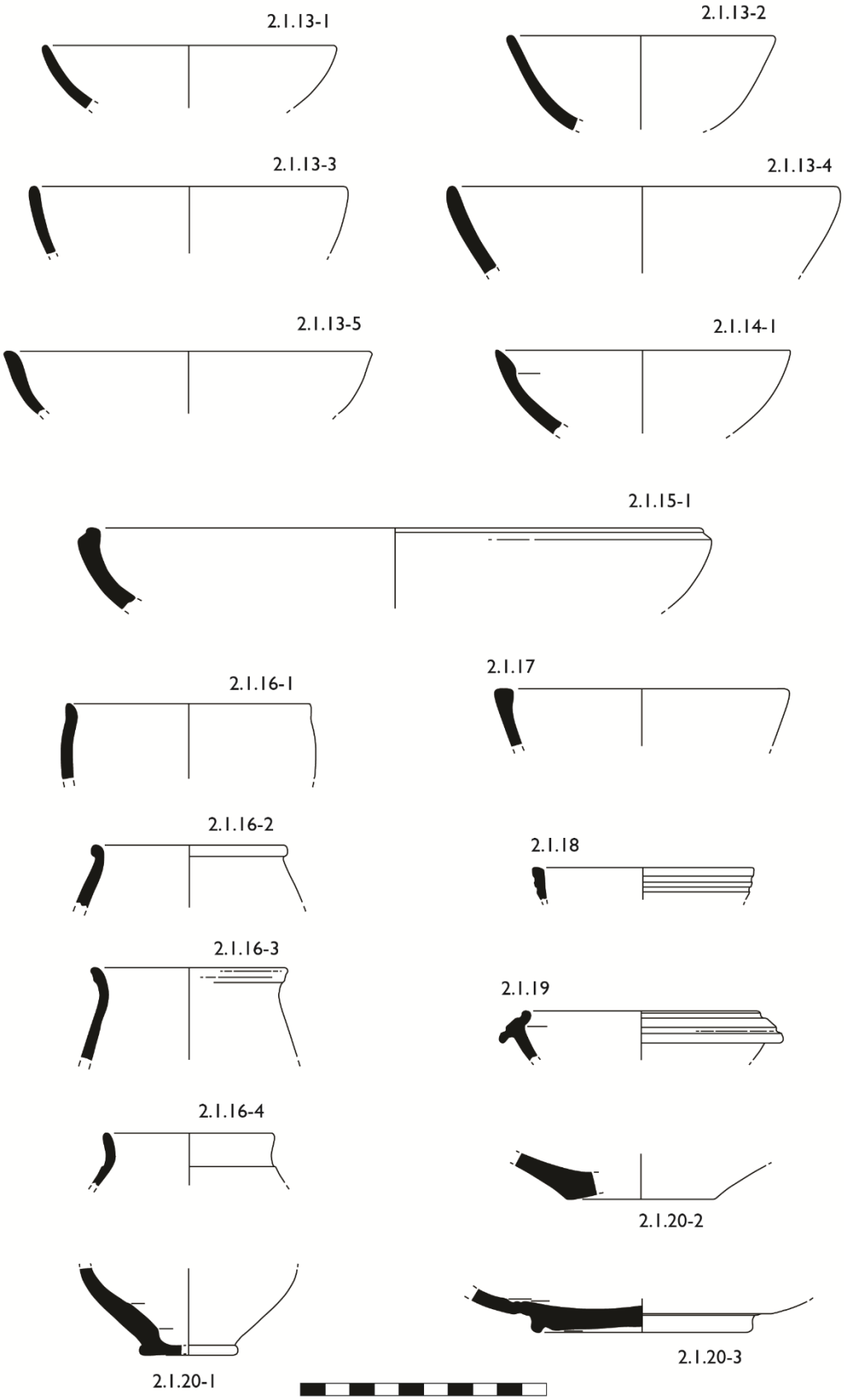


Figure I.22: Local red-slipped ware, types 2.1.13–2.1.20.

2.1.16.3 MLT84/26813: Rim, d. 8. Local Fabric 2: Pale orange clay with black glauconite and lime inclusions (Local Fabric 2); red-slipped exterior surface. Context: Melita SU 1075, phase 3.

2.1.16.4 MLT84/49857: Rim, d. 7. Local Fabric 2: Pale orange clay with fine white lime/foraminifera and black glauconite inclusions; dull red-slipped exterior surface. Type: Sagona cup form VI: 1a. Context: Melita SU 1085, phase 3.

2.1.17 Red-slipped Bowl type 17 *Figure I.22*

Small bowl or cup with an inward-curving flat-topped rim. Only a single example of this red-slipped form was identified and has been dated to the mid-3rd/mid-4th century on the basis of stratigraphic association; however, since no other local parallels are known this dating is preliminary.

2.1.17.1 MLT84/49716: Rim, d. 12. Local Fabric 1: Pale brown clay with fine white lime and foraminifera inclusions; dull red slip on interior and exterior surfaces. Context: Melita SU 1101, phase 5.

2.1.18 Red-slipped Bowl type 18 *Figure I.22*

Small bowl/cup (or jar?) rim with two exterior grooves just below the simple rim. The context of this single example is dated to the mid-3rd/mid-4th century.

2.1.18.1 MLT84/49852: Rim, d. 9. Local Fabric 2: Pale orange clay with fine black glauconite and lime inclusions; thin red-slipped surfaces. Context: Melita SU 1085, phase 3.

2.1.19 Red-slipped Bowl type 19 (Sagona bowl form VI: 5d) *Figure I.22*

This small bowl has a distinctive grooved and slanting flanged rim. This form is common within local tombs and was classified by Sagona as bowl form VI: 5d, where she dated it to after the mid-1st century AD.[902] This might have been inspired by Italian *terra sigillata* forms. Other vessels recorded by Sagona demonstrate clear attempts at imitating Italic *sigillata* forms such as Sagona's bowl form VI: 3, which clearly imitates Conspectus 23 and 34, and date to the 1st century AD.[903] The Melita sherd (2.1.19-1) is associated with a context dating to the mid-3rd/mid-4th century, and could very well be residual.

[902] Sagona 2002, 190, fig. 349.48.

[903] Sagona 2002, 187–188, fig. 349.41. Sagona does not clearly distinguish between locally produced or imported forms and lumps them together under a single category.

2.1.19.1 MLT84/26831: Rim, d. 9. Local Fabric 2: Pale orange clay with fine black glauconite and fine white lime/foraminifera inclusions; red-slipped surfaces. Context: Melita SU 1075, phase 3.

2.1.20 Miscellaneous red-slipped bases *Figure I.22*

This category includes all the recorded miscellaneous red-slipped bases that have not been classified under any other heading because the form remains unknown or uncertain.

2.1.20.1 FRM08/57/32: Cup/bowl base, d. 4. Local Fabric 2: Pale grey clay with fine black glauconite, yellow lime and foraminifera inclusions; red-slipped exterior surface and black-slipped interior. The internal 'ledge' is reminiscent of type 2.1.5-1 except that the base is more of a disc and is not string-cut; over-fired? Context: Foreman Street SU 57.

2.1.20.2 FRM08/42/124: Shallow bowl/plate base, d. 6. Local Fabric 2: Soft pale brown fabric with fine black glauconite, fine pale yellow lime, foraminifera and few red ore inclusions; matt red-slipped surfaces; flat, smoothed base. Context: Foreman Street SU 42.

2.1.20.3 BLB12/32/25: Plate ring base, d. 9. Local Fabric 4?: Fine, hard-fired, dark orange/red clay with a thin pale grey core, with some black, matt, spherical inclusions, fine yellow lime/foraminifera and few large angular quartz inclusions; thick, waxy, yet cracked red-slipped surfaces. Source: Local? Sicilian import? Context: Bulebel SU 32, phase 2.

2.1.21 – 2.1.25 Miscellaneous fragments

This range of types has been reserved for a wide array of local red-slipped small diagnostic (rims and handles) and body sherds, which have not been illustrated or included in this catalogue.

2.1.26 Red-slipped Jar type 26 *Figure I.23*

A red-slipped horizontal jar rim with a low raised lip. Only one fragment of this form was recovered from the earliest Bulebel phase (early 1st century AD). No clear local parallels have been identified, not even amongst the tomb material. A one-handled flask with a similar-moulded rim is known from San Pawl Milqi but is unlikely to belong to the same vessel, also dated to the 1st century.[904]

2.1.26.1 BLB12/58/35: Rim, d. 8. Local Fabric 1: Hard, pale orange fabric with yellow lime, white foraminifera and red inclusions; red-slipped exterior, partially covering top interior of rim. Context: Bulebel SU 58, phase 1.

[904] Bozzi et al. 1968, fig. 8.10.

2.1.27 Red-slipped jar type 27 (Sagona urn form VI: 2a) *Figure I.23*

Red-slipped, straight-walled, round-mouthed jar rim with two exterior grooves. This rim shares similarities with a small urn, about 10–14 cm tall, catalogued by Sagona in Phase VI tomb contexts (urn form VI: 2a). This exterior surface is coated with a mottled red and black slip, which has since become highly spalled. Sagona does not suggest a clear date for this form but it certainly is a Roman-period vessel dating to at least the 1st century AD.

2.1.27.1 BLB12/28/1: Rim, d. 7. Local Fabric 2: Pale orange clay with a thin pale grey core with fine gypsum (?), fine white lime and foraminifera and fine black glauconite inclusions; mottled red and black, slipped exterior surface. Context: Bulebel SU 28, phase 2.

2.1.28 Miscellaneous jar/jug bases

This category is meant to include a wide range of small undiagnostic red-slipped jar and jug bases that have not been included in this catalogue.

2.2 Local Thin-walled ware

2.2.1 Local Thin-walled Cup type 1 *Figure I.23*

This form is characterised by a simple hemi-spherical cup or small bowl with a simple, slightly inward-curving (2.2.1-1–2, 2.2.1-7), straight (2.2.1-8) or straight, everted (2.2.1-5) rim. Associated bases are simple and flat (2.2.1-12). The majority of fabrics associated with this form is Local Fabric 2, but Local Fabrics 1 and 4 are also recorded. The cups are usually unslipped and are probably mould made on account of the thin, unsmoothed walls Parallels for this form can be found amongst the tomb material (Sagona bowl form VI: 1a and possibly even form VI: 2a) and at San Pawl Milqi dateable from about the 1st century AD.[905] The general shape is inspired by a simple Augustan thin-walled form—type XXXVI— from Cosa, produced in large quantities from about the second half of the 1st century BC.[906] That these cup forms are only present at Bulebel, in phases 1 and 2, further supports the possibility of an early 1st century-AD date.

[905] Sagona 2002, 184–185, fig. 349.34 and 39; Cagiano de Azevedo et al. 1965, fig. 10.1.
[906] Marabini Moevs 1973, 107.

2.2.1.1 BLB12/58/2: Rim, d. 14. Local Fabric 2: Hard-fired pale red to pale grey clay with lots of very fine black glauconite, fine white lime and foraminifera inclusions; thin cream slip/skin (salt-slipped?). Context: Bulebel SU 58, phase 1.

2.2.1.2 BLB12/58/49: Rim, d. 12. Local Fabric 2: Red clay with lots of fine black glauconite, white lime and foraminifera inclusions; unslipped. Context: Bulebel SU 58, phase 1.

2.2.1.3 BLB12/32/12: Rim, d. 13. Local Fabric 2: Pale yellow/pink buff clay with few very fine black glauconite, some red ore/grog, fine white lime and foraminifera inclusions; unslipped white skin. Context: Bulebel SU 32, phase 2.

2.2.1.4 BLB12/55/8: Rim, d. 13. Local Fabric 2: Red clay with black glauconite, white lime and foraminifera inclusions; unslipped smooth surfaces. Context: Bulebel SU 55, phase 1.

2.2.1.5 BLB12/58/3: Rim, d. 14. Local Fabric 2: Hard-fired red clay with thin dark grey core with fine black glauconite, few distinct white lime and fine foraminifera inclusions; unslipped. Context: Bulebel SU 58, phase 1.

2.2.1.6 BLB12/28/14: Rim, d. 9. Local Fabric 2: Hard-fired pale red/pink clay with thin pale grey edges with some very fine black glauconite, fine white and foraminifera inclusions; unslipped grey skin. Context: Bulebel SU 28, phase 2.

2.2.1.7 BLB12/39/8: Rim, d. 10. Local Fabric 2: Hard-fired pale yellow/grey clay with a thick pale red/pink core with lots of fine yellow foraminifera and lime and black glauconite inclusions; unslipped grey skin. Context: Bulebel SU 39, phase 2.

2.2.1.8 BLB12/48/2: Rim, d. 11. Local Fabric 4: Very fine gritty red clay with fine granular gypsum and fine yellow foraminifera/lime inclusion; unslipped smooth surfaces. Context: Bulebel SU 48, phase 2.

2.2.1.9 BLB12/32/40: Rim, d. 11. Local Fabric 2: Hard-fired red/orange clay with fine black glauconite, foraminifera and some fine lime inclusions; pale yellow skin (salt-slipped). Context: Bulebel SU 32, phase 2.

2.2.1.10 BLB12/39/3: Rim, d. 10. Local Fabric 4: Hard-fired, granular red clay with fine gypsum, some fine black glauconite and fine white lime inclusions; unslipped smooth surfaces. Context: Bulebel SU 39, phase 2.

2.2.1.11 BLB12/65/5: Rim, d. 10. Local Fabric 2: Pale red clay with fine black glauconite, few white lime and foraminifera inclusions; unslipped pale pink skin. Context: Bulebel SU 65, phase 2.

2.2.1.12 BLB12/39/2: Base, d. 4. Local Fabric 2: hard-fired pale orange/brown clay with lots of very fine black glauconite, fine foraminifera and some large white lime inclusions; unslipped pale pink skin; smoothed flat base. Context: Bulebel SU 39, phase 2.

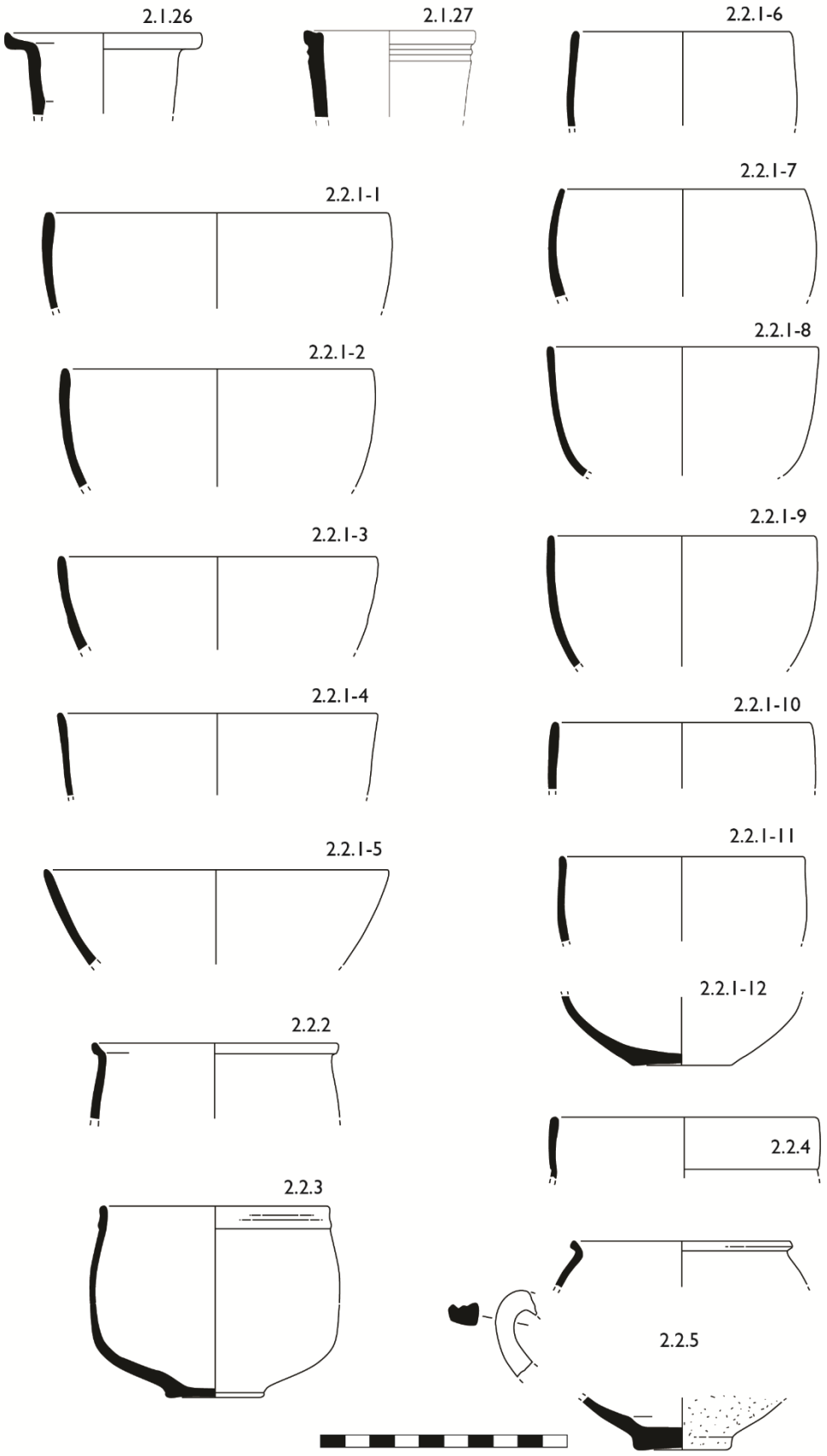


Figure I.23: Local red-slipped and thin-walled wares, types 2.1.26–2.2.5.

2.2.2 Local Thin-walled Cup type 2 *Figure I.23*

This form is represented by a single everted, beaded rim belonging to a small locally produced cup similar to Marabini Moevs' form XLVII developed in the Augustan period in Italy.[907] This class of local thin-walled vessels probably belong to Sagona's loosely grouped Cup forms VI: 1a–b, although no handles were found associated with the Bulebel example.[908] The typical fabric used in local thin-walled cups of this sort is Local Fabric 4, is usually unslipped, but there are instances where a thin dark red skin coats the surfaces. Only a single fragment of this particular rim type was identified from Bulebel and has been tentatively dated to about the early 1st century AD due to its context.

2.2.2.1 BLB12/58/9: Rim, d. 10. Local Fabric 4: Very fine granular red/orange clay with medium-sized matt black inclusions and a few fine white lime inclusions; unslipped smooth matt dark grey exterior surface. Context: Bulebel SU 58, phase 1.

2.2.3 Local Thin-walled Cup type 3 *Figure I.23*

This cup probably belongs to the same general morphological vein as the previous type (2.2.2) but for a short vertical collared rim and a polished bright orange/red-coloured slip. The base is flat, smoothed and slightly raised. Exact local parallels could not be found, but a similar-shaped cup—although with a different fabric—was found in a surface deposit at Berenice (Benghazi).[909] The polished slip might be attempting to imitate early African Red slipped mugs, which are known on Malta, and would support an early 1st to early 2nd-century AD date.[910]

2.2.3.1 BLB12/28/15: Profile, d. 10 (rim), d. 4 (base). Local Fabric 4: Granular deep red/orange clay with few fine matt black specks and finer white lime inclusions; Smoothed/polished red/orange slipped surfaces; small and ribbed, cut vertical strap handle. Context: Bulebel SU 28 and 23, phase 2.

2.2.4 Local Thin-walled Cup type 4 *Figure I.23*

This collared, simple-rimmed cup appears to be a local imitation inspired by the Italian thin-walled ware form like that found at Cosa, and which are Augustan in date (form XXXVI, group C).[911] The discovery of a single rim

[907] Marabini Moevs 1973, 147.
[908] Sagona 2002, 191–192, fig. 349.49–50.
[909] Riley 1979, 369, fig. 133, no. 1080.
[910] Hayes 1972, 180, e.g. 4.
[911] Marabini Moevs 1973, 109–110, no. 193.

sherd in a late-dated context (Melita, phase 3) indicates that the fragment is residual.

2.2.4.1 MLT84/49853: Rim, d. 11. Local Fabric 4: Fine red clay with black matt and fine white lime inclusions; unslipped red-coloured surface. Context: Melita SU 1085, phase 3.

2.2.5 Local Thin-walled Cup type 5 *Figure I.23*

Handled mug with a slightly raised flat, string-cut base. The rim is simple and slightly everted and very similar to type 2.2.2. The surface remains unslipped, but the lower half of the vessel was treated with a sand-textured finish. The form is similar to Marabini Moevs' mug form XLVI, finished in an unslipped sand decoration technique that became very common on metallic-glazed thin-walled vessels during the Tiberian period (AD 14–27).[912] This local imitation probably dates to about the first half of the 1st century AD or thereabouts. Other bowl shapes, such as Sagona's bowl form VI: 1b, are known from tomb contexts on the island, which have this same decorative, unslipped finish.[913]

2.2.5.1 MLT84/49565: Part profile, d. 9 (rim), d. 4 (base). Local Fabric 4: Fine dark red clay with fine white lime and black matt spherical inclusions; unslipped red surface with fine black and white grit (sand-textured) concentrated on lower half of body; 14 fragments in total. Context: Melita SU 1111, phase 1.

2.3 Imported Thin-walled ware

2.3.1 Knidian ware *Figure I.24*

This double-handled, carinated cup form is characterised by a hard grey clay coated with a smooth, grey metallic slip. The form, similar to cups from Berenice and the Athenian agora, is thought to belong to a series of thin-walled vessels from the island of Knidos and has been dated to about the 1st century BC.[914] An on-going study of the Hellenistic and early Imperial pottery from Knidos is suggesting that this particular cup type formed part of the basic Late Hellenistic/early Imperial dining set, dating from the last quarter of the 1st century BC to at least the mid-2nd century AD.[915]

[912] Marabini Moevs 1973, 128.
[913] Sagona 2002, 185.
[914] Kenrick 1985a, fig. B84; Hayes 2008, no. 1613.
[915] Kögler 2014, 169–170, fig. 18.

2.3.1.1 BLB12/39/16: Bevelled rim and handle, d. 15. Fabric: Very hard grey fabric with pale brown edges; contains white fine lime inclusions; covered with a crazed, metallic grey slip. The handle is round in section and is topped with a roughly shaped disc of clay; two grooves circle the shoulder, whilst a pair of thinner grooved lines mark the upper half of the vessel. Context: Bulebel SU 39, phase 2.

2.3.2 Thin-walled bowl form XXXVI *Figure I.24*

Only one rim fragment belonging to this North African form was identified and belongs to Marabini Moevs' form XXXVI, Group C, seen with examples from Cosa. The form was a very common hemispherical bowl with a single groove mid-body, which started being produced in the 1st century BC, but mass production kicks off from the early Augustan period.[916] This particular example appears to have been manufactured in north Tunisia on account of the fine quartz-filled red/brown clay.

2.3.2.1 BLB12/32/41: Rim, d. 11. Fabric: Fine red/brown clay with fine granular quartz, fine black and white inclusions (Peacock 2.1?); unslipped. Source: North Tunisia. Context: Bulebel SU 32, phase 2.

2.3.3 Thin-walled bowl form XXV *Figure I.24*

This cupped rim is similar to a squat double-handled cup similar to form XXV identified at Cosa, dated from the 1st century BC, but became more common from the Augustan-Tiberian period.[917] The source of this particular example remains uncertain and might be North African on account of the high quartz content, although a Sicilian origin is also possible on account of the fine black inclusions within the fabric.[918]

2.3.3.1 BLB12/55/9: Rim, d. 9. Fabric: Fine granular brown clay with very fine white lime and foraminifera with some fine black inclusions; unslipped brown skin. Source: North Tunisia/Sicily? Context: Bulebel SU 55, phase 1.

[916] Marabini Moevs 1973, 109–110.

[917] Marabini Moevs 1973, 80–84.

[918] When compared to the east Sicilian MRA 1 amphorae, the fabrics are quite similar suggesting that the fabric sources might be similar; see the similarity with inclusion types in Segesta's thin-walled wares (Montana et al. 2003).

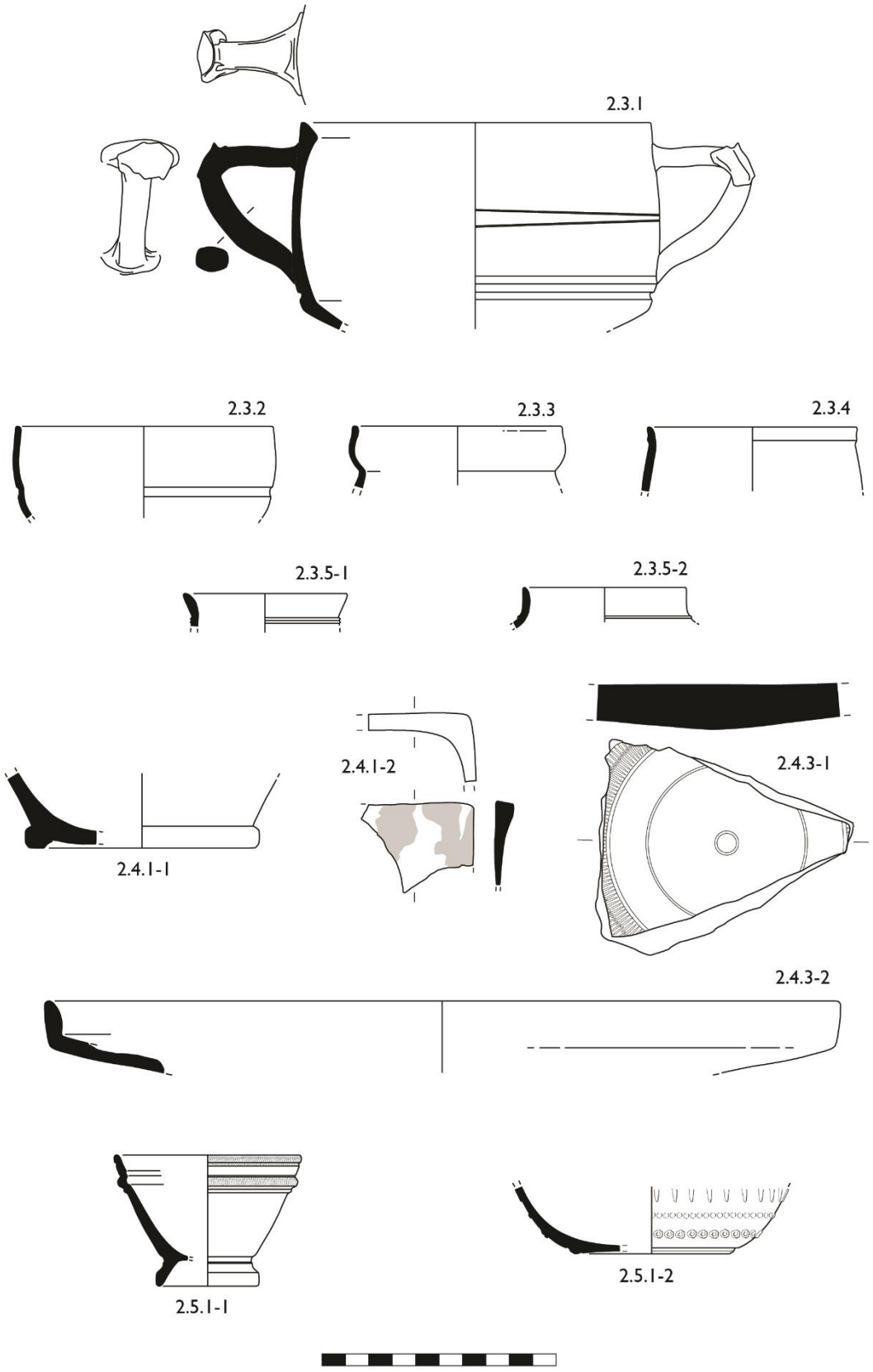


Figure I.24: Imported thin-walled ware (types 2.3.1–2.3.5), black-slipped ware (types 2.4.1–2.4.3) and Italian terra sigillata (type 2.5.1).

2.3.4 Thin-walled bowl form LXIII? *Figure I.24*

This imported form is morphologically similar to the local example recorded above (2.2.3), although the fabric is similar to type 2.3.3, probably originating from North Tunisia or Sicily. Close parallels can be sought with form LXIII for the Cosa assemblage, solely on the similarity between the short collared rims, however the absence of a complete profile makes it impossible to determine exactly what form this vessel takes. Form LXIII from Cosa was common from the Claudian-Neronian period (AD 41–68).[919]

2.3.4.1 BLB12/30/8: Rim, d. 9. Fabric: Fine red granular clay with lots of fine quartz, lots of very fine white inclusions and some fine black inclusions; unslipped. Source: North Tunisia/Sicily? Context: Bulebel SU 30, phase 2.

2.3.5 Thin-walled mug form LXVIII *Figure I.24*

This last group of thin-walled mugs are probably the most common thin-walled vessel on the islands, common in many early Roman tombs. Sagona classifies two general types (Cup form VI: 1a–b), although she was quite unspecific when distinguishing between local and imported examples.[920] This "pear-shaped" handled vessel is one of the most common thin-walled vessels of the 1st century AD.[921] The two examples recorded from the Foreman Street assemblage are made in a hard, compact, dark grey compact clay, probably from an Aegean source, but this remains speculative. It is not clear whether these particular sherds were residual 1st-century AD fragments within the Foreman Street assemblage, or were deposited at a later stage.

2.3.5.1 FRM08/42/121: Rim, d. 7. Fabric: Hard, fine dark grey clay with lots of very fine granular quartz and some very fine lime, and very fine mica inclusions(?); unslipped matt grey skin. Context: Foreman Street SU 42.

2.3.5.2 FRM08/42/122: Rim, d. 7. Fabric: Fine dark grey/brown clay with fine quartz and very fine lime inclusions; unslipped mottled grey/brown surfaces. Context: Foreman Street SU 42.

2.4 Imported Black slipped ware

Only a very small proportion of imported black-slipped were recorded within the all three assemblages and comprise a wide range of sherds dating to the Punic and early Roman period. In general, black-slipped pottery is

[919] Marabini Moevs 1973, 205.
[920] Sagona 2002, 191–192.
[921] Marabini Moevs 1973, 237.

uncommon on Malta and Gozo. The handful of fragments presented here are certainly all residual fragments, and only diagnostic examples are illustrated.

2.4.1 Miscellaneous black-slipped wares *Figure I.24*

This group comprises two imported fragments; the first (2.4.1-1) is a ring base belonging to a skyphos-like vessel; the second (2.4.1-2) is a straight-walled squared box-like vessel, probably similar to a pyxis.

2.4.1.1 BLB12/32/21: Skyphos ring base, d. 10. Fabric: Fine pale orange fabric with fine mudstone (?) inclusions. Source: Imported, possibly Eastern? Date: unknown. Context: Bulebel SU 32, phase 2.

2.4.1.2 MLT84/25797: Straight-rimmed pyxis? Fabric: Fine hard pale orange/brown fabric with fine yellow lime and occasional small black inclusions; glossy varnish-like slipped surface with black to brown dribbled effect on the exterior. Source: Import, Eastern? Type: Unknown. Date: Unknown. Context: Melita SU 1096, phase 5.

2.4.2 Campanian A ware

This black-slip production is one of the most common Late Hellenistic/Late Republican mass produced table ware circulating the Mediterranean in the last two and a half centuries BC.[922] The source of this production is the Naples area of southern Italy, with a fabric that is typically red/orange to purple/brown, fine and sometimes contains mica and some very fine white inclusions. Vessels are coated with a distinctive metallic grey/black slip. The shapes generally comprise open drinking vessels, i.e. cups and bowls, modelled on Greek and Hellenistic forms.[923] Examples on Maltese sites are not common, but finds are known from the Żejtun villa[924] and the Tas-Silġ sanctuary.[925] Within the assemblages studied only six Campanian A wall sherds were found; three from Bulebel and three more from Melita.

2.4.3 Campanian C ware *Figure I.24*

This black-slipped series was produced from about the 2nd to 1st centuries BC and has come to represent a wide spectrum of black-slipped table wares with a grey fabric. A common source for many of these vessels is Sicily, in

[922] For a summary overview of the main characteristics of this production, see Py 1993a.
[923] Morel 1994.
[924] Anastasi 2010, 299, fig. 142.7, no. 184.
[925] Bruno 2009, 178.

particular the area around Syracuse.[926] Large plates are quite commonly represented, although the range of fabrics recorded is also rather extensive. Six fragments—most probably all residual—were identified within the Bulebel assemblage studied, including two illustrated below (2.4.3-1–2); whilst a single residual fragment came from Melita. Like Campanian A black-slipped table wares, only a few examples have been recorded in Maltese contexts.[927]

2.4.3.1 BLB12/58/45: Plate wall with central rouletting on interior. Fabric: Coarse light grey fabric with white lime, lots of black volcanic inclusions and some mica; thick, matt, waxy black slip. Source: Southern Italy/Sicily? Type: Unknown. Date: Unknown. Context: Bulebel SU 58, phase 1.

2.4.3.2 . BLB12/57/3: Carinated plate rim, d. 34. Fabric: Fine dark grey fabric with fine white inclusions; eroded and flaky matt black slip. Source: Sicily? Type: Similar to Morel 2275b 1. Date: 1st century BC. Context: Bulebel SU 57, phase 1.

2.5 Imported Red slipped ware

2.5.1 Italian terra sigillata *Figure I.24*

This category represents Italian terra sigillata (ITS); the most well-known Roman-period table ware synonymous with early Roman mass production and extensive Mediterranean-wide trade. ITS is found on practically all coastal and inland sites in the Mediterranean during the last few decades of the 1st century BC and early 1st century AD.[928] The first workshops were set up in central Italy, but soon after workshops in neighbouring Roman regions (in particular Gaul) developed a multitude of regional variants, which were also widely traded. On Malta, relatively little ITS is found on early Roman sites compared to neighbouring islands and cities within the central Mediterranean.[929] A small number of complete vessels have been recorded from early 20th-century excavations at the Roman domus (Rabat) and amongst the tomb material.[930] Unsurprisingly, only five sherds were found in the three assemblages studied, two of which are illustrated below.

2.5.1.1 BLB12/32/47: Profile of small bowl with rouletting on exterior surface of rim, (d. 8), base (d. 4.4). Fabric: Fine pink fabric mixed with yellow clay, lots of air-

926 Py 1993b; Morel 1994, 47.
927 Bruno 2009, 172; Anastasi 2010, 303, fig. 142.8, no. 233.
928 For an overview of this important, yet extensive fine ware, see Kenrick 1985a, 125–218; 1991; Passelac 1993a.
929 See Chapter 6.
930 Napolitani 2007; Sagona 2002, 75.

pockets; fine, smooth lustrous red/brown slip. Source: Central Italy. Type: Conspectus 22.2.1. Date: 20–10 BC. Context: Bulebel SU 32, phase 2.

2.5.1.2 BLB12/32/48: Base of moulded bowl with relief decoration, d. 7. Fabric: Very fine pink/pale brown fabric with fine lime or mica inclusions, compact; lustrous brown/red slip. Source: Central Italy. Type: Conspectus R11. Date: Mid-/late Augustan period. Context: Bulebel SU 32, phase 2.

2.5.2 Campanian A (Formally 'Tripolitanian sigillata') *Figure I.25*

This tentative category represents a single example of a red-slipped fine ware sherd that shares similarities with what P. Kenrick cautiously identified as Tripolitanian sigillata in his important study on the fine wares from Berenice (Benghazi).[931] The accumulation of significant numbers of this ware in North African and Libyan contexts originally led to the suggestion of a Libyan production. However, a source in the Naples area has since been suggested.[932] The fine ware is characterised by a fine, slightly granular orange clay with some fine quartz, some fine mica and very fine white lime inclusions; the body is then slipped with a thin bright red/orange slip. This ware has been dated to the Augustan-Tiberian period and does not appear to have continued in production beyond the 1st century AD.

Only one fragment of this ware was identified within the three assemblage and appears to be more or less contemporary with the date of the deposition. No other example of this production has yet been recorded on the Maltese islands.

2.5.2.1 BLB12/39/6: Rim, d. 40. Fabric: Pale buff fabric with fine lime, mica, and occasional black inclusions; faded thin red slip. Source: Campania. Type: Kenrick 1985 type 399; see Fulford and Timby 1994, 5, fig. 1.3.42–43. Date: Second half of the 1st century BC/early 1st century AD (AD 1–40). Context: Bulebel SU 39, phase 2.

931 Kenrick 1985a, 283.

932 Soricelli 1987; Kenrick 1987b.

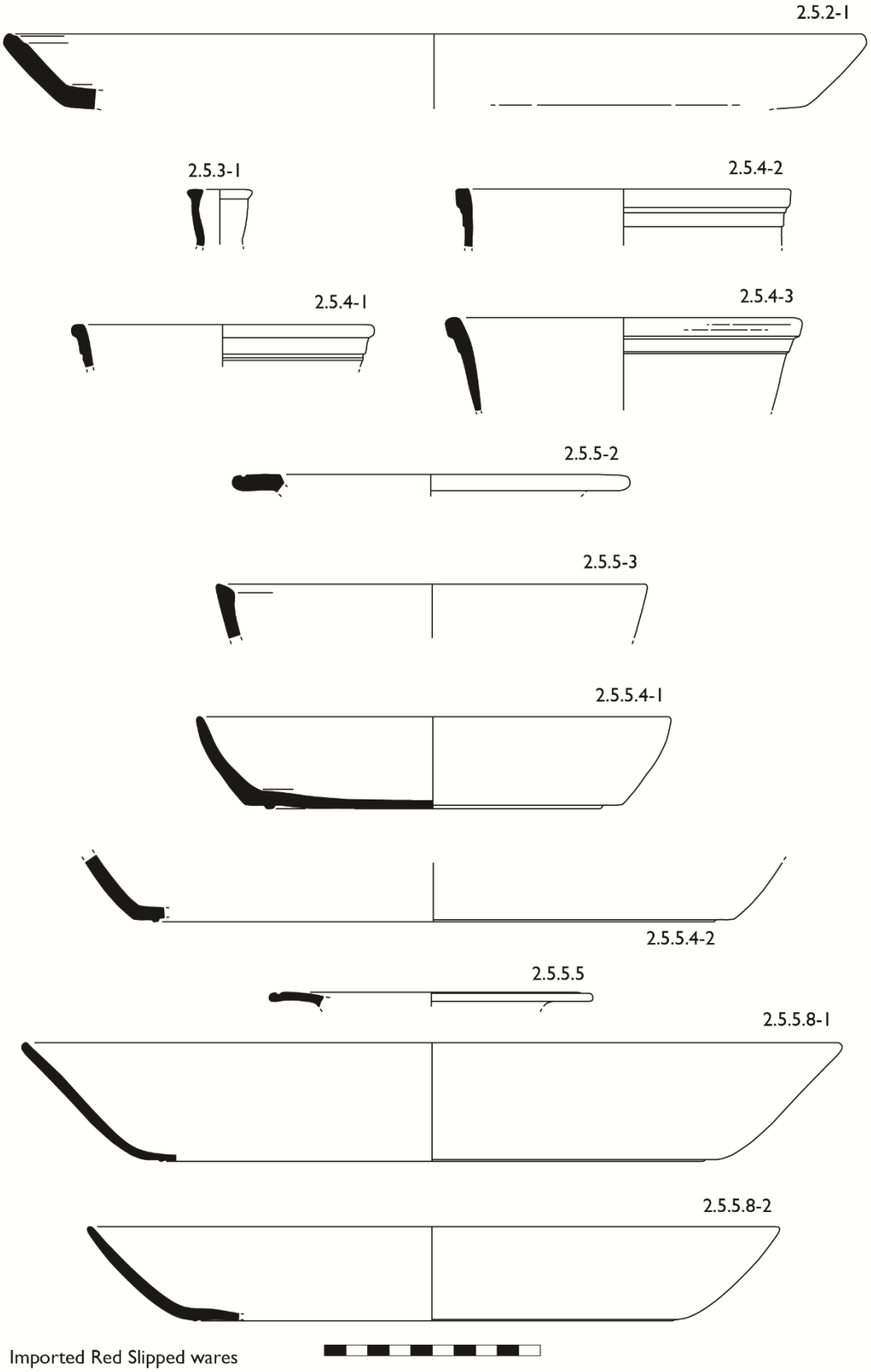


Figure I.25: Imported red-slipped wares.

2.5.3 Eastern Red slipped ware *Figure I.25*

This category includes a handful of imported red-slipped fragments which most probably belong to the series of Eastern Red-slipped wares (i.e. ESA and ESB) produced in the Aegean, Asia Minor and Syrian regions from the 2nd century BC and 1st century AD. Eastern sigillata is also not common on Maltese sites, although it was widely distributed within the central Mediterranean prior to the saturation of the fine ware market by Italian red-slipped wares.[933] Only five fragments were identified as eastern red-slipped pottery; characterised by fine pink or yellow clays with few visible inclusions and some mica, coated in bright red slips. The fragments recovered are not diagnostic enough to allow better identification of the forms and production types.

2.5.3.1 FRM08/42/96: Small lekythos/flask rim, d. 3. Fabric: Fine pale yellow/pink fabric with very fine paste voids with few visible inclusion; coated in a bright red slip. Source: Asia Minor? Type: ESA? Unknown. Date: Unknown. Context: Foreman Street SU 42.

2.5.3.2 MLT84/49793: Small flat bowl base, d. 8. Fabric: Fine yellow fabric with an eroded red slip on the exterior surface. Source: Eastern. Type: Unknown. Date: Unknown. Context: Melita SU1086, phase 3 [not illustrated].

2.5.4 Corinthian Relief ware *Figure I.25*

Corinthian Relief ware represents a group of small mould-made bowls with straight vertical walls and a moulded squared rim and a low ring foot. The walls are decorated with low relief scenes and images (Figure I.26). The fabric is pale orange to buff in colour with very fine round quartz and fine white/grey inclusions. The bowls are then slipped with a thin, dull red slip. A production zone is thought to be Corinth and these bowls have been dated from the mid-/end of the 2nd to end of the 3rd century AD and is found in coastal areas throughout the eastern and central Mediterranean.[934] The handful of fragments listed here all come from the Foreman Street contexts are appear to be contemporary with other material in the contexts.[935]

[933] For an overview of Eastern Sigillata see Kenrick 1985a, 223–256; Malfitana 2002.

[934] For an overview of Corinthian Relief ware see Canaday Spitzer 1942; Hayes 2008, 111; Kenrick 1985a, 338–340; Malfitana 2007.

[935] In addition to the fragments listed in this catalogue, two more wall sherds and one ring base were identified within the Foreman Street contexts. The only other recorded Corinthian relief ware bowl on the island comes from a Roman tomb in Rabat [583] (Sagona 2002, 1063, fig. 202.2, 5).



Figure I.26: Examples of Corinthian Relief ware bowls (sources [left to right]: Kenrick 1985, fig. 63, no. 105; Canaday Spitzer 1945, fig. 5).

2.5.4.1 FRM08/42/98: Rim, d. 14. Fabric: Pale yellow/pink clay with fine paste voids, and grey and white fine sandy inclusions, with thin uneven red slip; moulded relief scenes not legible.[936] Source: Corinth. Date: Second half/end of the 2nd to the end of the 3rd century AD. Context: Foreman Street SU 42.

2.5.4.2 FRM08/42/76: Rim, d. 14. Fabric: Fine pale orange/brown clay with lots of very fine mixed yellow clay or fine lime, with fine paste voids and fine sandy grey and white inclusions; thin uneven red slip; moulded relief scenes not legible. Source: Corinth. Date: Second half/end of the 2nd to the end of the 3rd century AD. Context: Foreman Street SU 42.

2.5.4.3 FRM08/59/28: Rim, d. 16. Fabric: Fine pale orange clay with lots of very fine mixed yellow clay or fine lime, with fine paste voids and fine sandy grey and white inclusions; moulded relief scenes no legible. Source: Corinth. Date: Second half/end of the 2nd to the end of the 3rd century AD. Context: Foreman Street SU 59.

2.5.5 African Red Slipped ware (ARS) *Table I.1*; *Figures I.25, I.27*

This final fine ware class is the best represented imported slipped table ware series found on Maltese sites, where on every Roman-period site from at least the early to mid-2nd century AD fragments of ARS can be identified. Malta is also one of the very limited find spots for some of the earliest ARS forms, which were not widely distributed beyond the immediate production zones in the early 1st century AD.[937] The main production areas

[936] The decorated walls were not legible enough to include them within the illustrations. Photographs could not be taken.

[937] At least two Hayes form 1 bowls are known on Malta; one, which also has an interesting pre-fired Greek inscription scratched onto the vessel's side, comes from the Roman domus (Zammit 1923, 223–225, fig. 5; Hayes 1973, 18, e.g. 1, fig. 2.1; Carandini and Tortorella 1981, 22, tav. XIII.1); another comes from the villa at San Pawl Milqi (Bruno 2009, 158, table 2). The only other recorded Hayes 1 forms is a single example from Catania (Malfitana and Franco 2008, table 9.3) and another fragment from Jerba (Fontana, Ben Tahar and Capelli 2009, 264, table 16.7). Other published references for ARS finds on Malta, see Sagona 2002 and Anastasi 2010, 211–216, Appendix 1 for ARS vessels within early Roman tombs; Blagg, Bonanno and Luttrell 1990 for the finds from

for ARS is modern-day Tunisia, where different production areas are associated with different ranges of wares and shapes. Several distinct productions (ARS A, C and D) have been identified, each with a particular range of standardised vessels.[938] The earliest group of forms is known as ARS A production and is limited to northern Tunisia, within the Carthage zone (2.5.5.1–3) and started being produced from the second half of the 1st century AD. ARS C displays a finer orange clay with a similar-coloured slip and ranges in date from about the 3rd to mid-5th century AD. Lastly, ARS D characterises the latest thicker-walled and coarser series of large platters that were in production form about the 4th century into the 7th century AD. From about the mid-2nd/3rd century onwards ARS dominated the fine ware market and has an unprecedented distribution across the entire Mediterranean and beyond.

2.5.5.1 Hayes 3: MLT84/49270: Rim, d.? Fabric: ARS A; fine red quartz; small groove on top of rim; thin and bright red finish. Source: North Tunisia. Type: Hayes 3A. Date: Mid-to-late 1st century AD. Context: Melita SU 1081, phase 4, residual [not illustrated].

2.5.5.2 Hayes 6: FRM08/42/113: Rim, d. 16. Fabric: ARS A; fine red fabric with eroded slip. Type: Hayes 6. Source: North Tunisia. Date: End of 1st to end of the 2nd century AD. Context: Foreman Street SU 42.

2.5.5.3 Hayes 14/15? MLT84/26918: Bevelled bowl rim, d. 20. Fabric: ARS A? Pink/red quartz fabric; matt pink/red smooth slip. Source: North Tunisia. Type: Hayes 14/15? Date: Early to mid-3rd century AD. Context: Melita SU 1076, phase 6 (mixed context).

2.5.5.4 Hayes 31:

2.5.5.4.1 BLB12/71/4: Complete pan profile, rim (d. 22), base (d. 16). Fabric: Quartz-rich coarse orange/brown fabric with black and occasional white lime inclusions; Interior is covered by a faceted burnished red slip. Source: North/Central Tunisia. Type: Hayes 31. Date: Early to mid-3rd century AD. Context: Bulebel SU 71, Tomb 3 (T3).

2.5.5.4.2 FRM08/42/106: Ring base, d. 26. Fabric: Red quartz fabric with smooth red slipped surfaces. Source: North Tunisia. Type: Hayes 31? Date: Early to mid-3rd century AD. Context: Foreman Street SU 42.

2.5.5.4.3 MLT84/23124a: Thick ring base, d. 20. Fabric: Red quartz fabric; internal red slip. Source: North Tunisia. Type: Hayes 31. Date: Early to mid-3rd century AD. Context: Melita SU 1021 [not illustrated].

Ħal Millieri; and the relevant sections in the MAI reports, and Bruno 2009, for the ARS finds at the sanctuary of Tas-Silġ and San Pawl Milqi.

938 For an overview of ARS production see Hayes 1973 and Bonifay 2004.

2.5.5.4.4 MLT84/49791: Thick, low and wide ring foot, d. 20. Fabric: Gritty orange quartz fabric; faceted red slip on surfaces. Source: North Tunisia. Type: Hayes 31. Date: Early to mid-3rd century AD. Context: Melita SU 1086, phase 3 [not illustrated].

2.5.5.5 Hayes 44: MLT84/49748: Flat everted rim with groove on top, d. 15. Fabric: ARS C; fine orange/red quartz fabric; smooth glossy red/orange slip. Source: North Tunisia. Type: Hayes 44. Date: c. 220/40 to late 3rd century AD. Context: Melita SU 1105, phase 5.

2.5.5.6 Hayes 45A: MLT84/49897: Rim, d. 34. Fabric: Fine dark red/orange quartz fabric; smooth lustrous dark orange slipped surface; rouletted decoration on top of rim. Source: North Tunisia. Type: Hayes 45A. Date: 230/240-320 AD. Context: Melita SU 1085, phase 3 [not illustrated].

2.5.5.7 Hayes 45C: MLT84/26423: Rim, d. 30. Fabric: Red/orange quartz fabric. Source: North Tunisia. Type: Hayes 45C. Date: 300-350 AD. Context: Melita SU 1072, phase 6 (mixed context) [not illustrated].

2.5.5.8 Hayes 50:

2.5.5.8.1 BLB12/70/1: Complete dish profile, rim (d. 38) and low and flat grooved base (d. 25). Fabric: ARS A/C; Fine red quartz; smooth, matt dark red slipped surfaces. Source: North Tunisia. Type: Hayes 50A. Date: c. 230/240-360 AD. Context: Bulebel SU 70, Tomb 3 (T3).

2.5.5.8.2 MLT84/49731: Profile, rim, d. 32, shallow groove for base (d. 22). Fabric: ARS A/C? Dark red/orange quartz fabric; bright orange slip. Source: North Tunisia. Type: Hayes 50B. Date: c. 350–400 AD. Context: Melita SU 1101, phase 5.

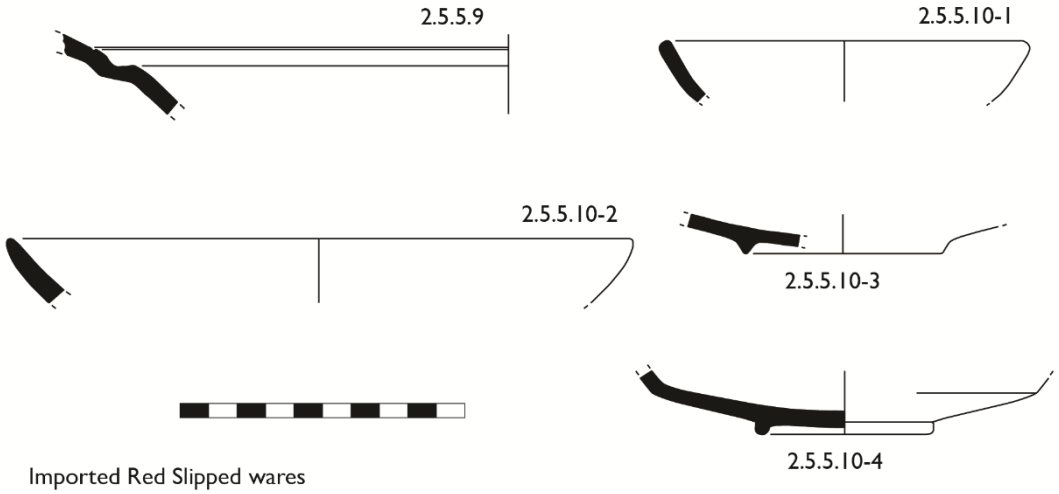


Figure I.27: Imported red-slipped wares, types 2.5.5.9–2.5.5.10.

2.5.5.9 Hayes 67: MLT84/49732: Part of rim, d. 28. Fabric: ARS D? Dark red/orange fabric, smooth red slip. Source: North Tunisia. Type: Hayes 67? Date: 360-470 AD. Context: Melita SU 1101, phase 5.

2.5.5.10 Miscellaneous ARS forms

2.5.5.10.1 FRM08/42/110: Bowl rim, d. 13. Fabric: ARS A/C?; fine red quartz; smooth red slip. Source: North Tunisia. Type: Unknown. Date: 3rd century AD? Context: Foreman Street SU 42.

2.5.5.10.2 FRM08/42/109: Bowl rim, d. 22. Fabric: ARS?; fine red quartz; smooth red slip. Source: North Tunisia. Type: Unknown. Date: 3rd century AD? Context: Foreman Street SU 42.

2.5.5.10.3 FRM08/42/107: Bowl or plate with low ring base, d. 7. Fabric: Hard and fine red quartz fabric; smooth red slip. Source: North Tunisia. Type: Unknown. Date: 2nd-3rd century AD? Context: Foreman Street SU 42.

2.5.5.10.4 FRM08/59/29: Bowl with low ring base with carinated wall, d. 6.3. Fabric: Orange quartz fabric with fine orange/red slip. Source: North Tunisia. Type: Unknown. Date: 2nd-3rd century AD? Context: Foreman Street SU 59.

Form	Bulebel (tombs)	Foreman Str.	Melita
Hayes 3			1
Hayes 6		1	
Hayes 14/15?			1
Hayes 31	1	1	2
Hayes 44			1
Hayes 45			2
Hayes 50	2		16
Hayes 67			1
Misc.		22	57
Total	3	24	81

Table I.1: Number of ARS fragments from the three assemblages.

3 COOKING WARES

3.1 Local Cooking wares

3.1.1 Ollas

Here, an olla refers to a round-bottomed cooking vessel, which is the typical cooking vessel of the Punic and early Roman periods on Malta, inspired by Greek and Hellenistic prototypes.

3.1.1.1 Local Olla type 1 (Quercia Olla type A1/Sagona cooking pot form VI: 1) *Figure I.28*

This cooking pot is characterised by a near-perfect spherical body with a flat-topped rim, and is a common local cooking form on Malta from at least the Punic period, c. 5th/4thcentury BC, until the mid-1st century AD.[939] Local find spots include the sanctuary of Tas-Silġ, where this type was amongst the most common forms occurring for the 4th–2nd centuries BC;[940] and several Late Punic/early Roman tomb contexts across Malta.[941] Within the Roman assemblages studied, all but one example of this form came from Bulebel; the one from Melita is certainly residual. Within this study, ollas of this type occur in several different fabrics; the most common being Local Fabrics 1, 4 and 7.

3.1.1.1.1 BLB12/32/3: Rim, d. 23. Local Fabric 1: Hard, coarse orange fabric with white/yellow lime inclusions; unslipped. Context: Bulebel SU 32, phase 2.

3.1.1.1.2 BLB12/24/17: Rim, d. 28. Local Fabric 7: Coarse orange/brown clay with large white lime/foraminifera and pale red grog-like inclusions; resembles handmade fabrics, although this vessel is most certainly wheelmade; unslipped. Context: Bulebel SU 24, phase 2.

3.1.1.2 Local Olla type 2 (Quercia Olla type A2) *Figure I.28*

This form is morphologically similar to the previous olla except that the spherical body is smaller in diameter and the rim is triangular in profile. This form is less common than type A1 and although it is attested at Tas-Silġ, a secure date remains to be established.[942] In the present sample, only

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939 Quercia 2000, 30; 2002, 407, fig. 1; Sagona 2002, 222, fig. 349.53.

940 Quercia 2002, 407.

941 Quercia 2000, 30; Sagona 2002, 222. Large round-bodied cooking vessels like these were sometimes used as coffins for infants (see Anastasi 2010, 167).

942 Quercia suggests a date from the end of the 7th century BC onwards (2002, 410).

two rim sherds were identified at Bulebel from phase-1 contexts supporting at mid-1st century BC to mid-1st century-AD date.

3.1.1.2.1 BLB12/59/2: Rim, d. 16. Local Fabric 4: Hard-fired, fine brick-red-coloured clay with fine black, matt, spherical (glauconite?) inclusions, some fine gypsum and fine white lime inclusions; unslipped. Context: Bulebel SU 59, phase 1.

3.1.1.2.2 BLB12/58/23: Rim, d. 13. Local Fabric 1: Coarse pale orange clay with a pale grey core with yellow lime, foraminifera and mixed grey and pale red inclusions; unslipped. Context: Bulebel SU 58, phase 1.

3.1.1.3 Local Olla type 3 (Quercia Olla type B) *Figure I.28*

This type encompasses a form of small olla with a characteristic stepped or grooved everted rim intended as a lid-locater. Little is known about this form and local variants may have their origin in Quercia's type B cooking pots common between the 4th and 2nd centuries BC, which share typological similarities to Greek and Hellenistic forms.[943] These vessels usually have quite thin walls, well-formed stepped, everted rims and tend to be exclusively made in Local Fabric 4. They are common in contexts of the early to mid-1st century AD, and this is attested by the two examples found in Melita from phase-1 contexts and one from Bulebel. A few examples are known from Early Roman contexts at Tas-Silġ,[944] the Żejtun villa[945] and Ħal Millieri.[946] It is apparent that these Greek and Hellenistic cooking pot forms were the precursors that inspired subsequent Late Punic and Early Roman cooking vessels in Berenice,[947] Sabratha[948] and Carthage (and much of North Africa as Hayes form 194) until the end of the 1st century AD.[949]

3.1.1.3.1 BLB12/30/7: Rim, d. 18. Local Fabric 4: Hard-fired, fine deep red/orange clay with fine white lime/foraminifera and black, matt, spherical inclusions; unslipped. Context: Bulebel SU 30, phase 2.

3.1.1.3.2 MLT84/49566: Rim, d. 20. Local Fabric 4: Red fabric with fine lime and black, matt, spherical inclusions; grey exterior. Context: Melita SU 1111, phase 1.

943 Quercia 2002, 410–411.
944 Sagona 2015, figs 1.115–117.
945 Anastasi 2012, 33, 35, fig. 5.44.
946 Blagg, Bonanno and Luttrell 1990, 56, fig. 13.12–13.
947 Riley 1979, 258–259, fig. 102.D497.
948 Dore 1989, fig. 23.
949 Hayes 1973, 206–207; 1976, 93–95.

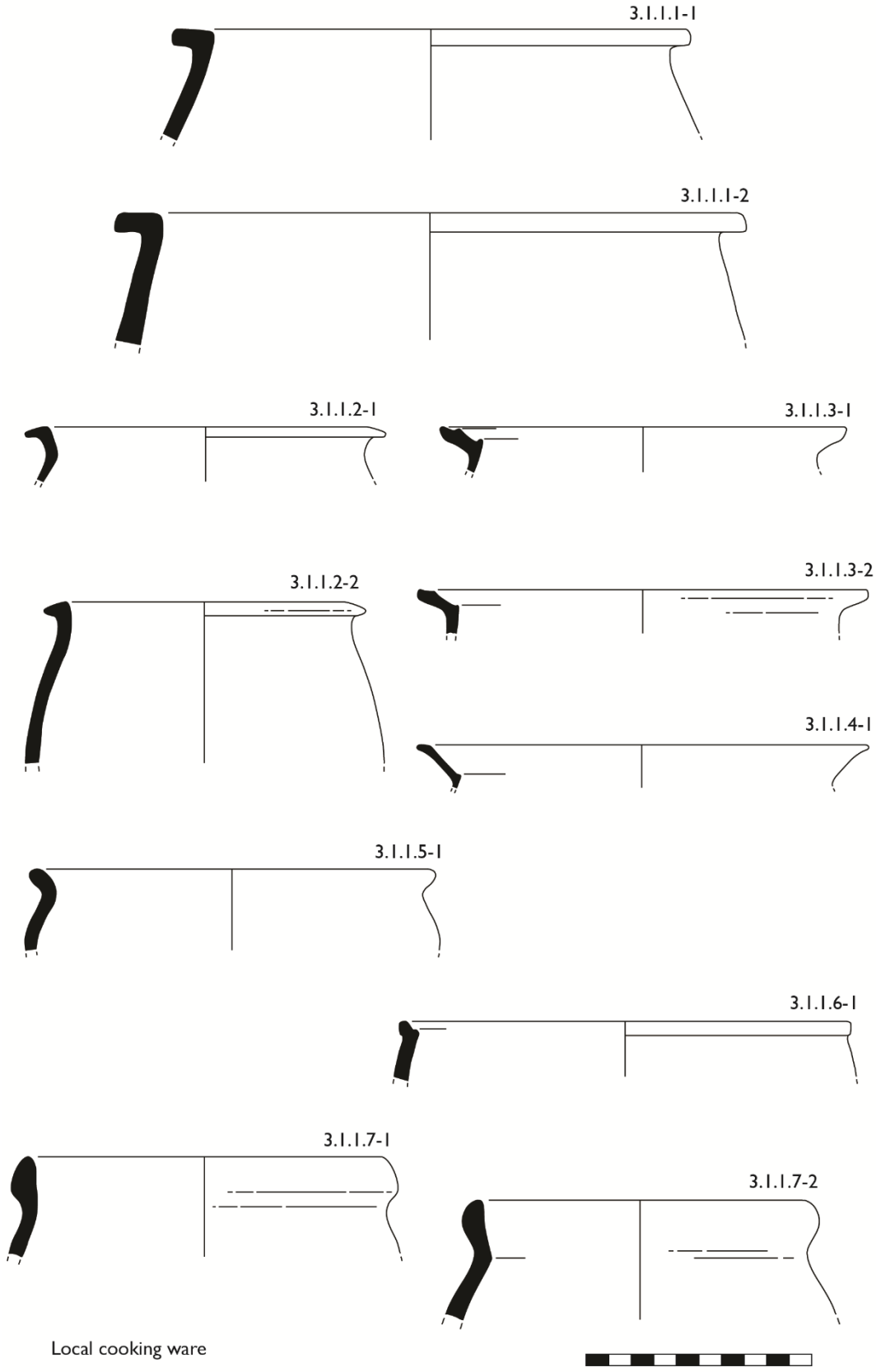


Figure I.28: Local cooking wares, types 3.1.1.1–3.1.1.7.

3.1.1.4 Local Olla type 4 *Figure I.28*

Only a single example of this form was identified and no parallels have been found elsewhere in the Maltese islands. The fabric (Local Fabric 4) indicates a possible local production. The thin-walled everted rim is similar to Late Punic local cooking pots common at Tas-Silġ (Quercia type B), however, the thin walls and fabric of type 3.1.1.4 point towards local manufacture sometime during the 1st century AD. Clearly from the lack of other examples, this form does not appear to be common and may also be considered more suited to the thin-walled ware category. The mortar adhering to the surface of this single fragment further supports that it is residual in late Roman layers (Melita, phase 5).

3.1.1.4.1 MLT84/49633: Rim, d. 20. Local Fabric 4: Fine red clay with fine lime and black, matt, spherical inclusions; thin-walled; white mortar adheres to surface of vessel. Context: Melita SU 1103, phase 5; residual?

3.1.1.5 Local Olla type 5 *Figure I.28*

This olla is characterised by a simple everted and slightly flared rim. Only a single example was recorded within the Gozitan context. No handles or any base fragments were associated with this form therefore it remains uncertain what the whole vessel may have looked like. No local parallels are known in the literature, thus making it difficult to date the vessel type. A late 2nd/mid-3rd-century date is suggested by the context.

3.1.1.5.1 FRM08/57/17: Rim, d. 18. Local Fabric 2: Coarse pale orange fabric with black glauconite inclusions; unslipped. Context: Foreman Street SU 57.

3.1.1.6 Local Olla type 6 *Figure I.28*

Only a single example of this shape was identified within the assemblage. The olla consists of a small beaded lip with an internal groove in the place as a lid-ledge. Like the previous type, no parallels are known and a suggested date of the late 2nd/mid-3rd century AD is based on the context.

3.1.1.6.1 FRM08/42/37: Rim, d. 20. Local Fabric 2: Coarse pale orange/brown clay with black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

3.1.1.7 Local Olla type 7 *Figure I.28*

This olla form is characterised by a thickened straight almond-shaped rim and appears similar in shape to the Pantellerian cooking ware form 3.5.1.1, and both may be inspired by Italian vessels common during the last two

centuries BC.[950] The two examples identified at Melita are made in Local lime fabrics, one with added glauconite (Local Fabrics 2 and 5). No local parallels are known for this rim shape to date and their discovery in phase 3 contexts at Melita, and that none have been identified in Late Punic and Early Roman contexts at Tas-Silġ, Żejtun and Bulebel, suggests a Roman date from about the 3rd century onwards. Examples of the original Pantellerian form (Sabratha forms 291–292) found at Foreman street (3.5.1.1) and Tas-Silġ[951] have been dated to between the second half of the 1st century BC and 2nd century AD like the examples from Sabratha.[952]

3.1.1.7.1 MLT84/26808: Rim, d. 15. Local Fabric 2: Coarse pale orange fabric with large white lime and glauconite inclusions. The matrix is similar to that of local handmade wares, but the vessel is hard-fired and certainly wheelmade; unslipped. Context: Melita SU1075, phase 3.

3.1.1.7.2 MLT84/23208.2: Rim, d. 14. Local Fabric 5: Brick-red-coloured fabric with large white lime inclusions; dark grey/black-fired surfaces. Context: Melita SU 1022.

3.1.2 Casseroles

3.1.2.1 Local Casserole type 1 (Quercia Casserole type C3) *Figure I.29*

Only a single example of this Late Punic/Early Roman, Greek-inspired casserole form was identified within all the assemblages studied. Quercia identified a similar casserole form within the Late Punic cooking ware at the sanctuary of Tas-Silġ, which occurred in contexts dating to between the 4th and 2nd/1st centuries BC.[953] The presence of the Bulebel example in a Phase-1 context could suggest use of this form during the mid-1st century BC. This shape is also a common Punic/Hellenistic form that is common at other central Mediterranean sites in North Africa,[954] Sardinia, and Berenice.[955]

[950] Bats 1993a, 358.
[951] Quercia 2006, 1606.
[952] Dore 1989, 219–220, fig. 61.
[953] Bats 1993b, 348; Quercia 2002, 414, fig. 4.
[954] Dore 1989, form 14.
[955] Riley 1979, 243, Hellenistic Cooking Ware 4.

3.1.2.1.1 BLB12/58/39: Rim and carinated shoulder, d. 22. Local Fabric 1: Hard-fired, red clay with yellow lime (halo) inclusions and red grog-like inclusions; dark grey/brown exterior skin. Context: Bulebel SU 58, phase 1.

3.1.2.2 Local Casserole type 2 *Figure I.29*

This type is represented by a single example from Bulebel characterised by a concave body with a flat-topped, ledged rim to hold a lid. The form shares morphological similarities to type 37 from Sabratha,[956] however made in a local glauconite fabric (Local Fabric 2). The Sabratha form has been dated on the basis of its context from the late 1st century BC.

3.1.2.2.1 BLB12/32/37: Rim, d. 16. Local Fabric 2: Coarse pale grey fabric with occasional black glauconite and dark grey/black grog-like inclusions; over-fired grey surfaces? Context: Bulebel SU 32, phase 2.

3.1.2.3 Local Casserole type 3 *Figure I.29*

This form is a local imitation of Riley's ERCW 4 and other Italian-inspired Augustan forms that date to the first half of the 1st century AD.[957] The form is present, but not particularly common, on Malta. A single example was identified within these assemblages (3.2.2.3-1), whilst a complete example is known from St Agatha's museum in Rabat, Malta, presumably a vessel that was discovered in an early Roman tomb context within the vicinity.[958] Two imported examples ("*L'impasto, ricco di mica*") came from a funerary context at Ta'Qali in Malta, and one other came from the Italian excavations at the sanctuary at Tas-Silġ, all associated with 1st-century AD material.[959] The form was the typical early Roman form in Italy during this time.[960]

3.1.2.3.1 BLB12/55/7: Rim, d. 24. Local Fabric 4: Hard-fired dark red/orange fine fabric with lots of fine matt black glauconite, fine yellow lime and foraminifera inclusions; unslipped. Context: Bulebel SU 55, phase 1.

[956] Dore 1989, 118, fig. 27, no. 37.481.
[957] Riley 1979, 350–351, fig. 100; Bats 1993a, 359.
[958] Anastasi 2010, fig. 48.
[959] Quercia 2000, 31, fig. 5.
[960] Olcese 1993, 123–124, 218–219.

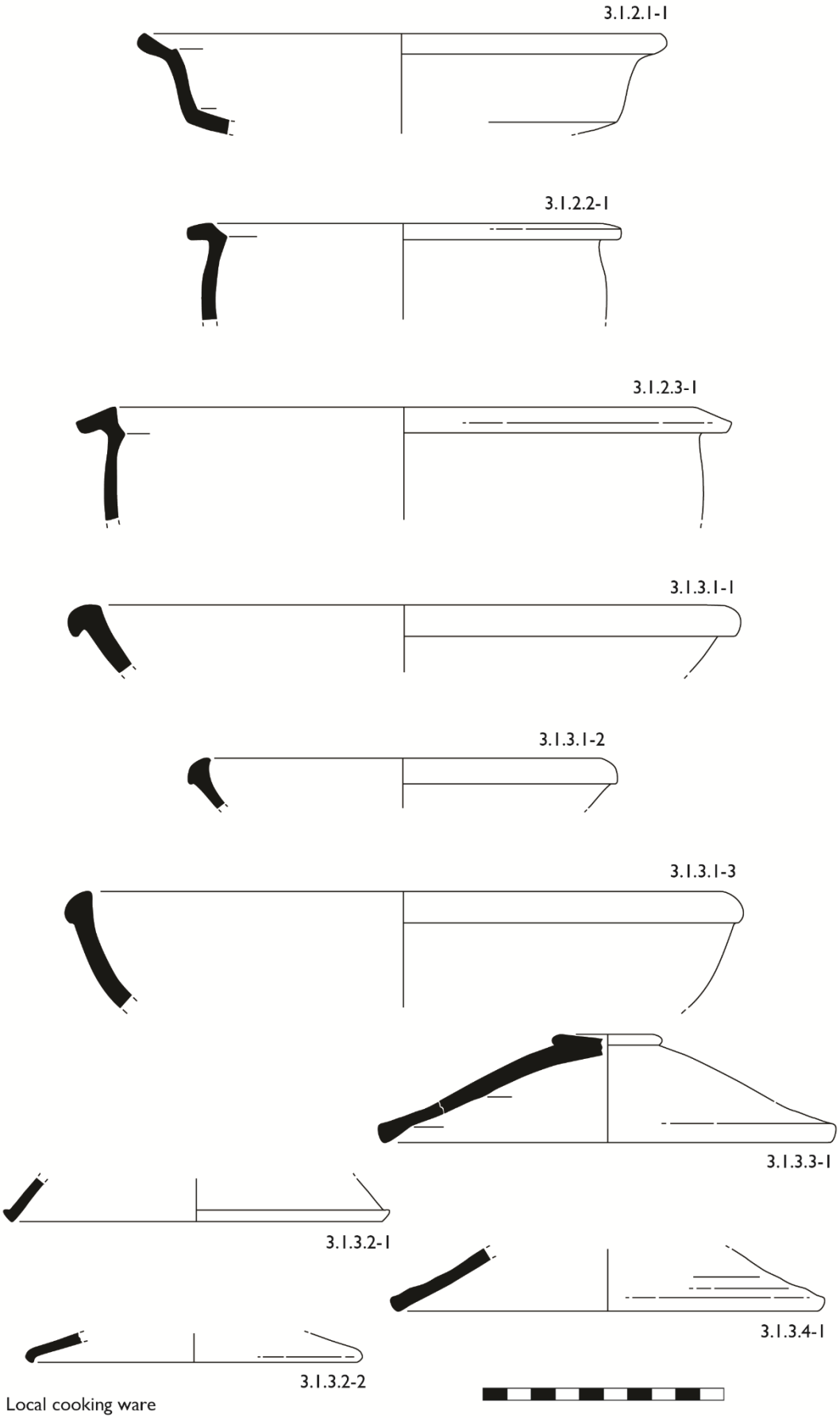


Figure I.29: Local cooking wares, types 3.1.2.1–3.1.3.4.

3.1.3 Lids/Bowls

3.1.3.1 Local Lid type 1 *Figure I.29*

This type of vessel is loosely characterised by dome-shaped walls and bodies with a beaded (3.1.3.1-2–3 or slightly hooked (3.1.3.1-1) rim. It is not clear whether this vessel acted as a bowl, a lid, or both. Similar bowl-like vessels are not uncommon on many Maltese early Roman sites and have been identified at the Żejtun villa made in Local Fabric 5.[961] Contexts able to provide secure dates for this forms production are scarce, however three examples from Bulebel have been found in contexts dating to the early 1st century AD. Similar bowls have been recorded in Berenice,[962] whilst typological similarities suggest that these bowls are regional imitations of the better known southern Italian Pompeian Red ware dish (Goudineau 1970, type 1) exported to most of the western Mediterranean during the first half of the 1st century BC.[963] Type 3.1.3.1-1 is slightly different in that the hooked rim is similar to North African cooking ware lids such as Hayes type 182 but a lack of more examples and the context do little to add more detail to the form.

3.1.3.1.1 BLB12/58/32: Rim, d. 28. Local Fabric 4: Fine brick-red/orange clay with fine white foraminifera, large yellow lime and black, matt, spherical inclusions (glauconite?); unslipped. Context: Bulebel SU 58, phase 1.

3.1.3.1.2 BLB12/65/4: Rim, d. 16. Local Fabric 5: Hard-fired red fabric with fine white lime and foraminifera inclusions; pale cream exterior skin. Context: Bulebel SU 65, phase 2.

3.1.3.1.3 BLB12/58/33: Rim, d. 26. Local Fabric 5: Coarse red/orange fabric with lime, fine foraminifera and black, matt, spherical inclusions (glauconite?); unslipped. Context: Bulebel SU 58, phase 1.

3.1.3.2 Local Lid type 2 *Figure I.29*

This lid form generally encompasses a series of small early Roman thin-walled lids, either with an everted (3.1.3.2-1) or inward-curving (3.1.3.2-2) rim. These lids are typically made in Local fabric 4 and are not uncommon at the Żejtun villa, both in the 1972 assemblage[964] and more recent excavations by the University of Malta.[965] The form is derived from

[961] Anastasi 2012, fig. 5.42.
[962] Riley 1979, D66–67.
[963] Passelac 1993b, 546.
[964] Anastasi 2010, fig. 135.3.
[965] Bechtold, forthcoming.

Hellenistic prototypes, seen in several Late Punic/Early Roman assemblages in North Africa.[966] A similar lid type, possibly also Maltese in manufacture can be identified in Berenice based on the shape and the description of the fabric that closely resembles Local Fabric 4.[967]

3.1.3.2.1 BLB12/58/34: Rim, d. 16. Local Fabric 4: Fine dark red clay with fine lime and black, matt, spherical inclusions; unslipped. Context: Bulebel SU 58, phase 1.

3.1.3.2.2 MLT84/26282: Rim, d. 14. Local Fabric 4: Fine red fabric with black, matt, spherical inclusions; unslipped. Context: Melita SU 1100, phase 2.

3.1.3.3 Local Lid type 3 *Figure I.29*

This lid is characterised by a simple squared rim, a shallow body and a narrow disc-shaped flat knob/base. Typologically this form shares similarities with common early Roman North African lid forms such as Hayes 185.[968] Hundreds of North African examples from recent excavations at Utica (North Tunisia) are from contexts associated with Late Punic/Early Augustan-dated material.[969] The dull red-slipped exterior may be an additional attempt on the part of local Maltese potters at imitating popular North African cooking wares by concealing the local black-speckled fabric and ensuring that the exterior resembles dark red North African clays, whilst the blackened rim edges, seemingly quite deliberate, resemble black-topped ware. No other local examples of this form have been recorded on Malta to date. The context for this fragment suggests that it could be dated to the later Roman period, but whether the fragment is residual or not can only be determined upon the discovery of more fragments of this local type within secure Maltese contexts.

3.1.3.3.1 MLT84/49890: Profile, rim (d. 19), base/knob (d. 6). Local Fabric 2: Hard-fired pale orange fabric with white lime and lots of black glauconite inclusions; dull red-slipped exterior with black edges. Context: Melita SU 1085, phase 3.

3.1.3.4 Local Lid type 4 *Figure I.29*

A few lid fragments similar to 1st-century AD North African forms were identified made using local fabrics 1 and 3. The shape is characterised by a

[966] Bats 1993b, 349; for instance, Sabratha form 98 (Dore 1989, fig. 39) and Carthage (Vegas 1999, 198–199, form 70).
[967] See Riley 1979, 312, type D758.
[968] Hayes 1972, 205; Bonifay 2004, fig. 118.
[969] The study of the ceramic material from the AngloTunisian excavations at Utica (Tunisia) is currently being undertaken by V. Leitch and myself.

simple straight-edged, squared rim with some pronounced ribbing on the exterior surface, appearing to imitate some lid forms recently seen in Utica. The presence of these examples within phase-2 contexts at Bulebel would support a 1st–mid-3rd-century AD date.

3.2.3.4.1 BLB12/32/15: Rim, d. 18. Local Fabric 3: Hard-fired pale pink/brown gritty clay with fine black glauconite, quartz/gypsum, white and yellow lime and foraminifera and mixed red and grey grog-like inclusions; unslipped. Context: Bulebel SU 32, phase 2.

3.2 Local Handmade vessels

This section includes coarse handmade or wheel-turned vessels where production can be traced as far back as the Neolithic and continued well into the 15th century. The fabrics used throughout the millennia differ little with each period, however, some subtle differences can be made out. Punic handmade fabrics are harder, flakier and composed of pale brown/pink/grey lime clays. This Punic fabric has been classified by Sagona as Punic Pink Buff ware on the basis of the pottery from the sanctuary of Tas-Silġ[970] and MALTA-HP-1 from the recent archaeometric analyses being conducted by Babette Bechtold for the FACEM central Mediterranean fabrics database.[971] Excavations at the chapel of the Annunciation at Ħal Millieri, Malta uncovered a series of well-preserved handmade vessels similar in shape to type 3.2.1.2 but were securely dated to the 15th century.[972] The fabric was composed of hard, yet coarse and crumbly grey limey clay and differs little from some of the fabrics recorded here. This only strengthens the view that handmade pottery has a long tradition that saw few changes and alterations for several millennia.

3.2.1 Handmade ollas/casseroles

3.2.1.1 Handmade Olla type 1 (Quercia type A10) *Figure I.30*

This form consists of a wide-bodied pot with sagging walls and a simple rim, often curving inwards. This generic vessel shape is known from some Neolithic and Bronze Age pottery on the islands and unstratified finds are notoriously difficult to date because of the longevity of this tradition. Quercia classified this type of vessel as A10 based on the assemblage from

970 Sagona 2015, 41–43.
971 Schmidt and Bechtold 2013.
972 Blagg, Bonanno and Luttrell 1990, 66–68, fig. 17.

the Italian excavations at Tas-Silġ.[973] The form is very generic and is found on practically all Late Punic and Roman sites within the Mediterranean, made using local clays.[974] Twenty-seven examples were recorded within the assemblages from Bulebel and Melita. Far fewer examples were found at Melita. None were recorded at Foreman Street.

3.2.1.1.1 BLB12/55/1: Rim, d. 20. Local Fabric 7: Coarse, pale brown compact clay with large lime and grog inclusions; hackled breaks; smoothed wet-wiped surface finish; pale pink/brown surface colour. Context: Bulebel SU 55, phase 1.

3.2.1.2 Handmade Olla type 2 *Figure I.30*

This olla has a flat-topped rim or simple rounded rim, two horizontal lug handles and a wide flat base and is similar to the complete handmade pots recovered from Ħal Millieri.[975] One example (3.2.1.2-4) has a straight simple rim and from its context may be later in date.

3.2.1.2.1 BLB12/58/16: Rim, d. 22. Local Fabric 7: Coarse pale brown to grey clay with large white/yellow lime and grog inclusions; pale brown interior surface and grey, sooted exterior surface. Context: Bulebel SU 58, phase 1.

3.2.1.2.2 BLB12/55/2: Profile with rim and lug handle, d. 20. Local Fabric 7: Hard and coarse pale brown fabric with pale grey core and large lime inclusions; rough, mottled pale brown to grey exterior with evidence of sooting (Figure I.31). Context: Bulebel SU 55, phase 1.

3.2.1.2.3 BLB12/58/43: Bottom profile with wide flat base and lug handles, base d. 14. Local Fabric 7: Well-fired, medium-hard, coarse pink clay with large lime and grog inclusions; unslipped and rough pale brown/pink surface with no signs of use-wear. Context: Bulebel SU 58, phase 1.

3.2.1.2.4 MLT84/26220: Profile, rim (d. 20), base (d. 19). Local Fabric 7: Coarse black-to-grey clay with large lime and grog inclusions; grey/black exterior surface. Context: Melita SU 1099, phase 5.

3.2.1.2.5 BLB12/57/5: Bottom profile with wide flat base and lug handle, base d. 50. Local Fabric 7: Coarse and flaky pale brown/pale grey clay with large lime and grog inclusions; unslipped and cracked pale brown and patchy grey/black surfaces showing signs of use-wear. Context: Bulebel SU 57, phase 1.

[973] Quercia 2002, 407, fig. 1.

[974] For instance, see Bonifay 2004, 303–305 for the tradition of handmade vessels in Tunisia.

[975] Blagg, Bonanno and Luttrell 1990, fig. 17.

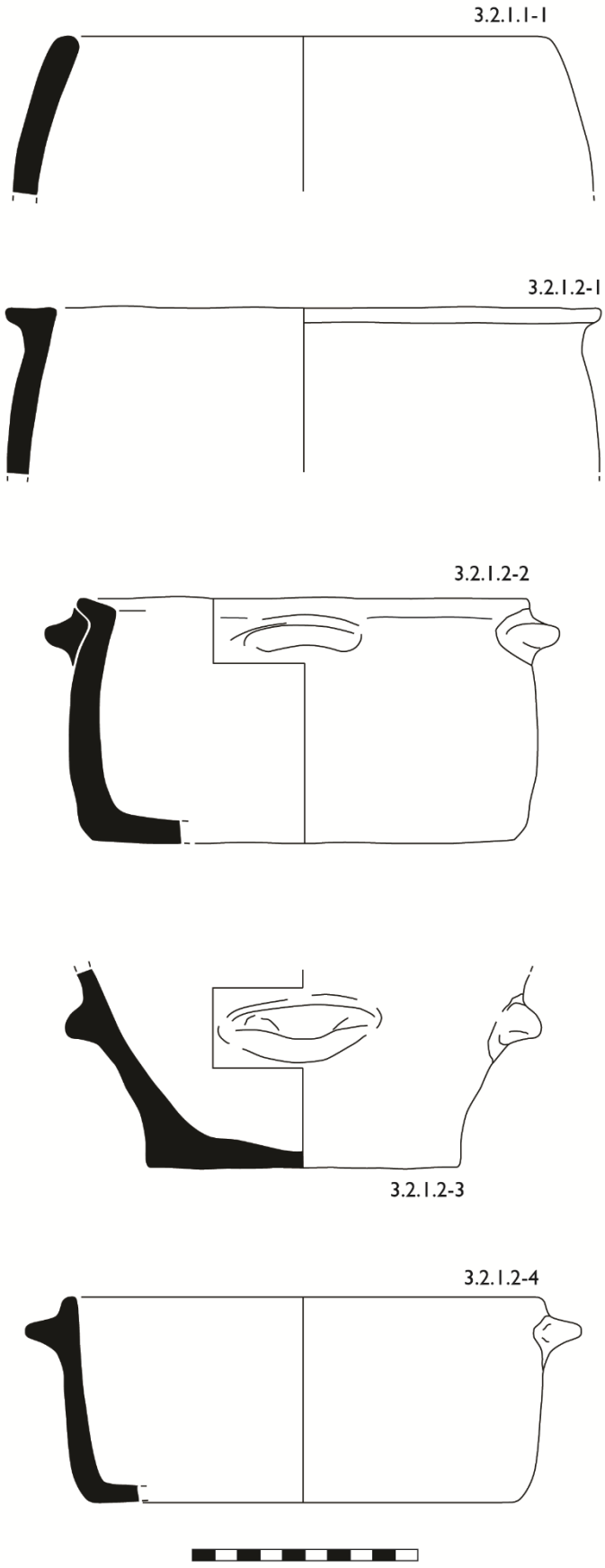


Figure I.30: Local handmade wares, types 3.2.1.1–3.2.1.2.



Figure I.31: Local handmade and painted wares; types 3.2.1.2, 3.2.2 and 4.2.3.

3.2.1.3 Handmade Casserole type 3 (Quercia type D4) *Figure I.32*

This shallow dish is characterised by a wide, flat base with short everted (3.2.1.3-1 and 3.2.1.3-3) and curved (3.2.1.3-2 and 3.2.1.3-4) walls, most of which end in a simple rim. The general form was classified by Quercia based on the Tas-Silġ cooking ware assemblage.[976] Two examples have a bifid rim (3.2.1.3-5).

[976] Quercia 2002, 414, fig. 4.

3.2.1.3.1 BLB12/48/1: Profile, rim (d. 26), base (d. 23). Local Fabric 7: Coarse pale brown clay with large lime and grog inclusions; pale brown smoothed interior surface with a rougher grey and black sooted exterior showing signs of use-wear. Context: Bulebel SU 48.

3.2.1.3.2 BLB12/24/18: Rim, d. 20. Local Fabric 7: Coarse pale brown/pink clay with large lime and grog inclusions; unslipped, rough surfaces. Context: Bulebel SU 24, phase 2.

3.2.1.3.3 BLB12/24/16: Profile, rim (d. 40), base (d. 33). Local Fabric 7: Flaky, coarse pale brown clay with large lime and grog inclusions; unslipped, rough pale brown/cream surfaces with traces of blackened use-wear. Context: Bulebel SU 24, phase 2.

3.2.1.3.4 BLB12/24/15: Profile, rim (d. 36), base (d. 27). Local Fabric 7: Hard and coarse grey clay with large lime and grog inclusions; unslipped grey surfaces with traces of darker grey use-wear on the exterior surface. Context: SU 24, phase 2.

3.2.1.3.5 BLB12/39/19: Profile, bifid rim (d. 28), base (d. 26). Local Fabric 7: Coarse brown/grey clay with large lime and grog inclusions; hackled breaks; hard-fired; unslipped pale brown to grey surfaces with traces of sooted use-wear. Context: Bulebel SU 39, phase 2.

3.2.1.4 Handmade Casserole type 4 *Figure I.33*

This form is a new handmade shape identified on Malta which appears to imitate Pantellerian ware Sabratha type 296/Guiducci type M1/Scauri type 4.4–6 (see type 3.5.2.2). The casserole rim is beaded with a thick groove that runs along the top of the rim and is attached to straight, sloping walls. The Pantellerian ware form is known from contexts dating to around the first half of the 3rd century AD onwards in both Malta[977] and Sabratha;[978] and both Pantellerian and local examples are found exclusively at Melita in contexts belonging to Phase 5, strengthening the argument that local copies are roughly contemporary or later than the original imported Pantellerian vessels. Only two local examples were recorded and were manufactured using a local coarse handmade fabric (Local Fabric 7).

3.2.1.4.1 MLT84/49644: Rim, d. 32. Local Fabric 7: Coarse pale brown/grey clay with large lime and grog inclusion; hackled breaks; unslipped grey/pale brown surfaces. Context: Melita SUI 1109, phase 5.

[977] Quercia 2006, 1605–1608, fig. 6, tipo 3.

[978] Dore 1989, 220–223, fig. 61, no. 296.2319.

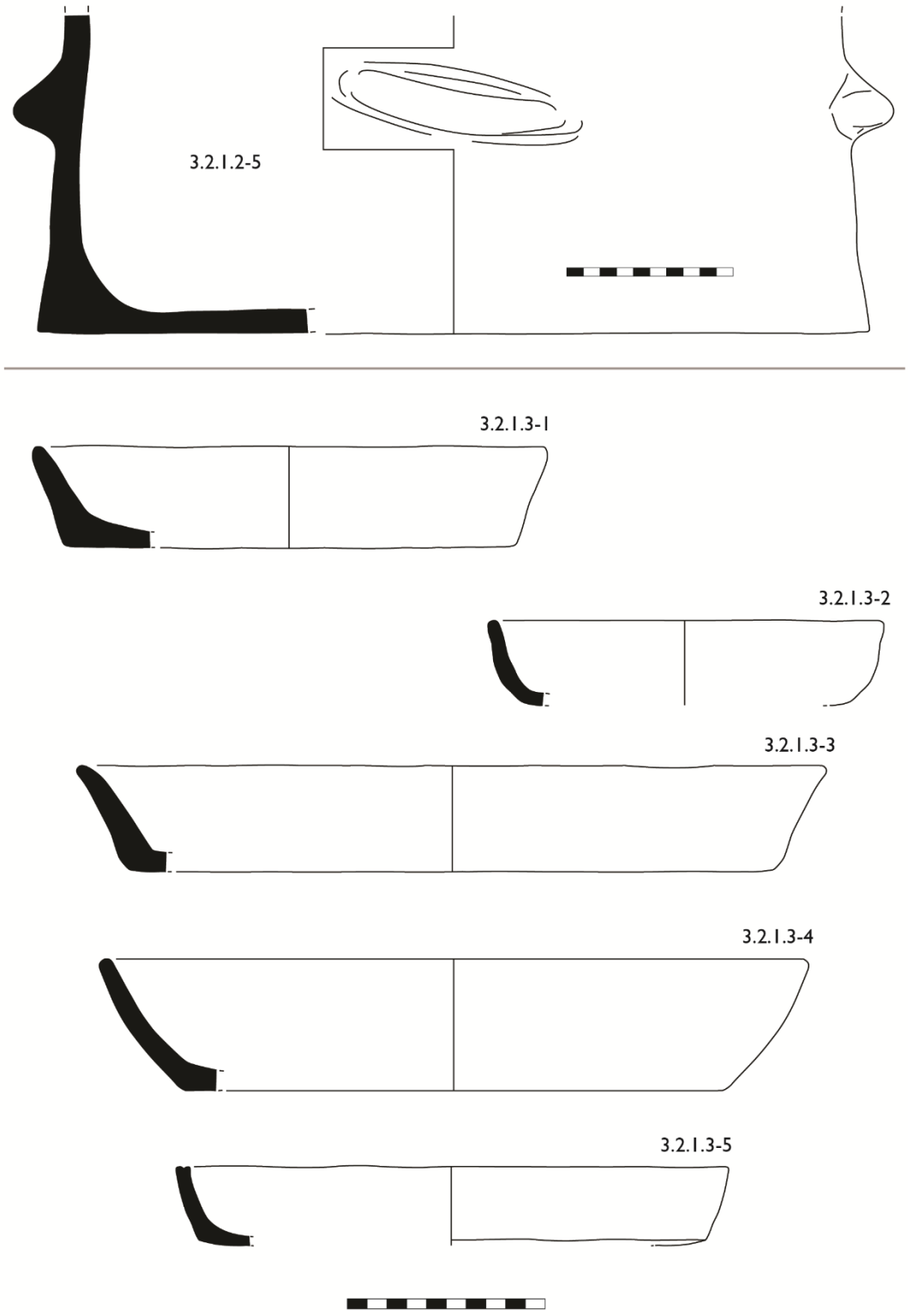


Figure I.32: Local handmade wares, types 3.2.1.2–3.2.1.3.

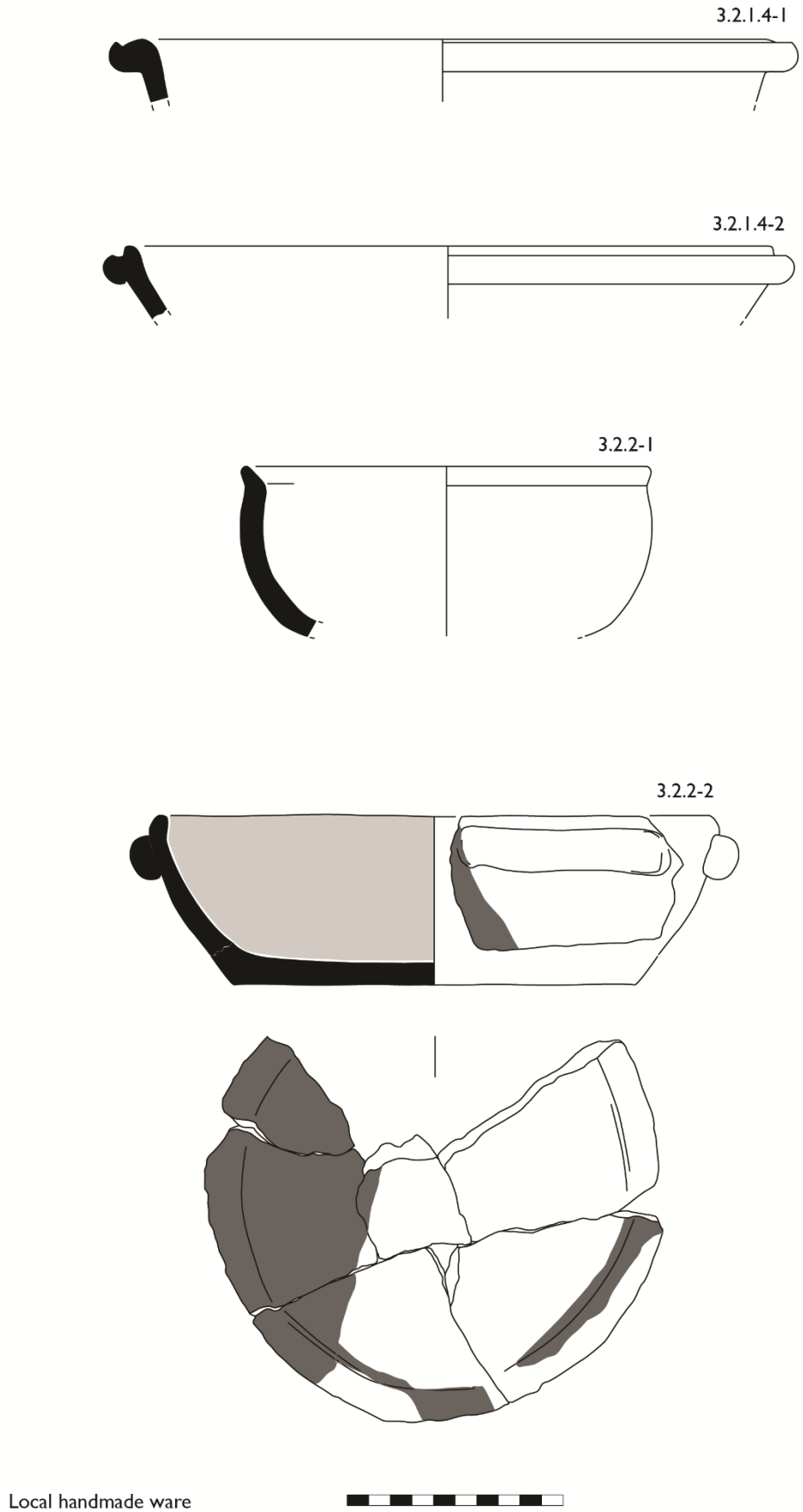


Figure I.33: Local handmade wares, types 3.2.1.4–3.2.3.2.

3.2.1.4.2 MLT84/49601: Rim, d. 32. Local Fabric 7: Coarse pale brown clay with large irregular lime and grog inclusions; unslipped pale brown surfaces with some grey patches. Context: Melita SU 1109, phase 5.

3.2.2 Miscellaneous handmade forms *Figure I.33*

3.2.2.1 BLB12/54/2: Bevelled rim of small round-bodied olla or bowl, d. 19. Local Fabric 7: Coarse pale brown/grey fabric with large lime and grog inclusions; pale brown exterior surface. Context: Bulebel SU 54, phase 1.

3.2.2.2 BLB12/39/21: Profile of flat-bottomed pan with inward curving walls and a simple, slightly inverted rim. Two straight horizontal lug handles with an oval section are attached opposite each other just beneath the rim. The unusual painted surfaces (red and black) makes this piece unique and no others have been recorded in Malta to date (Figure I.31). It is possible that this is an attempt at imitating Italian cooking wares made in the Pompeian Red ware style. Rim (d. 25), base (d. 18.5). Local Fabric 7: Coarse and crumbly pale orange clay with large lime and occasional glauconite inclusions; matt, red-painted interior surface; cream/pale brown-coloured exterior with large panels painted in black paint. Context: Bulebel SU 39, phase 2.

3.3 Italian and Aegean cooking wares

This section includes all the imported cooking vessels thought to be Italian or Aegean in production. No consistent groups could be identified but it is clear that the Bulebel assemblage contained the largest number of Italian vessels, whilst only a handful of small, probably residual fragments, were recorded at the other later-dated sites. Most fabrics identified here are generally brown micaceous or black sand fabrics, most of which can clearly be linked with southern Italian sources, particularly the Campanian region. A few vessels are thought to be Aegean products due to their micaceous fabrics and shape (such as 3.3.1.2-1).

3.3.1 Ollas

3.3.1.1 Stepped olla rim *Figure I.34*

This form is loosely characterised by a flat-topped ledged rim intended to hold a lid. No clear parallels have been identified, however, the heavily micaceous brown clay suggests an Italian or Aegean origin. Nothing conclusive about the chronology of these forms can be drawn from the Maltese contexts, although they are most definitely Roman in date.

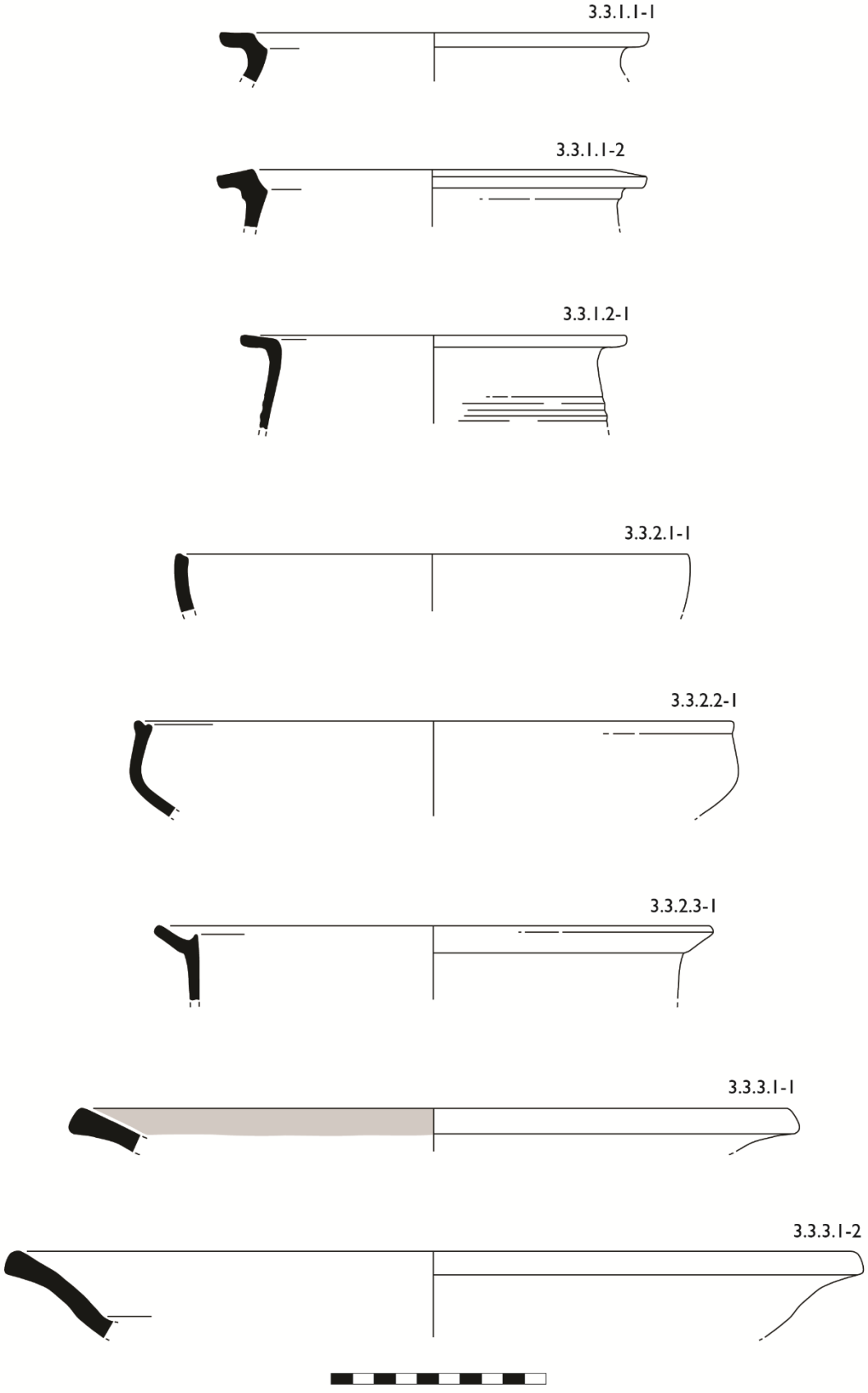


Figure I.34: Imported cooking wares, types 3.3.1.1–3.3.3.1.

3.3.1.1.1 BLB12/28/9: Rim, d. 20. Fabric: Fine dark brown micaceous fabric; unslipped. Source: Southern Italy? Type: Unknown. Date: Unknown. Context: Bulebel SU 28, phase 2.

3.3.1.1.2 MLT84/49924: Rim, d. 20. Fabric: Fine dark brown micaceous fabric; unslipped. Source: Southern Italy? Type: Unknown. Date: Unknown. Context: Melita SU 1098, phase 5.

3.3.1.2 MRCW 3/LRCW 2?/Knossos type 2? *Figure I.34*

Only one example of this form was identified within the Melita assemblage and consists of a thin, flat and sloping rim, and a slightly ribbed body. Parallels for this form can be found with Hayes' type 2 cooking pot from Knossos,[979] which belongs to a common Aegean-based regional series typical of the 2nd and 3rd centuries AD. The same vessel is common amongst the finds from the Athenian agora,[980] and was present at Berenice (as form MRCW form 3), where it was introduced in the early 2nd century AD and peaked by the early 3rd century AD.[981] The vessel also resembles examples of Riley's LRCW form 2, occurring in contexts dating from the mid-3rd and mid-4th century AD.[982] Although they are less common in the western Mediterranean regions, cooking vessels of this type have been found at Leptis Magna[983] and Marseille.[984] At least one other Maltese example of a MRCW 3 cooking pot was also identified by Riley at the National Museum in Gozo.[985]

3.3.1.2.1 MLT84/49887: Rim, d. 18. Fabric: Brown micaceous clay with quartz inclusions; unslipped; ribbed body. Source: Aegean. Context: Melita SU 1085, phase 3.

3.3.2 Casseroles

3.3.2.1 Early Roman Cooking Ware 3a (ERCW 3a) *Figure I.34*

This casserole form is a shallow, wide-based vessel with low, slightly inward-curving walls and a simple rim, bisected by a light groove. Only a single example was identified within the Bulebel quarry assemblage. The 'orlo bifido' together with the fine, black sand fabric are characteristic of a

[979] Hayes 1983, 105, fig. 5.
[980] Robinson 1959, pl. 11, Group J, nos J55–56.
[981] Riley 1979, 264, fig. 104, nos 519–520.
[982] Riley 1979, 270–271, fig. 106, nos 547–548.
[983] Bonifay et al. 2013, 96, fig. 17.52.
[984] Moliner 1996, 246, fig. 12.1–2, 5–6.
[985] Riley 1979, 264.

Campanian source,[986] and is a common Italian export throughout the western Mediterranean basin and North African sites, such as Berenice,[987] Sabratha,[988] Carthage,[989] and Leptis Magna.[990] In Berenice, the form occurred in contexts that were dated from the end of the 1st century BC to the late 1st century AD.[991] North African imitations become common throughout the central Mediterranean from about the early 1st century AD onwards,[992] and also from the early to mid-2nd century AD.[993] No North African versions have been identified within the Maltese assemblages, although an African ARS variant, of unknown date and context was identified within the 1972 material from the Żejtun villa.[994]

3.3.2.1.1 BLB12/42/2: Rim, d. 24. Fabric: Gritty brown micaceous fabric with fine black sand inclusions; unslipped. Source: Campania, Southern Italy. Type: Sabratha type 152/ERCW 3a. Date: Early 1st century BC to the late 1st century AD. Context: Bulebel SU 42, phase 2.

3.3.2.2 Variant of above *Figure I.34*

This squat casserole displays a bulbous, carinated body, and a more pronounced bifid lip. The fabric contains lots of black sand and thus is probably a Campanian import. Only a single example was identified within these assemblages and no clear parallels are known elsewhere. The context of this single find would suggest a date from the 1st century BC to about the early 3rd century AD.

3.3.2.2.1 BLB12/28/6: Rim, d. 28. Fabric: Dark brown grainy clay with fine quartz, white lime and black volcanic sand inclusions; unslipped, blackened exterior surface. Source: Campania? Southern Italy? Type: Unknown. Date: Unknown. Context: Bulebel SU 28, phase 2.

3.3.2.3 Hellenistic Cooking Ware 4 (HCW 4) *Figure I.34*

This casserole has a straight wall with a long everted lip and a short ledge to fit a lid. The fabric is certainly imported to Malta, however, the origin of

[986] Di Giovanni 1996, 78–78, form 2130.
[987] Riley 1979, 247–249, fig. 100.
[988] Dore 1989, 174, form 152.
[989] Hayes 1976, 60, no. 12, group X; Fulford 1994, 60–62, fig. 4.7.
[990] Reynolds 1997, fig. 73.
[991] Riley 1979, 248.
[992] Riley 1979, 248.
[993] Leitch 2010, 412, type 3.1.2.3.
[994] Anastasi 2012, 34, fig. 4.36.

the vessel remains unclear, although the micaceous clay suggests an Adriatic/Aegean source. The form is typical of a Hellenistic shallow casserole form classified by Riley as HCW 4, which was dated to the mid-2nd century BC based on Aegean contexts.[995] The shape is quite typical of the Punic cooking ware repertoire in the central Mediterranean, and shares morphological features with Aegean cooking wares.[996] Local Punic-period versions, similar to this form are known on the islands, with one example also discovered from Bulebel, phase 1 (see type 3.1.2.1-1).

3.3.2.3.1 MLT84/26354: Rim, d. 26. Fabric: Hard-fired and gritty orange/brown fabric with quartz, black, white and micaceous inclusions; black exterior surfaces. Source: Southern Italy, Adriatic coast? Aegean/Eastern? Context: Melita SU 1100, phase 2.

3.3.3 Pans

3.3.3.1 Shallow frying pan with everted wall *Figure I.34*

This vessel is characterised by a shallow plate-like pan with a wide-brimmed everted and squared rim. Both examples are early Roman Italian imports, with one example (3.3.3.1-1) belonging to the Pompeian Red ware series on account of the fabric and smooth red slip.[997] These wares are found in small numbers throughout coastal North Africa and further afield from the 1st century BC until the mid-1st century AD. Only a few fragments of this ware were identified within the Maltese assemblages, and of these only this particular form was found. The closest parallel for this shape appears to be a flat frying pan, common in the Campanian kitchen ware repertoire,[998] however since no handles or complete profiles were recovered in the Maltese contexts, this comparison remains preliminary. A wider range of shallow pans, which have not been identified on Malta to date, are known to circulate around the coastal areas of North Africa, and in greater numbers.[999]

3.3.3.1.1 BLB12/55/11: Rim, d. 34. Fabric: Gritty brown micaceous clay; bright red-slipped interior surface; unslipped brown exterior. Source: Campania, Southern Italy. Context: Bulebel SU 55, phase 1.

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[995] Riley 1979, 243.
[996] Vegas 1999, 196, Abb. 104, type 68.1.
[997] Goudineau 1970, 159–186; Peacock 1977, 147–162.
[998] For instance, see Di Giovanni 1996, 81–82, figs 7 and 12; and Passelac 1993b, 545–546, type R-POMP 17.
[999] Kenrick 1985a, 320–321.

3.3.3.1.2 BLB12/32/23: Rim, d. 40. Fabric: Brown to orange gritty micaceous clay; unslipped? Source: Campania, Southern Italy. Context: Bulebel SU 32, phase 2.

3.3.4 Lids

3.3.4.1 Domed lids *Figure I.35*

This group of kitchen wares is characterised by large domed lids with a beaded (3.3.4.1-1–2) or squared (3.3.4.1-3) rim. The beaded versions (3.3.4.1-1–2) are associated with a low ring base in place of a knob, and have a black sand fabric. The form belongs to a common Italian cooking ware series—*piatti-coperchi*—produced in the Campanian region, but which is well distributed around the Mediterranean.[1000] Riley classified similar Italian forms as Lid type 7 and 8 from the Berenice assemblage, based on parallels with lids from other western Mediterranean sites, which have been dated from the late 2nd/early 1st century BC to the end of the 1st century AD.[1001] Lid type 8 (3.3.4.1-2) is possibly slightly later, dating to 1st century AD, although both Maltese examples came from the same context. They have also been associated with Pompeian Red ware vessels, dating to the same period, although they do not contain a red slipped surface. The third example, with squared rim (3.3.4.1-3), resembles a variant of Riley's Lid type 8 because of the shape of the small, well-formed knob. The fabric contains micaceous inclusions and could also be a southern Italian product. Based on the comparison with the Berenice examples, this lid type dates from about the early 1st century AD. Examples from Ostia suggest that the form continued to be produced into the 3rd century AD.[1002] No examples from other sites in the Maltese islands have been published to date.

3.3.4.1.1 BLB12/39/4: Profile, rim (d. 28), knob ring (d. 4.5). Fabric: Coarse brown gritty fabric with fine black sand inclusions; unslipped. Source: Campania, southern Italy. Type: Riley's Lid type 7. Date: Late 2nd/early 1st centuries BC to the end of the 1st century AD. Context: Bulebel SU 39, phase 2.

3.3.4.1.2 BLB12/39/5: Rim, d. 32. Fabric: Coarse brown gritty clay with black volcanic sand inclusions; unslipped brown surfaces. Source: Campania, southern Italy. Type: Riley's Lid type 8. Date: Early 1st century AD. Context: Bulebel SU 39, phase 2.

3.3.4.1.3 BLB12/65/2: Profile, rim (d. 33), knob (d. 4.8). Fabric: Dark brown grainy fabric with rough quartz, mica and fine white inclusions; few black sand inclusions;

[1000] Scatozza Höricht 1996, 145, fig. 8.

[1001] Riley 1979, 324.

[1002] Riley 1979, 325, and references therein.

unslipped. Source: southern Italy? Type: Riley's Lid type 8? Knob similar to D782. Date: 1st century AD? Context: Bulebel SU 65, phase 2.

3.3.5 Handmade vessels

This category was created to include a single wall sherd of a heavily micaceous, soapy-textured, brown-black handmade vessel akin to Peacock's fabric 1.6.[1003] The wall was slightly rounded and suggested that the sherd once belonged to a handmade olla, probably similar to a shape like type 3.3.5.1. Peacock and Santoro both suggest that such a fabric could be sourced to south Italy or volcanic regions in the central Mediterranean, such as south Italy, Sicily or Sardinia.[1004] Diagnostic vessels in this fine micaceous fabric have been dated to the mid-5th and mid-6th century AD are sparsely distributed throughout the western coastal centres of the Mediterranean.[1005] The context of the body sherd within the Melita assemblage would suggest a slightly earlier date in the mid-3rd/mid-4th century, although no other imported handmade Italian cooking wares are known on the islands, so until better examples are identified, this assessment is preliminary.

3.3.5.1 MLT84/49647: Wall of round bottomed vessel; coarse brown-to-black handmade fabric with round quartz, lime and large translucent inclusions and lots of mica (Peacock fabric 1.6). Type: Unknown. Source: southern Italy? Date: Unknown [not illustrated].

3.4 North African Cooking wares

North African cooking wares are by far the most commonly imported cooking ware on Malta, especially from the mid-2nd century AD onwards.[1006] A wide range of classic forms, as well as some more unusual vessel shapes, have been recorded within these assemblages, and display fabrics which originate from centres along the entire perimeter of the Tunisian and Tripolitanian coast.

[1003] Peacock 1984, 12.
[1004] Peacock 1984, 12; Santoro 2007, 368.
[1005] Santoro 2007, 368, fig. 4.
[1006] See Section 3.9.

3.4.1 Ollas

3.4.1.1 North Africa stepped rim *Figure I.35*

This vessel is characterised by a stepped everted rim forming the opening of a round-bodied cooking pot. The fabric is brick-red and hard-fired, with a blackened surface along the rim area, typical of early Roman 'black-topped ware'. This form is probably a product of North Tunisia on account of its presence in Carthage[1007] and near-by Utica;[1008] no parallels have been identified in central or south Tunisia. A clear date for this form has not yet been established, however Hayes suggested it was an early Roman form, probably dating to the 1st century AD.[1009]

3.4.1.1.1 MLT84/49804: Rim, d. 28. Fabric: Hard-fired, brick-red fabric with quartz and fine lime inclusions, contains some small black inclusions; unslipped with black-topped rim. Source: North Tunisia, Carthage region? Context: Melita SU 1086, phase 3.

3.4.2 Casseroles

3.4.2.1 Mid-Roman Cooking Ware 1 (MRCW 1) *Figure I.35*

This form is common at Berenice and Crete and was produced between the 2nd and 3rd century AD. The provenance of the two examples from Foreman Street remains unclear, however, they do match the fabric description given for the local examples at Berenice, although this form is not particularly common outside of Cyrenaica and Crete. [1010] No other examples are known from the Maltese islands.

3.4.2.1.1 FRM08/42/111: Rim, d. 14. Fabric: Hard-fired red quartz fabric with fine white lime inclusions; unslipped. Source: North Africa. Type: MRCW 1c. Date: Early 3rd century AD based on the evidence from Berenice.[1011] Context: Foreman Street, SU 42.

[1007] Hayes 1976, cooking pot type C13; Fulford and Peacock 1994, fig. 4.4:42–44.
[1008] Fragment from the Anglo-Tunsian excavations (Area IV) at Utica, currently being studied by V. Leitch and myself.
[1009] Hayes 1976, 94–95.
[1010] See Riley 1979, 261, Local fabric 4?
[1011] Riley 1979, 261.

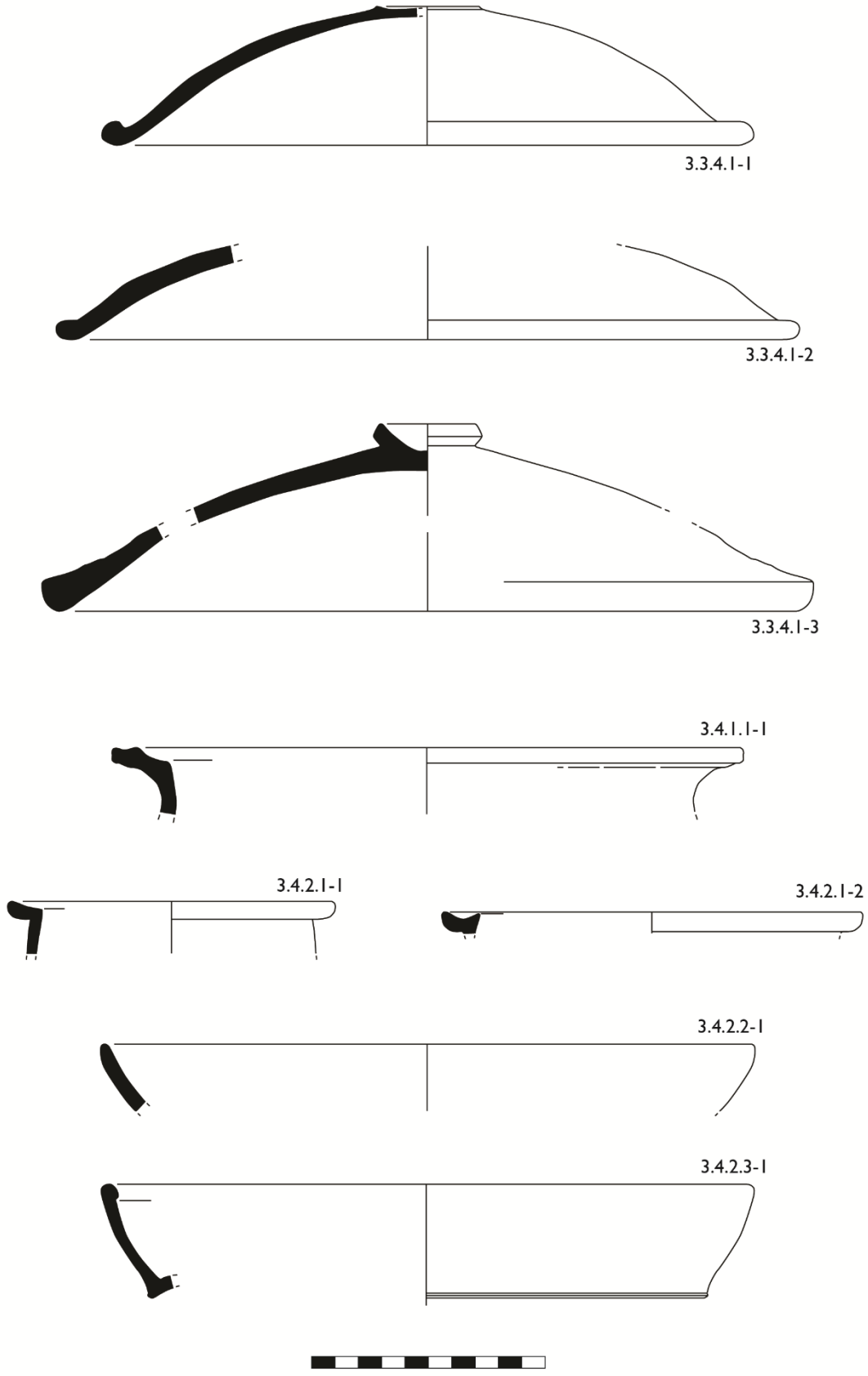


Figure I.35: Imported cooking wares, types 3.3.4.1–3.4.2.3.

3.4.2.1.2 FRM08/42/112: Rim, d. 18. Fabric: Fine red quartz fabric with fine white lime inclusions; unslipped but with blackened exterior possibly due to use-wear. Source: North Africa. Type: MRCW 1c. Date: Early 3rd century AD based on the evidence from Berenice.[1012] Context: Foreman Street, SU 42.

3.4.2.2 Hayes 23A *Figure I.35*

This classic form belongs to the widely exported repertoire of North African cooking wares—Bonifay's culinaire (A) type 1B.1—, produced in north Tunisian centres, from the second half of the 1st century to the beginning of the 3rd century AD.[1013] Very few examples of this form are known on Malta, but its successor, Hayes 23B (3.2.4.3) is better represented on the islands, especially after the mid-2nd century AD.[1014]

3.4.2.2.1 FRM08/59/30: Rim, d. 28. Fabric: Fine red clay with fine quartz inclusions (Peacock fabric 2.1); unslipped smoothed surfaces. Context: Foreman Street SU 59.

3.4.2.3 Hayes 23B *Figures I.35–I.36*

Several examples of this casserole were recovered from all three assemblages, each displaying slightly different variants. The earliest examples (3.4.2.3-1–2), similar to Bonifay's culinaire (A) type 1B.2, have a small round, beaded rim attached to a sagging body, with a curved wall, and a smoothed, red-slipped interior surface.[1015] They are dated by parallels from the first half of the 2nd century to the early 3rd century AD. Later variants (3.4.2.3-3–4), which date from the early 3rd century to early 4th century AD, a larger and have a longer, lenticular beaded lip, also with a smooth, red-sipped interior surface, akin to Bonifay's culinaire type 1 (A) type 1B.3–4.[1016] These casseroles were purposely produced along the eastern coast of north and central Tunisia for a strong export market that extended throughout the entire western and central Mediterranean basin.

3.4.2.3.1 BLB12/32/22: Rim, d. 28. Fabric: Pale red quartz fabric; burnished bright red/pink interior surface; pale brown smoothed exterior with grey patches and streaked use-wear. Source: North Tunisia. Context: Bulebel SU 32, phase 2.

[1012] Riley 1979, 261.
[1013] Bonifay 2004, 211, fig. 112; Leitch 2010, 410, type 3.1.2.1.
[1014] One sherd is recorded at Ħal Millieri as Hayes 23, however it remains unclear what variant it belongs to (Blagg, Bonanno and Luttrell 1990, 54).
[1015] Hayes 1972, 46–48; Bonifay 2004, 211, fig. 112.
[1016] Bonifay 2004, 211, fig. 112; Leitch 2010, 418, type 3.2.2.

3.4.2.3.2 BLB12/23/4: Shoulder profile, d. 15. Fabric: Fine pale red/brown fabric with fine quartz inclusions; unslipped pale red interior; pale red/brown smoothed exterior with black/grey soot patches. Context: Bulebel SU 23, phase 2.

3.4.2.3.3 FRM08/42/105: Rim, d. 32. Fabric: Red quartz fabric (Peacock fabric 2.1); bright red-slipped and burnished interior surface; exterior pale brown/grey streaky surface. Context: Foreman Street SU 42.

3.4.2.3.4 MLT84/49733: Profile, rim (d. 28), base (d. 20). Fabric: Red quartz fabric; internal red slip; brown/black streaked exterior surface. Context: Melita SU 1101, phase 5.

3.4.2.4 Hayes 193 *Figure I.36*

Only a single rim sherd belonging to this form was identified within the Foreman Street assemblage, and resembles the simple, curved-walled casserole, Hayes form 193/Bonifay culinaire (A) type 2, and dates from the 1st to 3rd century AD.[1017] Surfaces are unslipped, however, the exterior surface is fired black. A source in north Tunisia, in particular within the Carthage zone and Oudhna (*Uthina*) is suggested.[1018]

3.4.2.4.1 FRM08/42/103: Rim, d. 17. Fabric: Fine red quartz fabric (Peacock fabric 2.1); external surface fired black (Black-Topped ware?). Context: Foreman Street SU 42.

3.4.2.5 Hayes 183-4 variants *Figure I.36*

Within this category are grouped a range of casserole variants commonly classified under the umbrella types, Hayes 183 and 184. Within the Maltese assemblages no two sherds were exactly alike, however they each displayed a low, round body with a distinct everted rim. One variant (3.4.2.5-1) can be compared with Bonifay's culinaire (B) type 7, variant C (Hayes form 184 and Sabratha form 59), which displays a flat-topped quadrangular rim. This variant is dated to the second half of the 2nd to 3rd century AD, and is a product of the Sahel region of Tunisia.[1019] Variant 3.4.2.5-2 is similar to Bonifay's culinaire type 15.3, where it is also probably a central Tunisian product and similar in date to 3.4.2.5-1, although can extend into the 4th century.[1020]

[1017] Hayes 1972, 207; Bonifay 2004, 211, fig. 112.
[1018] Leitch 2010, 412, type 3.1.4.
[1019] Hayes 1972, 203–204; Dore 1989, 128, fig. 34; Bonifay 2004, 217–219, fig. 116.
[1020] Bonifay 2004, 227–229, fig. 122a.

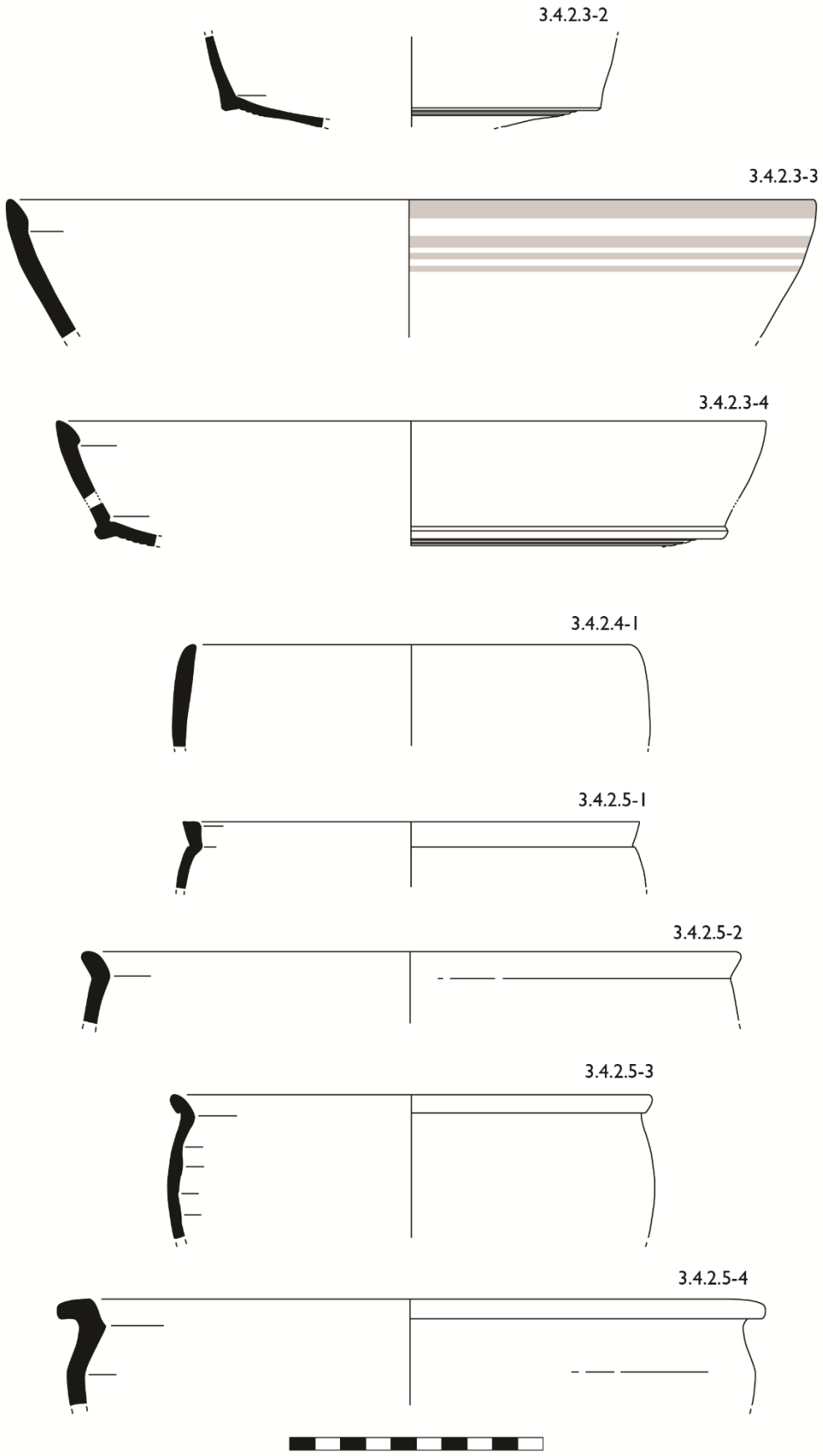


Figure I.36: Imported cooking wares, types 3.4.2.3–3.4.2.5.

No strong parallels could be found for the third variant (3.4.2.5-3), possibly with the exception of Dore's rare form 55 from Sabratha. Even here, the Sabratha example has clearly ribbed exterior walls whilst the Maltese example does not.[1021] The fabric points towards a central Tunisian source, whilst the context is suggestive of a mid-3rd-century date onwards. The closest parallel for the final example (3.4.2.5-4) is probably Dore's form 61 from Sabratha (Bonifay's culinaire (C) type 17.1), dated to about the 3rd century AD.[1022] Dore's form 37 is also similar, however, a 1st-century BC is likely to be too early for the Maltese sherd.[1023] A southern Tunisian/Tripolitanian source for this particular form is possible. Aside from these examples, only two other Tripolitanian casserole variants from Sabratha have been recorded on the islands, and comes from the Għar ix-Xih (Gozo) assemblage (Figure 17.18–19).[1024]

3.4.2.5.1 FRM08/42/104: Rim, d. 18. Fabric: Fine red clay with fine quartz inclusions (Peacock fabric 2.1); unslipped, smoothed surfaces. Context: Foreman Street SU 42.

3.4.2.5.2 MLT84/49730: Rim, d. 36. Fabric: Brick-red quartz fabric with large white lime inclusions (Peacock fabric 2.6); smooth black exterior. Context: Melita SU 1101, phase 5.

3.4.2.5.3 MLT84/49945: Rim, d. 19. Fabric: Orange/brown gritty quartz fabric with yellow lime and grey quartz-like inclusions; unslipped pale brown exterior surface. Context: Melita SU 1098, phase 5.

3.4.2.5.4 MLT84/49356: Rim, d. 28. Fabric: Coarse red fabric with large quartz and white lime inclusions; brown/black streaky exterior. Context: Melita SU 1093, phase 4.

3.4.2.6 Hayes 197 *Figure I.37*

This common Tunisian cooking vessel was recorded within the Foreman Street and later-phased Melita contexts. Twenty-one fragments of Hayes 197 casseroles were recorded and belong to the smaller beaded series that date to between the end of the 2nd and 4th century AD.[1025] All the examples are made in North Tunisian fabrics made in the region of Byzacena. This form is one of the most commonly exported classic African forms found throughout the western and central Mediterranean. It is also possibly the

[1021] Dore 1989, 124–125, fig. 34.
[1022] Dore 1989, 126–128, fig. 34; Bonifay 2004, 229, fig. 122a.
[1023] Dore 1989, 118, fig. 31.
[1024] See Section 3.6.2 and Appendix III, nos 18–19.
[1025] Hayes 1972, 209; Bonifay 2004, 225, fig. 120, culinaire (C) type 10.

most common African cooking ware form on the Malta islands, where they have been recorded at the Żejtun villa,[1026] San Pawl Milqi and Tas-Silġ. The catalogued examples here are all from Foreman Street and display features that would suggest a chronological development (see each category entry below for further details).

3.4.2.6.1 FRM08/42/102: Rim, d. 18. Fabric: Fine pale brown quartz fabric; unslipped. Source: North Tunisian. Type: Hayes 197; Bonifay culinaire type 10, no. 2. Date: End of the 2nd century AD. Context: Foreman Street SU 42.

3.4.2.6.2 FRM08/42/100: Rim, d. 18. Fabric: Fine red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 197, Bonifay culinaire type 10, nos 2–3. Date: Late 2nd to 3rd century AD. Context: Foreman Street SU 42.

3.4.2.6.3 FRM08/42/101: Rim, d. 23. Fabric: Fine red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 197; Bonifay culinaire type 10, nos 6–7? Date: Beginning of the 4th century AD? Context: Foreman Street SU 42.

3.4.2.7 Hayes 197 variant? *Figure I.37*

This North African form is characterised by an inward-curving thickened beaded rim as one of the many variants of the Hayes 197 classic casserole. In her recent typology of North African cooking wares, Leitch classifies a similar vessel (Leitch type 4.2.3.5) and dates it to the 3rd century AD.[1027] The Maltese example lacks such a distinct groove on the top of the rim as is shown in the example from Pupput.[1028] Alternatively, this example shares similarities with a slightly later-dated casserole—Bonifay culinaire type 26, no. 1—, dated to the end of the 4th century AD.[1029] Only a single example was recovered from the Melita assemblage in a later-dated context.

3.4.2.7.1 MLT84/24733: Rim, d. 26. Fabric: Brick-red quartz fabric; blackened exterior. Source: North Tunisia. Type: Leitch type 4.2.3.5/Bonifay culinaire C type 24/Marmite Sidi Jdidi 2? Date: 3rd century AD. Context: Melita SU 1062, phase 4.

3.4.2.8 Hayes 181 *Figure I.37*

This form is characterised by a wide flat pan with low, slightly inward-curving walls and a simple rim. The interior surfaces are red-slipped and burnished, leaving a smooth, faceted finish. The form has a long development, appearing in the end of the 1st century to the early 5th century

[1026] Anastasi 2012, 35, fig. 5.48.
[1027] Leitch 2010, 438–439.
[1028] Bonifay 2004, 233, fig. 125, no. 1.
[1029] Bonifay 2004, 234.

AD.[1030] All the examples identified within the Maltese assemblages come from the Melita excavations, and the thicker, straighter walls are suggestive of Bonifay's C/D variants, which are dated from the end of the 2nd to the second half of the 4th/early 5th century AD.[1031] They are produced in the north/central coastal regions of Tunisia and are a very common African export to the central and western Mediterranean.

3.4.2.8.1 MLT84/24076: Rim, d. 32. Fabric: Granular red clay with lots of fine quartz, and occasional fine white inclusions; burnished, smoothed red-slipped interior surfaces; unslipped pale brown exterior. Context: Melita SU 1059, phase 6 (mixed context).

3.4.2.9 Bonifay culinaire type 31 *Figure I.37*

Only one example of this casserole form was identified in the Melita assemblage and came from a disturbed context. It is included here as a separate category in order to highlight its presence on the island. The form belongs to a Cape Bon production—Bonifay's culinaire (C) type 31—and has a thickened rim with a grooved top, thought to be a variant of a Hayes 197 casserole (see 3.4.2.6).[1032] The form is dated to the end of the 3rd and beginning of the 4th century AD, making it contemporary with the general dating of the Late Roman stratified levels at the Melita site (phases 3–5). No published examples of this form are known on the Maltese islands.

3.4.2.9.1 MLT84/24062: Rim, d. 26. Fabric: Gritty pale red clay with fine quartz inclusions; unslipped, grey/brown-coloured surfaces. Context: Melita SU 1059, phase 6 (mixed context).

3.4.3 Lids

This section includes the many variants of North African lids that were recovered within the assemblages. North African cooking ware lids were amongst the most numerous imported cooking ware finds.

[1030] Bonifey 2004, 213–214, figs 113–114, culinaire (B) type 5.
[1031] Bonifay 2004, 213, fig. 113.
[1032] Bonifay 2004, 239, fig. 128; Leitch 2010, 438, form 4.2.3.3.

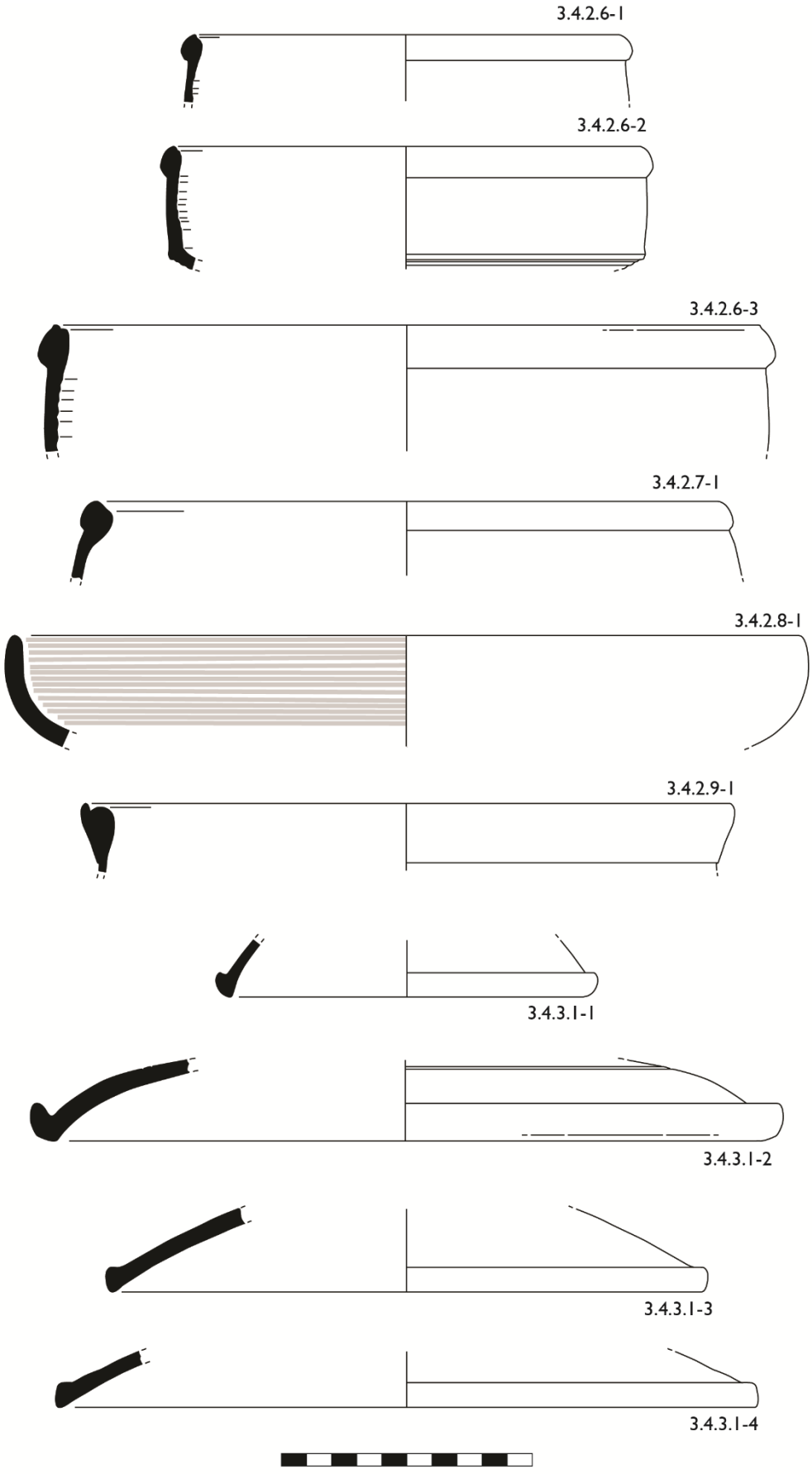


Figure I.37: Imported cooking wares, types 3.4.2.6–3.4.3.1.

3.4.3.1 North African hooked rims *Figure I.37*

This group of North African lids includes all lids with a hooked (3.4.3.1-1–2) or bevelled/beaded rim (3.4.3.1-3–4). Each entry includes all the details related to the type, source and date for the lid types illustrated here.

3.4.3.1.1 FRM08/59/35: Rim, d. 14. Fabric: Red quartz fabric (Peacock fabric 2.1); unslipped. Source: North Tunisia. Type: Hayes 195 variant. Date: 2nd to 3rd century AD? Context: Foreman Street SU 59.

3.4.3.1.2 MLT84/26182: Rim, d. 30. Fabric: Brick-red quartz fabric; Black-Topped ware (Bonifay's catégorie A/C). Source: North Tunisia. Type: Classic Hayes 195/Bonifay culinaire type 12. Date: End of the 4th to first half of the 5th century AD. Context: Melita SU 1099, phase 5.

3.4.3.1.3 MLT84/49475: Rim, d. 24. Fabric: Brick-red quartz fabric; pale brown streaky exterior surface. Source: North Tunisia. Type: Hayes 185 variant/Bonifay culinaire 9B. Date: End of the 2nd to mid-3rd century AD, possibly earlier? Context: Melita SU 1095, phase 2.

3.4.3.1.4 MLT84/49495: Rim, d. 28. Fabric: Brown/red quartz fabric; unslipped; blackened rim from use-wear. Source: North Tunisia. Type: Date: Hayes 185 variant/Bonifay culinaire 9B. Date: End of the 2nd to mid-3rd century AD, possibly earlier? Context: Melita SU 1095, phase 2.

3.4.3.2 North African bevelled lids *Figure I.38*

This groups categorises North African lids that have a straight ad squared rim that is not beaded like the forms above. These forms are often associated with early Roman North African lids such as variants of Hayes 185 (Bonifay culinaire type 9C) and later Hayes 196 versions.

3.4.3.2.1 BLB12/28/5: Rim, d. 26. Fabric: Brick-red quartz fabric with fine black and grey inclusions; Black-Topped ware. Source: North Tunisia? Type: Hayes 185 variant (Bonifay culinaire type 9C no. 7)/Peacock and Williams 1994, type 14. Date: Second half of the 1st to the early-to-mid 2nd century AD;[1033] end of the 2nd to mid-3rd century AD?[1034] Context: Bulebel SU 28, phase 2.

3.4.3.2.2 FRM08/42/114: Rim, d. 20. Fabric: Red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 185 variant (Bonifay culinaire type 9C no. 7). Date: End of the 2nd to mid-3rd century AD.[1035] Context: Foreman Street SU 42.

3.4.3.2.3 FRM08/42/115: Rim, d. 19. Fabric: Red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 185 variant (Bonifay culinaire type 9C no. 7). Date: End of the 2nd to mid-3rd century AD.[1036] Context: Foreman Street SU 42.

[1033] Peacock and Williams 1994, 66.
[1034] Bonifay 2004, 221.
[1035] *Ibid*.
[1036] *Ibid*.

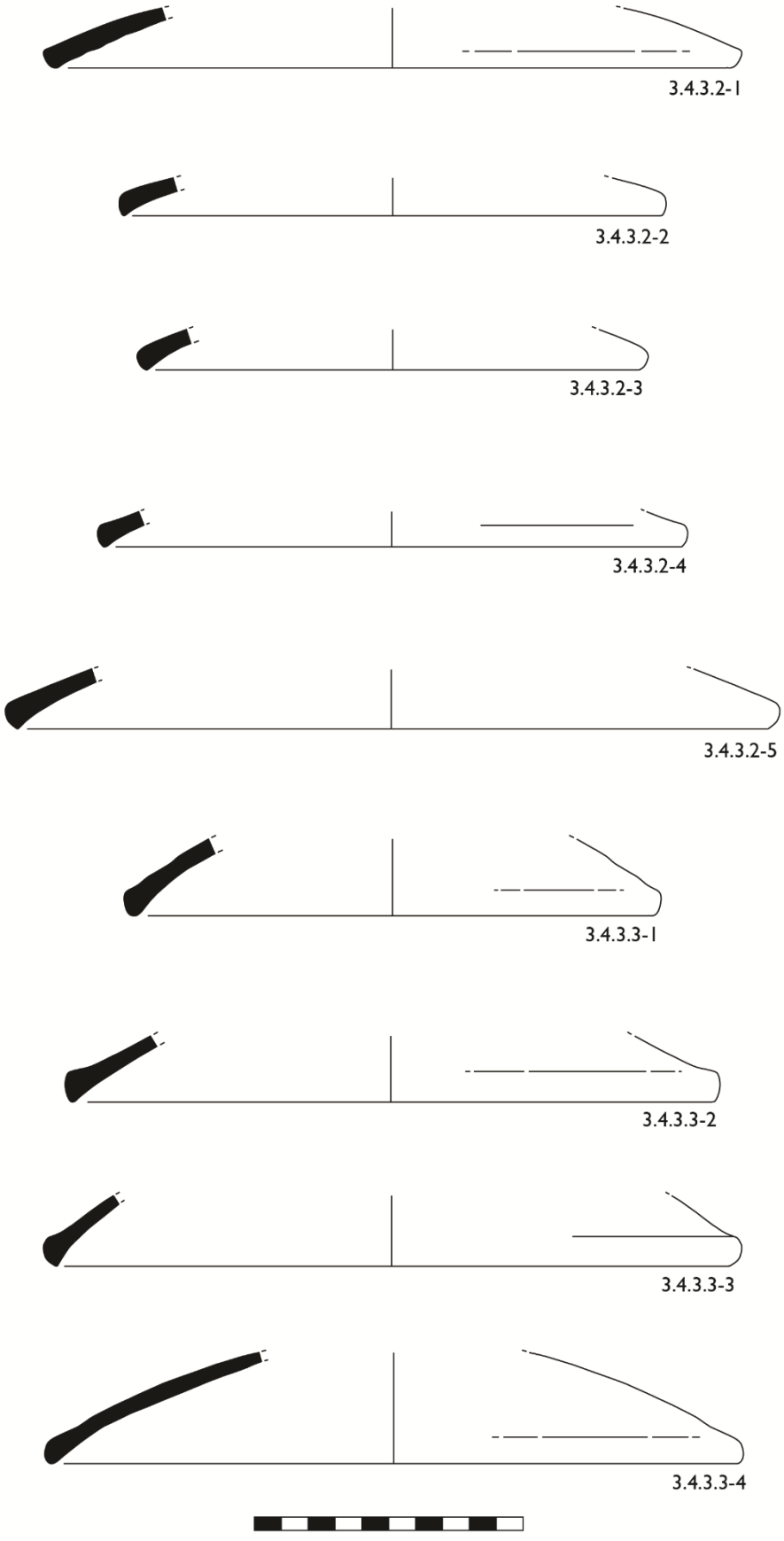


Figure I.38: Imported cooking wares, types 3.4.3.2–3.4.3.3.

3.4.3.2.4 FRM08/42/120: Rim, d. 22. Fabric: Red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 185 variant (Bonifay culinaire type 9C no. 7). Date: End of the 2nd to mid-3rd century AD.[1037] Context: Foreman Street SU 42.

3.4.3.2.5 FRM08/42/116: Rim, d. 26. Fabric: Red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 185 variant (Bonifay culinaire type 9C no. 7). Date: End of the 2nd to mid-3rd century AD.[1038] Context: Foreman Street SU 42.

3.4.3.3 North African Hayes 196 lid *Figures I.38–I.39*

This North African lid form is characterised by a thickened rim edge common is Hayes 196 forms. The first variants (3.4.3.3-1–3) have an indistinct, inward-curving, thickened rim and are comparable to Bonifay's culinaire type 11. This variant belongs to a common North Tunisian series and is dated to the late 2nd to mid-3rd century AD.[1039] Example 3.4.3.3-4 probably belongs to a slightly earlier Carthaginian version, datable to the early to mid-2nd century AD. The last two examples (3.4.3.3-5–6) are also North Tunisian Hayes 196 variants, which find their closest similarity to Leitch's classification type 1.2.1.2. These were produced from the early 2nd to 5th century AD, although they were mostly common during the 4th century AD.[1040] For these examples, however, a date until at least the mid-3rd century is suggested by the Foreman Street context.

3.4.3.3.1 FRM08/59/33: Rim, d. 20. Fabric: Red clay with fine quartz inclusions; unslipped. Context: Foreman Street SU 59.

3.4.3.3.2 FRM08/59/32: Rim, d. 24. Fabric: Red clay with fine quartz inclusions; Black-Topped ware. Context: Foreman Street SU 59.

3.4.3.3.3 FRM08/42/117: Rim, d. 26. Fabric: Red clay with fine quartz inclusions; Black-Topped ware. Context: Foreman Street SU 42.

3.4.3.3.4 MLT84/49476: Rim, d. 26. Fabric: Red quartz fabric; unslipped. Context: Melita SU 1095, phase 2.

3.4.3.3.5 FRM08/42/118: Rim, d. 26. Fabric: Red quartz fabric; unslipped; blackened rim exterior due to use-wear. Context: Foreman Street SU 42.

3.4.3.3.6 MLT84/26194: Rim, d. 26. Fabric: Red quartz fabric; unslipped. Context: Melita SU 1099, phase 5.

[1037] Bonifay 2004, 221.
[1038] *Ibid*.
[1039] *Ibid*.
[1040] Leitch 2010, 378.

3.4.3.4 Fulford lid type 11.5 *Figure I.39*

This lid form is North Tunisian in production and can be compared with Fulford's lid type 11.5, which was dated from the 2nd to 3rd century, but could continue well into the 5th century AD.[1041] Only a single example was identified within these new assemblages, whilst no other Maltese examples have been recorded to date.

3.4.3.4.1 FRM08/42/119: Rim, d. 26. Fabric: Brown quartz fabric; unslipped. Context: Foreman Street SU 42.

3.4.3.5 Fulford lid type 14 *Figure I.39*

This North Tunisian form has been compared with Fulford's lid type 14 (from Carthage), Dore's type 104 (from Sabratha) and Leitch's form 1.2.3.1.[1042] It dates from the second half of the 1st century to the 3rd century AD, and would be contemporary with the remaining pottery in the Foreman Street assemblage. A similar lid was also recovered from the small rural site of Għar ix-Xih, also in Gozo.[1043]

3.4.3.5.1 FRM08/59/34: Rim, d. 26. Fabric: Red quartz fabric; unslipped. Context: Foreman Street SU 59.

3.4.3.6 Miscellaneous lids *Figure I.39*

These two sherds most probably belong to ring "knobs" for cooking ware lids similar to those of Hayes 191 and Hayes 196.[1044] As there are no rims associated with either it remains difficult to be more specific.

3.4.3.6.1 FRM08/42/107: Ring knob, d. 7. Fabric: Red quartz fabric; red slipped surfaces; possible ARS fabric? Source: North Tunisia. Type: Unknown. Date: 2nd to 4th/5th century AD? Context: Foreman Street SU 42.

3.4.3.6.2 FRM08/42/108: Ring knob, d. 8. Fabric: Red quartz fabric; unslipped. Source: North Tunisia. Type: Hayes 192? Many similar shaped sherds associated with lids of Hayes type 192 have been identified and recorded from the recent Early Imperial excavations at Utica, Tunisia.[1045] Date: 1st to 3rd century AD? Context: Foreman Street SU 42.

[1041] Fulford 1984, 191, type 11.5.
[1042] Fulford 1984, 193, type 14; Dore 1989, 153–4, fig. 41; Leitch 2010, 382.
[1043] Anastasi and Quercia 2008–2009, fig. 13.2, find no. GRX05/120/12.
[1044] Hayes 1972, 206.
[1045] This information is derived from on-going research of the pottery from the Anglo-Tunisian excavations at Utica, Tunisia, by myself and V. Leitch.

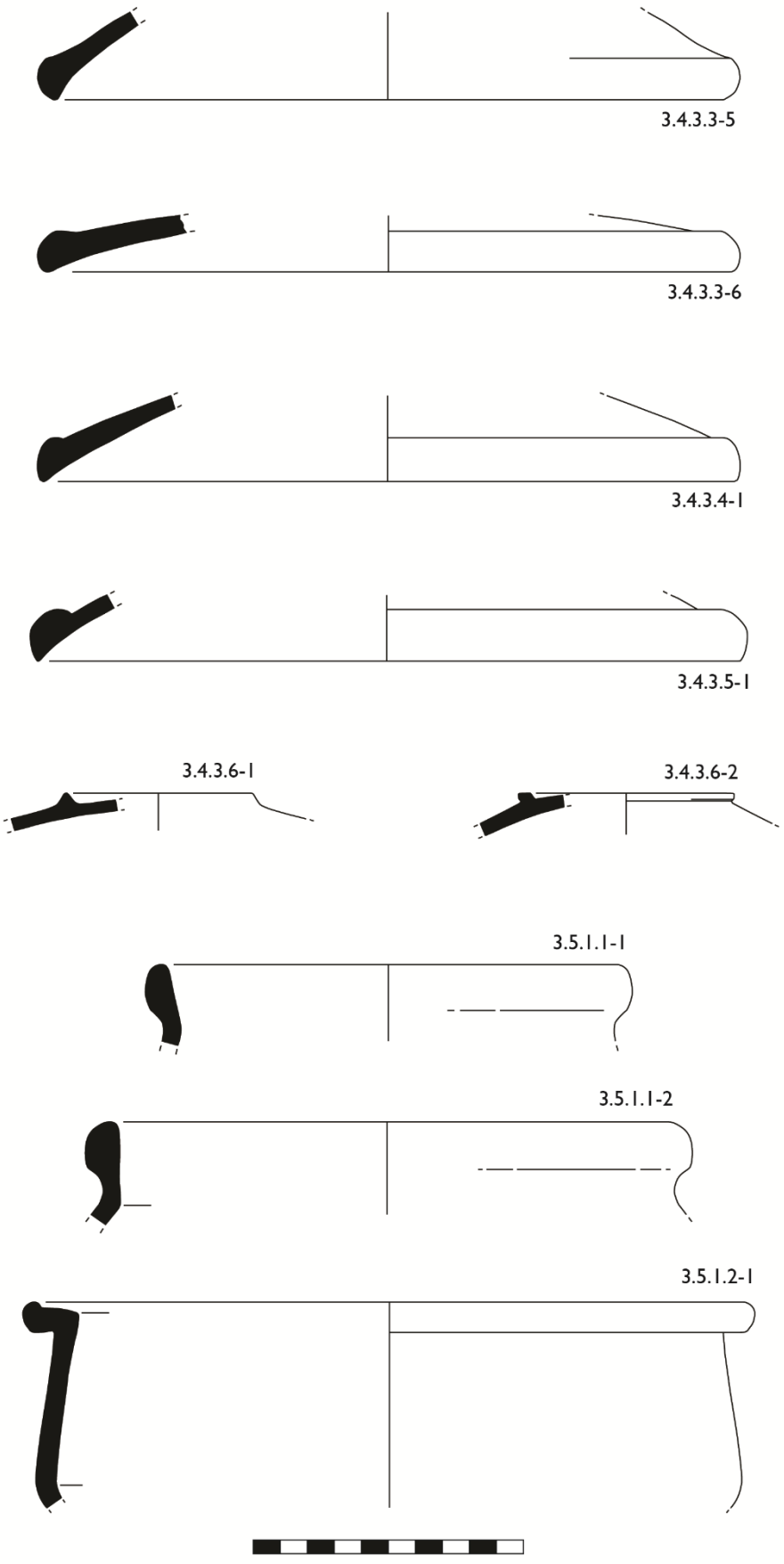


Figure I.39: Imported cooking wares, types 3.4.3.3–3.5.1.2.

3.5 Pantellerian ware

This type of imported cooking ware was most common in the Foreman Street assemblage making up 41% of the cooking wares, whilst it made up about 14% of the Melita cooking ware assemblage. Pantellerian ware has been recorded on several Maltese and Gozitan sites including the Punic sanctuary of Tas-Silġ,[1046] the rural site of Għar ix-Xih, Gozo[1047] and the Żejtun villa.[1048]

3.5.1 Ollas

3.5.1.1 Scauri type 7.3/Sabratha types 291–292 *Figure I.39*

This olla form was only identified at Foreman Street and is characterised by a round-bodied vessel with an almond-shaped rim. It belongs to Dore's forms 291–292 from Sabratha,[1049] and was also present within the Scauri wreck assemblage, classified as type 7.3.[1050] This form has been found in contexts dating from the 1st century BC to the second half of the 2nd century AD in Sabratha, and to the 3th–4th centuries in Agrigento, whilst Quercia identified this form in early contexts at Tas-Silġ.[1051] The Foreman Street context would suggest a date between the mid-2nd and early/mid-3rd century AD for this form, although more finds are needed to justify this.

3.5.1.1.1 FRM08/59/38: Rim, d. 18. Fabric: Dark grey/brown, gritty fabric with black sand and fine lime inclusions; unslipped. Context: Foreman Street SU 59.

3.5.1.1.2 FRM08/59/39: Rim, d. 20. Fabric: Pale brown-to-pink, gritty fabric with black sand and fine lime inclusions; unslipped. Context: Foreman Street SU 59.

3.5.1.2 Pantellerian cooking pot type 1 *Figure I.39*

Very few parallels for this Pantellerian ware form have been identified in the literature, however, typologically it does appear to be similar to the North African cooking ware casserole Hayes 199. Only a single example was identified at Foreman Street (3.5.1.2-1) and is associated with a variety of other Pantellerian ware forms dating to the 2nd to mid-3rd century AD.

[1046] Quercia 2006.
[1047] Quercia and Anastasi 2008–2009.
[1048] Anastasi 2010.
[1049] Dore 1989, 219–220, fig. 61.
[1050] Baldassari 2009a, 103, tav. V.
[1051] Dore 1989, 219–220; Baldassari 2009a, 103; Quercia 2006, 1606.

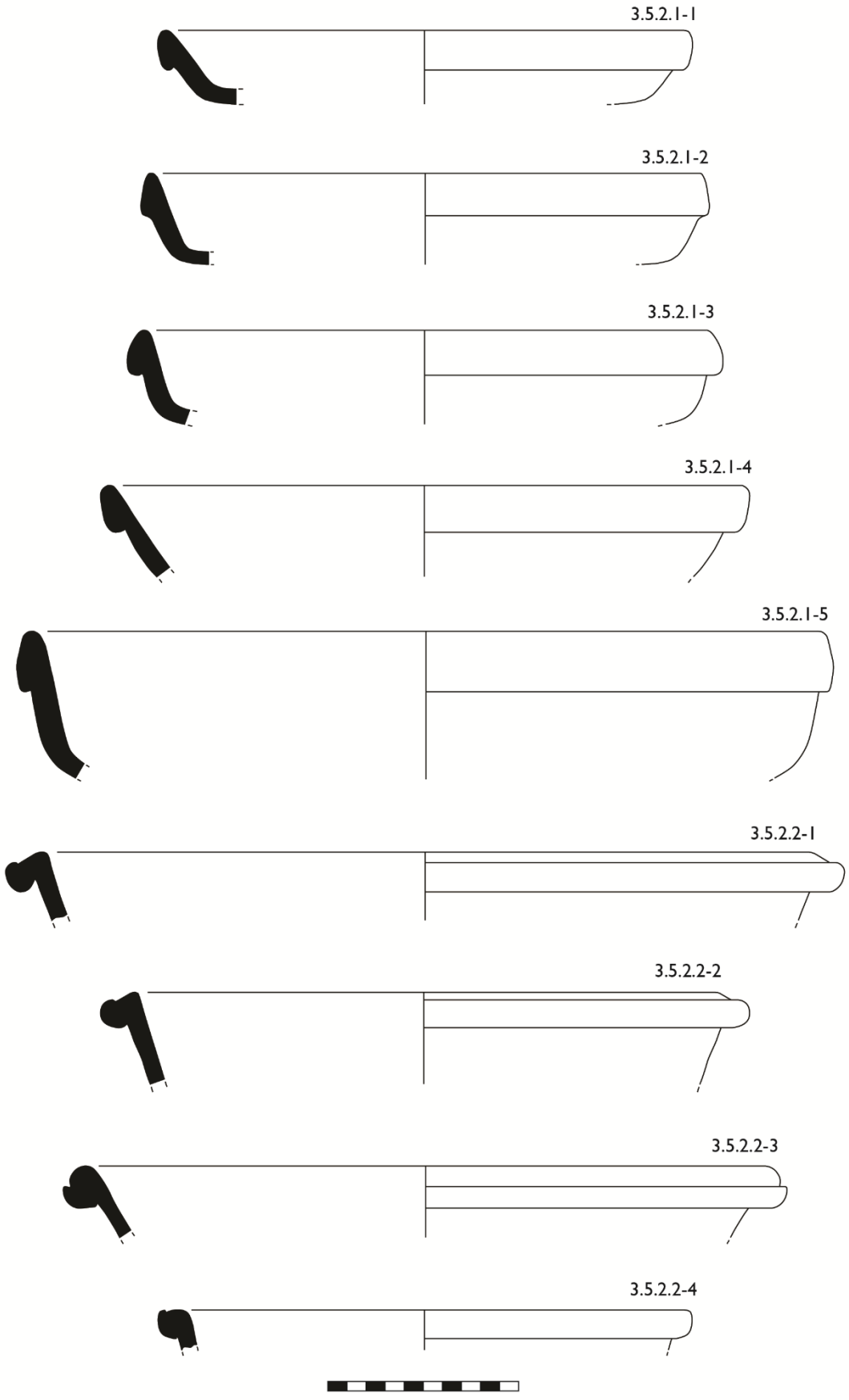


Figure I.40: Pantellerian cooking wares, types 3.5.2.1–3.5.2.2.

3.5.1.2.1 FRM08/42/84: Rim and body, d. 25. Fabric: Pale brown to grey gritty fabric with fine lime, quartz and some black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Foreman Street SU 42.

3.5.2 Casseroles

3.5.2.1 Scauri types 3.1-2/Sabratha form 293 *Figure I.40*

This shallow pan with a pointed, triangular rim, is one of the most common Pantellerian forms recorded within all the assemblages. The form sees very little morphological developments throughout its production; at Sabratha (Dore's form 293) it was associated with contexts dating to the Late Republican period,[1052] whilst typologically similar vessels from Cosa dated to the 3rd century AD.[1053] Its presence at Carthage extends well into the 5th century AD.[1054] Thus the examples listed below could all be contemporary within their contexts: the Foreman Street sherds can be dated to about the end of the 2nd to mid-3rd century AD, whilst the Melita fragments date to the mid-3rd/mid-4th century. It is one of the most commonly exported Pantellerian ware forms found on most coastal sites along the coasts of the central/western Mediterranean, and does occur in contexts as late as the 7th century.[1055]

3.5.2.1.1 FRM08/42/82: Rim, d. 28. Fabric: Pantellerian cooking ware fabric. Context: Foreman Street SU 42.

3.5.2.1.2 FRM08/42/83: Rim, d. 28. Fabric: Pantellerian cooking ware fabric Context: Foreman Street SU 42.

3.5.2.1.3 FRM08/59/36: Rim, d. 29. Fabric: Pantellerian cooking ware fabric Context: Foreman Street SU 59.

3.5.2.1.4 MLT84/26940: Rim, d. 34. Fabric: Coarse grey to pale brown gritty fabric with fine lime, quartz and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1076, phase 6 (mixed context).

3.5.2.1.5 FRM08/57/19: Rim, d. 42. Fabric: Pantellerian cooking ware fabric. Context: Foreman Street SU 57.

3.5.2.2 Scauri type 4.4 *Figure I.40*

This category of Pantellerian ware casseroles includes wide-bodied pans with a straight and slightly everted wall with an elongated beaded grooved

[1052] Dore 1989, 220, fig. 63.
[1053] Dyson 1976, 139–140.
[1054] Fulford 1984, 157, form 1.
[1055] Baldassari 2009a, 97, teglia type 3, tav. II.

rim. Many variants have been identified, but collectively they belong to the Scauri type 4.4 and Guiducci's teglie M1–2 types, dateable to between the 2nd and 7th centuries AD.[1056] At least two well-known classified types are represented and from the concentration within the Melita contexts, and can be dated with some degree of certainty from the mid-3rd to mid-to-late 4th century AD. Maltese imitations of this form have been recorded within the same assemblage (see form 3.2.1.4).

3.5.2.2.1 MLT84/49354: Rim, d. 44. Fabric: Coarse brown gritty fabric with fine white lime and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1093, phase 4.

3.5.2.2.2 MLT84/26937: Rim, d. 34. Fabric: Coarse brown gritty fabric with fine white lime and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1076, phase 6 (mixed context).

3.5.2.2.3 MLT84/49645: Rim, d. 38. Fabric: Coarse pale brown/grey gritty fabric with white lime and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1103, phase 5.

3.5.2.2.4 MLT84/49929: Rim, d. 28. Fabric: Coarse grey/brown fabric with fine lime, quartz and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1098, phase 5.

3.5.2.3 Scauri type 4.6 *Figure I.41*

This form is similar to the above form (3.5.2.2) but has a flatter and wider rim. R. Baldassari classified this form as Scauri form 4.6, but it was not at all common within the Scauri wreck assemblage. The same form was more common at Sabratha (form 296) and was dated to the first half of the 3rd century AD.[1057]

3.5.2.3.1 MLT84/26938: Rim, d. 24. Fabric: Coarse grey/brown gritty fabric with fine white lime and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1076, phase 6 (mixed context).

3.5.2.3.2 MLT84/49910: Rim, d. 34. Fabric: Coarse grey/brown gritty fabric with fine white lime and black volcanic inclusions; unslipped, dry-shaved surfaces. Context: Melita SU 1085, phase 3.

[1056] Baldassari 2009a, 97–102, tav. III; Guiducci 2003, 65, fig. 4.
[1057] Baldassari 2009a, 102, tav. III; Dore 1989, 221–223, fig. 61.

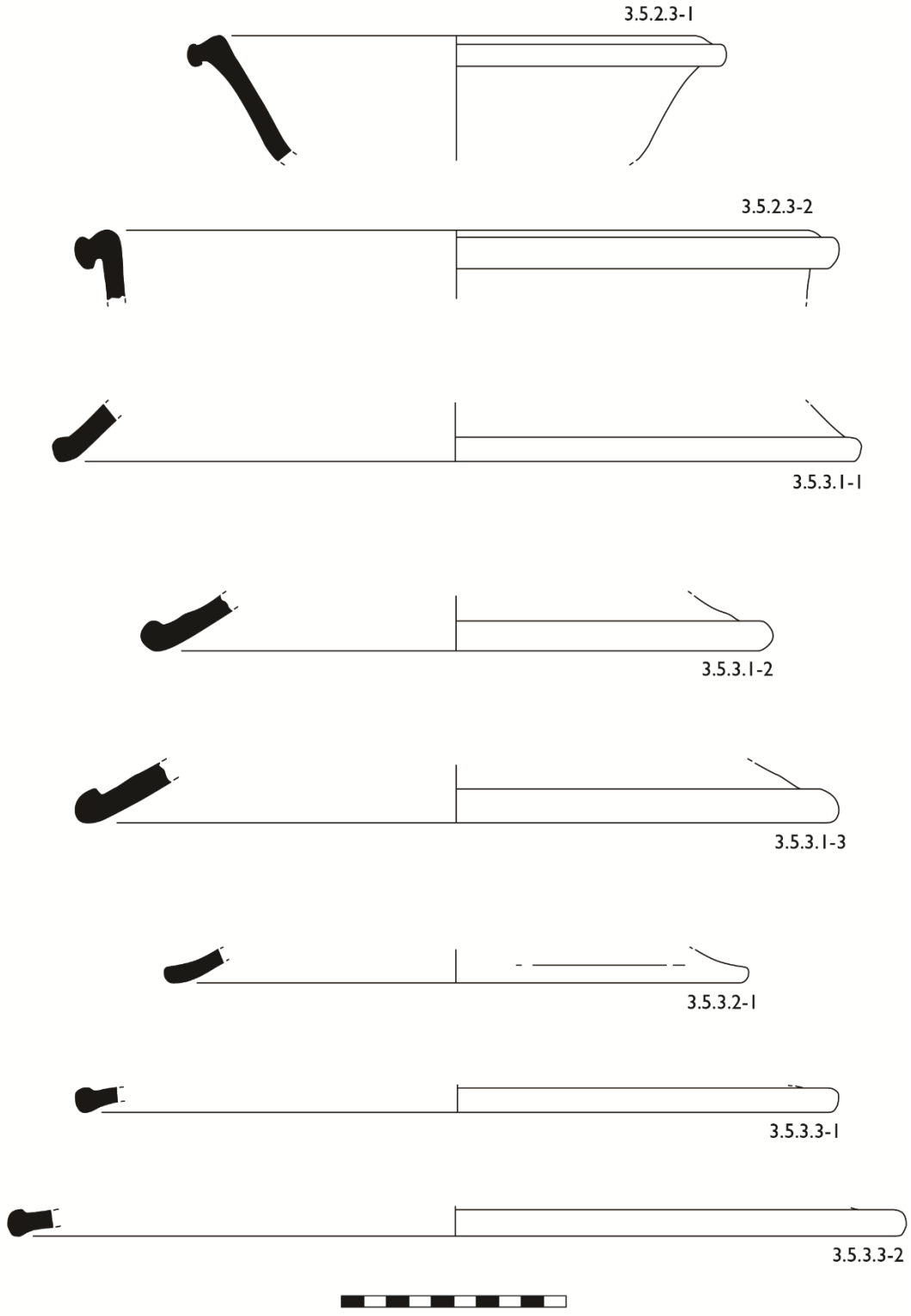


Figure I.41: Pantellerian cooking ware, types 3.5.2.3–3.5.3.3.

3.5.3 Lids

3.5.3.1 Scauri lid type 1.3 *Figure I.41*

This simple lid form is wide, has high sloping walls and ends with a distinct beaded rim. No complete examples were recovered from the Maltese assemblages so the form of the knob remains unknown. General classifications can be found with the Scauri lid type 1.3 and Fulford's handmade lid type 5 from the Carthage excavations.[1058] This lid form tends to be quite ubiquitous throughout the Roman period and has been associated with contexts at Scauri dating from the end of the 4th to beginning of the 5th century AD, and contexts dating to the beginning of the 7th century at Carthage. At least one knob fragment of the same lid type was recovered from the 1972 assemblage at the Żejtun villa.[1059]

3.5.3.1.1 BLB12/65/3: Rim, d. 36. Fabric: Coarse pale brown fabric with gypsum/rough quartz and lime inclusions; unslipped. Context: Bulebel SU 65, phase 2.

3.5.3.1.2 MLT84/25219: Rim, d. 28. Fabric: Coarse brown fabric with quartz, white lime and black volcanic inclusions; unslipped. Context: Melita SU 1071, 5.

3.5.3.1.3 MLT84/49928: Rim, d. 34. Fabric: Coarse brown fabric with quartz, white lime and black volcanic inclusions; unslipped. Context: Melita SU 1098, 5.

3.5.3.2 Scauri type 1.1–2/Fulford type 6 *Figure I.41*

This lid form has a lower, sloping wall and a simpler, thinner rim edge. Only a single example was identified within the Foreman Street assemblage and can be compared with Fulford's handmade lid type 6 and Baldassari's Scauri type 1.1–2.[1060] The chronological evidence for this form is like that of the previous type (3.5.3.1).

3.5.3.2.1 FRM08/57/20: Rim, d. 26. Fabric: Coarse brown fabric with quartz, white lime and black volcanic inclusions; unslipped. Context: Foreman Street SU 57.

3.5.3.3 Pantellerian lid type 1 *Figure I.41*

This lid is characterised by a circular-section beaded rim and wide, low walls. Close parallels for this particular form could not be found, however, it may be a variant of form 3.5.3.1. This lid form was only identified within

[1058] Baldassari 2009a, 95, tav, I; Fulford 1984, 159.
[1059] Anastasi 2012, 35, fig. 5.43.
[1060] Baldassari 2009a, 95, tav. I; Fulford 1984, 159.

the Foreman Street assemblage, therefore it could possibly be dated to the end of the 2nd to early/mid-3rd century AD.

3.5.3.3.1 FRM08/59/37: Rim, d. 34. Fabric: Coarse brown fabric with quartz, white lime and black volcanic inclusions; unslipped. Context: Foreman Street SU 59.

3.5.3.3.2 FRM08/42/85: Rim, d. 40. Fabric: Coarse brown fabric with quartz, white lime and black volcanic inclusions; unslipped. Context: Foreman Street SU 42.

4.1 Bowls, plates and cups

4.1.1 Coarse ware Bowl type 1 *Figure I.42*

These two bowl examples are characterised by straight walls ending in a simple pointed rim. The fabric and finish is typical of Late Punic Maltese pottery; in particular, the thick and smoothed cream slip that coats the surfaces. The red-painted concentric bands along the rim of type 4.1.1-1 is an additional Punic characteristic for pottery dating to between the 5th and 3rd century BC. The shapes are similar to those classified by Alessandro Quercia for the pottery at the sanctuary of Tas-Silġ, which he dates from the beginning 4th to 3rd centuries BC.[1061] They are also found in funerary contexts of the same date. The painted example (4.1.1-1) is most probably part of a local Punic kylix (Sagona kylix form III: 1).[1062]

4.1.1.1 FRM08/59/23: Rim, d. 22. Local Fabric 1: Orange clay with a pale grey core with white lime and fine foraminifera inclusions; thick and smoothed cream-coloured slip with red-painted bands on interior and exterior part of the rim. Context: Foreman Street SU 59; residual.

4.1.1.2 FRM08/42/31: Rim, d. 16. Local Fabric 1: Orange fabric with a grey core with yellow lime and foraminifera inclusions; cream-slipped surfaces. Context: Foreman Street SU 42; residual.

4.1.2 Coarse ware Bowl type 2 *Figure I.42*

This bowl form, with a bulbous rim, is common in Punic funerary contexts and within votive layers at the Punic sanctuary of Tas-Silġ and has featured within Quercia's classification of Punic coarse pottery at the site.[1063] The fabric and surface treatment for this type are like the previous form except that no red-painted decoration has been recorded on this type. The chronology for this form is also similar to the previous type; between the 5th and 3rd century BC.[1064]

[1061] Quercia 2011, 439, fig. 2.1–2.
[1062] Sagona 2002, 198.
[1063] Quercia 2011, fig. 2.4.
[1064] Quercia 2011, 441.

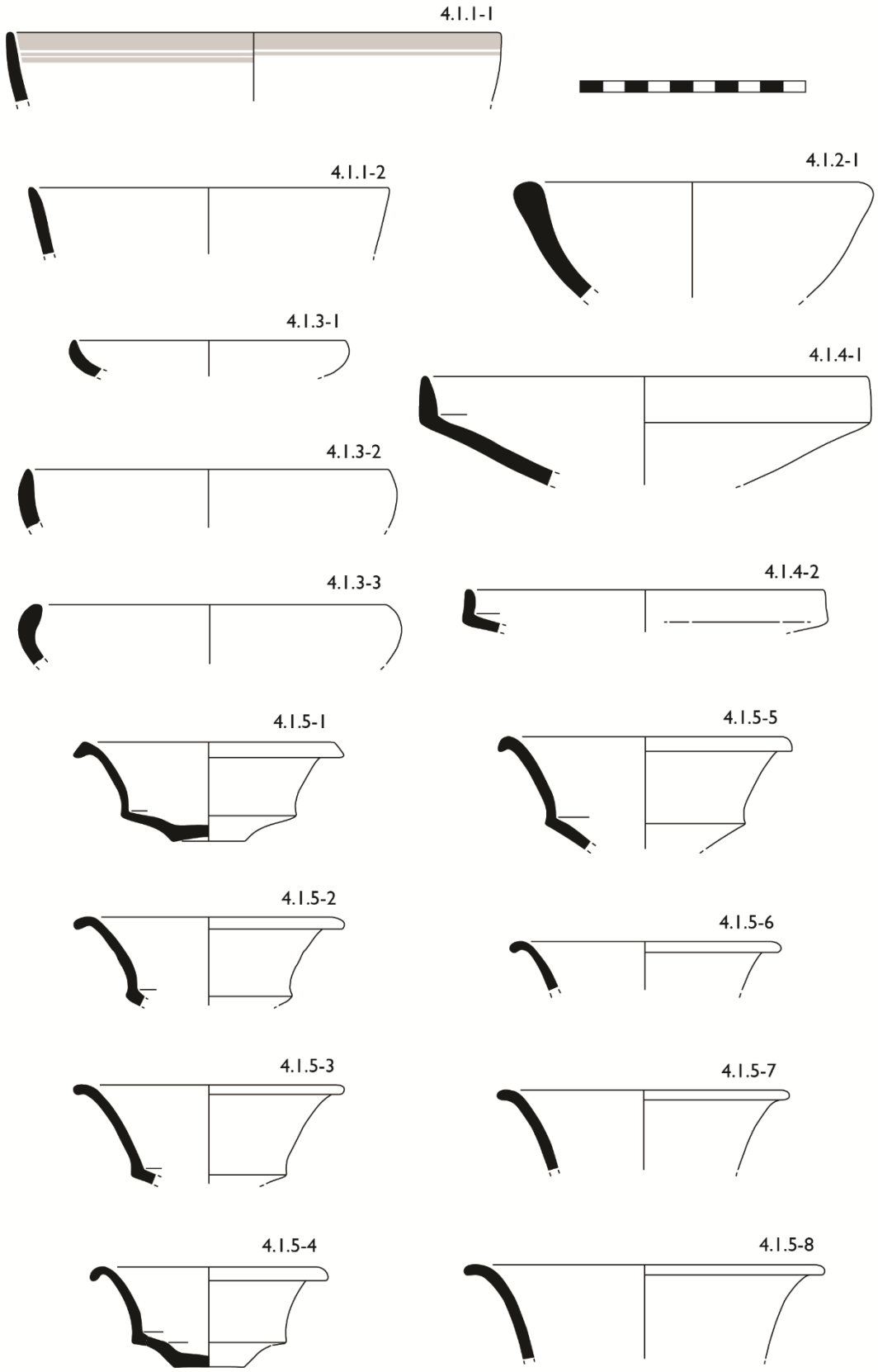


Figure I.42: Coarse ware bowls, types 4.1.1–4.1.5.

4.1.2.1 BLB12/30/2: Rim, d. 16. Local Fabric 1: Coarse orange fabric with white and yellow lime inclusions; thick cream-slipped surfaces. Context: Bulebel SU 30, phase 2; residual.

4.1.3 Coarse ware Bowl type 3 *Figure I.42*

This bowl form belongs to the same general bowl repertoire as the previous forms and is characterised by an inward-curving rim typical of the Hellenistic period, between the 4th and 3rd century BC.[1065] Many variants of this form were recovered in the University of Malta's excavations at Għar ix-Xih, Gozo (Figure 18.1–3).[1066] Earlier variants of this type are characterised by a thick, cream-slipped finish, whilst later versions, like 4.1.3-3, tend to display rougher, unslipped surfaces like those from the Għar ix-Xih contexts that date to after the 3rd century BC.

4.1.3.1 FRM08/42/18: Rim, d. 12. Local Fabric 1: Soft pale brown clay with a grey core with white lime and fine red and grey inclusions; thick, smooth cream slipped surfaces. Context: Foreman Street SU 42; residual.

4.1.3.2 MLT84/49416: Rim, d. 16. Local Fabric 1: Pale orange clay with white lime inclusions; smoothed cream-slipped surfaces. Context: Melita SU 1091, phase 2; residual?

4.1.3.3 MLT84/49343: Rim, d. 18. Local Fabric 1: Coarse pale orange fabric with abundant lime inclusions; unslipped surfaces. Context: Melita SU 1093, phase 4; residual.

4.1.4 Coarse ware Bowl type 4 *Figure I.42*

This bowl shape is loosely characterised by a straight and short carinated rim. Variant 4.1.4-1 shares morphological traits with a Punic form recorded in several tomb contexts on Malta and within votive contexts at the Punic sanctuary of Tas-Silġ. In this example, the fabric is typical of 6th/5th-century BC local pottery—coarse grey, lime-rich clay—with a rough, unslipped finish.[1067] The second variant, 4.1.4-2 is thinner and appears to be later dated based on the composition of the fabric and the thinness of the walls, which share morphological characteristics to the red-slipped versions seen within the same assemblage and phase (see type 2.1.1). It is classified by Sagona as bowl form V: 2a, and it is common in funerary contexts dating to the early Roman period.[1068]

[1065] Quercia 2011, fig. 2.5.
[1066] Quercia and Anastasi 2008–2009, fig. 3: 10-11, 18-21.
[1067] Sagona 2002, 175, bowl form III: 1.
[1068] Sagona 2002, 182–183.

4.1.4.1 BLB12/58/40: Rim, d. 20. Local Fabric 1: Coarse grey fabric, fired pale brown towards the surfaces with large yellow lime inclusions; unslipped. Context: Bulebel SU 58, phase 1; residual?

4.1.4.2 BLB12/32/24: Rim, d. 16. Local Fabric 2: Pale red clay with white lime and black glauconite inclusions; unslipped, dark grey exterior; over-fired? Context: Bulebel SU 32, phase 2.

4.1.5 Coarse ware Bowl type 5 (Sagona bowl form V: 4) *Figure I.42*

This small cup is a common early Roman find in tomb contexts on Malta. Sagona recorded the form (bowl form V:4) in tombs associated with late 1st century BC to mid-1st century AD-dated material and the shape has been found unslipped, as well as coated in a thin red slip.[1069] The small cup has a flat, string-cut base with a sharp carinated wall ending in a simple flared rim. Earlier versions dating to around a century earlier (Sagona bowl form IV-V: 3b) are practically the same shape except for a smoothed disc or ring base.[1070] A red-slipped example was recorded at Foreman Street (see type 2.1.8).

4.1.5.1 BLB12/39/1: Profile, rim (d. 12), base (d. 3). Local Fabric 2: Pale brown clay with abundant glauconite inclusions; unslipped. Context: Bulebel SU 39, phase 2.

4.1.5.2 BLB12/24/8: Rim, d. 12. Local Fabric 2: Pale orange clay with glauconite inclusions; unslipped. Context: Bulebel SU 24, phase 2.

4.1.5.3 BLB12/48/3: Rim, d. 12. Local Fabric 2: Pale orange clay with glauconite inclusions; unslipped. Context: Bulebel SU 48.

4.1.5.4 BLB12/28/4: Profile, rim (d. 10), base (d. 3). Local Fabric 1: Pale grey clay with white/yellow lime inclusions; rough, cream surface colour/scum; flat, string-cut base. Context: Bulebel SU 28, phase 2.

4.1.5.5 BLB12/44/1: Rim, d. 13. Local Fabric 2: Pale orange/brown clay with glauconite inclusions; unslipped. Context: Bulebel SU 44, phase 2.

4.1.5.6 BLB12/32/18: Rim, d. 12. Local Fabric 2: Dark orange clay with glauconite inclusions; unslipped. Context: Bulebel SU 44, phase 2.

4.1.5.7 BLB12/24/7: Rim, d. 13. Local Fabric 2: Pale orange/brown clay with glauconite inclusions; unslipped. Context: Bulebel SU 24, phase 2.

4.1.5.8 BLB12/58/36: Rim, d. 16. Local Fabric 1: Pale orange fabric with lime and red, grog-like inclusions; unslipped. Context: Bulebel SU 58, phase 1.

[1069] Sagona 2002, 183–184.

[1070] Sagona 2002, 180.

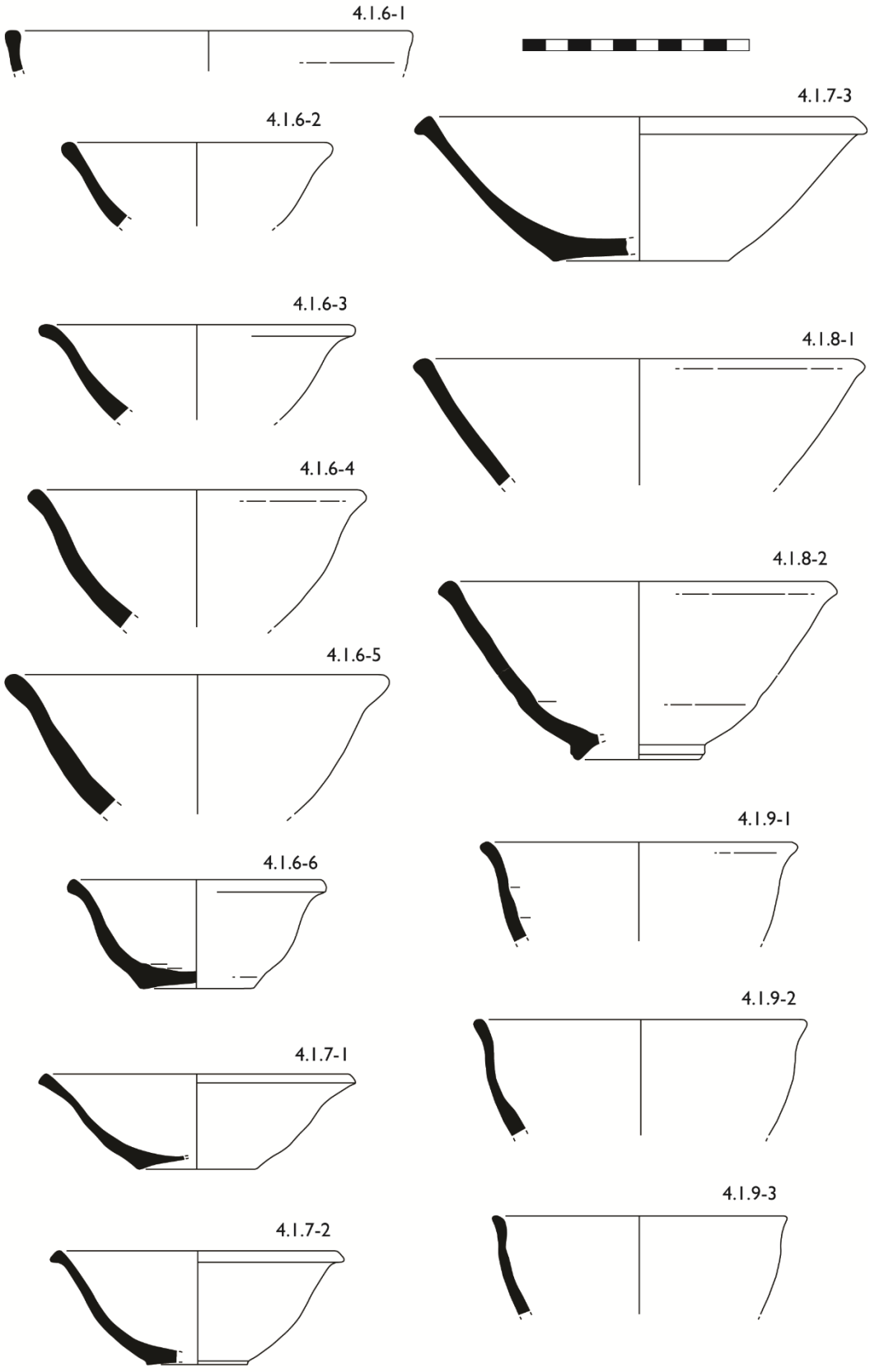


Figure I.43: Coarse ware bowl forms, types 4.1.6–4.1.9.

4.1.6 Coarse ware Bowl type 6 (Quercia bowl type 7: 7/Sagona bowl form IV: 4a) *Figure I.43*

This category includes a type of bowl characterised by a hemispherical body, with a thickened and slightly flaring rim. This bowl is very common on Maltese sites, particularly southern sites dating from the 3rd century BC until the 1st century AD. Local Fabric 1 is used for the bowls from Tas-Silġ and the Żejtun villa, and have been classified by Quercia as type 7.[1071] These bowls are always unslipped and wet-wiped, giving the surface a rough texture marred by finger-impressions and uneven firing. Associated bases are flat and string-cut. One example (4.1.6-1) appears to be a 3rd-2nd-century BC form from Gozo and shares both its shape and fabric with examples from Għar ix-Xih.[1072] A larger variant has been identified with 4.3.11.1.

4.1.6.1 FRM08/59/22: Rim, d. 18. Local Fabric 1: Pale brown fabric with fine lime inclusions; unslipped. Context: Foreman Street SU 59; residual?

4.1.6.2 BLB12/39/9: Rim, d. 12. Local Fabric 3: Hard orange fabric with lime, black glauconite and dark, gritty (black sand?) inclusions. Context: Bulebel SU 39, phase 2.

4.1.6.3 BLB12/58/24: Rim, d. 14. Local Fabric 1: Hard, pale orange cay with lime inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.1.6.4 BLB12/55/13: Rim, d. 15. Local Fabric 1: Hard, pale orange clay with lime inclusions; unslipped. Context: Bulebel SU 55, phase 1.

4.1.6.5 BLB12/54/4: Rim, d. 17. Local Fabric 1: Hard, pale orange fabric with lots of lime and grog inclusions; unslipped. Context: Bulebel SU 54, phase 1.

4.1.6.6 FRM08/42/19: Profile, d. 11.5 (rim), d. 5 (base). Local Fabric 2: Hard, pale red fabric with white foraminifera, lime and black glauconite inclusions; unslipped dark grey-fired surfaces. Context: Foreman Street SU 42.

4.1.7 Coarse ware Bowl type 7 *Figure I.43*

This bowl appears to be a later development of the previous form characterised by straighter, thinner walls and more angular rims.[1073] Generally, Local fabrics 2 and 3 are more commonly employed in these thinner versions. Although this form is found together with the earlier versions (4.1.6), the fabrics do indicate that their production continues

[1071] Quercia 2011, 441–442, fig. 2.6–8.
[1072] Quercia and Anastasi 2008–2009, fig. 3.3.
[1073] In terms of shape, close parallels can be sought with Quercia 2011, fig. 2.8, although little detail regarding context and fabric is currently available.

beyond that of the earlier type, at least into the 1st century AD, but better stratified material is required to clarify this.

4.1.7.1 BLB12/58/26: Profile, d. 14 (rim), d. 5 (base). Local Fabric 2: Pale red fabric with fine lime and glauconite inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.1.7.2 BLB12/39/12: Profile, d. 13 (rim), d. 5 (base). Local Fabric 1: Pale brown fabric with white lime inclusions; unslipped. Context: Bulebel SU 39, phase 2.

4.1.7.3 MLT84/23208.1: Profile, d. 20 (rim), d. 8 (base). Local Fabric 3: Pale red fabric with black volcanic (?), gypsum, white lime and quartz inclusions; unslipped. Context: Melita SU 1022.

4.1.8 Coarse ware Bowl type 8 (Sagona bowl form VI: 4b) *Figure I.43*

This bowl is characterised by straight everted walls, slightly carinated towards the ring base. Only two examples of this bowl were recorded and are restricted to Phase 1 at Bulebel giving a date of no later than the end of the 1st century. The same bowl has been classified by Sagona as bowl form VI: 4b, common in tomb contexts, and dated to after the mid-1st century.[1074]

4.1.8.1 BLB12/55/14: Rim, d. 20. Local Fabric 2: Well-fired dark orange fabric with black glauconite and fine lime inclusions; unslipped, well-finished surfaces. Context: Bulebel SUs 55 and 58, phase 1.

4.1.8.2 BLB12/58/4: Profile, d. 18 (rim), d. 6 (ring base). Local Fabric 2: Dark orange fabric with fine lime and black glauconite inclusions; unslipped, well-finished surfaces. Context: Bulebel SU 55, phase 1.

4.1.9 Coarse ware Bowl type 9 *Figures I.43–I.44*

This form is characterised by a simple hemispherical shape with thin wall ending with a slightly flaring simple rim. Compared to the previous bowl types, the walls tend to be angled more vertically. This type was found exclusively at Foreman Street in Local Fabric 2. No parallels are known but three waster sherds give a strong indication that this form was manufactured within the vicinity of Foreman Street. Based on the context, the form can be dated to the end of the 2nd to mid-3rd century.

4.1.9.1 FRM08/42/23: Rim, d. 14. Local Fabric 2: Hard. Pale brown/pink fabric with fine white lime, foraminifera, black glauconite, some fine quartz/gypsum and larger red ore grain inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

[1074] Sagona 2002, 188.

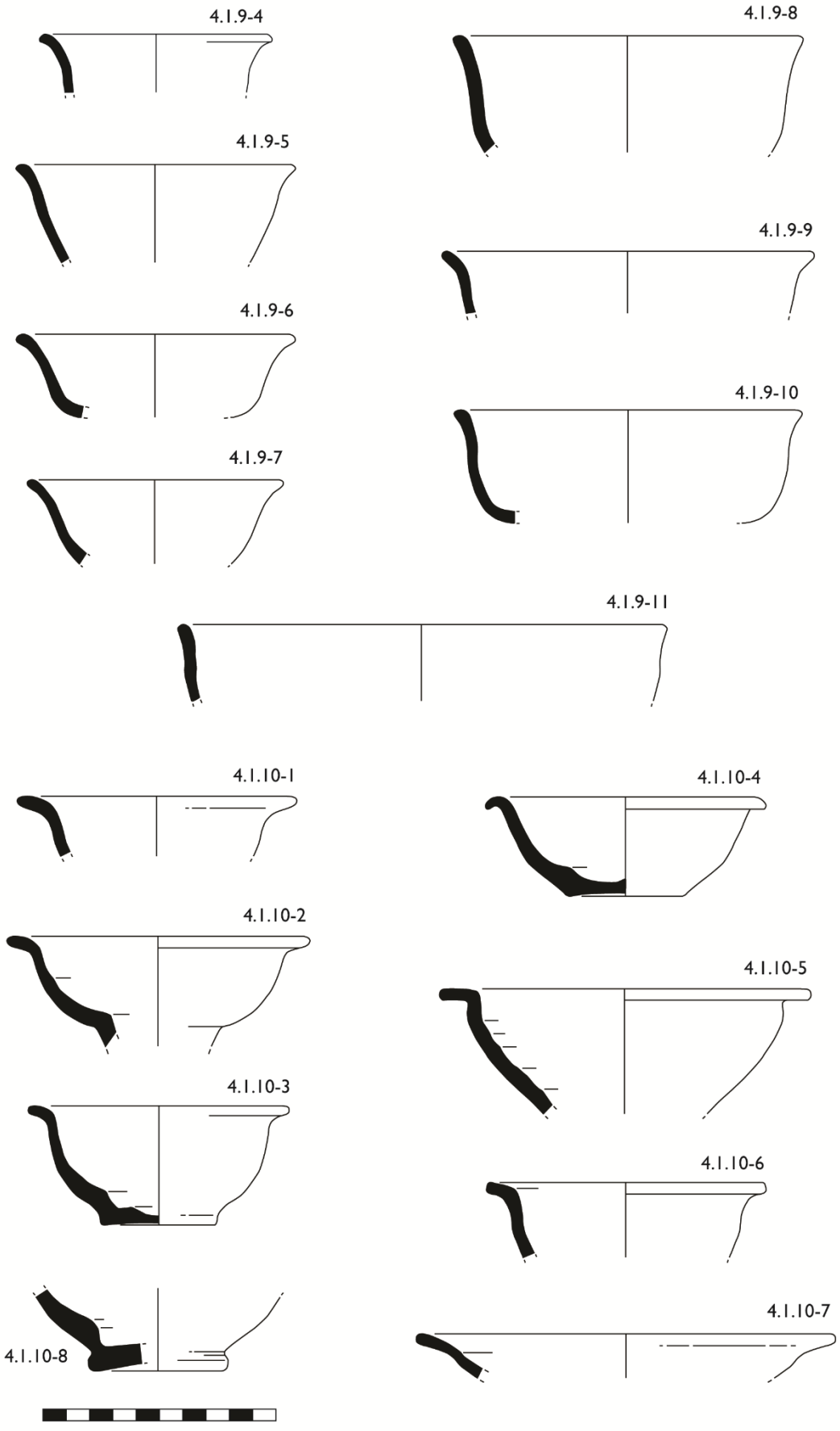


Figure I.44: Coarse ware bowl forms, types 4.1.9–4.1.10.

4.1.9.2 FRM08/42/24: Rim, d. 14. Local Fabric 2: Hard pale red fabric with fine foraminifera, lime and black glauconite inclusions; Unslipped, white exterior skin. Context: Foreman Street SU 42.

4.1.9.3 FRM08/42/20: Rim, d. 13. Local Fabric 2: Hard pale red fabric with fine white foraminifera, lime, black glauconite and translucent quartz or gypsum inclusions; unslipped pale yellow skin. Context: Foreman Street SU 42.

4.1.9.4 FRM08/42/44: Rim, d. 10. Local Fabric 2: Gritty and hard red and grey fabric with white foraminifera and round, black glauconite inclusions; unslipped pale brown/grey surfaces. Context: Foreman Street SU 42.

4.1.9.5 FRM08/57/16: Rim, d. 12. Local Fabric 2: Hard pale red fabric with lots of yellow lime halos, white foraminifera, glauconite and red ore inclusions; unslipped dark grey-fired exterior surfaces; waster. Context: Foreman Street SU 57.

4.1.9.6 FRM08/57/14: Rim, d. 12. Local Fabric 2: Hard dark grey fabric with fine white lime, foraminifera, glauconite and some angular quartz/gypsum inclusions; over-fired, unslipped grey surfaces; waster. Context: Foreman Street SU 57.

4.1.9.7 FRM08/42/21: Rim, d. 11. Local Fabric 2: Hard pale red to grey fabric with fine yellow and white lime, foraminifera, and black and red glauconite inclusions; unslipped, grey surfaces. Foreman Street SU 42.

4.1.9.8 FRM08/42/22: Rim, d. 15. Local Fabric 2: Pale brown fabric with large white lime, foraminifera, fine black glauconite, and some fine angular gypsum inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

4.1.9.9 FRM08/57/15: Rim, d. 16. Local Fabric 2: Gritty pale grey fabric with lots of fine yellow lime, white foraminifera, and black and red glauconite inclusions; unslipped grey surfaces; waster. Context: Foreman Street SU 57.

4.1.9.10 FRM08/42/28: Rim, d. 15. Local Fabric 2: Hard-fired, red fabric with fine white lime, foraminifera, and red and black shiny glauconite inclusions; pale cream surfaces; defective, warped rim; waster? Context: Foreman Street SU 42.

4.1.9.11 FRM08/42/27: Rim, d. 21. Local Fabric 2: Hard-fired, red fabric with fine white lime, foraminifera, and red and black shiny glauconite inclusions; pale grey surfaces. Context: Foreman Street SU 42.

4.1.10 Coarse ware Bowl type 10 *Figure I.44*

This bowl form is an unslipped, coarse ware version of type 2.1.5. The form and fabrics are generally the same as the red-slipped version (see type 2.1.5).

4.1.10.1 FRM08/42/42: Rim, d. 12. Local Fabric 2: Hard, gritty pale red fabric with large white lime, fine foraminifera, fine black glauconite and some angular gypsum inclusions; unslipped pale cream surface. Context: Foreman Street SU 42.

4.1.10.2 FRM08/59/8: Rim, d. 13. Local Fabric 2: Pale brown/pink fabric with few fine foraminifera, fine black glauconite and red ore inclusions; unslipped surfaces. Context: Foreman Street SU 59.

4.1.10.3 FRM08/42/38: Profile, d. 11 (rim), d. 5 (base). Local Fabric 2: Coarse pale brown fabric with large dark grey grog (?), fine black glauconite, and fine foraminifera inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

4.1.10.4 FRM08/59/9: Profile, d. 11 (rim), d. 5 (base). Local Fabric 2: Hard-fired grey to red fabric with shiny black glauconite, fine white lime, and foraminifera inclusions. Context: Foreman Street SU 59.

4.1.10.5 FRM08/42/39: Rim, d. 16. Local Fabric 2: Pale brown fabric with fine black glauconite, fine white foraminifera, white lime and few large pale red grog inclusions; unslipped. Context: Foreman Street SU 42.

4.1.10.6 FRM08/57/13: Rim, d. 12. Local Fabric 2: Pale brown/pink fabric with fine, shiny black glauconite inclusions, fine white foraminifera and lime inclusions; unslipped. Context: Foreman Street SU 57.

4.1.10.7 FRM08/42/135: Rim, d. 18. Local Fabric 2: Hard red fabric with white lime, foraminifera, and black glauconite inclusions; pale yellow exterior surface. Context: Foreman Street SU 42.

4.1.10.8 FRM08/57/31: Base, d. 6. Local Fabric 2: Hard-fired red and grey fabric with streaks of yellow clay or foraminifera?; contains fine black glauconite inclusions; unslipped pale grey surfaces. Context: Foreman Street SU 57.

4.1.11 Coarse ware Bowl type 11 *Figure I.45*

This shape is a carinated, thin-walled, bowl form with a diameter range between 13 and 18 cm. The slightly concave rim flares sharply outwards creating a Z-shaped profile. The vessels are not very well-finished, remain unslipped and only lightly wet-wiped with a bloom or salt-slip that coats an uneven rough surface. One example was found to contain a finger-impressed flat, horizontal strap handle flush with the rim (4.1.11-4). Several wasters documenting blistering, over- and under-firing and warped walls and rims were noted and attest to the high probability that this form was manufactured at this location. Close parallels for this shape are not widely known, however, bowls discovered from a rock-cut tomb near Wied il-Għasri, Gozo in 1979, and which are now on exhibit at the Museum of Archaeology at Cittadella, Gozo, are likely to be similar in shape.[1075] Sagona has classed this form as bowl form V: 3.[1076] All the forms identified are made using a hard-fired red fabric containing fine black glauconite inclusions and white lime (Local Fabric 2). This type of fabric and form was also noted in the examples noted by Sagona in her study of Punic pottery in the Maltese islands and may be indicative of the possible export of Gozitan vessels to

[1075] Sagona 2002, 1124–1126, figs 248.4–6, 249.23–25.

[1076] Sagona 2002, 183, fig. 348.31.

the neighbouring island of Malta.[1077] No complete profiles or bases have been identified for this form. This form, together with Coarse ware Bowl type 12 (4.1.12), shares some characteristics with a funnel vessel identified by Rotroff. However, no spouts characteristic of the funnel, have been recovered from any of the deposits.[1078]

Like practically all the other coarse ware shapes linked to the Foreman Street production site, this bowl form is thought to be a local production and has been tentatively dated to the end of the 2nd to mid-3rd century.

4.1.11.1 FRM08/57/1: Rim, d. 13. Local Fabric 2: Hard-fired red to grey fabric with large white lime and foraminifera, and some fine angular gypsum and fine black glauconite inclusions; unslipped grey surfaces. Context: Foreman Street SU 57.

4.1.11.2 FRM08/59/2: Rim, d. 13. Local Fabric 2?: Hard red fabric with fine white lime, foraminifera and occasional black glauconite inclusions; even pale grey skin; defective piece (waster) with traces of plaster. Context: Foreman Street SU 59.

4.1.11.3 FRM08/42/41: Rim, d. 18. Local Fabric 2: Hard pale red fabric with fine white lime, foraminifera, angular translucent gypsum and occasional fine black glauconite inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

4.1.11.4 FRM08/42/36: Rim and handle, d. 14. Local Fabric 2: Pale brown/pink fabric with fine white lime, foraminifera, some fine angular gypsum and occasional black glauconite inclusions; unslipped surfaces. Context: Foreman Street SU 42.

4.1.11.5 FRM08/57/2: Rim, d. 14. Local Fabric 2: Hard pale red fabric with fine white lime, foraminifera, white opaque gypsum (?), and red and black glauconite inclusions; unslipped. Context: Foreman Street SU 57.

4.1.11.6 FRM08/57/3: Rim, d. 14. Local fabric 2: Hard pale brown compact fabric with fine white lime, foraminifera, and occasional black glauconite inclusions; unslipped pale pink skin. Context: Foreman Street SU 57.

4.1.11.7 FRM08/42/40: Rim, d. 18. Local Fabric 2: Gritty pale red fabric with white lime, foraminifera, and black shiny glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.1.11.8 FRM08/59/1: Rim, d. 15. Local Fabric 2: Hard red fabric with fine white lime, foraminifera, fine angular gypsum and shiny black glauconite inclusions; unslipped pale grey skin. Context: Foreman Street SU 59.

4.1.11.9 FRM08/42/42a: Rim, d. 16. Local Fabric 2: Hard red fabric with white lime, foraminifera, and black glauconite inclusions; unslipped pale cream skin. Context: Foreman Street SU 42; not illustrated.

[1077] Sagona 2002, 1059, nos. 49–50.

[1078] Rotroff 2006, 91–92, funnel form 2.

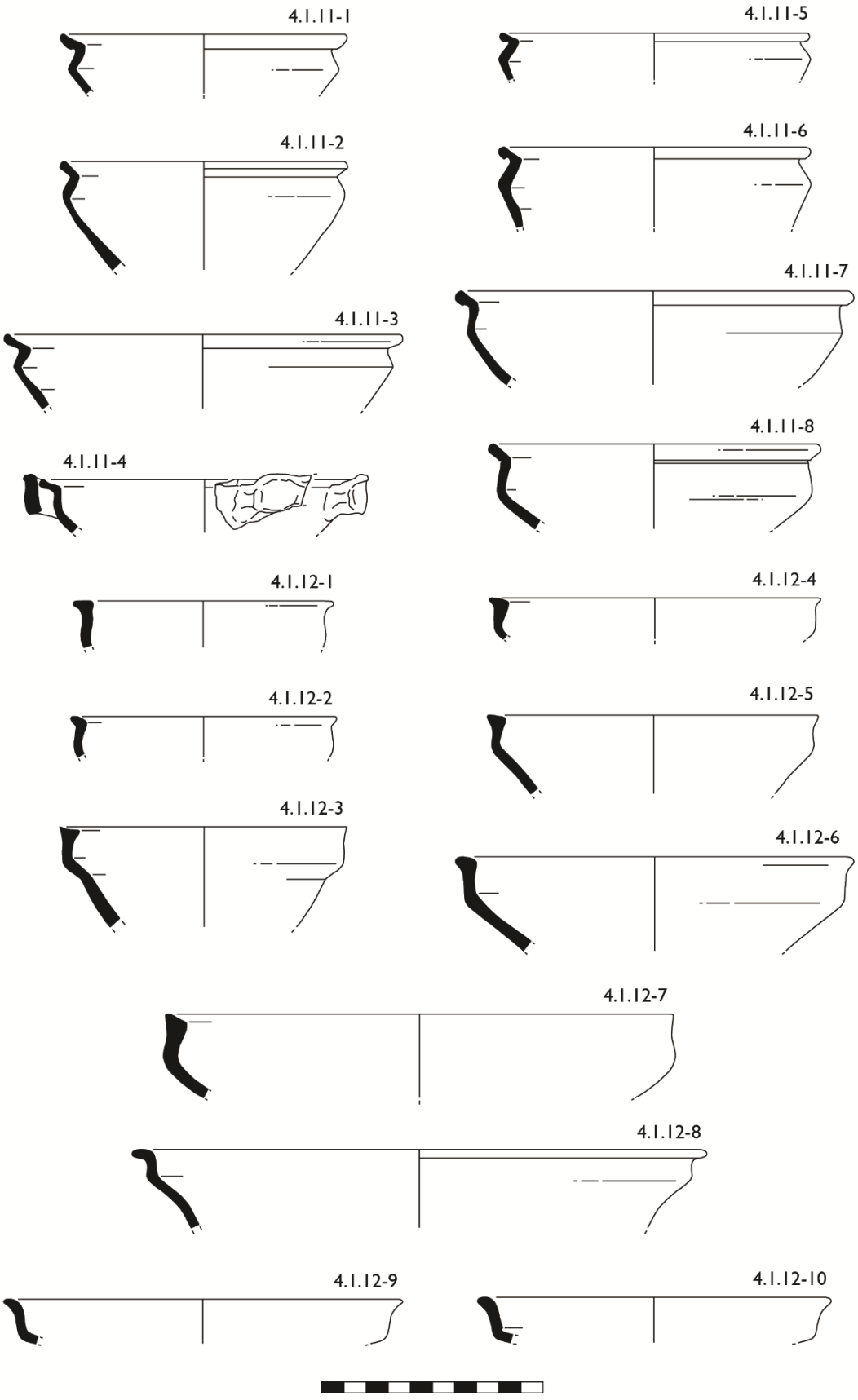


Figure I.45: Coarse ware bowl forms, types 4.1.11–4.1.12.

4.1.12 Coarse ware Bowl type 12 *Figure I.45*

This form is morphologically very similar to type 4.1.11 but the rim is straighter after the carination and ends in a slightly bevelled, beaded rim. The rim diameters range between 12 and 23 cm. The fabric, surface treatment, and dating are the same as type 4.1.11 above. A range of minor variants has been identified, but because of the number of wasters and the nature of the site, little distinction can really be drawn between these variations (for instance, 4.1.12-8–10). There is difficulty drawing local parallels for this shape as it is morphologically very similar to bowl form V: 3 identified by Sagona.[1079] A North African parallel for the vessel's form may be found in Sabratha and dates to the second half of the first century AD, although this may be an isolated example.[1080]

4.1.12.1 FRM08/42/3: Rim, d. 10. Local Fabric 1: Pale brown fabric with grey shell/lime, white lime and fine red ore inclusions; thick, pale white, slipped surface. This particular sherd appears to be a Punic-period antecedent of this form because of the fabric. No parallels are known. Context: Foreman Street SU 42.

4.1.12.2 FRM08/57/8: Rim, d. 12. Local Fabric 2: Pale brown fabric with fine white lime, foraminifera, fine black glauconite and red ore inclusions; unslipped. Context: Foreman Street SU 57.

4.1.12.3 FRM08/42/2: Rim, d. 13. Local Fabric 2: Hard pale red fabric with white foraminifera, black glauconite, fine white lime and red ore inclusions; unslipped pale cream skin. Context: Foreman Street SU 42.

4.1.12.4 FRM08/57/7: Rim, d. 15. Local Fabric 2: Hard dark grey fabric with white foraminifera, lime, black glauconite and red ore (?) inclusions; unslipped; over-fired waster. Context: Foreman Street SU 57.

4.1.12.5 FRM08/42/1: Rim, d. 15. Local Fabric 2: Pale red fabric with fine white lime, foraminifera, and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.1.12.6 FRM08/42/4: Rim, d. 18. Local Fabric 2: Hard pale brown fabric with white foraminifera, lime, black glauconite and few red ore inclusions; unslipped, grey surface. Context: Foreman Street SU 42.

4.1.12.7 FRM08/57/6: Rim, d. 23. Local Fabric 2: Hard dark grey fabric with thin pale red edges with white foraminifera and black glauconite inclusions; unslipped pale pink surfaces. Context: Foreman Street SU 57.

[1079] It has been noticed that no close analysis and drawings were made of this shape by Sagona except for one small drawing (Sagona 2002, fig. 348.31). Until further identification can be made over the Wied il-Għasri tomb material, these types can easily be misidentified; see Figure I.64 for a possible example of a similar bowl on display at the National Museum of Archaeology, Rabat, Gozo.

[1080] Dore 1989, 127, fig. 45.145.

4.1.12.8 FRM08/42/16: Rim, d. 26. Local Fabric 2: Pale brown fabric with white lime, foraminifera, black glauconite and red ore inclusions; unslipped. Context: Foreman Street SU 42.

4.1.12.9 FRM08/59/5: Rim, d. 18. Local Fabric 2: Pale brown fabric with white lime, foraminifera, fine black glauconite and red ore inclusions; unslipped. Context: Foreman Street SU 59.

4.1.12.10 FRM08/59/4: Rim, d. 16. Local Fabric 2: Hard red fabric with fine white foraminifera, lime and fine black glauconite inclusions; unslipped. Context: Foreman Street SU 59.

4.1.13 Coarse ware Plate type 13 *Figure I.46*

This small, shallow plate is characterised by its short carinated, square-cut rim. A similar form was discovered in the Għar ix-Xih assemblage and has been dated to the 3rd–2nd century BC.[1081] This sherd is most probably residual at Foreman Street.

4.1.13.1 FRM08/57/9: Rim, d. 16. Local Fabric 1: Red fabric with a grey core with fine lime and foraminifera inclusions; unslipped grey surfaces. Context: Foreman Street SU 57.

4.1.14 Coarse ware Bowl type 14 *Figure I.46*

This shape is the Punic precursor of the following type (4.1.15) and is certainly a residual fragment within the Foreman Street assemblage. Many plates like this have been recorded at Għar ix-Xih[1082] and Ras il-Wardija,[1083] both on Gozo, and have been dated to about the 3rd/2nd century BC.

4.1.14.1 FRM08/42/17: Rim, d. 20. Local Fabric 1: Pale brown fabric with white/grey foraminifera, white lime and fine red inclusions; thick and smooth cream slipped surfaces. Context: Foreman Street SU 42; residual.

4.1.15 Coarse ware Bowl type 15 *Figure I.46*

This shape is a typical plate form that finds predecessors in the Punic period (see 4.1.14). A shallow plate culminates in a straight or slightly everted rim offset by a sharp carination at the shoulder. The rim diameters range between 8 and 29 cm.

[1081] Quercia and Anastasi 2008–2009, fig. 7.7.
[1082] Quercia and Anastasi 2008–2009, fig. 7.6.
[1083] Cagiano de Azevedo et al. 1965, fig. 14.9.

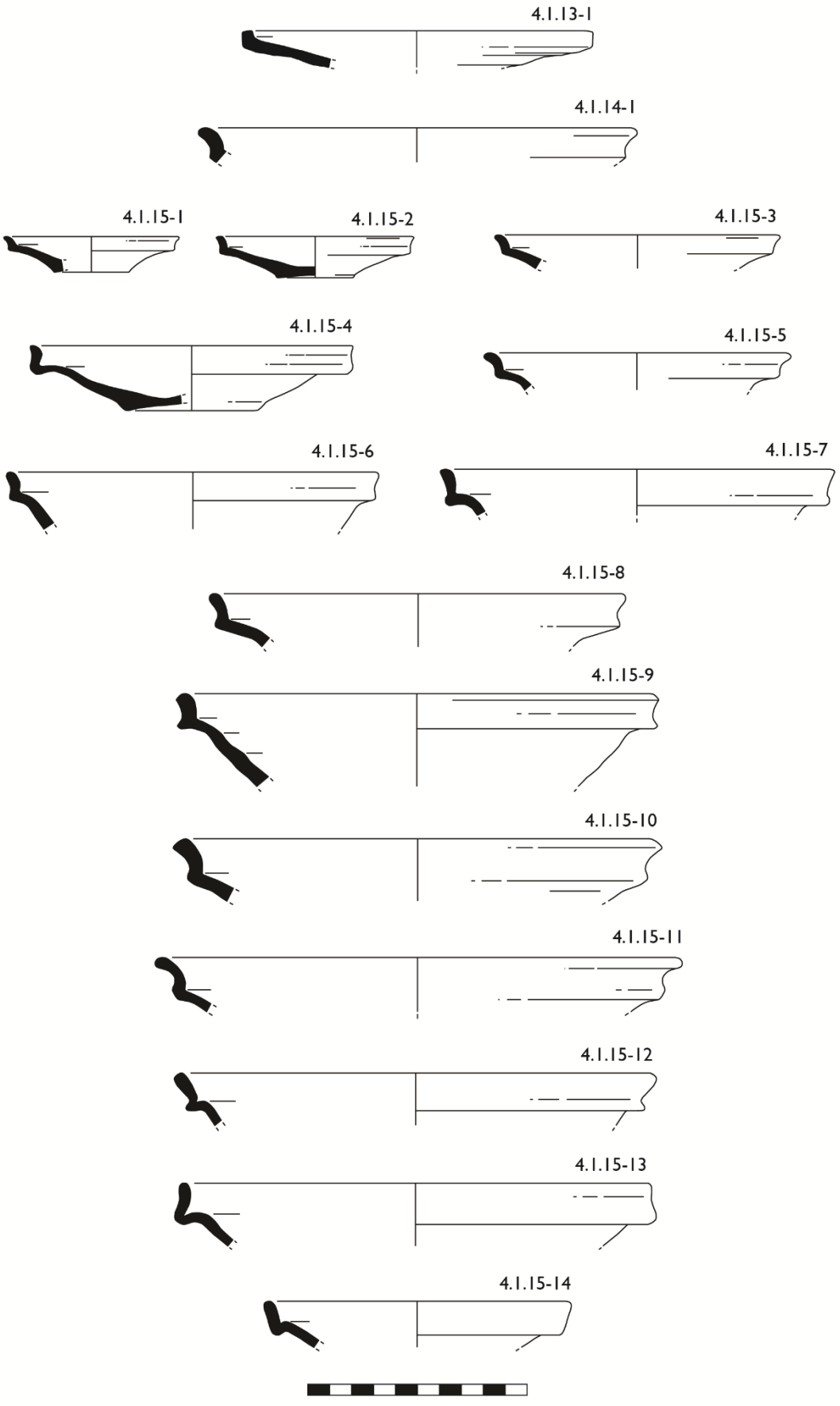


Figure I.46: Coarse ware bowl forms, types 4.1.13–4.1.15.

The fabric and finish is like that of the previous types from Foreman Street (Local Fabric 2); and since entire profiles have been identified for this form, it is evident that these plates contain a flat to slightly concave string-cut base. A small range of variants can be identified, based on difference in wall thicknesses and the rim's projecting lip. These variants, however, are most probably unintentional, and are a result of the nature of the manufacturing process. This shape is known at Late Punic-period sites on Gozo, principally those of Għar ix-Xih in the Mġarr ix-Xini valley[1084] and Ras il-Wardija.[1085] These sites have been dated to between the 3rd and 1st century BC, however, the fabric of the plates found at these two sites does not contain glauconite, but instead is made using a fine, chalky, orange lime fabric typical of the Punic period.[1086] Both of these sites have been interpreted as ritual in nature. Plates which share the same form and also the fabric were also recovered from the Wied il-Għasri tomb in Gozo.[1087] Based on the context and the discovery of several wasters, the Foreman Street examples have been dated to the end of the 2nd to mid-3rd century AD.

4.1.15.1 FRM08/42/5: Profile, d. 8. (rim), d. 3.5 (base). Local Fabric 2: Hard-fired grey fabric with thin pale red edges, with white foraminifera, lime and black glauconite inclusions; unslipped pale red surfaces. Context: Foreman Street SU 42.

4.1.15.2 FRM08/42/6: Profile, d. 9 (rim), d. 3.5 (base). Local Fabric 2: Pale brown fabric with thin pale grey core, with white foraminifera, lime, red ore and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.1.15.3 FRM08/42/8: Rim, d. 13. Local Fabric 2: Hard dark grey fabric with thin red core, with fine white lime, foraminifera and black and red glauconite inclusions; unslipped grey surfaces. Context: Foreman Street SU 42.

4.1.15.4 FRM08/59/3: Profile, d. 15 (rim), d. 6 (base). Local Fabric 2: Pale red fabric with thick pale grey core, with white foraminifera, lime, red ore and black glauconite inclusions; unslipped. Context: Foreman Street SU 59.

4.1.15.5 FRM08/57/12: Rim, d. 14. Local Fabric 2: Pale brown fabric with fine white lime, foraminifera, black and red glauconite inclusions; unslipped pale surfaces. Context: Foreman Street SU 57.

4.1.15.6 FRM08/42/12: Rim, d. 17. Local Fabric 2: Red fabric with fine white foraminifera, lime, fine black glauconite and occasional angular gypsum inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

[1084] Quercia and Anastasi 2008–2009, figs 7.7; see type 4.1.14.
[1085] Cagiano de Azevedo et al. 1965, figs 14: 2, 4 and 9.
[1086] This fabric is can be described as a variant of Local Fabric 1 and was used on forms similar to 4.1.13 and 4.1.14 at the Għar ix-Xih site.
[1087] Sagona 2002, 1125, figs 248: 7-8, 15.

4.1.15.7 FRM08/57/10: Rim, d. 18. Local Fabric 2: Hard dark grey fabric with burnt lime, fine white foraminifera, and black glauconite inclusions; unslipped pale grey skin; over-fired? Context: Foreman Street SU 57.

4.1.15.8 FRM08/42/10: Rim, d. 19. Local Fabric 2: Hard pale red fabric with lots of fine yellow lime and fine white foraminifera, occasional large red ore and black glauconite inclusions; unslipped grey surfaces; mis-fired waster. Context: Foreman Street SU 42.

4.1.15.9 FRM08/42/13: Rim, d. 22. Local Fabric 2: Orange-red fabric with fine white lime, angular gypsum, foraminifera and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.1.15.10 FRM08/42/14: Rim, d. 22. Local Fabric 2: Pale brown to grey fabric with fine foraminifera, red and black glauconite inclusions; unslipped pale brown skin. Context: Foreman Street SU 42.

4.1.15.11 FRM08/57/11: Rim, d. 24. Local Fabric 2: Red fabric with white lime, foraminifera, angular translucent gypsum, red ore and black glauconite inclusions; unslipped cream skin. Context: Foreman Street SU 57.

4.1.15.12 FRM08/42/15: Rim, d. 22. Local Fabric 2: Hard red fabric with lots of fine white lime and foraminifera, occasional black glauconite and red ore inclusions; unslipped cream-grey skin. Context: Foreman Street SU 42.

4.1.15.13 FRM08/42/11: Rim, d, 22. Local Fabric 2: Hard dark grey fabric with fine white lime and foraminifera, and black glauconite inclusions; unslipped; mis-fired waster. Context: Foreman Street SU 42.

4.1.15.14 FRM08/42/9: Rim, d. 14. Local Fabric 2: Pale red fabric with fine white lime, foraminifera, red ore and black glauconite inclusions; unslipped; misshapen waster. Context: Foreman Street SU 42.

4.1.16 Coarse ware Bowl type 16 *Figure I.47*

Two bowl rim sherds from Bulebel and Foreman Street exhibit a thickened, bevelled rim with a slightly carinated wall. Both Local Fabrics 1 and 2 have been employed for the manufacture of this vessel, but it is unclear whether there is any production link between the two pieces. No clear local parallels are known and too few fragments have been recovered to support any further conclusions. The finds' contexts suggest that this form was in use at least between the 1st century BC and mid-3rd century AD.

4.1.16.1 BLB12/58/13: Rim, d. 20. Local Fabric 1: Pale orange fabric with white lime and foraminifera inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.1.16.2 FRM08/59/40: Rim, d. 20. Local Fabric 2: Dark grey to black fabric with glauconite and white lime inclusions; unslipped black surface; over-fired? Context: Foreman Street SU 59.

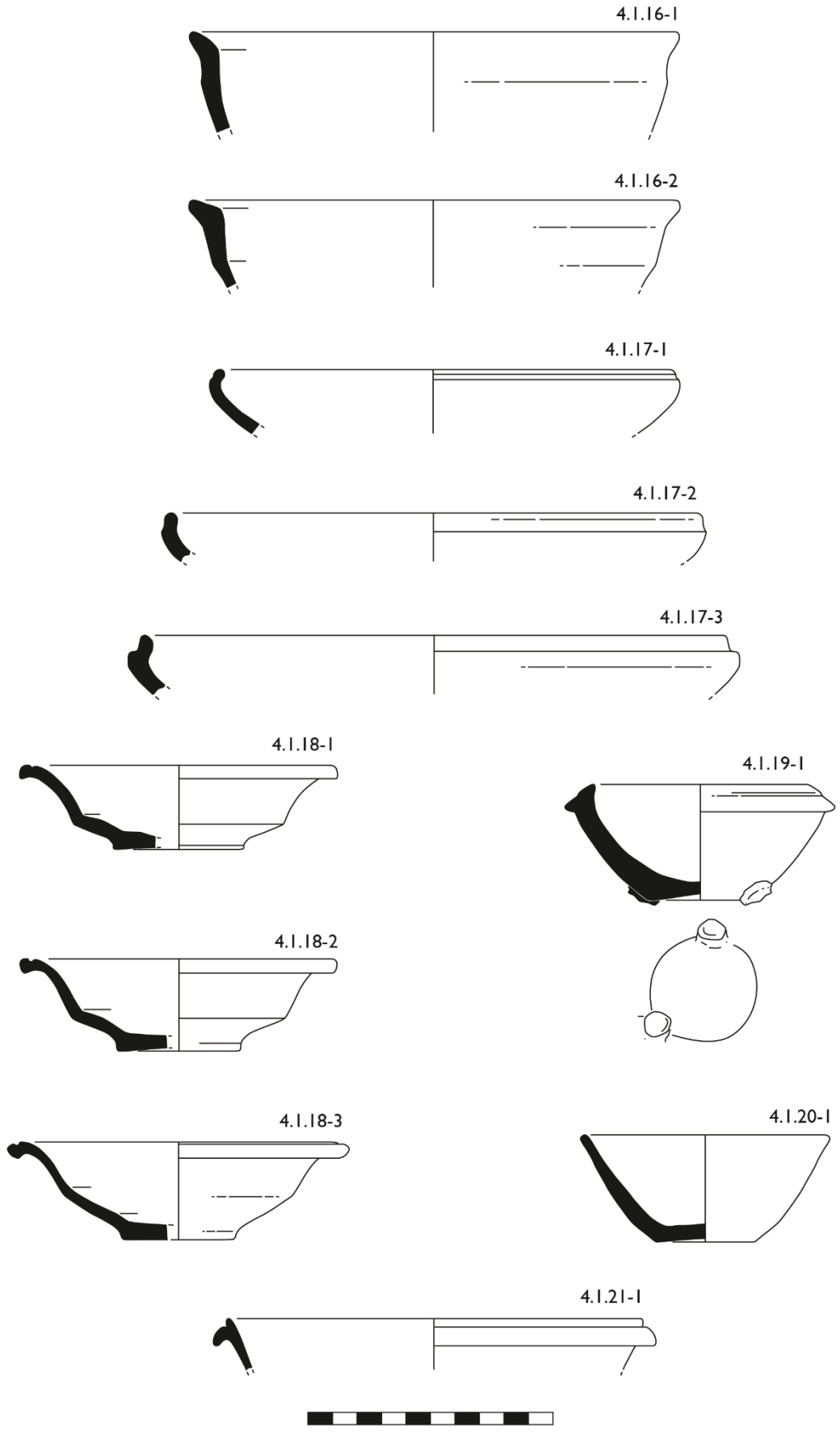


Figure I.47: Coarse ware bowl forms, types 4.1.16–4.1.21.

4.1.17 Coarse ware Bowl type 17 *Figure I.47*

This bowl is similar in shape to the red-slipped version 2.1.15. The form is characterised by a simple inward-curving rim with a shallow groove or extended ridge (4.1.17-3) just beneath the rim. This form was only found at Melita and based on the context has been dated to around the mid-3rd to mid-4th century like the red-slipped version. Both Local fabrics 1 and 2 have been used in the manufacture of this form, although, Local Fabric 1 predominates. No parallels are known locally.

4.1.17.1 MLT84/49380.1: Rim, d. 18. Local Fabric 1: Pale orange fabric with fine white lime inclusions; thin, pale red skin; red-slipped? Context: Melita SU 1093, phase 4; fragment joins with sherd in SU 1084 (phase 4).

4.1.17.2 MLT84/49380.2: Rim, d. 22. Local Fabric 1: Pale orange fabric with white lime and foraminifera inclusions; unslipped pale red skin. Context: Melita SU 1093, phase 4.

4.1.17.3 MLT84/49501: Rim, d. 28. Local Fabric 2: Hard pale grey fabric with fine lime and black glauconite inclusions; pale brown exterior surfaces. Context: Melita SU 1088. Phase 4.

4.1.18 Coarse ware Bowl type 18 (Sagona bowl form VI: 4a) *Figure I.47*

This is a shallow bowl, possibly a development from Sagona bowl form IV-V: 3b/V: 4, which has a carinated shoulder, flat base and an everted rim that contains a top groove. These bowls are known from tomb contexts recorded by Sagona and can be red-slipped (see 2.1.9) or unslipped.[1088] Similar shapes have been recorded by Riley in the Berenice assemblage in Cyrenaica.[1089] These forms were recovered from the Bulebel tombs and are associated with ARS forms Hayes 50B and Hayes 31, thus can be dated to about the mid-3rd century. Red-slipped forms were recovered from a late 1st century-AD context.

4.1.18.1 BLB12/11/6: Complete vessel, d. 13 (rim), d. 5 (base). Local Fabric 2: Pale red fabric with large yellow and white lime, grog and fine black glauconite inclusions; string-cut flat base; pale brown unslipped surface. Context: Bulebel SU 11, tomb 3.

4.1.18.2 BLB12/71/3: Complete vessel, d. 13 (rim), d. 5 (base). Local Fabric 1: Pale brown fabric with fine lime and foraminifera inclusions; string-cut flat base; rough, wet-wiped unslipped pale surface. Context: Bulebel SU 71, tomb 3.

[1088] Sagona 2000, 188.

[1089] Riley 1979, 523, D470.

4.1.18.3 BLB12/70/2: Complete vessel, d. 14 (rim), d. 5 (base). Local Fabric 1: Pale red to pink fabric with fine white lime and foraminifera inclusions; string-cut flat base; unslipped cream surfaces. Context: Bulebel SU 70, tomb 3.

4.1.19 Coarse ware Bowl type 19 *Figure I.47*

Only one example of this form has been identified within the three assemblages. The small bowl has a collared, sloping rim; the base is small, flat and string cut with two added small discs of clay arranged in a tripod manner. A third 'foot' is missing, with an indent in place of it instead. The form resembles Sagona's bowl form VI: 5c, dated to after the mid-1st century AD, but the forms do not share the same dimensions.[1090] This sherd is from a context that contains material dating to the mid-3rd–mid-4th century.

4.1.19.1 MLT84/26190: Profile, d. 11 (rim), d. 5 (base). Local Fabric 2: Pale orange fabric with white lime, foraminifera and black glauconite inclusions; unslipped; string-cut flat base with two added clay discs. Context: Melita SU 1099, phase 5.

4.1.20 Coarse ware Bowl type 20 *Figure I.47*

Only one example of this form was recovered. The small bowl is characterised by a simple rim and a flat, string-cut base. A suggested date is sometime after the mid-1st century, but the fabric (Local Fabric 3) does indicate that the vessel could be later.

4.1.20.1 BLB12/32/34: Profile, d. 9 (rim), d. 4 (base). Local Fabric 3: Hard pale red fabric with white lime, gypsum, black glauconite and mixed inclusions; unslipped pale surfaces; string-cut flat base. Context: Bulebel SU 32, phase 2.

4.1.21 Coarse ware Bowl type 21 *Figure I.47*

Like the previous two forms, only a single example of this flanged bowl form was identified. Flanged bowls are rare on Malta, and no local parallels have been traced to date. The vessel is from a context that dates to the mid-3rd–mid-4th century.

4.1.21.1 MLT84/25210: Rim, d. 17. Local Fabric 1: Fine red fabric with fine white lime inclusions; unslipped. Context: Melita SU 1071, phase 5.

4.1.22 Coarse ware Bowl type 22 *Figure I.48*

This general group of deep cups/bowls are attributed to the Foreman Street workshop. The main shape is characterised by a Z-shaped profile with a simple and everted rim. No complete profiles are known and no bases have

[1090] Sagona 2002, 190, fig. 349.47.

been associated with the form. The shape is not very common but the basic profile is similar to the general class of bowl shapes made within the vicinity of the site. The production is dated to the end of the 2nd/mid-3rd century.

4.1.22.1 FRM08/42/30: Rim, d. 10. Local Fabric 2: Hard red fabric with fine white foraminifera, lime and shiny black glauconite inclusions; unslipped pale pink/cream skin. Context: Foreman Street SU 42.

4.1.22.2 FRM08/42/43: Rim, d. 14. Local Fabric 2: Brown fabric with thin grey core, with fine white foraminifera, lime and black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 42.

4.1.22.3 FRM08/59/7: Rim, d. 13. Local Fabric 2: Pale brown fabric with fine white lime, foraminifera, and black glauconite inclusions; unslipped pale grey skin. Context: Foreman Street SU 42.

4.1.22.4 FRM08/42/25: Rim, d. 13. Local Fabric 2: Pale red fabric with fine white lime, foraminifera and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.1.23 Coarse ware Plate type 23 *Figure I.48*

This individual plate form has a narrow, flattened rim similar to Punic-period examples, such as those from the sanctuary at Tas-Silġ, and which is broadly dated to the about the 5th–3rd century BC based on the similarity with Quercia's plate type 5.[1091] Only a single example was recovered and it is residual.

4.1.23.1 MLT84/24826: Rim, d. 24. Local Fabric 1: Pale orange fabric with yellow and white lime and foraminifera inclusions; unslipped pale surfaces. Context: Melita SU 1066, phase 4; residual.

4.1.24 Coarse ware Plate type 24 *Figure I.48*

This plate rim is a local imitation of an imported Hellenistic black-slipped form, similar in shape to the Morel 1315 series.[1092] Local imitations of Hellenistic forms are very common for Maltese coarse ware vessels, but, this particular form is not well-known on the island.

4.1.24.1 MLT84/49704: Rim, d. 24. Local Fabric 1: Hard pale red fabric with a thick grey core, with lots of white lime and grog inclusions; unslipped, rough, pale grey/cream salt-slipped skin. Context: Melita SU 1104, phase 2.

[1091] Quercia 2004–2005, fig. 5.5.

[1092] Morel 1994, pl. 13.

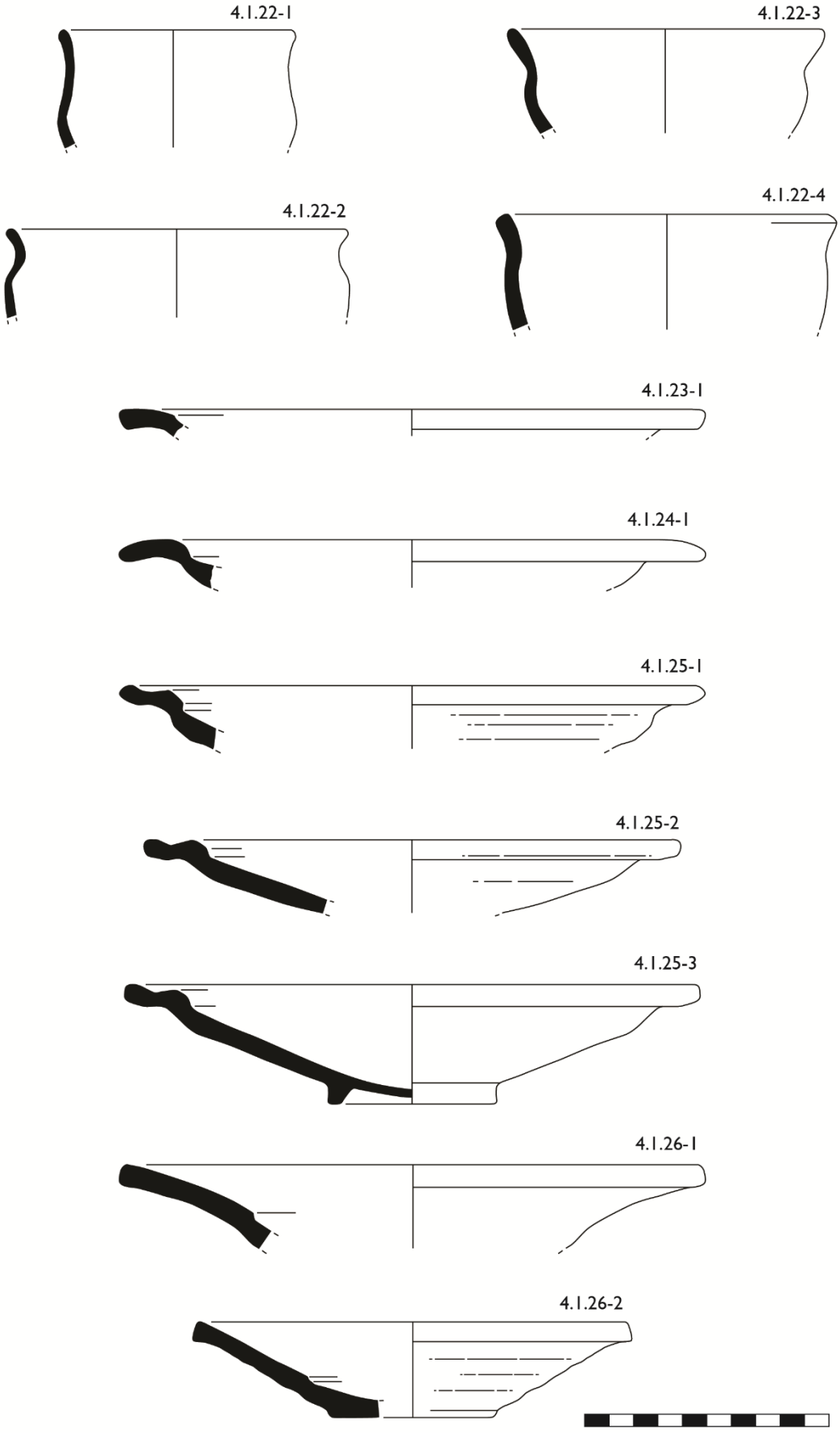


Figure I.48: Coarse ware bowl and plate forms, types 4.1.22–4.1.26.

4.1.25 Coarse ware Plate type 25 *Figure I.48*

Like the previous form, this plate is also a local imitation of a Hellenistic fine ware, following a series of black-slipped vessels like the 'debased' Lamboglia 6 from Berenice[1093] and Morel's series 1441–1443.[1094] Three examples including a complete profile with a tidy disc base were recorded at Bulebel. Two of these have a fabric that contains a little glauconite (Local Fabric 2), whilst the third does not (Local Fabric 1); all these, however, are well-finished, with a dry-shaved, smoothed cream-slipped surface. Kenrick suggests a date for the black-slipped plate at the end of the 2nd century BC;[1095] whilst the local examples can be dated to no later than the mid-/end of the 1st century AD from their context association. No other local parallels are known.

4.1.25.1 BLB12/55/16: Rim, d. 24. Local Fabric 2: Pale orange fabric with yellow lime and white foraminifera inclusions, with a few black glauconite inclusions; dry-shaved, cream-slipped surfaces. Context: Bulebel SU 55, phase 1.

4.1.25.2 BLB12/54/5a: Rim, d. 22. Local fabric 1?: Pale brown fabric with white lime, foraminifera, red ore and sand-like, dark glauconite (?) inclusions; dry-shaved cream/pink mottled and smoothed surfaces. Context: Bulebel SU 54, phase 1.

4.1.25.3 BLB12/57/4: Profile, d. 24 (rim), d. 6.8 (base). Local Fabric 2: Hard pale brown fabric with fine white lime, foraminifera, red ore/grog inclusions, and traces of a little glauconite grains; matt, dry-shaved grey exterior surfaces. Context: Bulebel SU 57, phase 1.

4.1.26 Coarse ware Plate type 26 (Quercia plate types 4-5) *Figures I.48–I.49*

This plate group includes a series of Late Punic forms common on the islands—Malta in particular—, and can be attributed to a series of Late Punic/early Roman plates produced in large numbers at Tas-Silġ from contexts dating to as early as the 4th century BC, but continue until at least the first half of the 1st century BC.[1096] They have been grouped together here because of their relative infrequency (probably due to their waning popularity in the early Imperial period), and the distinct wide-brimmed rim each example displays. Examples with a rolled rim (like 4.1.26-3) are also known at Tas-Silġ and are roughly contemporary with the other two plate

[1093] Kenrick 1985a, fig. 7.55.
[1094] Morel 1994, pls 17–18.
[1095] Kenrick 1985a, 45.
[1096] Quercia 2011, 437, fig. 1.4–5,

forms.[1097] The presence of glauconite content in two of the Bulebel examples (4.1.26-1, -3) and their presence in a mid-1st-century context (and later) may suggest that the date for this plate type could be extended by a century.

4.1.26.1 BLB12/58/10: Rim, d. 24. Local Fabric 2: Pale red fabric with fine white lime, foraminifera and black glauconite inclusions; under-fired green surface? Context: Bulebel SU 58, phase 1.

4.1.26.2 BLB12/58/29: Profile, d. 19 (rim), d. 7 (base). Local Fabric 1: Pale orange fabric with yellow lime and red ore/grog inclusions; string-cut base; wet-wiped pale yellow skin. Context: Bulebel SU 58, phase 1.

4.1.26.3 BLB12/44/2: Rim, d. 20. Local Fabric 2: Pale red fabric with white lime, foraminifera and black glauconite inclusions; unslipped cream skin. Context: Bulebel SU 44, phase 2.

4.1.27 Coarse ware Plate type 27 (Quercia plate types 6–8) *Figure I.49*

This type is a morphological development from the previous range of plates (4.1.26). The plate is characterised by a wide flaring triangular rim, thin walls, and the disappearance of a distinct rim ledge, typical of the earlier versions (see 4.1.26). The rim ends in a triangular bead, and the bases remain flat and are often string-cut. This general class of plates is also very common on Maltese sites, in particular Tas-Silġ and the Żejtun villa,[1098] and has also been recorded in some tomb contexts.[1099] Quercia has classified this type and dated it to the 1st century BC until at least mid-1st century AD.[1100] This plate series has significantly more forms using Local Fabric 3 than the earlier types.

4.1.27.1 BLB12/24/6: Rim, d. 18. Local Fabric 2: Pale orange/brown fabric with fine white lime, foraminifera and fine black glauconite inclusions; unslipped pale skin. Context: Bulebel SU 24, phase 2.

4.1.27.2 BLB12/32/33: Profile, d. 22 (rim), d. 6.5 (base). Local Fabric 3: Hard pale red fabric with a grey core, with black glass-like inclusions, gypsum and white lime inclusions; flat string-cut base; unslipped pale skin. Context: Bulebel SU 32, phase 2.

4.1.27.3 BLB12/32/14: Rim, d. 20. Local fabric 3: Orange fabric with red ore, dark glass-like temper and gypsum inclusions; unslipped pale surface. Context: Bulebel SU 32, phase 2.

[1097] Sagona 2015, fig. 1.94:5–6.
[1098] Anastasi 2012, fig. 3.16, 26.
[1099] Sagona 2002, 212, fig. 346.39.
[1100] Quercia 2011, 438, fig. 1.6–8.

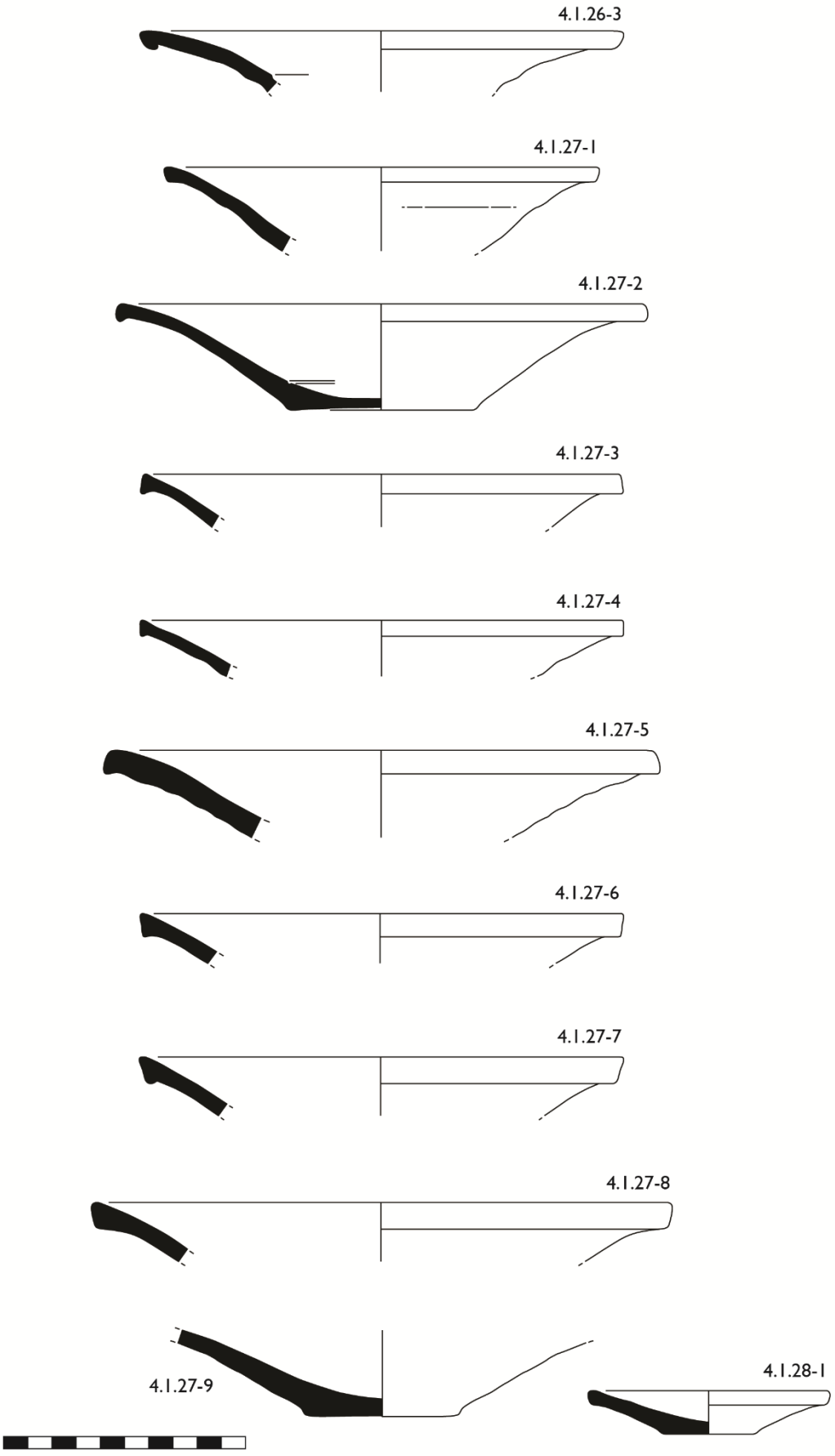


Figure I.49: Coarse ware plate forms, types 4.1.26–4.1.27.

4.1.27.4 BLB12/24/4: Rim, d. 20. Local Fabric 3: Orange fabric with black glass temper, red ore, white lime and angular gypsum inclusions; cream-coloured surface. Context: Bulebel SU 24, phase 2.

4.1.27.5 BLB12/58/11: Rim, d. 23. Local Fabric 1: Soft, pale brown fabric with large red grog and white lime inclusions; unslipped cream-coloured skin. Context: Bulebel SU 58, phase 1. This particular example could also be a lid (?).

4.1.27.6 BLB12/32/16: Rim, d. 20. Local Fabric 2: Orange fabric with white lime, foraminifera and irregular, but large, glauconite inclusions; unslipped. Context: Bulebel SU 32, phase 2.

4.1.27.7 BLB12/41/1: Rim, d. 20. Local Fabric 3? Hard pale orange fabric with fine white and grey lime and foraminifera, and fine angular gypsum inclusions; unslipped. Context: Bulebel SU 41, phase 2.

4.1.27.8 BLB12/55/15: Rim, d. 24. Local Fabric 1: Red fabric with white lime and darker grog inclusions; under-fired pale colour. Context: Bulebel SU 55, phase 1.

4.1.27.9 BLB12/32/13: Base, d. 6.5. Local Fabric 3: Orange fabric with white lime, foraminifera, black glass and gypsum inclusions; flat string-cut; unslipped. Context: Bulebel SU 32, phase 2.

4.1.28 Coarse ware Plate type 28 *Figure I.49*

Only three examples of this small plate have been identified and are probably residual Late Punic pieces. The form is one of the more common coarse ware forms within the ritual deposits at Tas-Silġ and has a wide chronology, ranging from the second half of the 2nd century BC to the mid-/late 1st century AD.[1101]

4.1.28.1 MLT84/26144: Profile, d. 10 (rim), d. 3.5 (base). Local Fabric 1: Orange fabric with fine yellow and white lime and foraminifera inclusions; unslipped; flat, string-cut base. Context: Melita SU 1096, phase 5; residual?

4.1.29 Coarse ware Bowl type 29 *Figure I.50*

This shallow bowl has low, sloping, and slightly ribbed, walls ending in a triangular hooked rim. The base is flat and string-cut. Local parallels have not been found, although their general absence from Late Punic/early Roman contexts like Tas-Silġ and Żejtun, suggest that this form may belong to a local form produced after the end of the 1st century AD, as it is only found in contexts that date to between the end of the 1st and early/mid-3rd century AD (Bulebel, phase 2). The fact that nearly all the examples recorded are made using Local Fabric 3 further supports this later Imperial date.

[1101] Quercia 2011, 444, fig. 3.2; Sagona 2002, 213, fig. 347.15–16; 2015, fig. 1.98:5–14.

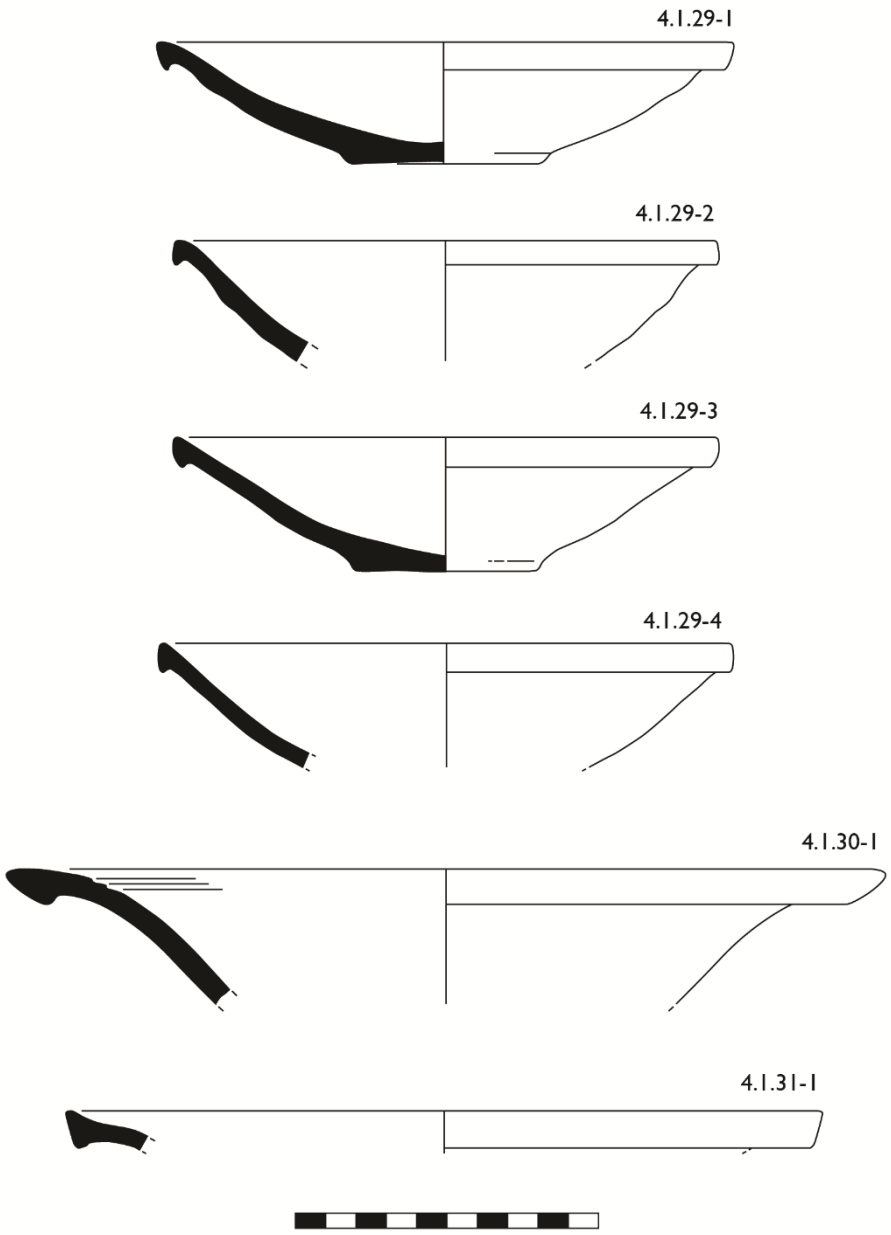


Figure I.50: Coarse ware bowl forms, types 4.1.29–4.1.31.

4.1.29.1 BLB12/23/2: Profile, d. 18 (rim), d. 6.5 (base). Local Fabric 3: Hard-fired orange fabric with fine white/yellow lime and foraminifera, and angular gypsum inclusions; unslipped pale surfaces; flat string-cut base. Context: Bulebel SU 23, phase 2.

4.1.29.2 BLB12/39/10: Rim, d. 18. Local Fabric 3: Pale orange fabric with black glass, gypsum, red ore and white lime inclusions; unslipped, slightly ribbed exterior surface. Context: Bulebel SU 39, phase 2.

4.1.29.3 BLB12/39/13: Profile, d. 18 (rim), d. 6 (base). Local Fabric 3: Orange fabric with black glass, gypsum, red ore and white lime and foraminifera inclusions; unslipped; string-cut base. Context: Bulebel SU 39, phase 2.

4.1.29.4 BLB12/39/11: Rim, d. 19. Local Fabric 1: Pale orange fabric with white lime and foraminifera inclusions; unslipped pale surface. Context: Bulebel SU 39, phase 2.

4.1.30 Coarse ware Bowl type 30 *Figure I.50*

Only a single example of this form was recorded. The deep plate or bowl is characterised by wide flaring walls ending in a triangular rim, and double incised grooves score the top interior wall. No local parallels are known, and a combination of the fabric (Local Fabric 2) and the context suggest a date in the mid-3rd/4th century.

4.1.30.1 MLT84/24855: Rim, d. 29. Local fabric 2: Grey fabric with white lime, foraminifera and black glauconite inclusions; unslipped. Context: Melita SU 1067, phase 4.

4.1.31 Coarse ware Bowl type 31 *Figure I.50*

This open shape could belong to a lid or a plate. The triangular rim is attached to a thin and flaring wall. Like the previous type, only one example was identified but can be attributed to the Foreman Street production site, datable to the end of the 2nd to the mi-3rd century AD.

4.1.31.1 FRM08/42/55: Rim, d. 25. Local Fabric 2: Hard orange fabric with fine white lime, foraminifera and fine black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.2 Painted wares

4.2.1 Painted Bowl type 1 *Figures I.31, I.51*

This large plate has a sloping floor, with a stepped, rolled rim. The interior surface and the top of the exterior rim are coated with a thin, matt red slip or paint. The fabric is similar to Local Fabric 1, however, a possible foreign source cannot be excluded. Only one example of this large plate was found and can be compared to Campanian B and Eastern Sigillata A plates recorded at Berenice.[1102] These imported fine ware examples can be dated from the second half of the 2nd to the last quarter of the 1st century BC. No local parallels are known. The foreign shapes could provide a *terminus post quem* for the introduction of this form.

[1102] Kenrick 1985a, 35, 227, figs 5.18, 41.316.1–2.

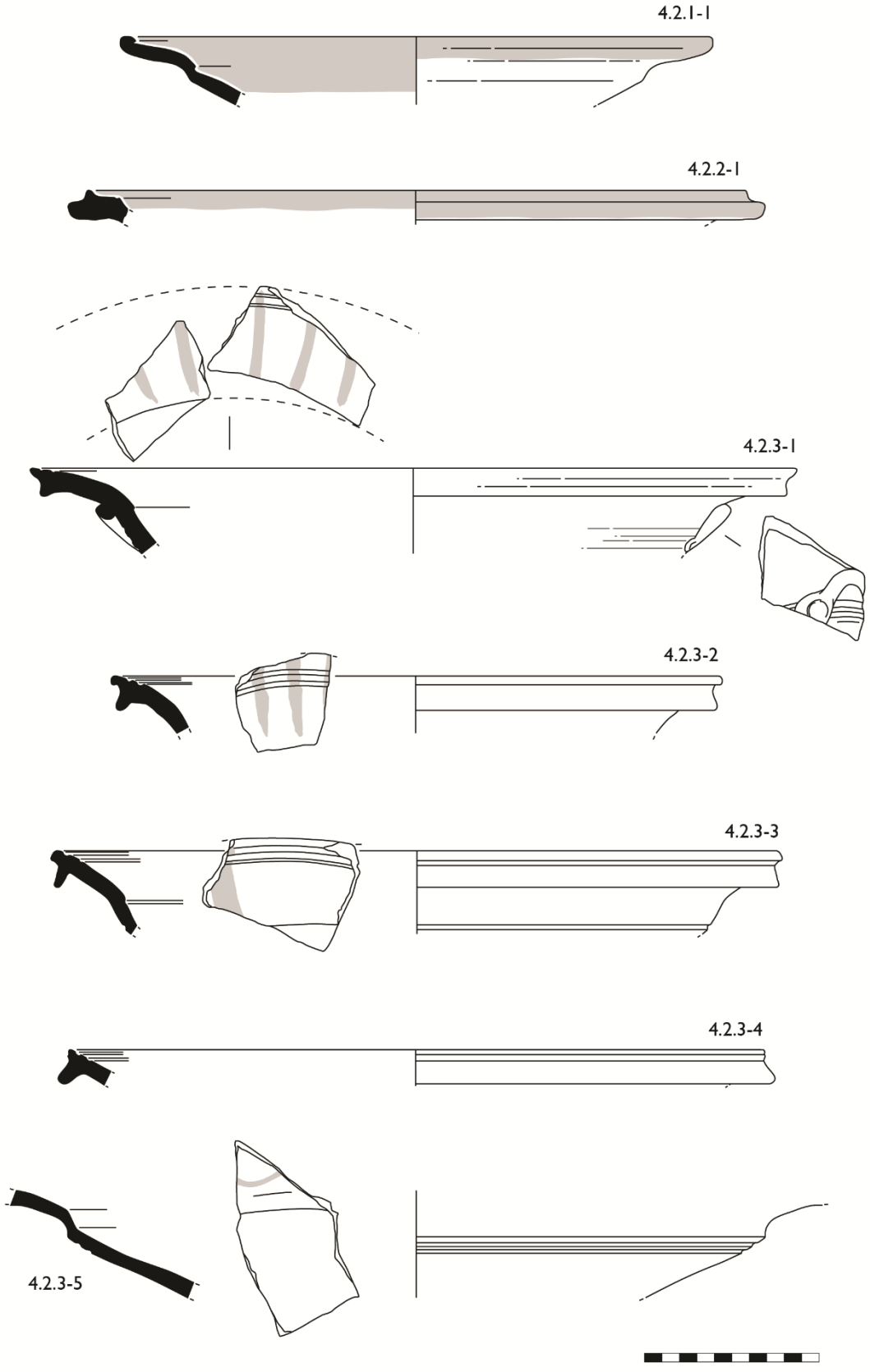


Figure I.51: Painted coarse wares, types 4.2.1–4.2.3.

The absence in any Late Punic assemblages and the discovery of this form in a mid-/late 1st century-AD context suggests a general date sometime between that. The red interior colour may also be inspired by Pompeian Red ware dishes that were being circulated around the central Mediterranean at this time.

4.2.1.1 BLB12/55/10: Rim, d. 34. Local Fabric 1? Hard-fired dark orange fabric with fine white lime inclusions; thin red-painted interior and part of exterior; local production? Context: Bulebel SU 55 and 58, phase 1.

4.2.2 Painted Bowl type 2 *Figure I.51*

This thickened rim with a ridge also contains a thick red slip on the interior surface. The fabric contains black volcanic inclusions and could thus be a Campanian import, although a local source cannot be excluded because of the presence of volcanic material in locally produced amphorae and some coarse wares (see Local Fabric 6). No local parallels are known and not enough of the vessel was found to find foreign parallels. The context dates the vessel to sometime before the early 3rd century.

4.2.2.1 BLB12/30/4: Rim, d. 40. Local Fabric 6? Hard red fabric with black volcanic sand and fine white lime (?) inclusions; red-slipped interior and top of exterior rim. Context: Bulebel SU 30, phase 2.

4.2.3 Painted Bowl type 3 *Figure I.51*

This form resembles a series of Hellenistic lekane or large bowls with wide flaring rims and small horizontal ornamental loop handles (4.2.3-1). A series of shallow grooves are incised on the top interior wall. Thin red painted lines radiate along the interior rim. No local parallels are known and no similar vessels have been identified in Late Punic period assemblages like Tas-Silġ suggesting that this form may be of Roman date. This form was made using Local Fabric 1 and 3; the latter fabric further supporting a later date. Most of the examples of this form were recovered from contexts that date between the end of the 1st and early 3rd century (Bulebel phase 2).

The closest foreign parallel can be identified with the Hellenistic *lekane* form 1 from the Athenian agora dated to between the beginning of the 3rd and early 1st century BC.[1103] The form does not appear to be common at Berenice, although three rims in a miscellaneous Hellenistic category could belong to

[1103] Rotroff 2006, 109, figs. 39–41, nos 234–248.

similar vessels.[1104] ARS versions of a similar form, however with a frilled or finger-impressed rim (this detail is not found on any of the Maltese examples), are known from Carthage dated to the 1st/early 2nd century AD.[1105] Coarse wares versions are also common from 1st/2nd century-AD contexts at Utica.

4.2.3.1 BLB12/28/16: Rim and handle, d. 44. Local Fabric 3: Pale brown fabric with glauconite, red ore and fine angular gypsum inclusions; unslipped, smoothed pale surface with red-painted radial lines on the top interior of the rim; decorative horizontal loop handle beneath rim (Figure I.31). Context: Bulebel SU 28, phase 2.

4.2.3.2 BLB12/30/3: Rim, d. 34. Local Fabric 2–3: Orange fabric with white lime, gypsum and fine glauconite inclusions; unslipped, smooth surfaces; thin red-painted lines on top of interior surface of rim. Context: Bulebel SU 30, phase 2.

4.2.3.3 BLB12/14/4: Rim, d. 42. Local Fabric 3: Pale brown fabric with green grog, white lime, red ore, fine black glauconite and gypsum inclusions; unslipped pale surface with red-painted lines on the interior top of rim. Context: Bulebel SU 14, Quarry 2.

4.2.3.4 BLB12/42/5: Rim, d. 40. Local Fabric 3 or 6?: Gritty pale red fabric with white lime and black/green volcanic (?) glass inclusions; unslipped. Context: Bulebel SU 42, phase 2.

4.2.3.5 BLB12/14/5: Shoulder, d. c. 45–50. Local Fabric 3: Pale red fabric with gypsum, white lime and fine black inclusions; shoulder sherd, grooved on underside of exterior; unslipped; thin red-painted line on interior rim surface. Context: Bulebel SU 14, Quarry 2.

4.2.4 Painted Plate type 4 *Figure I.52*

This form, characterised by a thick and flaring collared plate rim, is only represented by two examples, where no known local parallels are known. The fabric is similar to Local Fabric 1. One example (4.2.4-2) contained thin red-painted U-shaped bands along the interior surface of the rim. The finds' context supports a date sometime after the late 1st to mid-3rd/early 4th century.

4.2.4.1 BLB12/32/1: Rim, d. 34. Local Fabric 1: Soft pale brown fabric with white and yellow lime inclusions; unslipped smooth surfaces. Context: Bulebel SU 32, phase 2.

4.2.4.2 MLT84/49979: Rim, d. 42. Local Fabric 1: Coarse pale brown fabric with white lime inclusions; unslipped surfaces with red-painted lines on interior surface near rim. Context: Melita SU 1097, phase 5.

[1104] Riley 1979, 290, nos D640–641.

[1105] Hayes 1976, 72–73; Fulford and Timby 1994, 17, fig. 1.7, no. 2.

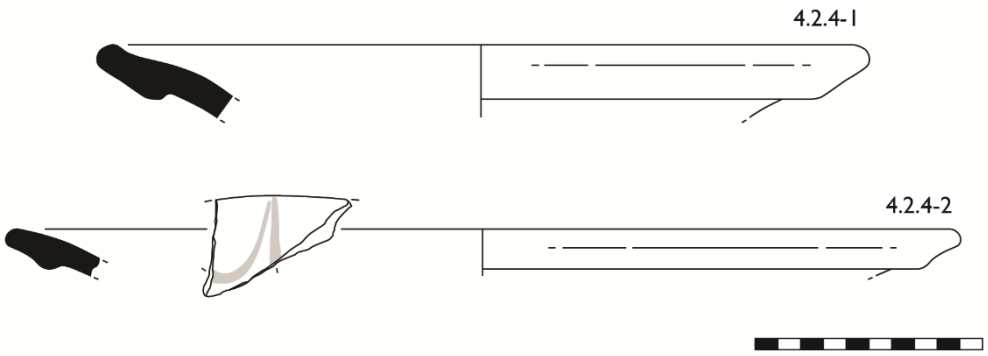


Figure I.52: Painted Plate type 4 (4.2.4).

4.3 Large bowls/mortaria

This category covers a wide range of large bowls and mortar-like vessels. Roman flanged mortaria with thick walls and embedded grits are not found on Maltese sites, and no local imitations vaguely resembling this characteristic Roman form are known.[1106] The closest thick-set vessels that may have replaced the task of a mortarium belong to a series of thick-walled coarse ware bowls with wide, heavy disc bases, some with radiating incisions on the underside of the base (see 4.3.17), known from the sanctuary at Tas-Silġ[1107] and the Żejtun villa.[1108]

4.3.1 Coarse ware Basin type 1 *Figure I.53*

This group loosely includes a range of large coarse ware bowls with sloping or flat-topped rims, some with an additional overhang (4.3.1-2). Large bowls similar to these are common on domestic and ritual sites throughout Malta dating to the Punic period. Quercia drew up a preliminary classification of the Late Punic large bowls (*bacini*) from Tas-Silġ and proposed a long chronology, dating between the 6th–5th century BC to the 1st century AD.[1109] Sagona has also identified similar examples from the University of Malta's excavations at the same site.[1110]

4.3.1.1 BLB12/58/7: Rim, d. 36. Local Fabric 1: Pale red fabric with white and yellow lime inclusions; unslipped. Context: Bulebel SU 58, phase 1.

[1106] The only documented presence of imported mortaria on Malta belongs to a cargo of large Italian mortaria from remains of a shipwreck within the Mellieħa Bay area, in the north-east of Malta (see Frost 1969).
[1107] Quercia 2004–2005, fig. 10.2.
[1108] Anastasi 2010, fig. 138.4.
[1109] Quercia 2004–2005, 245, fig. 10, types 9–10.
[1110] Sagona 2015, figs 1.76–77.

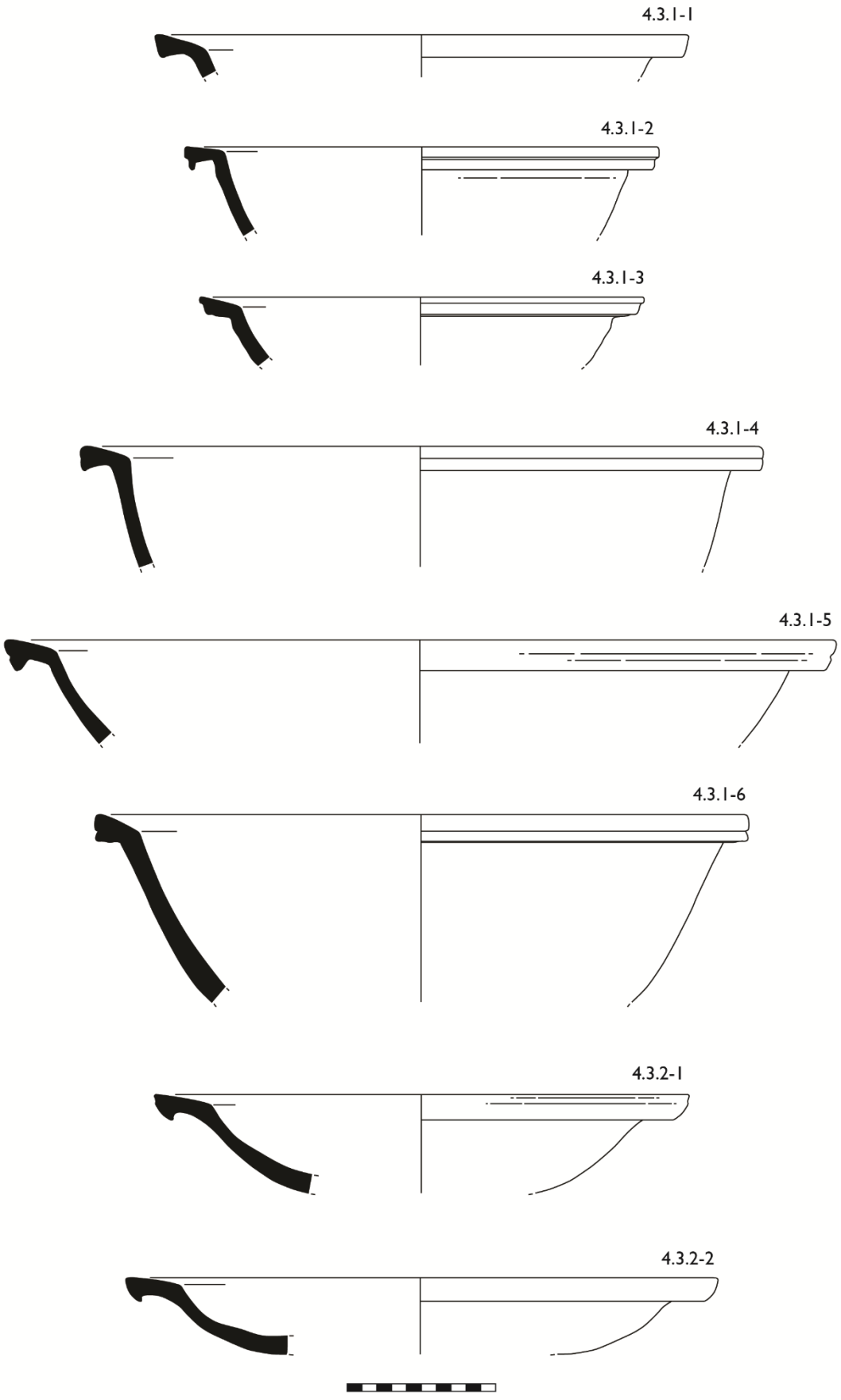


Figure I.53: Coarse ware large bowl forms, types 4.3.1–4.3.2.

4.3.1.2 BLB12/58/27: Rim, d. 32. Local Fabric 1: Coarse pale orange fabric with white and yellow lime and foraminifera inclusions; unslipped; over-fired. Context: Bulebel SU 58, phase 1.

4.3.1.3 BLB12/57/1: Rim, d. 30. Local Fabric 2: Dark orange fabric with fine back glauconite inclusions; unslipped. Context: SU 57, phase 1.

4.3.1.4 BLB12/58/5: Rim, d. 46. Local Fabric 2: Dark orange fabric with white lime, foraminifera and black glauconite inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.3.1.5 BLB12/55/17: Rim, d. 56. Local Fabric 1: Pale orange fabric with white and yellow lime inclusions; unslipped. Context: Bulebel SU 55, phase 1.

4.3.1.6 BLB12/45/1: Rim, d. 44. Local Fabric 2: Coarse pale green (under-fired?) fabric with white lime and fine black glauconite inclusions; unslipped. Context: Bulebel SU 45, phase 2.

4.3.2 Coarse ware Basin type 2 *Figure I.53*

This basin appears shallower and contains a hooked triangular rim. This particular shape was not common but is similar to Quercia's type 10.[1111] This form appears to date to before the end of the 1st century AD.

4.3.2.1 BLB12/58/6: Rim, d. 36. Local Fabric 2: Dark orange fabric with white lime and black glauconite inclusions; unslipped, mottled salt skin. Context: Bulebel SU 58, phase 1.

4.3.2.2 BLB12/58/6a: Rim, d. 40. Local Fabric 2: Pale red fabric with fine white lime, foraminifera and black glauconite inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.3.3 Coarse ware Basin type 3 *Figure I.54*

This category covers a range of similar rim shapes which are characterised by an everted triangular, arrow-like rim. In general, all the examples illustrated here were recovered from contexts that date between the end of the 1st and the early/mid- 3rd century AD. Sherds similar to these forms were recorded in the material from the 1972 excavations at the Żejtun villa, one in Local Fabric 2 and one in Local Fabric 6, originally classified as an import.[1112] A rim similar to 4.3.3-4 was recorded amongst the Roman-period material from the excavations at Ħal Millieri,[1113] whilst rims similar to

[1111] Quercia 2004–2005, fig. 10.10.

[1112] Anastasi 2010, fig. 136.4–5.

[1113] Blagg, Bonnano and Luttrell 1990, fig. 14.42.

4.3.3.1, in Local Fabric 3, were recovered from the Bidnija area,[1114] and also at Borġ in-Nadur,[1115] and are tentatively dated to the Roman period.

4.3.3.1 BLB12/32/6: Rim, d. 48. Local Fabric 2: Pale red fabric with white lime, foraminifera and black glauconite inclusions; unslipped. Context: Bulebel SU 32, phase 2.

4.3.3.2 BLB12/23/6: Rim, d. 44. Local Fabric 1: Coarse orange fabric with thick pale grey core, with yellow/white lime inclusions; unslipped. Context: Bulebel SU 23, phase 2.

4.3.3.3 FRM08/42/52: Rim, d. 38. Local Fabric 1: Pale brown fabric with fine white lime, foraminifera and large red inclusions; salt-slipped cream surfaces. Context: Foreman Street SU 42.

4.3.3.4 FRM08/42/50: Rim, d. c. 40. Local Fabric 2: Pale red fabric mixed with yellow clay or fine yellow lime inclusions, foraminifera and fine red and black glauconite inclusions; unslipped pale grey skin. The sherd was too small to get a more accurate diameter. Context: Foreman Street SU 42.

4.3.4 Coarse ware Basin type 4 *Figure I.54*

This large bowl has a similar sharp and angled triangular rim to the previous type but has been classed separately because this form can clearly be linked to the Foreman Street production zone. All the examples are made using the typical Local Fabric 2 clay used in practically all the other products discovered in this area. No complete profiles or associated bases were recovered for this particular form. No close parallels are known locally but the form can be confidently dated to the end of the 2nd/early/mid-3rd century AD.

4.3.4.1 FRM08/42/54: Rim, d. 40. Local Fabric 2: Gritty dark grey fabric with burnt foraminifera, lime and glauconite inclusions; unslipped; over-fired. Context: Foreman Street SU 42.

4.3.4.2 FRM08/42/48: Rim, d. 43. Local Fabric 2: Pale brown/pink fabric with foraminifera, white lime, red ore, few angular gypsum and black glauconite inclusions; unslipped pale cream skin. Context: SU 42.

4.3.5 Coarse ware Basin type 5 *Figures I.54–I.55*

This large bowl is a variant of the previous type but the rim edge is rounded and contains a more pronounced bead along the rim. The fabric and proposed date are the same as type 4.3.4.

[1114] Docter et al. 2012, 127–128, fig. 22.16.

[1115] Anastasi 2011, 164–165, fig. 5.2.

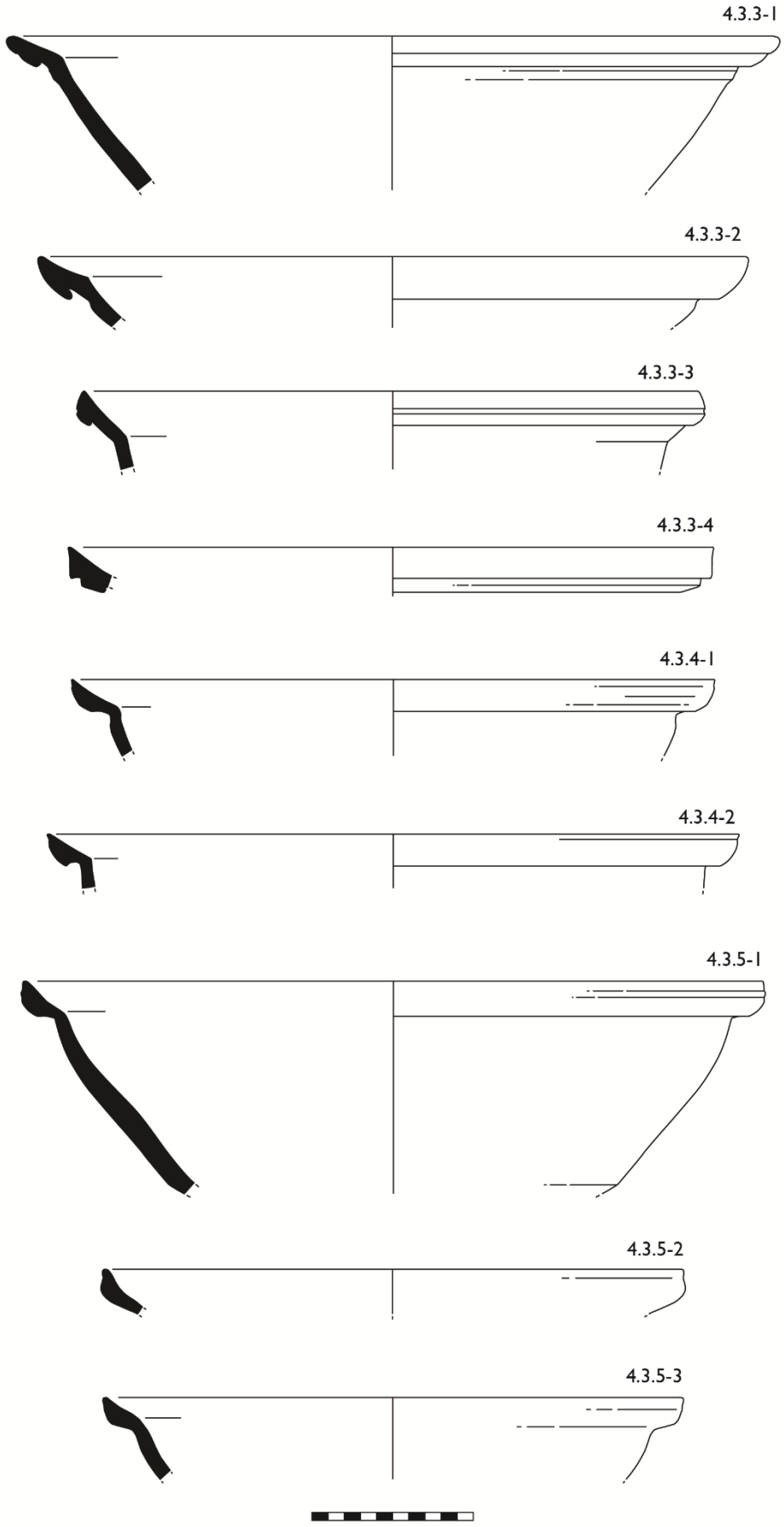


Figure I.54: Coarse ware large bowl forms, types 4.3.3–4.3.5.

4.3.5.1 FRM08/59/10: Rim, d. 46. Local Fabric 2: Gritty red fabric with thick dark grey core with white foraminifera, fine lime red ore, some fine gypsum and round black glauconite; white salt skin. Context: Foreman Street SU 59.

4.3.5.2 FRM08/57/21: Rim, d. 36. Local Fabric 2: Hard, gritty pale red fabric with fine white foraminifera, white lime, red ore and round glauconite inclusions; unslipped grey skin; waster. Context: Foreman Street SU 57.

4.3.5.3 FRM08/42/53: Rim, d. 36. Local Fabric 2: Hard, gritty grey fabric with white foraminifera, lime and black glauconite inclusions; unslipped; over-fired. Context: Foreman Street SU 42.

4.3.5.4 FRM08/42/49: Rim, d. 42. Local Fabric 2: Hard, gritty pale red fabric with lots of fine yellow lime halos, with foraminifera, red ore and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.3.5.5 FRM08/57/22: Rim, d. 48. Local Fabric 2: Hard pale red/pink fabric with fine foraminifera, fine red ore and black glauconite inclusions; unslipped grey skin. Context: Foreman Street SU 57.

4.3.6 Coarse ware Basin type 6 *Figure I.55*

A plain and sharply everted almond rim characterises this form of large bowl. A date for this particular variant is presumably similar to the previous two forms, although an example from Melita did come from a context dated to the first half of the 2nd century. This generic bowl form was recovered in significant numbers from both Foreman Street and Bulebel, although a close look at the fabrics indicate that the forms present at the two sites did not originate from the same production site. The Gozitan variant is generally thicker and is most probably a product of the island itself. One other rim sherd resembling this large bowl, in Local Fabric 2, came from Għar ix-Xih.[1116] Maltese examples can be seen within the Ħal Millieri Roman-period material.[1117]

4.3.6.1 FRM08/42/58: Rim, d. 42. Local Fabric 2: Gritty pale brown fabric with white lime, foraminifera, red ore and black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.3.6.2 FRM08/59/14: Rim, d. 40. Local Fabric 2: Pale red/pink fabric with fine white foraminifera, white lime, fine red ore and black glauconite inclusions; unslipped. Context: Foreman Street SU 59.

4.3.6.3 MLT84/24747: Rim, d. 44. Local Fabric 1: Pale orange fabric with white lime and foraminifera; mottled salt-slipped surfaces. Context: Melita SU 1062, phase 5.

[1116] Quercia 2008, fig. 14.1.

[1117] Blagg, Bonanno and Luttrell 1990, 61, fig. 15.71–72.

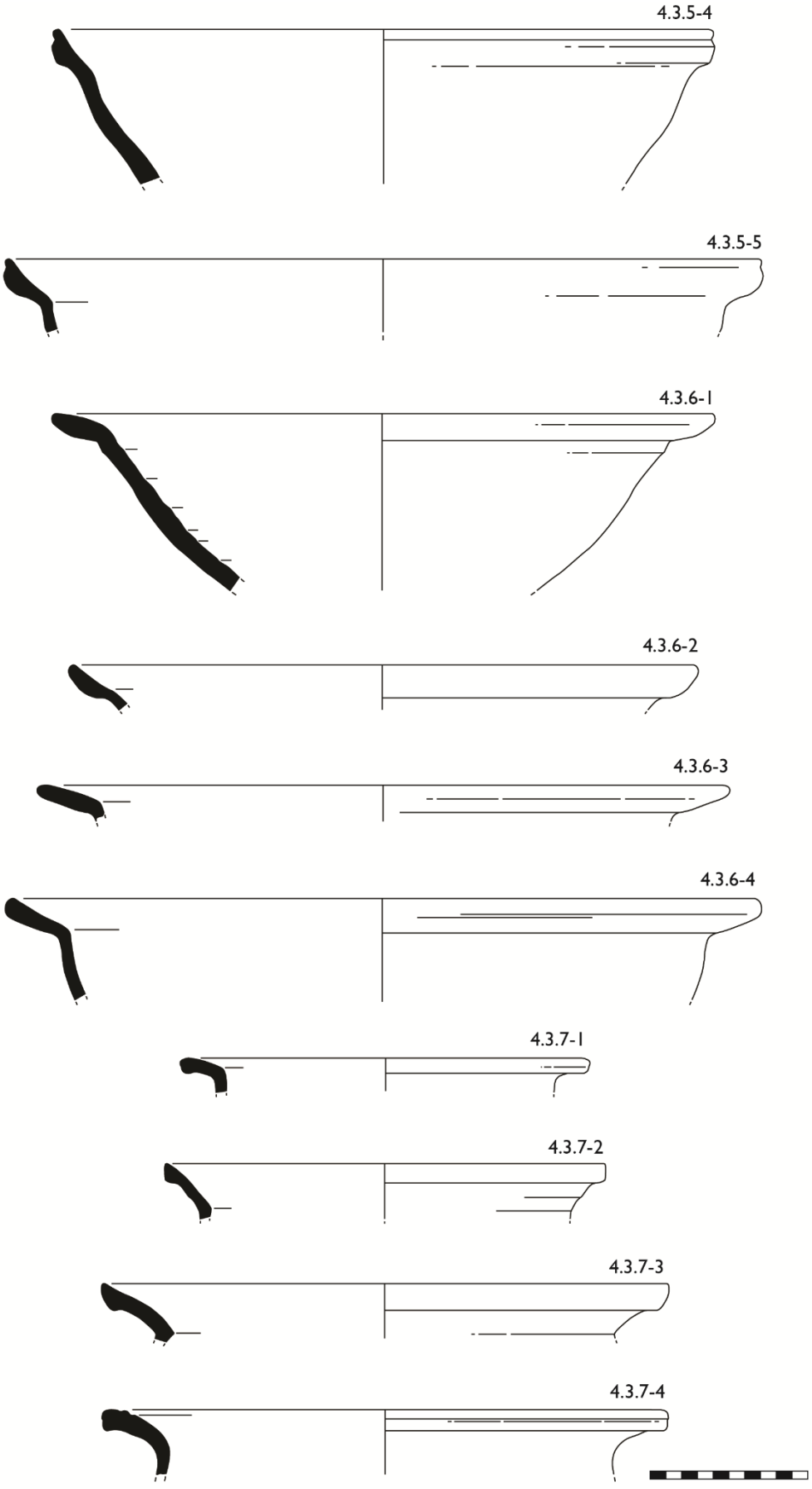


Figure I.55: Coarse ware large bowl forms, types 4.3.5–4.3.7.

4.3.6.4 MLT84/26864: Rim, d. 48. Local Fabric 1: Coarse orange fabric with white lime and foraminifera inclusions; pale green/cream skin. Context: Melita SU 1075, phase 3.

4.3.7 Coarse ware Basin type 7 *Figures I.55–I.56*

This category loosely classes a deep krater-like vessel that has a sharply everted and elongated rim. No complete profiles, or at least longer profiles were recovered making it difficult to comment further on the shape. The shape does not appear to be common in Punic- and early Roman-period contexts like Tas-Silġ and the excavations at the Żejtun villa, although, two rim sherds sharing a similar shape were recovered from the 1972 assemblage.[1118] The near absence of this general form in contexts pre-dating the end of the 1st/first half of the 2nd century AD supports its Roman date. A form resembling variant 4.3.7-6, with straight, sharply sloping walls, can be identified at Berenice, classed as MRCW 1, and tends to becomes popular at the site from the first half of the 2nd century AD.[1119] The slightly concave lower wall noticed for variants 4.3.7-3–4 shares a general shape to the deep jars from Late Roman contexts at Carthage.[1120]

4.3.7.1 FRM08/42/51: Rim, d. 26. Local Fabric 2: Gritty pale red fabric with thick pale grey core, with fine white lime, foraminifera, fine gypsum and black glauconite inclusions; grey/white salt skin. Context: Foreman Street SU 42.

4.3.7.2 FRM08/57/24: Rim, d. 28. Local Fabric 2: Dark grey fabric with white lime, foraminifera and round black glauconite inclusions; unslipped; over-fired; traces of burning/soot. Context: Foreman Street SU 57.

4.3.7.3 FRM08/59/15: Rim, d. 36. Local Fabric 2: Pale brown fabric with white foraminifera, lime, red ore, grog and black glauconite inclusions; unslipped. Context: Foreman Street SU 59.

4.3.7.4 MLT84/26095: Rim, d. 36. Local Fabric 3: Hard orange fabric with white lime and angular gypsum inclusions; unslipped cream salt skin. Context: Melita SU 1096, phase 5.

4.3.7.5 MLT84/26882: Rim, d. 40. Local Fabric 2: Hard orange fabric with white lime and glauconite inclusions; cream exterior. Context: Melita SU 1075, phase 3.

4.3.7.6 MLT84/49870: Rim, d. 44. Local Fabric 1: Hard pale orange fabric with white lime and red ore/grog inclusions; unslipped pale orange surface. Context: Melita SU 1085, phase 3.

[1118] Anastasi 2010, fig. 137.2–3.
[1119] Riley 1979, 339, fig. 125.
[1120] Hayes 1976, 102, fig. XIV.39–40.

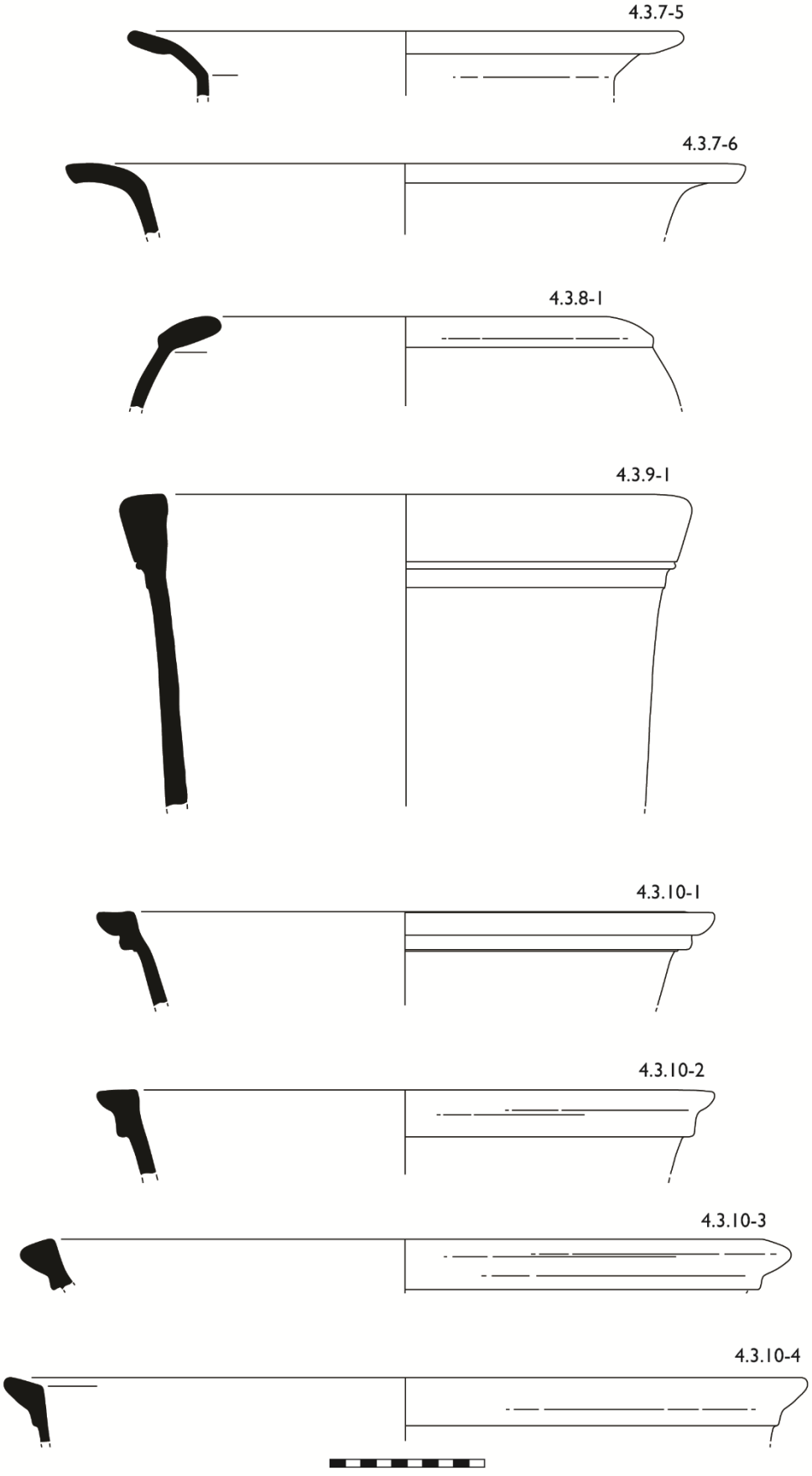


Figure I.56: Coarse ware large bowl forms, types 4.3.7–4.3.10.

4.3.8 Coarse ware Basin type 8 *Figure I.56*

Only one example of this form was recorded in the assemblages and is characterised by inward-curving walls with a thickened, rounded rim. At least three rims similar to this come from Tas-Silġ and are classed as 'Red Bricky ware' by Sagona.[1121] These examples fall into Tas-Silġ phases IV and V, dateable to between the 3rd century BC and 5th century AD; a more specific date is unknown. The rim from Melita comes from a context dated to the mid-3rd/mid-4th century (Phase 5) and no other local parallels are known.

4.3.8.1 MLT84/26148: Rim, d. 24. Local Fabric 1: Pale orange fabric with white lime and foraminifera inclusions; pale grey salt-slipped exterior. Context: Melita SU 1096, phase 5.

4.3.9 Coarse ware Basin type 9 *Figure I.56*

Three rim sherds belonging to this form were identified and belong to a vessel exhibiting a straight and thick-walled deep bucket-like form with a thick collared rim. The clay is that of Local Fabric 1 and the form resembles some Late Punic vessels recorded at Tas-Silġ, classed as a Phase IV Hellenistic/Early Roman 'situla' with a similar fabric and finish.[1122]

4.3.9.1 MLT84/26275: Rim, d. 38. Local Fabric 1: Pale orange fabric with a thin pale grey core, with white lime and foraminifera inclusions; cream salt-slipped exterior; smoothed and well finished. Context: Melita SU 1100, phase 2.

4.3.10 Coarse ware Basin type 10 *Figures I.56–I.57*

This type of deep basin has sloping walls with a thick doubled-stepped rim. The majority of the examples recorded were made using Local Fabric 1—although one is in Local Fabric 2—, and are all associated with contexts dated to after the late 1st century AD (Melita phase 1 onwards). This particular style was only found in the Melita assemblage, although a similar vessel, with a very similar fabric to 4.3.10-5 was recorded at the Żejtun villa.[1123] None of these kinds of vessels were recovered from any tomb contexts and appear to be mostly common at domestic sites.

4.3.10.1 MLT84/49331: Rim, d. 40. Local Fabric 1: Pale orange fabric with a thick grey core, with white and yellow lime and foraminifera inclusions; grey/cream-coloured salt-slipped exterior surfaces. Context: Melita SU 1084, phase 4.

[1121] Sagona 2015, fig. 1.120:2–4.
[1122] Sagona 2015, fig. 1.87:4.
[1123] Anastasi 2010, fig. 136.2.

4.3.10.2 MLT84/49987: Rim, d. 40. Local Fabric 1: Coarse pale orange fabric with yellow lime and foraminifera inclusions; cream-coloured salt-slipped exterior. Context: Melita SU 1097, phase 5.

4.3.10.3 MLT84/23210.3: Rim, d. 50. Local Fabric 2: Pale cream/grey fabric with white lime, foraminifera and fine back glauconite inclusions; unslipped. Context: Melita SU 1024.

4.3.10.4 MLT84/49630: Rim, d. 52. Local Fabric 1: Coarse pale grey fabric with white lime and foraminifera inclusions; unslipped, pale grey/cream skin. Context: Melita SU 1103, phase 5.

4.3.10.5 MLT84/24744: Rim, d. 48. Local Fabric 1: Pale green clay with white and yellow lime and foraminifera inclusions; unslipped. Context: Melita SU 1062, phase 5.

4.3.11 Coarse ware Basin type 11 *Figure I.57*

This category groups a series of large bowls similar in shape to the ones above, but larger in dimension. The shape is characterised by a large simple hemi-spherical vessel, some with a wide, flat base and simple rounded and slightly flaring rim (4.3.11-1); a triangular rim (4.3.11-2) or straight and bevelled (4.3.11-3–5). The dating varies for each variant: the earliest appears to be the 4.3.11-1, dating to sometime before the mid-/end of the 1st century. The remaining variants are associated with finds dating to between the late 1st century and early/mid-3rd century.

4.3.11.1 BLB12/58/12: Profile, d. 26 (rim), d. 13.5 (base). Local Fabric 1: Pale orange fabric with fine white lime and foraminifera inclusions; shallow ribbed exterior; cream-coloured skin; rough, string-cut base. Context: Bulebel SUs 58 and 55, phase 1.

4.3.11.2 BLB12/43/1: Rim, d. 26. Local Fabric 2: Orange fabric with fine white lime, foraminifera and black glauconite inclusions; unslipped pale pink surface. Context: Bulebel SU 43, phase 2.

4.3.11.3 FRM08/42/46: Rim, d. 26. Local Fabric 2: Pale red fabric with thick grey core, with white lime, foraminifera, angular gypsum and black volcanic inclusions; grey/cream salt-slipped surfaces; rilled interior wall. Context: Foreman Street SU 42.

4.3.11.4 FRM08/42/47: Rim, d. 24. Local Fabric 2: Hard pale orange fabric with thick grey core, with foraminifera, lime and black glauconite inclusions; grey/cream-coloured skin; rilled interior wall. Context: Foreman Street SU 42.

4.3.11.5 FRM08/42/45: Rim, d. 26. Local Fabric 2: Hard orange clay with fine white lime, foraminifera, and black glauconite inclusions; unslipped, Context: Foreman Street SU 42.

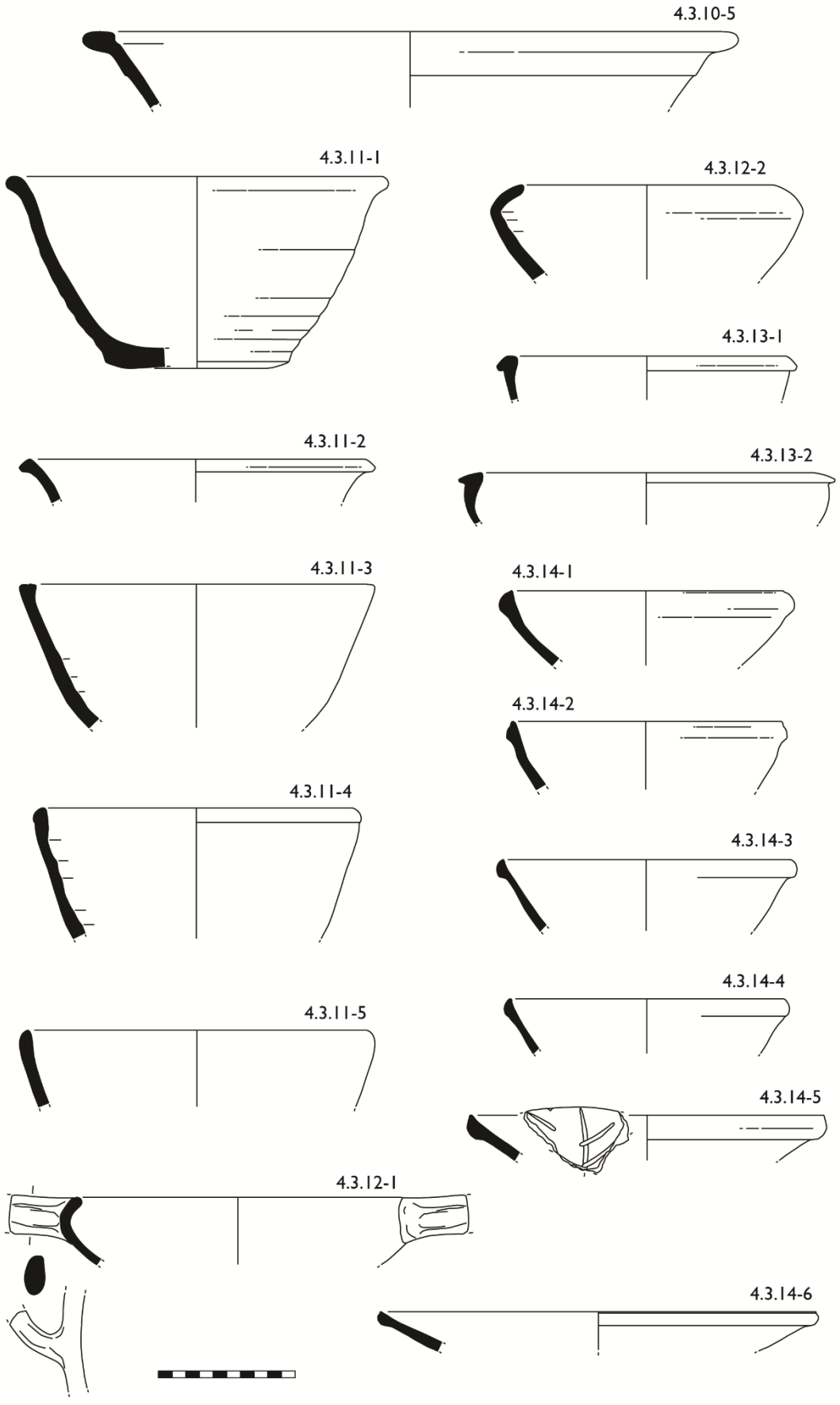


Figure I.57: Coarse ware large bowl forms, types 3.4.10–4.3.14.

4.3.12 Coarse ware Basin type 12 *Figure I.57*

This large bowl is characterised by a sharply inverted simple rim and is known on Late Republican/early Imperial-period sites across Malta; one large example was recorded at Żejtun.[1124] None have been recorded on Gozo to date; and none were recovered from tomb contexts. The rim width varies quite considerably (between 18 and 30 cm, and larger), but generally all examples are made using Local Fabric 2. The vessels are unslipped but the salt in the clay does leach to the exterior surface during firing giving the vessel a mottled pink and cream colour. One example from Bulebel contained an oval-section horizontal loop handle attached either side of the vessel, flush with the rim (4.3.12-1). This form is absent from the Tas-Silġ assemblage and is associated with early Roman domestic contexts such as the Żejtun villa, San Pawl Milqi villa, Bulebel and Melita. Secure dating it poor, but an early 1st century-AD date is suggested for the start of its presence at Bulebel.

4.3.12.1 BLB12/24/10: Rim and handle, d. 23. Local Fabric 2: Pale orange/pink fabric with white lime, foraminifera and black glauconite inclusions; unslipped; oval-section horizontal strap handle attached to rim. Context: Bulebel SU 24, phase 2.

4.3.12.2 BLB12/58/37: Rim, d. 18. Local Fabric 2: Hard pale orange fabric with fine white lime, foraminifera and round black glauconite inclusions; unslipped cream skin; Context: Bulebel SU 58, phase 1.

4.3.13 Coarse ware Basin type 13 *Figure I.57*

Only two rims belonging to this form were identified from the Foreman Street assemblage. The hooked-rim form is not common on Maltese sites, but is a common Roman-period North African form.[1125] The Carthaginian examples came from contexts dating to after the 4th century, however, recent excavations of coarse ware kilns in Utica are indicating that bowls of this form were being produced at least from the 1st/2nd century. The Gozitan examples are made in Local Fabric 2 and are provisionally dated to the late 2nd/mid-3rd century AD. This bowl should not be confused with a similar local bowl/lid form (3.1.3.1) that is made using a cooking fabric (usually Local Fabric 5), also common on domestic early Roman sites like the Żejtun

[1124] Anastasi 2010, fig. 137.7.

[1125] Hayes 1976, fig. X.10, Early Roman bowl type 1; Fulford 1994, fig. 14, type 8.

villa, which is an imitation of southern Italian Pompeian Red ware dishes.[1126]

4.3.13.1 FRM08/59/21: Rim, d. 19. Local Fabric 2: Hard pale red fabric with fine white foraminifera, lime and occasional black glauconite inclusions; unslipped cream-coloured salt skin. Context: Foreman Street SU 59.

4.3.13.2 FRM08/42/91: Rim, d. 24. Local Fabric 2: Hard pale red/brown fabric with fine white lime, foraminifera, red ore and fine black glauconite inclusions; unslipped cream-coloured salt skin. Context: Foreman Street SU 42.

4.3.14 Coarse ware Basin type 14 *Figure I.57*

This almond-rimmed bowl or lid form is a smaller version of the large 4.3.5 bowls, found only at Foreman Street—and together with the presence of a waster (4.3.14-6) suggest this form is a local product—, dated to the end of the 2nd to early/mid-3rd century. All are made in Local Fabric 2. One example contained incised decoration or illegible writing on the interior surface, etched into the clay prior to firing (4.3.14-5). The form could be modelled on North African cooking ware lid forms common throughout the Roman period.

4.3.14.1 FRM08/59/11: Rim, d. 20. Local Fabric 2: Hard and gritty red fabric with yellow lime, fine white foraminifera and fine black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 59.

4.3.14.2 FRM08/59/12: Rim, d. 20. Local Fabric 2: Hard pale red fabric with fine white lime, foraminifera and black glauconite inclusions; unslipped cream skin. Context: Foreman Street SU 59.

4.3.14.3 FRM08/42/57: Rim, d. 21. Local Fabric 2: Hard red fabric with white/yellow lime, white foraminifera and black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 42.

4.3.14.4 FRM08/42/56: Rim, d. 20. Local Fabric 2: Pale red/pink fabric with large white lime, foraminifera and fine black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 42.

4.3.14.5 FRM08/42/81: Rim, d. 26. Local Fabric 2: Hard, gritty red fabric with fine white foraminifera, abundant fine black glauconite and large red ore inclusions; white skin; incised decoration on interior surface. Foreman Street SU 42.

4.3.14.6 FRM08/57/27: Rim, d. 32. Local Fabric 2: Hard gritty pale red/yellow (ruptured lime?), fired grey in parts, with foraminifera, red ore and glauconite inclusions; over-fired waster. Context: Foreman Street SU 57.

[1126] Anastasi 2010, fig. 143.1–6.

4.3.15 Coarse ware Basin type 15 *Figure I.58*

This small group of large bowls is loosely characterised by thick walls, carinated beneath the rim, allowing a sloping, bevelled rim to curve inwards. A series of grooves and ridges striate the exterior surface. Based on the fabric and Foreman Street examples, this form can be tentatively dated to the late 2nd/early/mid-3rd century. A coarse ware vessel similar in shape, and dating to the 2nd century was recorded at Knossos.[1127]

4.3.15.1 BLB12/14/6: Rim, d. 36. Local Fabric 3: Pale red fabric with white lime, foraminifera, gypsum and black glauconite inclusions; cream-coloured skin. Context: Bulebel SU 14, Quarry 2.

4.3.15.2 FRM08/59/17: Rim, d. 34. Local Fabric 2: Coarse grey fabric with white lime, foraminifera, some gypsum and glauconite inclusions; cream salt skin; over-fired? Context: Foreman Street SU 59.

4.3.15.3 FRM08/59/18: Rim, d. 42. Local Fabric 2: Pale brown fabric with white foraminifera, pale red grog and fine black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 59.

4.3.16 Coarse ware Dish type 16 *Figure I.58*

This category groups a series of large plates with flaring triangular rims. Large platters such as these are common on Late Punic sites like Tas-Silġ,[1128] and early Roman domestic villas like the Żejtun villa.[1129] Little evidence for more accurate dating other than the Late Punic and Roman periods, although the introduction of these large plates in Local Fabric 3 appears after the end of the 1st century.

4.3.16.1 BLB12/58/8a: Rim, d. 30. Local Fabric 1: Pale brown fabric with red ore and white lime and foraminifera inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.3.16.2 BLB12/58/8: Rim, d. 34. Local Fabric 2: Pale orange fabric with large brown-coloured grog and fine glauconite inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.3.16.3 BLB12/59/1: Rim, d. 32. Local Fabric 1: Pale brown fabric with a darker grey core, with white lime and foraminifera inclusion; unslipped. Context: Bulebel SU 59, phase 1.

4.3.16.4 BLB12/32/32: Rim, d. 35. Local Fabric 2: Hard pale brown fabric with large white lime, foraminifera, grey grog and occasional black glauconite inclusions; unslipped. Context: Bulebel SU 32, phase 2.

[1127] Hayes 1983, fig. 12.161.

[1128] Quercia 2004–2005, 345, fig. 8.7.

[1129] Anastasi 2010, fig. 135.15–16.

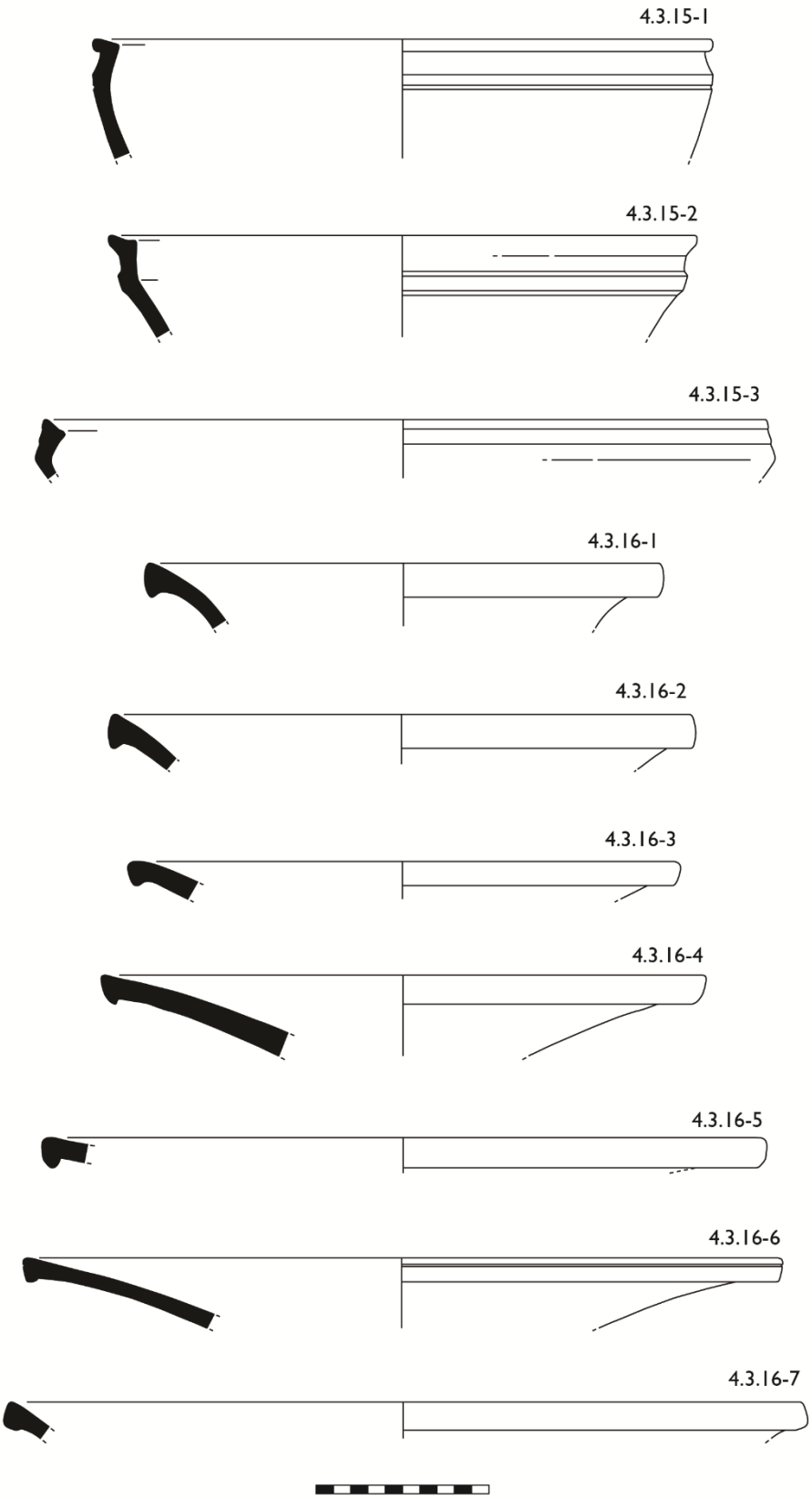


Figure I.58: Coarse ware large bowl and plate forms, 4.3.15–4.3.16.

4.3.16.5 BLB12/24/3: Rim, d. 42. Local Fabric 3: Pale brown fabric with white lime, foraminifera, lots of black shiny (glauconite?) inclusions and angular gypsum; unslipped. Context: Bulebel SU 24, phase 2.

4.3.16.6 BLB12/24/2: Rim, d. 44. Local Fabric 3: Buff-coloured fabric with white lime, foraminifera, gypsum and glauconite inclusions; under-fired? Context: Bulebel SU 24, phase 2.

4.3.16.7 FRM08/59/43: Rim, d. 46. Local Fabric 1: Hard pale brown fabric with white foraminifera, some fine gypsum, fine red ore, dark grog and occasional fine glauconite inclusions; unslipped pale surface. Fabric not typical of other Foreman Street fabrics; possibly local import to site? Context: Foreman Street SU 59.



Figure I.59: Coarse ware mortar type 17 (4.3.17-1).

4.3.17 Coarse ware Mortar type 17 *Figure I.59*

This base sherd belongs to a thick-walled, heavy set mortar-like basin that is probably the closest form that acted as a grinding mortar on the island. As stated at the start of this section, typical Late Punic and Roman mortaria are completely missing from Maltese ceramic assemblages, possibly reflecting nutritional or cultural aspects of the inhabitants. Several examples of base sherds were recovered from the Bulebel assemblage suggesting a date between the 1st and early 3rd century AD. The characteristic radiating incisions on many bases are known from Tas-Silġ[1130] and the Żejtun villa,[1131] indicating that they were produced from a much earlier date. The fabric

[1130] Quercia 2004–2005, fig. 10.2; Sagona 2015, fig. 1.78:4.
[1131] Anastasi 2010, fig. 138.4.

(Local fabric 3) suggests that some of these vessels were most certainly produced into the 1st century AD.

4.3.17.1 BLB12/39/15: Thick mortar disc base, d. 15. Local Fabric 3: Hard pale orange fabric with white lime, foraminifera, black glass-like inclusions and angular gypsum; radiating incised lines on underside of base; unslipped pale skin. Context: Bulebel SU 39, phase 2.

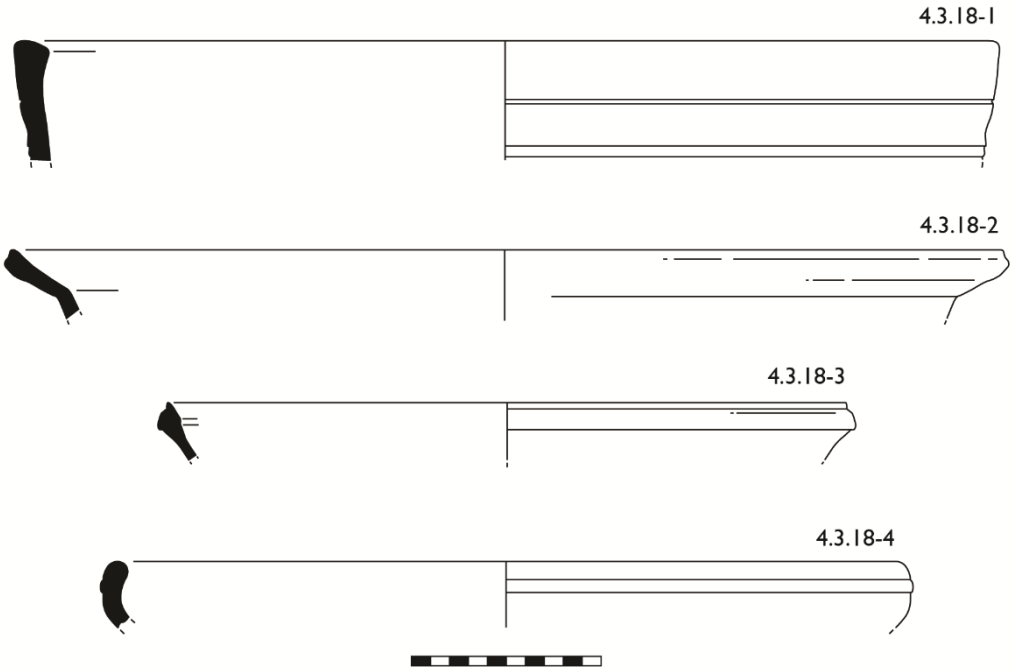


Figure I.60: Miscellaneous large open vessels, type 4.3.18.

4.3.18 Miscellaneous large open vessels *Figure I.60*

This last group includes a range of miscellaneous forms. Each catalogue entry contains specific details pertaining to possible parallels and comparative dating evidence.

4.3.18.1 BLB12/58/17: Rim, d. 52. Local Fabric 7: Coarse, soft pale brown fabric with large white and yellow lime, fine white foraminifera and pale red and grey grog inclusions; smooth wet-wiped exterior surfaces. Context: Bulebel SU 58, phase 1. *Comment/s*: Similar to Sagona 2015, fig. 88.1–2. Date: Late Punic to the end of the 2nd/mid-3rd century AD.

4.3.18.2 FRM08/59/16: Rim, d. 54. Local Fabric 2: Hard red fabric with thick grey core, with fine white lime, foraminifera, red ore and fine glauconite inclusions; cream salt-slipped skin. Context: Foreman Street SU 59. *Comment/s*: end of the 2nd/mid-3rd century AD?

4.3.18.3 FRM08/57/23: Rim, d. 36. Local Fabric 2: Hard red fabric with fine white lime, foraminifera and glauconite inclusions; grey/cream salt-slipped skin. Context: Foreman Street SU 57. *Comment/s*: Variant of form 4.3.5?; end of the 2nd/mid-3rd century AD.

4.3.18.4 MLT84/49968: Rim, d. 40. Local Fabric 1: Hard pale orange fabric with large white/yellow lime and white foraminifera inclusions; unslipped. Context: Melita SU 1097, phase 5. *Comment/s*: Mid-3rd/4th century context, possibly residual.

4.4 Jars and jugs

4.4.1 Punic painted closed vessels *Figure I.61*

This class consists of a range of miscellaneous Punic-period closed vessels that are characterised by a white slip beneath thin, red-painted bands. This style of decoration is typical of 5th–4th-century BC Punic pottery, but continued at least until the mid-3rd/2nd century BC.

4.4.1.1 BLB12/58/14: Rim, d. 12. Local Fabric 1: Pale red fabric with fine white foraminifera, large yellow lime and red ore inclusions; even pale yellow matt slip on exterior with thin re-painted lines on neck. Context: Bulebel SU 58, phase 1.

4.4.1.2 MLT84/49947: Rim, d. 9. North African Fabric: Hard-fired brown fabric with quartz, large lime and dark, grog-like inclusions; cream-slipped exterior surface with red-painted bands on the neck. Context: Melita SU 1098, phase 5; residual. *Comment/s*: Imported Punic jar similar of an unknown type.

4.4.1.3 BLB12/58/19: Hollow, ring base, d. 6. Local Fabric 2: Hard red fabric with a clean break with fine white foraminifera, yellow lime and fine shiny glauconite inclusions; thick, smoothed pale yellow slip on interior and exterior surface with a thick red-painted band on the lower body. Context: Bulebel SU 58, phase 1.

4.4.1.4 MLT84/49869: Splayed jar base, d. 10. Local Fabric 1: Fine pale orange fabric with pale yellow lime, white foraminifera and occasional red ore inclusions; smooth and polished cream slipped exterior with red painted bands on the foot. Context: Melita SU 1085, phase 3.

4.4.1.5 MLT84/49497: Rim, d. 20. Local Fabric 1: Coarse pale orange fabric with a thick grey core, with large yellow lime, white foraminifera inclusions; unslipped mottled, pink/orange surfaces with a thick dull red painted band on the neck. Context: Melita SU 1095, phase 2.

4.4.2 Coarse ware Jar type 2: Flat-bottomed amphora (Sagona urn form III-IV: 4) *Figures I.61–I.62*

This class includes the type of flat-bottomed table amphora that is the subject of discussion in Chapter 3. This form is essentially a 4th/3rd-century BC vessel, however, variants did continue into the Late Republican and early Imperial period.[1132] The types evident in these Roman assemblages are table amphorae with flat and splayed bases with a smoothed mottled pink/cream exterior surface with one or two red-painted bands on the base.

[1132] See Section 3.8.

Double-cordon strap handles are associated with at least one of these bases (4.4.2-3). The later variants, such as 4.4.2-2, resemble Dressel 2-4 types and may be consistent with local wine-related containers. Unfortunately, more base than rim fragments were recovered making it difficult to determine the exact form types; however, the restricted number of sherds within the earliest 1st-century phase at Bulebel, together with the presence of Local Fabric 2 varieties, supports the possibility that these forms continued, albeit in limited numbers, into the early Imperial period.

4.4.2.1 MLT84/49488: Rim, d. 9. Local Fabric 1: Hard pale orange fabric with coarse yellow lime and foraminifera inclusions; smooth, burnished cream exterior surfaces. Context: Melita SU 1094 and 1095, phase 3.

4.4.2.2 BLB12/32/36: Rim, neck and handle, d. 13. Local Fabric 2: Hard-fired red clay with a thin grey core with fine white and yellow microforaminifera, lime and occasional, fine black glauconite inclusions; Even, matt pale yellow exterior surface. Context: Bulebel SU 32, phase 2.

4.4.2.3 BLB12/32/44 Base, handle, d. 12. Local Fabric 2: Hard red gritty fabric with fine yellow lime, white foraminifera and abundant black glauconite inclusions; thin, smooth pale yellow to pink slip/skin on exterior surface with a thin pale red, painted band on the base and lentil dashes painted horizontally across the handle. Context: Bulebel SU 32, phase 2.

4.4.2.4 BLB12/32/50: Base, d. 12. Local Fabric 2: Hard dark orange fabric with fine yellow lime, white foraminifera and fine black glauconite inclusions; smoothed pale yellow/cream exterior slipped surface. Context: Bulebel SU 32, phase 2.

4.4.2.5 BLB12/32/43: Base, d. 13. Local Fabric 2: Hard-fired brown/orange fabric with fine white lime and foraminifera and fine black glauconite inclusions; pale unslipped pink/brown skin with faint, red/brown band painted on the base. Context: Bulebel SU 32, phase 2.

4.4.2.6 MLT84/49591: Rim, d. 22. Local Fabric 1: Hard pale orange fabric with fine yellow lime and foraminifera inclusions; smooth cream-slipped exterior surface with radiating red-painted lines on the flat-topped rim. Context: Melita SU 1109, phase 5; residual?

4.4.2.7 MLT84/49937: Base, d. 20. Local Fabric 1: Hard orange fabric with a thin grey core and contains white foraminifera and white lime inclusions; thick cream exterior surface with red-painted bands on the base. Context: Melita SU 1098, phase 5; residual?

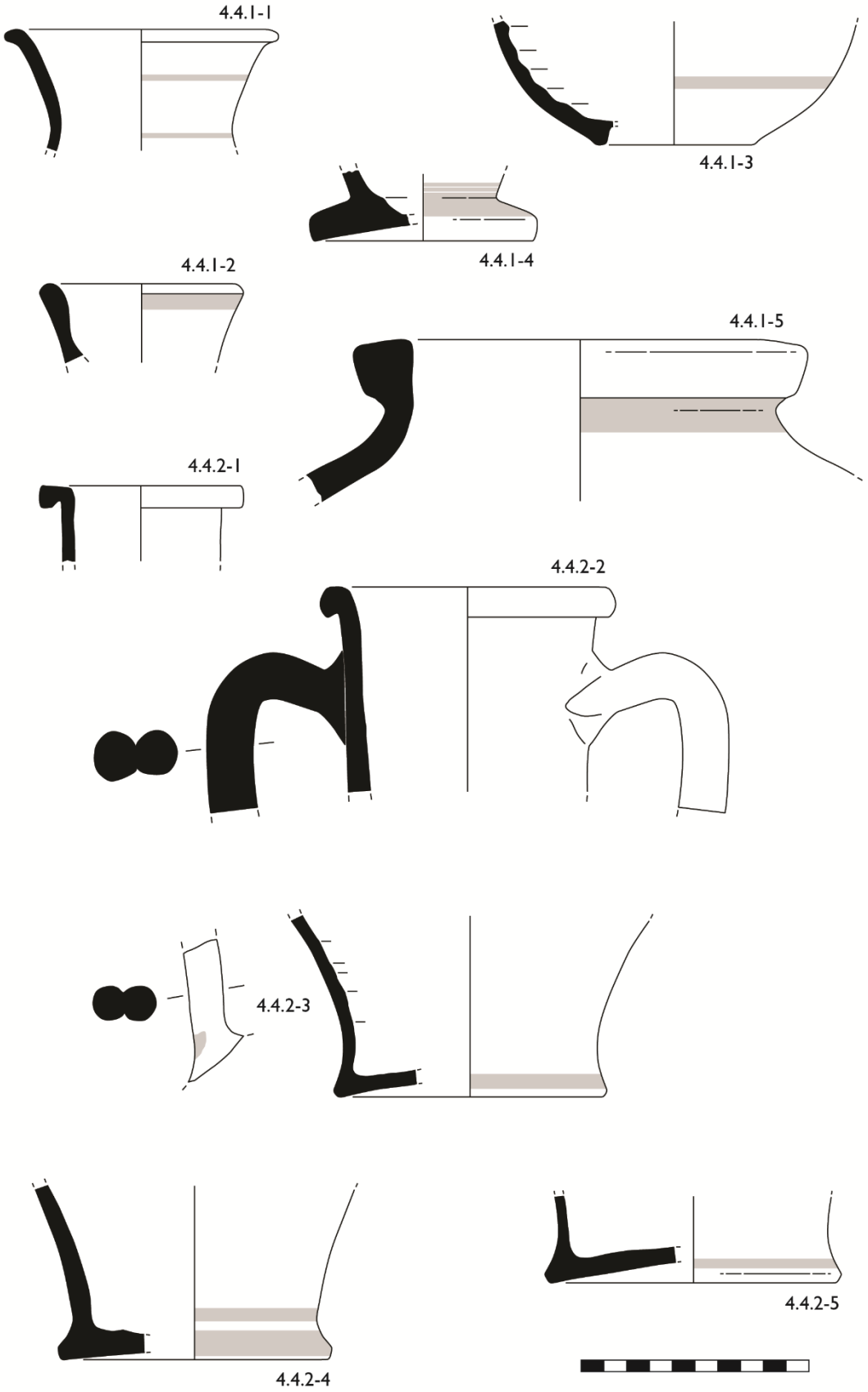


Figure I.61: Coarse ware jar/jug forms, types 4.4.1–4.4.2.

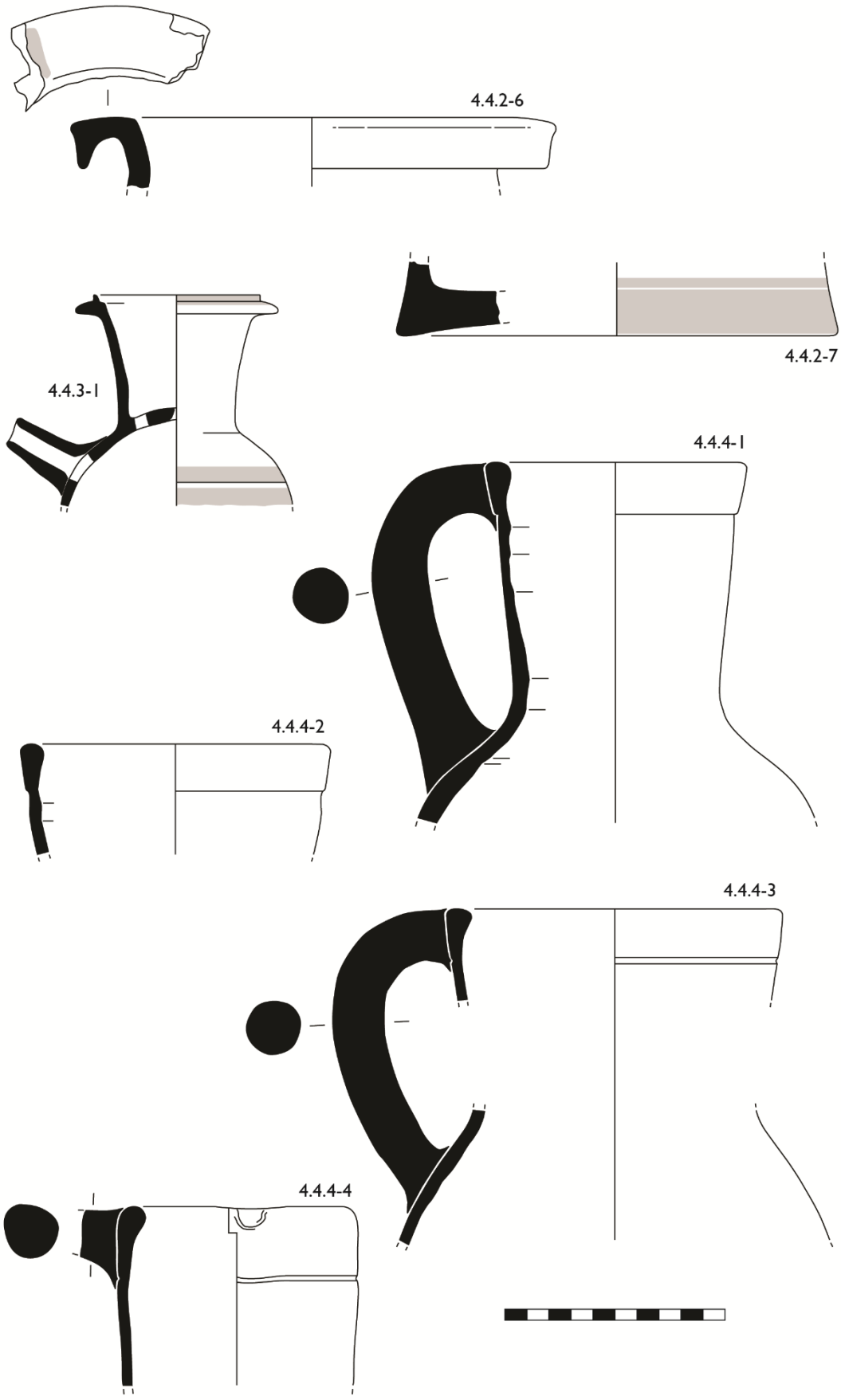


Figure I.62: Coarse ware jug/jar forms, types 4.4.2–4.4.4.

4.4.3 Coarse ware Jug type 3: Punic-painted strainer jug *Figure I.62*

Only one vessel belonging to this shape was recovered from all the assemblages. This vessel is quite common in funerary contexts throughout the Punic period, and is rarely encountered in domestic or ritual contexts. Within funerary contexts, the strainer jug is usually associated with infant burials, hence their association with 'baby-feeders'.[1133] The single example from Bulebel is relatively well preserved, where the entire top part of the body, neck and spout are preserved. A perforated wall separates the neck and body, and no handle was attached to any part of the top half of the body suggesting that this vessel in particular did not contain a side strap handle like the types identified by Sagona in the tomb contexts (such as Sagona spouted flasks forms V: 1a–b and VI: 1a–b), nor the strainer-like perforated wall.[1134] Sagona's spouted flask form IV: 1, dated to 300–100 BC, did contain the strainer wall, but also has a handle.[1135] The fabric (Local Fabric 2) and the context suggest that this newly recorded form could be dated from the 1st century onwards. No others like this form are known on the island.

4.4.3.1 BLB12/32/45: Rim, body and spout, d. 9.2. Local Fabric 2: Fine orange clay with fine lime, foraminifera and fine black glauconite inclusions; evenly applied, yet matt, pale yellow cream slip on exterior surface with thick red-painted bands on the body and rim. Context: Bulebel SU 32, phase 2.

4.4.4 Coarse ware Jug type 4 ('baggy-mouthed') *Figure I.62*

This vessel is generally characterised as a large flagon or jug with a wide neck, a collared (4.4.4-1–2) or grooved (4.4.4-3–4) rim that is slightly pinched to act as a spout. The neck is attached to a wide body on a wide flat base. A thick, round-sectioned strap handle is attached from the rim to the shoulder. The form is similar to Sagona's jug form VI: 1c, which she dated to after the mid-1st century. Sagona identified a few vessels of this type within late tomb contexts, where one vessel was used as a receptacle for cremated human remains, whilst at least 13 were recorded from the 1922 excavations at the Roman domus.[1136] This form was found in contexts dating to between the 1st and mid-4th century, making it difficult to find a more precise date. However, as with other types of coarse ware jugs, the form was

[1133] Maraoui Telmini 2009, 315–316, fig. 321; Anastasi 2010, 129, table 7.
[1134] Sagona 2002, 151–152.
[1135] Sagona 2002, fig. 290.5, 9.
[1136] Sagona 2002, 134, fig. 334: 54–66.

not likely to change much over time. At least one similar example of this form was identified the 1972 excavations at the Żejtun villa.[1137]

4.4.4.1 BLB12/58/41: Rim, handle and neck, d. 18. Local Fabric 2: Hard pale red/orange fabric with fine yellow and white foraminifera and lots of fine black glauconite inclusions; even pale yellow slip/salt-skin on exterior surface. Context: Bulebel SU 58, phase 1.

4.4.4.2 BLB12/32/9: Rim, d. 12. Local Fabric 1: Fine orange clay with fine yellow foraminifera and lime inclusions; thin cream exterior skin. Context: Bulebel SU 32, phase 2.

4.4.4.3 BLB12/32/8: Rim and handle, d. 13. Local Fabric 2: Hard pale red fabric with lots of yellow lime halos, fine foraminifera and fine black glauconite inclusions; thin cream exterior salt skin. Context: Bulebel SU 32, phase 2.

4.4.4.4 BLB12/58/37a: Rim and handle, d. 11. Local Fabric 2: Hard orange fabric with fine yellow lime, fine white foraminifera, occasional large red iron ore and fine black glauconite inclusions; unslipped pale surfaces. Context: Bulebel SU 58, phase 1.

4.4.5 Coarse ware Jug type 5 *Figure I.63*

The exact nature of this form is unknown as only rim fragments have been identified so far. The cupped rim is characteristic of a similar vessel catalogued by Sagona (urn form V: 2b), which she dates to 100 BC to AD 50.[1138] The complete examples identified by Sagona have a wide round mouth, swollen body and wide, flat base, very similar in fact, to form 4.4.4. No new information regarding the dating of this form was forthcoming from the assemblages.

4.4.5.1 BLB12/24/12: Rim, d. 16. Local Fabric 2: Hard orange fabric with lots of yellow lime halos, white foraminifera and fine black glauconite inclusions; thin cream salt skin on exterior surface. Context: Bulebel SU 24, phase 2.

4.4.5.2 MLT84/49826: Rim, d. 20. Local Fabric 3: Hard pale orange fabric with white lime, red grains, foraminifera, occasional fine glauconite and gypsum/quartz inclusions; thin cream salt skin on exterior. Context: Melita SU 1086, phase 3.

4.4.5.3 MLT84/49590: Rim, d. 20. Local Fabric 1: Hard pale grey-brown fabric with a thin pale red core, with fine white lime inclusions; unslipped pale brown exterior surface. Context: Melita SU 1109, phase 5.

[1137] Anastasi 2010, fig. 132.7.

[1138] Sagona 2002, 133, fig. 348.12.

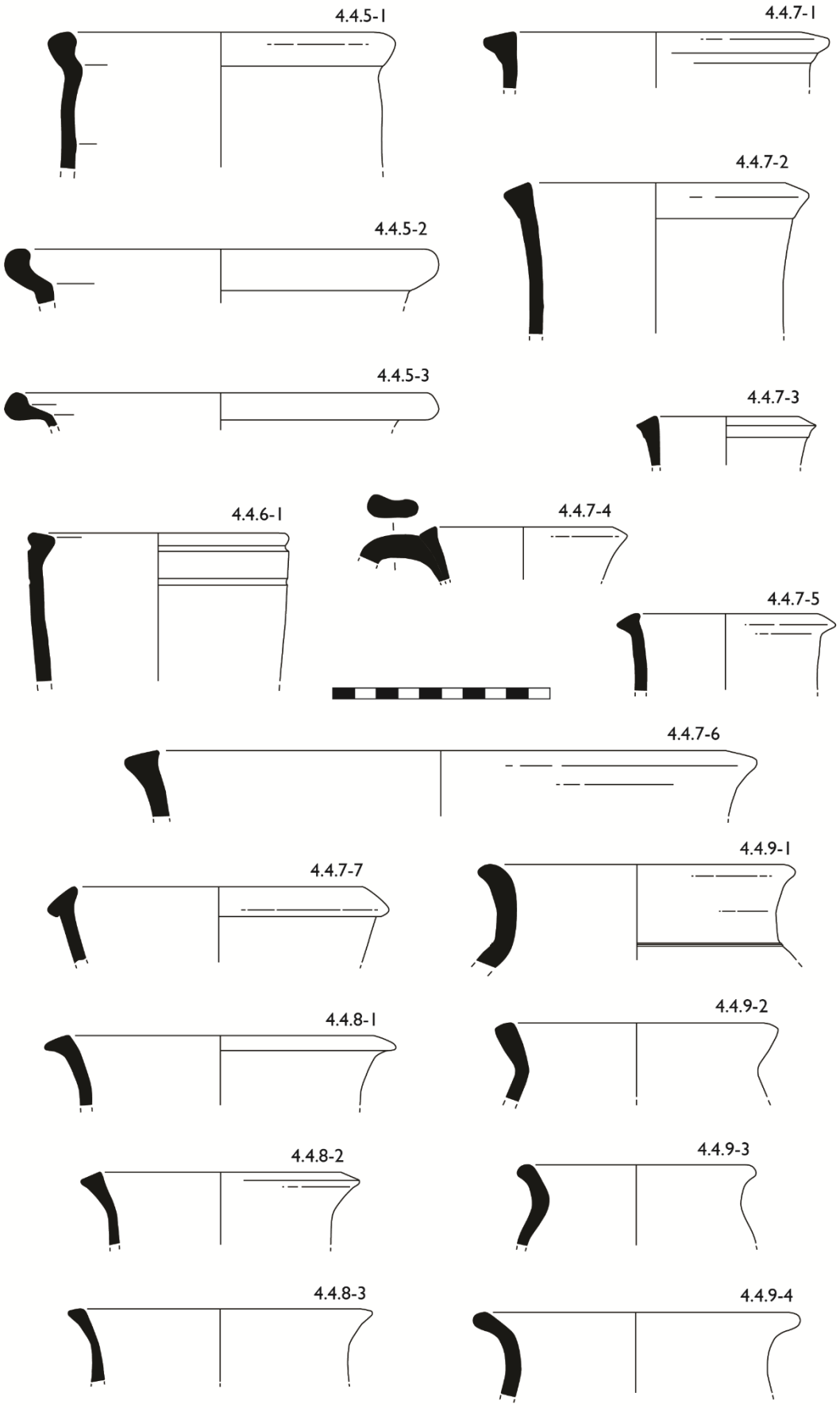


Figure I.63: Coarse ware jar forms, types 4.4.5–4.4.9.

4.4.6 Coarse ware Jug type 6 *Figure I.63*

Only a single example of this flagon rim was identified from the assemblages studied. The surviving rim fragment is triangular and contains two shallow grooves beneath the top of the rim, and is most probably a variant of form 4.4.4-4. Too little information is currently available to suggest a date for this form, but the similarity of shape and fabric to form 4.4.4 gives a possible date after the 1st century AD.

4.4.6.1 BLB12/24/11: Rim, d. 12. Local Fabric 2: Hard red fabric with pale yellow lime and foraminifera and abundant very fine black glauconite inclusions; unslipped pale surfaces. Context: Bulebel SU 24, phase 2.

4.4.7 Coarse ware Jug type 7 (Sagona jug form V: 2c) *Figure I.63*

This form is loosely characterised by a round-mouth vessel with a thickened, triangular rim. The majority of rims of this type came from Foreman Street, Gozo. Complete examples are known from a tomb in Wied il-Għasri (Gozo), which are the best parallels available and provide a *terminus ante quem* of the 1st century AD on the basis of an Imperial coin.[1139] No complete profiles were recovered from any of the sites studied, but whole vessels currently on display at the National Museum of Archaeology in Rabat, Gozo, exhibit a wide round mouth, piriform body with a wide, flat base. A thick oval-shaped strap handle is attached from the neck to the shoulder (Figure I.64). The jug's presence at Foreman Street suggests that they were produced there, giving a mid-2nd/mid-3rd-century AD. The inclusion of one example (4.4.7-1) from a 1st-century AD context at Bulebel is due to the similarity in general shape, whilst the example from Melita (4.4.7-7) is presented here as another possible example of the form, but since it is originated from a mixed context, no further comments can be made. This last example can be compared to Sagona's jug form VI: 3c, which she dated to the mid-1st century AD, although the example she cites lacks details other than its discovery location at the Roman domus.[1140]

4.4.7.1 BLB12/58/53: Rim, d. 16. Local Fabric 1: Soft pale orange fabric with fine white lime, foraminifera and large dark orange/brown-coloured grog inclusions; smoothed, unslipped surface. Context: Bulebel SU 58, phase 1.

[1139] Sagona 2000, 133, 1126, fig. 251.1–6.

[1140] Sagona 2002, 136, fig. 316.4.



Figure I.64: Complete examples of jars (types 4.4.7 and 4.4.8) on exhibit at the National Museum of Archaeology, Gozo.

4.4.7.2 FRM08/42/62: Rim, d. 14. Local Fabric 2: Hard-fired dark grey clay with white and orange (burnt) lime and foraminifera, and fine black glauconite inclusions; pale grey-white skin; over-fired. Context: Foreman Street SU 42.

4.4.7.3 FRM08/42/61: Rim, d. 6.4. Local Fabric 2: Hard pale orange fabric with yellow lime, white foraminifera and fine black glauconite inclusions; cream salt-slipped exterior surfaces. Context: Foreman Street SU 42.

4.4.7.4 FRM08/42/79: Rim and handle, d. 8. Local Fabric 2: Hard orange/brown fabric with fine yellow lime, white foraminifera and occasional black glauconite inclusions; dark grey skin (over-fired?) with a thumb-impress strap handle attached beneath the rim and presumably to the shoulder. Context: Foreman Street SU 42.

4.4.7.5 FRM08/42/59: Rim, d. 8. Local Fabric 2: Hard pale red fabric with large yellow lime, white foraminifera and fine black glauconite inclusions; cream slip/skin. Context: Foreman Street SU 42.

4.4.7.6 FRM08/42/67: Rim, d. 26. Local Fabric 2: Hard orange fabric with yellow lime, white foraminifera and black glauconite inclusions; cream skin/slip. Context: Foreman Street SU 42.

4.4.7.7 MLT84/23116: Rim, d. 13. Local Fabric 2: Hard orange fabric with white lime and foraminifera and black glauconite inclusions; unslipped pale surfaces. Context: Melita SU 1025, phase 6 (mixed context).

4.4.8 Coarse ware Jar type 8 *Figure I.63*

This jar form is very similar to the previous form (4.4.7) but the rim is slightly more everted and ends in a pointier tip. All the examples presented below came from Foreman Street and are thus most probably contemporary. Complete vessels with this rim shape were also found in the Wied il-Għasri tomb providing further evidence for the two shapes' contemporaneity (Figure I.64).

4.4.8.1 FRM08/42/60: Rim, d. 14. Local Fabric 2: Hard pale red fabric with grey edges, with fine white lime, foraminifera and black and red glauconite inclusions; unslipped pale grey skin. Context: Foreman Street SU 42.

4.4.8.2 FRM08/42/63: Rim, d. 11. Local Fabric 2: Hard pale grey fabric with thin pale pink/red edges, with white lime, foraminifera and black glauconite inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

4.4.8.3 FRM08/57/5: Rim, d. 14. Local Fabric 2: Hard pale red fabric with white lime, foraminifera and fine black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 42.

4.4.9 Coarse ware Jar type 9 *Figure I.63*

This generic group of rims is characterised by simple everted rims with a short neck attached to a swollen body. No parallels have been identified but the discovery of wasters belonging to this rim shape (4.4.9-1) at Foreman Street suggests it was produced there (or within the vicinity) around the late 2nd to mid-3rd century AD.

4.4.9.1 FRM08/59/20: Rim, d. 13. Local Fabric 2: Hard pale grey fabric with fine yellow lime, white foraminifera and fine black glauconite inclusions; white skin; over-fired waster. Context: Foreman Street SU 59.

4.4.9.2 FRM08/57/25: Rim, d. 13. Local Fabric 2: Pale orange fabric with white and yellow lime and foraminifera and fine black glauconite inclusions; thin cream skin. Context: Foreman Street SU 47.

4.4.9.3 FRM08/42/86: Rim, d. 11. Local Fabric 2: Coarse brown clay with large pale yellow lime, foraminifera and occasional large black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.4.9.4 FRM08/42/64: Rim, d. 15. Local Fabric 2: Hard pale red fabric with fine white lime, foraminifera and fine black glauconite inclusions thin white skin. Context: Foreman Street SU 42.

4.4.10 Coarse ware Jug type 10 ('Round-mouthed') *Figure I.65*

This small jug is characterised by a round-mouthed, cupped lip with a bulbous, piriform body. No bases were associated with the vessels identified in the sample. The cupped rims were plain (4.4.10-1, -3) or grooved (4.4.10-2, -4), and a single shallow groove circles the top part of the body. A plain or gouged strap handle is attached from the rim to the widest part of the body.

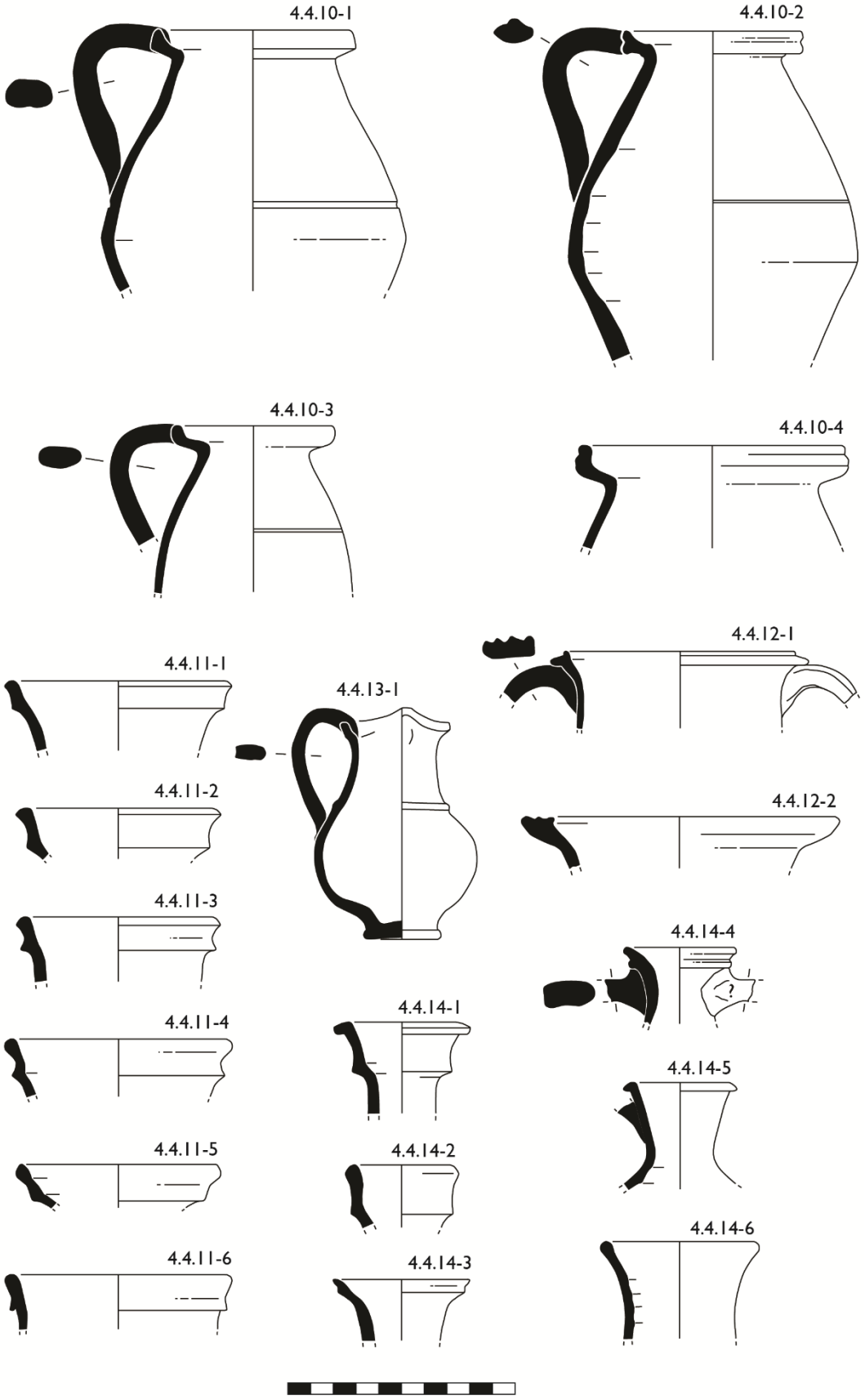


Figure I.65: Coarse ware jug and flask forms, types 4.4.10–4.4.14.

No vessels, even remotely similar to this type were classified by Sagona; or indeed the published material for any other Maltese excavation for that matter.[1141] This vessel type was only found in the Bulebel assemblage, in both phases suggesting that the vessel dates to from at least the mid-1st to early 3rd century AD. The absence of this form the Melita contexts does also suggest that the vessel did not continue being produced long after the mid-2nd/3rd century AD although analyses of more site assemblages from elsewhere on Malta would be needed to support this fully. The basic form is very common on North African sites in contexts dating to between the 1st and 2nd century AD in Carthage,[1142] Utica,[1143] and Sabratha.[1144]

4.4.10.1 BLB12/24/1: Rim, body and handle, d. 9. Local Fabric 2: Hard dark orange fabric with white foraminifera, lime and abundant fine black glauconite inclusions; unslipped smoothed and dry-shaved pale surface. Context: Bulebel SU 24, phase 2.

4.4.10.2 BLB12/54/1: Rim, body and handle, d. 7. Local Fabric 2: Hard orange fabric with very fine yellow lime and foraminifera and fine black glauconite inclusions; unslipped, dry-shaved and smoothed surfaces. Context: Bulebel SU 54, phase 1.

4.4.10.3 BLB12/55/12: Rim and handle, d. 7.2. Local Fabric 1: Orange clay with fine white and yellow lime and foraminifera and occasional fine red iron grain inclusions; unslipped, smoothed surfaces. Context: Bulebel SU 55, phase 1.

4.4.10.4 BLB12/58/30: Rim, d. 12. Local Fabric 2: Orange fabric with thin pale grey core, with fine yellow and white foraminifera, lime and fine black glauconite inclusions; thin cream-slipped surfaces. Context: Bulebel SU 58, phase 1.

4.4.11 Coarse ware Jar type 11 *Figure I.65*

This vessel is characterised by a distinctive, double-beaded collared rim, which is probably a form also produced within the vicinity of Foreman Street because of the glauconite fabric (Local Fabric 2), the distribution of the type, and the presence of wasters. No complete profiles, handles, bodies or bases are associated with this rim form, therefore little more can be extrapolated from the current evidence. Also, no parallels on Gozo or Malta are known, except for a single flagon currently on display at the National

[1141] A possible exception may be revealed in an old photograph of the pottery finds from a tomb discovered in 1907 in New Street [434], Rabat (Malta), which shows a vessel similar in shape to jug form 4.4.10, however, the vessel has since been lost and no more details are known (Sagona 2002, 997–999, fig. 156.13).
[1142] Fulford 1984, type 3.9.
[1143] This information is derived from on-going research of the pottery from the Anglo-Tunisian excavations at Utica, Tunisia, by myself and V. Leitch.
[1144] Dore 1989, types 345–350.

Museum of Archaeology, in Rabat, Gozo. This vessel is associated with an underwater context off the coast of Xlendi bay, Gozo, but since several different wrecks dating to several periods are known in the area, it remains difficult to determine whether the vessel is related to the Punic, Roman or Islamic period (Figure I.66).[1145]

4.4.11.1 FRM08/42/73: Rim, d. 10. Local Fabric 2: Orange fabric with yellow lime and foraminifera and fine black glauconite inclusions; evenly applied thick cream slipped surfaces; black inclusions remain visible under slip. Context: Foreman Street SU 42.

4.4.11.2 FRM08/42/72: Rim, d. 9. Local Fabric 2: Pale yellow/red clay with pale grey edges (over-fired?) with yellow lime and foraminifera and black and red (burnt?) glauconite inclusions; thin pale slip/skin. Context: Foreman Street SU 42.

4.4.11.3 FRM08/42/71: Rim, d. 9. Local Fabric 2: Orange fabric with yellow and white lime and foraminifera and fine black glauconite inclusions; thin pale skin. Context: Foreman Street SU 42.

4.4.11.4 FRM08/42/74: Rim, d. 10. Local Fabric 2: Hard red/orange fabric with fine white lime, foraminifera and occasional black glauconite inclusions; unslipped pale skin. Context: Foreman Street SU 42.

4.4.11.5 FRM08/57/18: Rim: Rim, d. 9. Local Fabric 2: Hard pale red/orange clay with white foraminifera, lime and black glauconite inclusions; pale grey skin. Context: Foreman Street SU 57.

4.4.11.6 FRM08/42/70: Rim, d. 10. Local Fabric 2: Hard pale red clay with fine white foraminifera, white lime and black and red glauconite inclusions; dark grey skin, over-fired? Context: Foreman Street SU 42.



Figure I.66: Round-mouth jar (4.4.11) from an underwater off the coast of Xlendi Bay, Gozo.

[1145] The vessel is on display at the National Museum of Archaeology, Rabat, Gozo. No information about the fabric is available.

4.4.12 Coarse ware Jar type 12 ('Double-handled urns') *Figure I.65*

This form is represented by a Hellenistic-inspired domestic amphora with a curved profile, ridged rim and two ribbed strap handles attached to the rim and shoulder (Figures I.67–I.68a). A range of forms were catalogued by Sagona from funerary contexts dating to after the mid-1st century AD. These include her urn form VI: 2b (4.4.12-1) and VI: 3b (4.4.12-2); the last type is also characterised by a series of freehand red and black painted decoration over the body.[1146] A red-slipped version of Sagona's urn form VI: 2a has already been included in the local red-slipped ware section (2.1.27). Other than the examples from the tomb contexts, no other vessels of this type have been published.

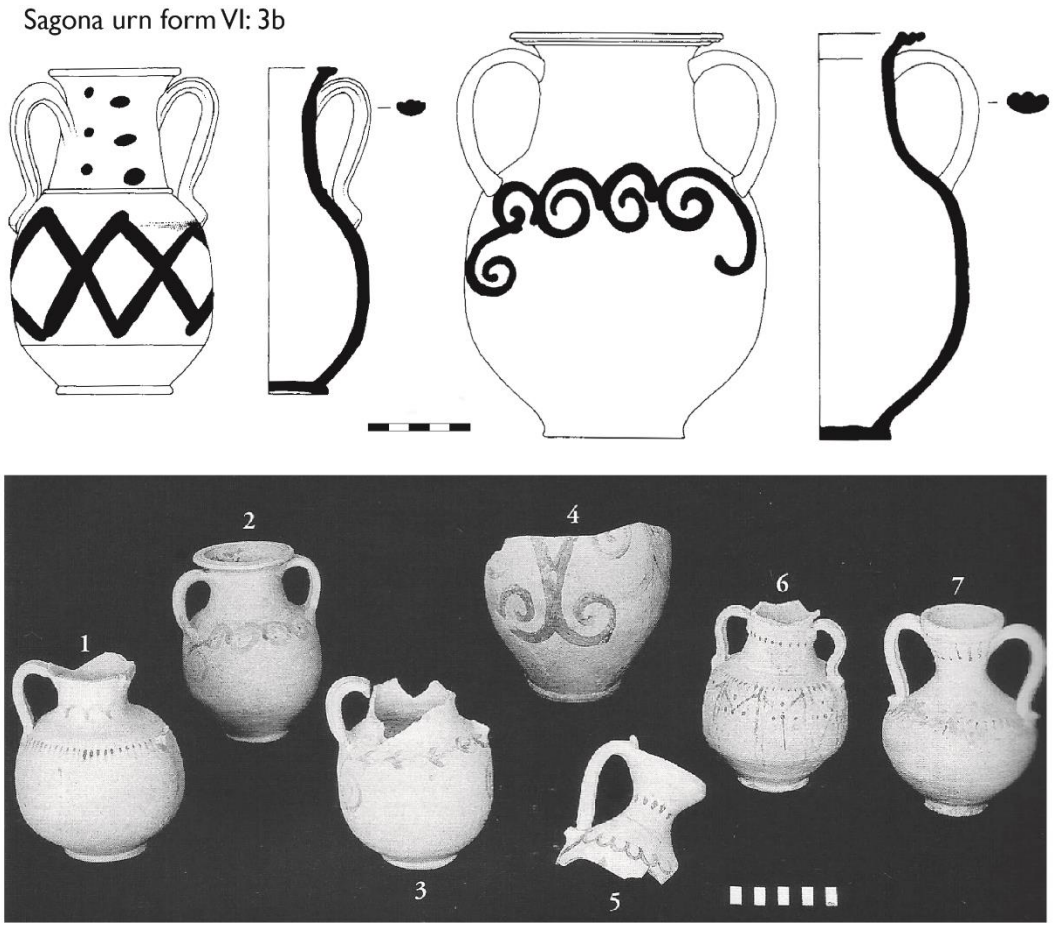


Figure I.67: Various examples of Sagona's urn form VI: 3a–b (top: Sagona 2002, fig. 306.7, 316.3; bottom: Sagona 2002, fig. 320.1–7).

A handful of rims similar to 4.4.12-2 were identified in the 1972 material from the Żejtun villa in an area associated with activities dating to after 1st

[1146] Sagona 2002, 113–114, fig. 349.2–6.

century AD.[1147] The majority of sherds associated with these forms come from the Melita excavation, and included a number of painted wall fragments most probably belonging to jars similar to Sagona's urn form VI: 3b. A handful came from a phase-2 context, whilst a greater proportion of the fragments came from phase-5 contexts. Two highly fragmented, but complete, vessels came from Tombs 1 (BLB12/75/2) and 3 (BLB12/11/1) from Bulebel, whilst a handful of fragments were also found within the latest quarry levelling providing further evidence for a post-1st century AD date with definite use from the early-to-mid-3rd century AD. The earliest Melita context that contains fragments of these vessels belongs to phase 2 and has been dated to the early 2nd century AD. Sagona suggested a mid-3rd century AD date for these vessels, which is supported by the new evidence, however, Sagona primarily based her dating on similarities with vessels from the Athenian Agora.[1148]



Figure I.68: a) Example of Sagona urn form VI: 2b (Sagona 2002, fig. 141.3–4); b) Bulebel juglet 4.4.13-1 (M. Anastasi).

4.4.12.1 BLB12/40/2: Rim and handle, d. 10. Local Fabric 2: Hard dark brown fabric with white and grey foraminifera and black glauconite inclusions; pale grey/brown unslipped skin. Context: Bulebel SU 40, phase 2.

4.4.12.2 MLT84/49699: Rim, d. 14. Local Fabric 2: Pale brown fabric with fine white lime and foraminifera, red grains, fine black glauconite and grey inclusions; unslipped smooth pale brown surfaces. Context: Melita SU 1104, phase 2.

[1147] Anastasi 2010, fig. 131.9–11.

[1148] Sagona 2002, 113–114.

4.4.13 Coarse ware Juglet type 13 (Sagona juglet form VI: 1c) *Figure I.65*

Only one complete example of this trefoil-mouthed juglet was found within tomb 3 from Bulebel (Figure I.68b). A handful of similar juglets come from funerary 'Romano-Punic' contexts dated to Sagona's Phase VI (AD 50 onwards).[1149] The Bulebel example is associated with an ARS Hayes 31 dish and other local red-slipped vessels confidently dated to the early-to-mid-3rd century AD, which offers a reliable date for the production and use of this juglet form. No fragments associated with this form came from earlier-dated contexts.

4.4.13.1 BLB12/71/5: Profile, d. 3.4 (base). Local Fabric 1: Hard-fired dark grey fabric with abundant white lime, foraminifera and red iron ore inclusions; flat, string-cut base; over-fired (?) pale grey surfaces. Context: Bulebel SU 71, tomb 3.

4.4.14 Miscellaneous flasks *Figures I.65, I.69*

This category includes a series of rims belonging to flask-like vessels or narrow-mouthed jugs. All of the catalogued sherds came from contexts dating to end of the 2nd/mid-3rd to mid-4th century AD. The general shapes identified include cupped rims (4.4.14-1–2) similar to Sagona's flask form V: 1a–b; thin, flared grooved rims (4.4.14-3–4); simple everted (4.4.14-5–6); ribbed (4.4.14-10) and an imported north Tunisian example (4.4.14-8). Flask and small jugs such as the ones within this category are interesting because these types of vessels are the least likely range of vessels that retain standardised shapes and types. Changes in rim profiles, handles and decoration are very common throughout the Roman world making it a difficult and laborious task to create a detailed and useful chronological typology. The widely localised, yet highly variable forms, shapes and sizes may point towards a wide range and 'brands' of locally produced sauces and oils. The occasional imported condiment is also apparent by the presence of a North Tunisian vessel.

4.4.14.1 BLB12/32/38: Rim, d. 6. Local Fabric 1? Orange fabric with fine white foraminifera and lime, crushed gypsum and occasional black glauconite inclusions; unslipped, smoothed surfaces. Type: Sagona flask form V: 1a (Sagona dates this form to her Phase V: 100 BC–AD 50). Context: Bulebel SU 32, phase 2.

[1149] Sagona 2002, 141–142, fig. 349.21.

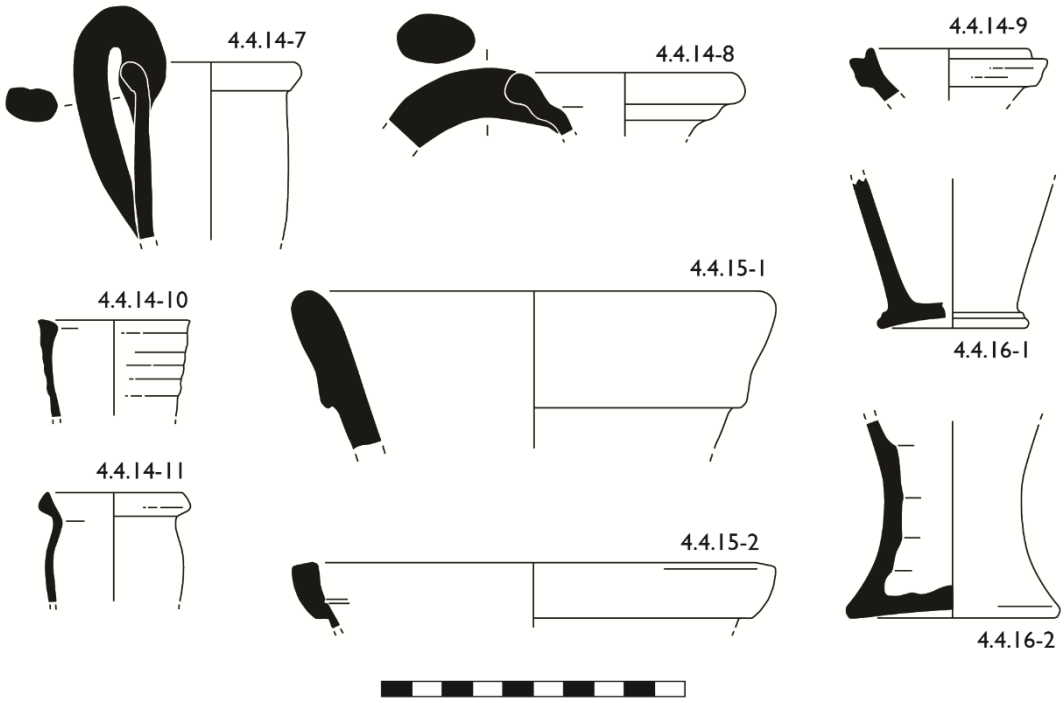


Figure I.69: Miscellaneous jug and flask forms, types 4.4.14–4.4.16.

4.4.14.2 FRM08/42/69: Rim, d. 5. Local Fabric 2: Orange fabric with white foraminifera, lime, fine black glauconite and angular red ore inclusions; unslipped surfaces. Type: Sagona flask form V: 1a? Or narrower version of 4.4.11? Context: Foreman Street SU 42.

4.4.14.3 FRM08/42/75: Rim, d. 6. Local Fabric 2: Pale orange fabric with pale yellow lime, foraminifera and fine black glauconite inclusions; unslipped; trefoil-mouthed or pinched to form spout. Context: Foreman Street SU 42.

4.4.14.4 MLT84/49345: Rim and handle, d. 5. Local Fabric 2: Pale red fabric with fine white lime, foraminifera and fine black glauconite inclusions; thick cream slip on exterior surface; cut strap handle; possibly one or two handled? Context: Melita SU 1093, phase 4.

4.4.14.5 BLB12/32/26: Rim and handle stump, d. 5. Local Fabric 2: Orange fabric with fine yellow lime and foraminifera, red ore and fine black glauconite inclusions; thin cream exterior skin. Context: Bulebel SU 32, phase 2.

4.4.14.6 FRM08/42/65: Rim, d. 7. Local Fabric 2: Hard red/orange fabric with fine yellow lime, foraminifera and fine black glauconite inclusions; unslipped pale surfaces. Context: Foreman Street SU 42.

4.4.14.7 FRM08/42/77: Rim and handle, d. 4. Local Fabric 2: pale red/orange clay with fine white/yellow foraminifera and black and red glauconite inclusions; unslipped pale grey surface; oval-section, up-swung handle attached to the rim and bottom of the neck. Context: Foreman Street SU 42.

4.4.14.8 FRM08/42/80: Rim and handle, d. 6. Fabric (Peacock fabric type 2.2): Hard red fabric with abundant fine quartz and occasional fine yellow lime inclusions; cream exterior skin; thick oval section strap handle attached to rim. Imported from

North Tunisia; similar to Fulford form 65 from a 1st century B.C.-context.[1150] Context: Foreman Street SU 42.

4.4.14.9 FRM08/59/19: Rim, d. 5. Local Fabric 2: Pale orange/brown fabric with fine white lime, foraminifera, red ore and fine black glauconite inclusions; unslipped smoothed surfaces. Context: Foreman Street SU 59.

4.4.14.10 MLT84/49717: Rim, d. 5. Local Fabric 1: Pale orange to grey fabric with fine white lime and foraminifera inclusions; unslipped pale brown exterior surface; ribbed neck; no sign of a possible spout, therefore round-mouthed opening. Context: Melita SU 1101, phase 5.

4.4.14.11 MLT84/49954: Rim, d. 5. Local Fabric 1: Hard pale grey fabric with fine white lime and foraminifera inclusions; unslipped pale brown exterior surface possibly spouted. Context: Melita SU 1098, phase 5.

4.4.15 Miscellaneous collar-rimmed jars

4.4.15.1 MLT84/49340: Rim, d. 16. Local Fabric 7: Pink to grey fabric with large white lime and abundant large lacunae due to organic tempering; unslipped. Context: Melita SU 1093, phase 5.

4.4.15.2 FRM08/42/68: Rim, d. 16. Local Fabric 2: Hard pale red fabric with fine yellow lime, foraminifera, fine red ore and fine black glauconite inclusions; unslipped. Context: Foreman Street SU 42.

4.4.16 Miscellaneous jar/jug bases *Figure I.69*

4.4.16.1 MLT84/49859: Base, d. 5. Fabric: Hard orange fabric with round quartz, red ore and lime inclusions; smooth flat base; cream-slipped exterior surfaces; North African import? Context: Melita SU 1085, phase 3.

4.4.16.2 MLT84/49823: Base, d. 7. Local Fabric 1: Hard pale red fabric with fine white lime and foraminifera inclusions; smoothed cream exterior surfaces; slightly convex base. Context: Melita SU 1086, phase 3.

4.5 Dolia and large containers

This class includes a range of storage vessels common on most Maltese classical-period sites.

4.5.1 Coarse ware Storage jar type 1 *Figure I.70*

This closed vessel is characterised by a flat or inverted bevelled rim with a high carinated shoulder. This vessel appears to share traits with the common cinerary urn (see form 4.5.2), although the wider opening and the distinct shoulder make the vessel's body much squatter. No complete profiles were recovered making it impossible to determine how deep the

[1150] Fulford 1994, 72–73, fig. 4.13 no. 65.

vessel shape actually was. In addition, no similar forms were recorded amongst any of the funerary material, although a handful of vessels similar to this shape come from the sanctuary of Tas-Silġ.[1151] This type is associated with post 1st century-AD contexts.

4.5.1.1 BLB12/23/5: Rim, d. 20. Local Fabric 3: Hard red fabric with thin dark grey edges with fine white lime, foraminifera, fine crushed translucent gypsum and occasional fine shiny glauconite inclusions; shallow groove near carination; thin pale brown skin. Context: Bulebel SU 23, phase 2.

4.5.1.2 BLB12/58/15: Rim, d. 24. Local Fabric 1: Pale red fabric with fine yellow and white lime and foraminifera inclusions; unslipped grey exterior surfaces. Context: Bulebel SU 58, phase 1.

4.5.1.3 BLB12/58/25: Rim, d. 26. Local Fabric 1: Pale orange fabric with fine white and yellow lime and foraminifera and fine red ore or grog inclusions; unslipped. Context: Bulebel SU 58, phase 1.

4.5.2 Coarse ware Storage jar type 2 ('Cinerary urn') *Figure I.70*

This category represents rims that belong to a range of wide-mouthed closed vessels similar to the local Maltese cinerary urns, commonly associated with funerary contexts.[1152] The majority of rims are stylistically similar to Sagona's urn form IV: 1, but since no complete profiles were found that reveal more about the body and base of this form, this comparison should be carefully interpreted. Similar large vessels with no handles and a more bulbous, less curved, body have been recorded from the recent University of Malta excavations at Tas-Silġ[1153] and Ħal Millieri.[1154] Since this form is not associated with tomb contexts, it probably acted as a domestic container for the storage off foodstuffs. Few handles are associated with the Tas-Silġ examples, also suggesting a further deviation from the purely funerary type. Interestingly, this form is mostly associated with the post-1st century AD-contexts in the assemblage sample. Interestingly none of the urn-like vessels are associated with any of the four tomb contexts suggesting that cinerary-urn use fell out of favour from the mid-3rd century AD.

[1151] Sagona 2015, fig. 1.37:5.
[1152] Sagona 2002, 105–108, fig. 346.2–7.
[1153] Sagona 2015, fig. figs 1.35–37.
[1154] Blagg, Bonanno and Luttrell 1990, 59, fig. 14.36.

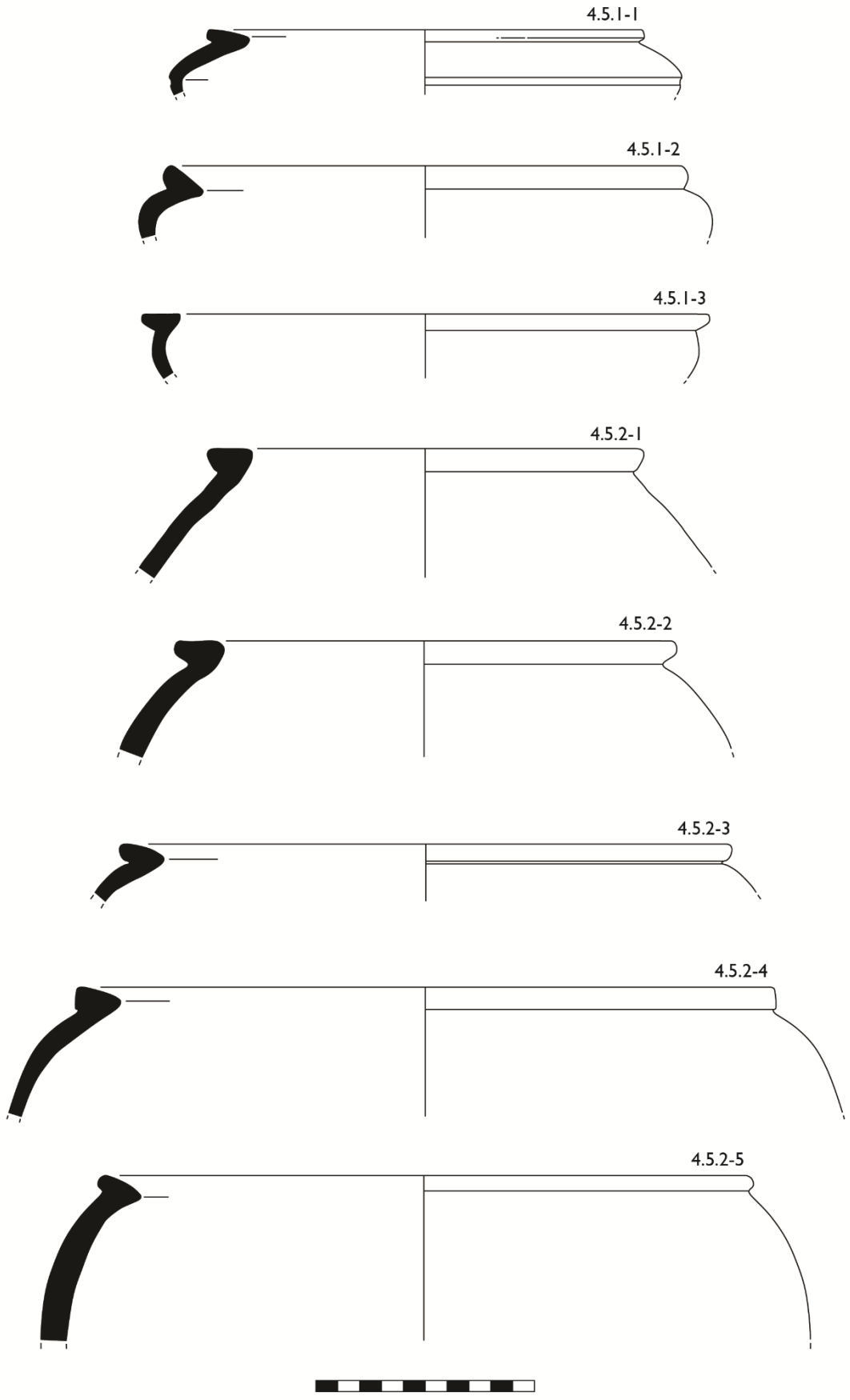


Figure I.70: Coarse ware storage jar forms, types 4.5.1–4.5.2.

4.5.2.1 BLB12/42/1: Rim, d. 20. Local Fabric 1/6: Hard pale red fabric with a thick pale grey core with large yellow lime, fine foraminifera, dark grey and red grog-like inclusions; thin pale grey skin on exterior surfaces. Context: Bulebel SU 42, phase 2.

4.5.2.2 BLB12/28/3: Rim, d. 23. Local Fabric 6: Coarse pale brown fabric with fine grey foraminifera/lime and larger pale red and grey grog-like inclusions. Unslipped paler skin. Context: Bulebel SU 28, phase 2.

4.5.2.3 BLB12/28/8: Rim, d. 24. Local Fabric 2: Pale orange fabric with fine yellow lime, fine white foraminifera, fine black glauconite and occasional large pale red grog inclusions; unslipped. Context: Bulebel SU 28, phase 2.

4.5.2.4 BLB12/32/5: Rim, d. 28. Local Fabric 1: Hard red/orange fabric with large yellow lime and fine white foraminifera; thin pale brown to cream slipped surfaces. Context: Bulebel SU 32, phase 2.

4.5.2.5 BLB12/32/39: Rim, d. 30. Local Fabric 2: Hard red fabric with thick grey core with medium-to-large yellow lime and foraminifera and sporadic fine black glauconite inclusions; evenly applied thin pale brown slipped surfaces. Context: Bulebel SU 32, phase 2.

4.5.3 Coarse ware Storage jar type 3 *Figure I.71*

Presumably, this storage vessel was manufactured with a similar purpose in mind to the previous urn-like form (4.5.3). The main difference is seen in the vertical wall.

4.5.3.1 BLB12/57/2: Rim, d. 32. Local Fabric 7? Coarse brown fabric with large pale pink lime or grog, and grey foraminifera inclusions; unslipped grey surfaces. Context: Bulebel SU 57, phase 1.

4.5.4 Coarse ware Storage jar type 4 *Figure I.71*

This form is morphologically similar to the previous storage vessel with vertical walls (4.5.3), but for a difference with the rim, which is more angular and thicker.

4.5.4.1 BLB12/58/28: Rim, d. 34. Local Fabric 1/7: Coarse pale brown fabric with large yellow lime, foraminifera and pale red, green and grey grog inclusions; unslipped pale skin. Context: Bulebel SU 58, phase 1.

4.5.4.2 MLT84/24740: Rim, d. 27. Local Fabric 1: Coarse orange fabric with large lime and foraminifera inclusions; blackened exterior, probably use-wear-related? Context: Melita SU 1062, phase 4.

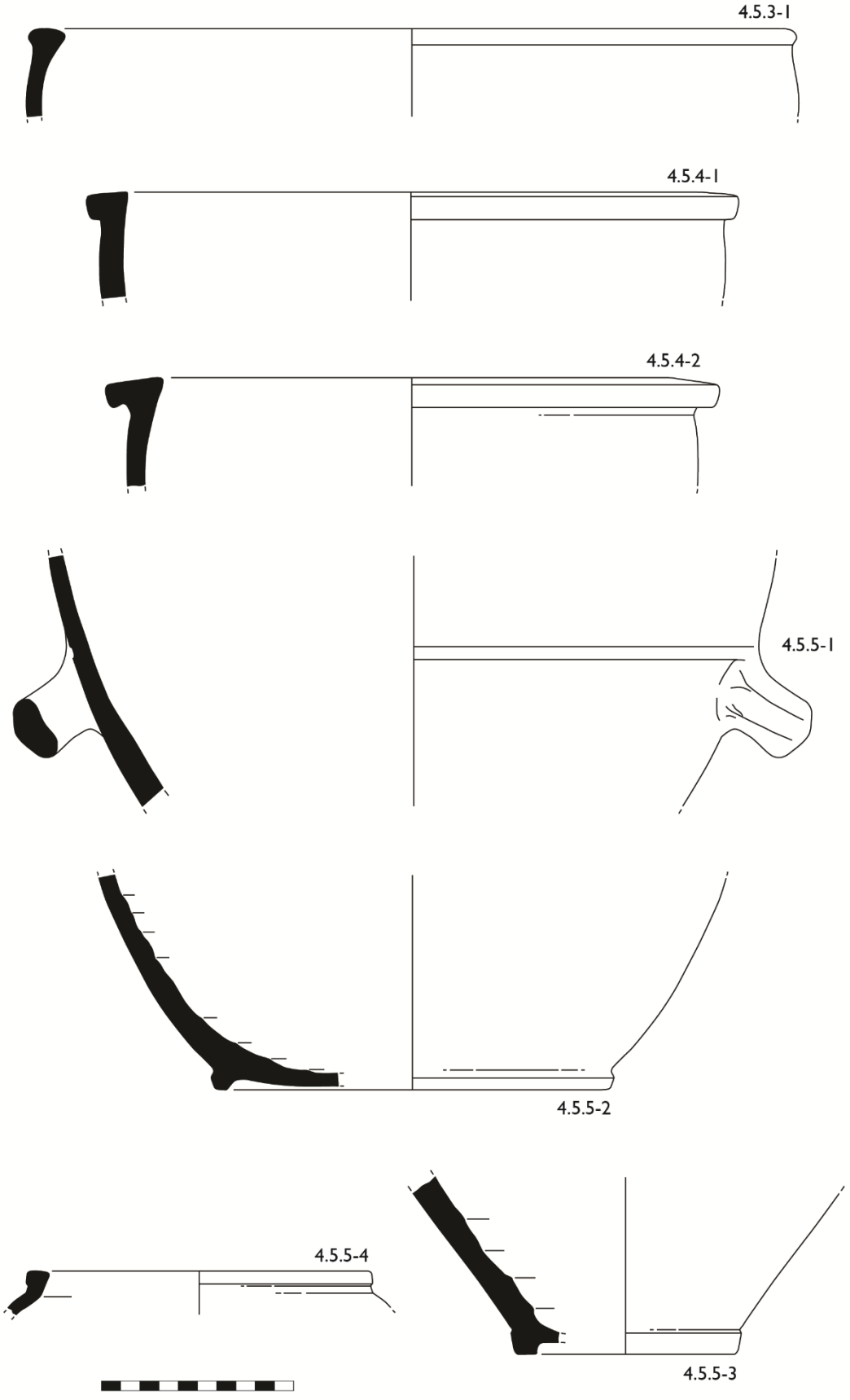


Figure I.71: Coarse ware storage jar forms, types 4.5.3–4.5.5.

4.5.5 Miscellaneous storage vessels *Figure I.71*

This category includes a range of fragments belonging to large storage vessels that are local to the Maltese islands and are broadly dated to the Roman period (4.5.5). This category also includes large, thick-walled and heavy vessels similar to Roman dolia (4.5.6–9) used for the storage of both dry and liquid foodstuffs. Very little published literature is available for locally produced vessels of this size, but dolia fragments are found on classical-period sites across the islands.[1155]

4.5.5.1 BLB12/32/42: Horizontal strap handle. Local Fabric 2: Hard red fabric with a thin dark grey core, with large pale yellow lime, fine foraminifera, and occasional round black glauconite inclusions; slightly ribbed oval-section handle; shallow groove above horizontal handle; thin cream exterior surface. Context: Bulebel SU 32, phase 2.

4.5.5.2 BLB12/58/48: Ring base, d. 21. Local Fabric 2: Dark orange fabric with fine yellow lime, foraminifera, fine black glauconite and occasional red ore inclusions; burnished pale pink exterior surfaces. Contexts 54, 55 and 58, phase 1.

4.5.5.3 MLT84/23969: Ring base, d. 12. Fabric: Fine buff-coloured fabric with abundant fine, round quartz and micaceous inclusions; unslipped pale surfaces. Imported; possibly from the north-east Sicilian coast? Context: Melita SU 1044, phase 1.

4.5.5.4 MLT84/26352: Rim, d. 18. Local Fabric 2: Orange fabric with fine lime, foraminifera and fine black glauconite inclusions; cream exterior surfaces. Context: Melita SU 1100, phase 2.

4.5.6 Dolium type 1 *Figure I.72*

This large, thick-walled storage vessel is certainly not common on Maltese sites, and indeed only a single example was identified within the assemblages studied. This form is characterised by a thickened, beaded vertical rim with a slightly indented interior. No wall or base sherds were found associated with this rim, therefore little is known about the exact size of the vessel. The vessel is made using Local Fabric 1. No parallels are known from other Maltese sites but similar-shaped rims are known from Berenice[1156] and elsewhere, although publishing dolia fragments remains uncommon. The presence of this form in the Bulebel assemblage suggests a

[1155] At least one fragment similar to type 4.5.7 was recorded by B. Bechtold from the Malta Survey Project (find no. MSP2008/1/B21/W1/3); whilst several fragments were identified during the Italian excavations at the San Pawl Milqi villa (Rossignani 1965, 144, 149 and 154); and the 1972 excavations at the Żejtun villa (Anastasi 2010, 138).
[1156] Riley 1979, fig. 118, no. 751.

date sometime after the 1st century AD, although more examples form secure contexts are needed to confirm this chronology.

4.5.6.1 BLB12/23/1: Rim, d. 39. Local Fabric 1: Coarse and gritty pale hard pale red and yellow clay with thick pale grey core; with large yellow lime, pale grey grog and finer white foraminifera inclusions; Rough, matt, thin pale yellow slip on surfaces. Context: Bulebel SU 23, phase 2.

4.5.7 Dolium type 2 *Figure I.72*

This dolium rim form is more common than the previous type and is characterised by a folded, flat-topped triangular rim. Unlike type 4.5.6, this form has no distinct neck and the body swells into a large globular form. The widest opening recorded is about 40 cm in diameter (4.5.7-3), whilst the inclination of the body suggests that a complete example is rather large indeed. Dolia with similar rim shapes have been recorded at the Żejtun villa and the Bidnija survey, and presumably more have been found over the centuries but none have been recorded and published. The examples were recovered from the Bulebel and Melita assemblages and were associated with contexts dating to the early to mid-1st century AD (Bulebel, phase 1) to the mid-4th century AD (Melita, phases 3–5). All the examples were made in Local Fabric 1. This together with the lack of examples from any Gozitan context could suggest a primarily Maltese-based production for these vessels, but the study of more Gozitan assemblages is required to clarify this.

4.5.7.1 BLB12/32/31: Rim, d. 36. Local Fabric 1: Hard, coarse orange/red clay with distinct dark grey core with large yellow lime, fine grey grog and foraminifera; some round red ore grains; pale yellow/pink even matt slip on surfaces. Context: Bulebel SU 32, phase 2.

4.5.7.2 BLB12/14/1: Rim, d. 40. Local Fabric 1: Hard-fired coarse red fabric merging into dark grey clay with lots of large and medium-sized yellow lime inclusions, foraminifera and translucent white gypsum; unslipped, smoothed pale grey skin. Context: Bulebel SU 14, quarry 2.

4.5.7.3 BLB12/32/2: Rim, d. 55. Local Fabric 1: Hard-fired coarse orange clay with medium-sized yellow lime and fine white foraminifera inclusions; unslipped, pale skin on surfaces. Context: Bulebel SU 32, phase 2.

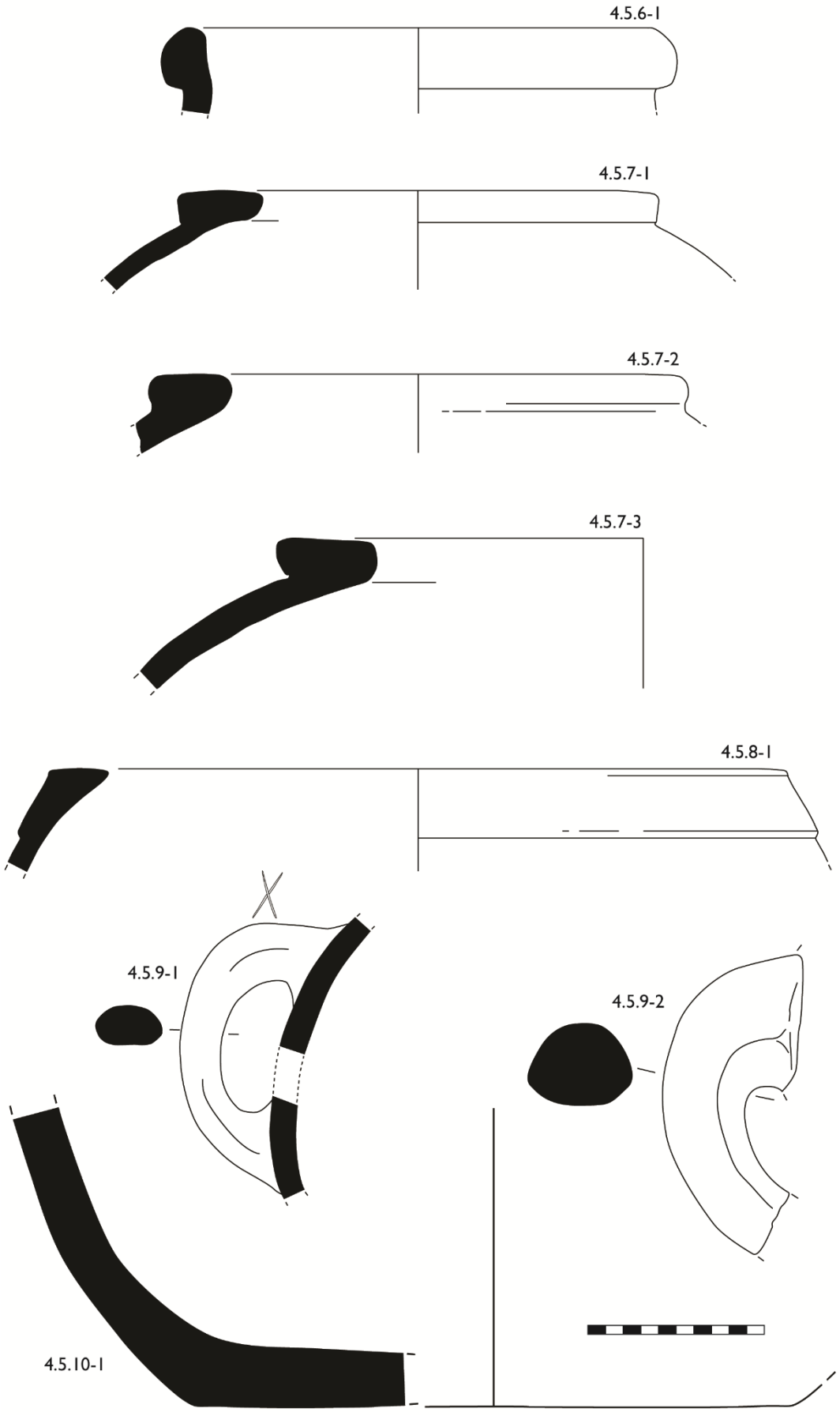


Figure I.72: Local dolia forms, types 4.5.6–4.5.10.

4.5.8 Dolium type 3 *Figure I.72*

A single example of this form was identified in a mid-3rd/mid-4th-century AD context in Melita. The inverted rim is collared and thickens towards a point. No other local or foreign parallels are known.

4.5.8.1 MLT84/26872: Rim, d. 60. Local Fabric 1: Hard, coarse orange clay with thick pale grey core, with large yellow lime and white foraminifera inclusions; pale yellow-slipped exterior surfaces. Context: Melita SU 1075, phase 3.

4.5.9 Dolia handles *Figure I.72*

This category includes examples of large, thick vertical loop handles, which were probably attached to large dolium-like storage containers. Very little can be said about the chronology of these particular examples, except that they came from an Early Roman context (Bulebel, phase 1). One example (4.5.9-1) contained an incised graffito (X) on the top part of the handle, probably related to the type or amount of contents the vessel was intended to carry.

4.5.9.1 BLB12/58/22: Handle. Local Fabric 1: Hard pale red clay with thick pale grey core; contains lots of fine to medium yellow lime inclusions and foraminifera; rough, unslipped pale grey skin; incised 'X' on top of oval-section handle. Context: Bulebel SU 58, phase 1.

4.5.9.2 BLB12/58/52: Handle. Local Fabric 1: Hard orange clay with fine and large yellow lime, foraminifera and some red ore inclusions; thick yellow slip; oval-section. Context: Bulebel SU 58, phase 1.

4.5.10 Dolium base type 1 *Figure I.72*

This thick-walled flat base belongs to a very large storage vessel or dolium. With such a wide, sturdy base, the actual vessel was probably rather heavy, especially when full. The wall thicknesses are similar to the walls attached to many of the rim fragments listed above, so one can easily picture a wide-bodied container, measuring c. 60–70 cm tall and c. 70 cm wide.

4.5.10.1 BLB12/58/51: Base, d. 34. Local Fabric 1: Coarse orange/brown gritty clay with lots of fine to large yellow lime/foraminifera and small red ore inclusions; burnished pale yellow slipped surfaces; smoothed flat and burnished base. Context: Bulebel SU 58, phase 1.

4.6 Unguentaria

4.6.1 Imported miscellaneous vessels *Figure I.73*

A small number of fragments (n=10) belonging to unguentarium-like containers were recovered from Bulebel and Melita assemblages. Half these fragments were undiagnostic local sherds, whilst the remaining half were imported, most from an eastern source. Example 4.6.1-1 shares parallels with a lagynos from Berenice, which is also known from other Late Hellenistic contexts across Tripolitania and Cyrenaica and dated to between the 1st century BC and end of the 1st century AD.[1157] Not enough information is available for the other shapes or their contexts to comment further.

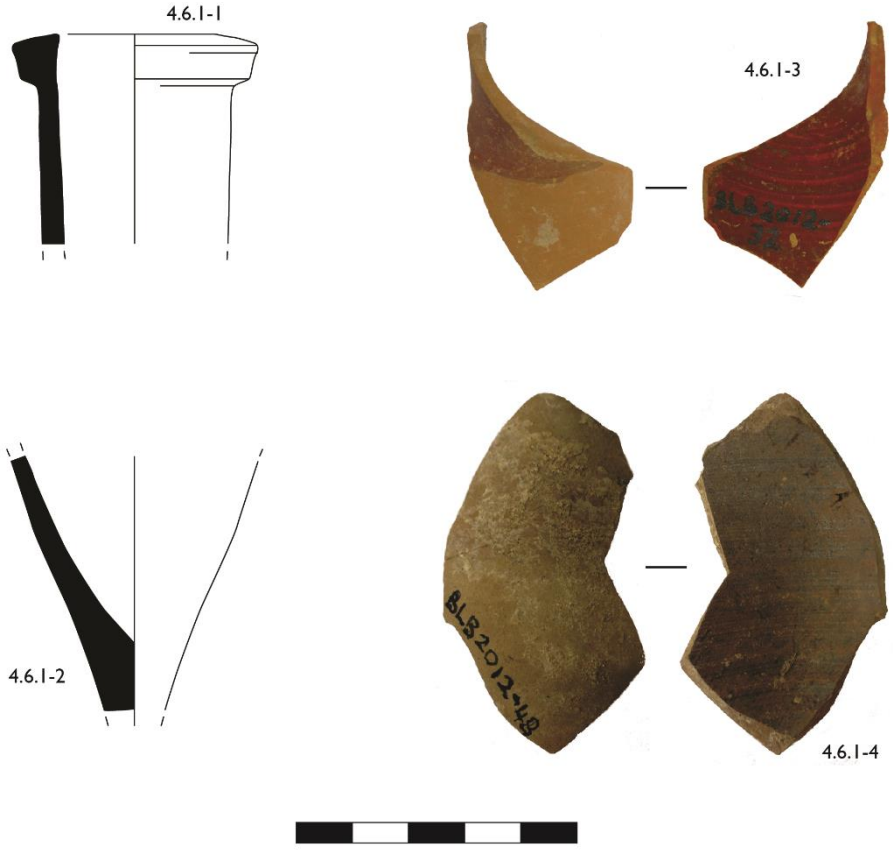


Figure I.73: Imported unguentaria forms, type 4.6.1.

4.6.1.1 BLB12/28/12: Rim, d. 4.4. Fine pale brown sandy fabric with fine white and black inclusions; smoothed, faceted unslipped surfaces. Source: Imported; Aegean? Type: Riley 1979, no. 1107. Date: 1st century BC to 1st century AD. Context: Bulebel SU 23 and 28, phase 2.

[1157] Riley 1979, 379–380, fig. 136, no. 1107.

4.6.1.2 BLB12/32/11: Peg. Fine pale orange clay with lots of micaceous inclusions; smoothed slipped surface. Source: Imported; Aegean? Type: Small fusiform type. Date: Hellenistic. Context: Bulebel SU 32, phase 2.

4.6.1.3 BLB12/32/51: Wall. Fabric: Very fine pale orange fabric with fine white inclusions; smoothed unslipped body with red-painted band on exterior surface and red-painted interior surface. Source: Imported; Aegean? Type: Unknown. Date: Hellenistic? Context: Bulebel SU 32, phase 2.

4.6.1.4 BLB12/48/4: Wall. Fabric: Fine pale grey clay with no visible inclusions; thin grey/dark red metallic slips coats the interior surface; unslipped, smooth exterior surface. Source: Imported. Type: Unknown. Date: Unknown. Context: Bulebel SU 48.

4.7 Lamps

A small number of lamps came from across the three assemblages, however, the majority of them did come from the tomb contexts at Bulebel. A greater proportion of local lamps were recovered, with one North African lamp fragment[1158] and two other unknown imported sherds.[1159]

4.7.1 Closed Lamp type 1 *Figure I.74*

Only one example of this particular form was identified and consists of the body of a warped closed lamp with a ring base (4.7.1). It was not associated with a spout but might belong to a local shape similar to Sagona Lamp form IV: 2 dated from the beginning of the 2nd and end of the 1st century BC.[1160] Sagona's date does not contradict the find's context (Bulebel phase 1), and the complete absence of this shape in later contexts—which incidentally are dominated by a different type (see 4.7.2 below)—supports Sagona's chronology, although more stratified examples would help check this.

4.7.1.1 BLB12/58/31: Body and base, d. 4. Local Fabric 2: Hard pink/yellow clay with fine black glauconite, white foraminifera and yellow lime inclusions; ring base; warped body (waster?). Context: Bulebel SU 58, phase 1.

[1158] This fragment (FRM08/42/97) is a small North African lamp handle in Peacock fabric 2.1 and comes from SU 42 from Foreman Street (Gozo).

[1159] These two wall fragments belong to mould-made closed lamps and are made in fine pale orange to buff clays with fine quartz and lime inclusions. Both sherds came from Melita (SUs 1062, 1081).

[1160] Sagona 2002, 232, fig. 346.37.

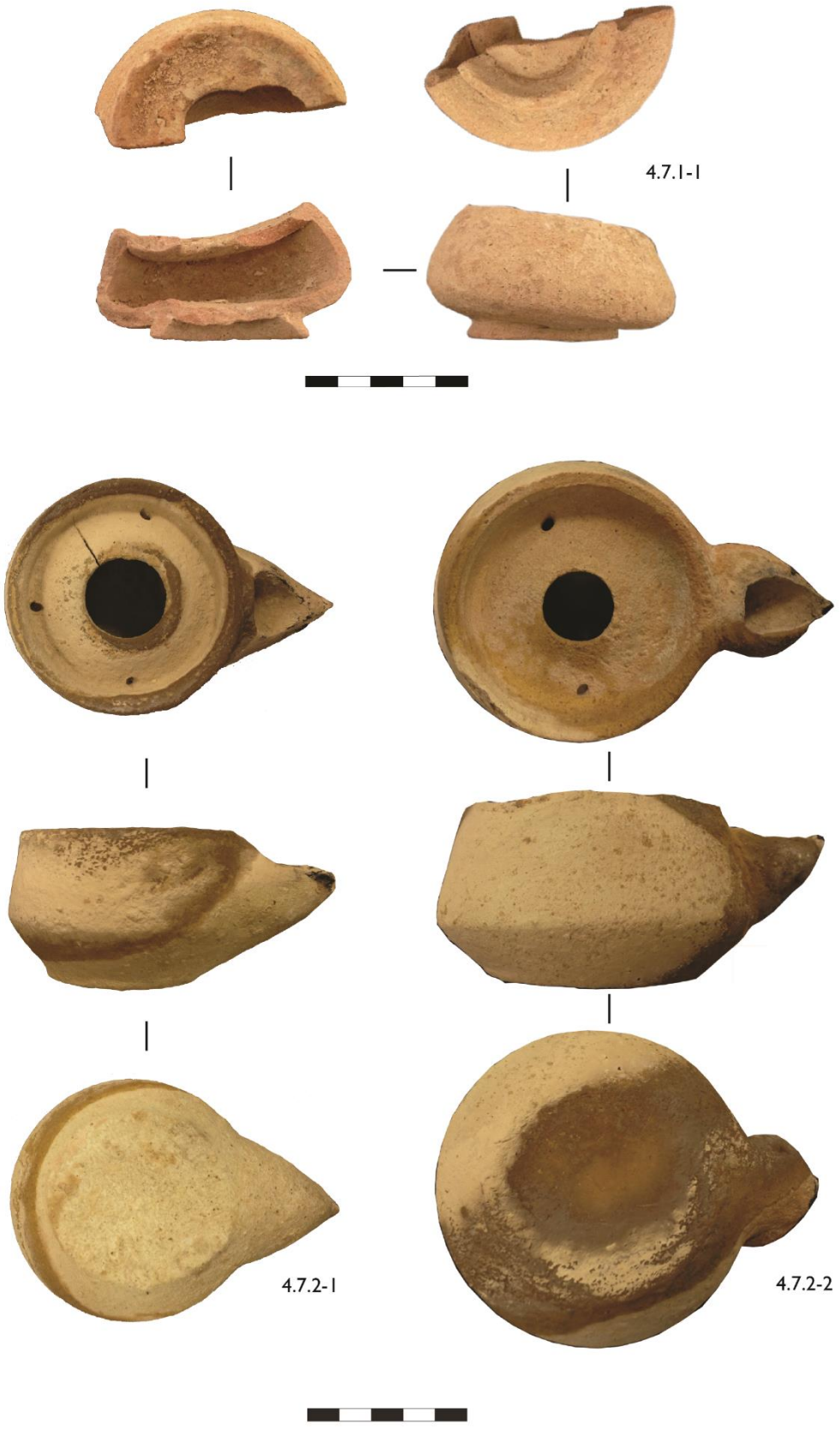


Figure I.74: Local closed lamp forms, types 4.7.1–4.7.2.

4.7.2 Closed lamp type 2 (Sagona lamp form IV-V: 2) *Figure I.74*

This form is the most common type of lamp recorded within this assemblage, and came almost exclusively from the Bulebel tomb assemblages. Complete examples show a closed 'ink well' body, with two or three pierced 'air' holes, with a flat base and pointed spout, modelled on earlier Hellenistic forms. This type can be dated quite confidently to at least the early/mid-3rd century AD on the basis of the associated tomb furniture at Bulebel.[1161]

Each vessel also shows clear traces of use-wear in the form of traces of black soot on the spout. Sagona also recorded this lamp shape in tomb contexts but she dates the form to the end of the 2nd century to early 1st century BC, but a closer look at the contexts and associated finds does not support the early date she suggests.[1162] At least one lamp spout, similar to this type was recovered from the 1972 assemblage at the Żejtun villa,[1163] however, the difference in the formation of the spout—the latter example exhibiting a better formed, rounded nozzle—might reflect different production ranges or, more probably, a chronological evolution.

4.7.2.1 BLB12/84/1: Complete, d. 5.5 (base). Local Fabric 1: Hard-fired pale brown clay with white foraminifera, fine lime, occasional black (stray glauconite) and red grain inclusions; pale brown salt-slipped skin; flat base; partly encrusted surface; black soot use-wear on spout. Context: Bulebel SU 84, tomb 2.

4.7.2.2 BLB12/84/2: Complete, d. 6 (base). Local Fabric 1: Hard-fired pink clay with fine white lime and foraminifera inclusions; unslipped, wet-wiped cream skin; flat base; partly encrusted; black soot use-wear on spout. Context: Bulebel SU 84, tomb 2.

4.8 Miscellaneous vessels

This group includes a wide range of various types of vessel forms which are uncommon, unusual or undiagnostic. It is hoped that future research on local ceramic assemblages will shed further light on some of these forms.

[1161] See Section 3.3.

[1162] Sagona 2002, 234. The examples that are listed under 'known provenance' are either found in tombs that have pottery that can be dated to late 2nd/early 3rd century-AD date (i.e. the painted urn form VI: 3a–b from Ġnien is-Sultan [141]) or the illustration she bases her classification on is unclear (i.e. Sagona 2002, fig. 34.4 also from a tomb at Ġnien is-Sultan [140]).

[1163] Anastasi 2010, figs 32 and 131.3, no. 241. Unfortunately, the stratigraphic context for this example was lost, making context-based dating impossible to determine.

4.8.1 Pot stand type 1 *Figure I.75*

The term for this vessel is purely speculative, but suggests the possibility that this rim might belong to a low pot stand used to support leather-hard pottery vessels whilst drying or being fired in a kiln.[1164] The suggestion is based on the thickened and flattened rim, and its presence within the Foreman Street assemblage, which is associated with pottery production.

4.8.1.1 FRM08/42/66: Rim/base, d. 18. Local Fabric 2: Pale brown clay with fine black glauconite, fine white foraminifera and lime, and round red grain inclusions; unslipped white skin. Context: Foreman Street SU 42.

4.8.2 Pot stand/base type 2 *Figure I.75*

These two small examples may belong to a similar pot stand or else formed part of a thickened ring-base for a large closed vessel.

4.8.2.1 FRM08/42/90: Rim/base, d. 14. Local Fabric: Hard-fired brown clay with lots of fine black glauconite, and fine white lime and foraminifera inclusions; unslipped grey skin. Context: Foreman Street SU 42.

4.8.2.2 FRM08/42/89: Rim/base, d. 18. Local Fabric 2: Pale yellow/brown clay with fine black glauconite, white foraminifera and yellow lime inclusions; unslipped. Context: Foreman Street SU 42.

4.8.3 Flat strap handle *Figure I.75*

This category represents a single thick, flattened strap handle of a large vessel, with three V-shaped groups and a deliberately drilled hole through the handle. The fabric is similar to Local Fabric 1 but might also be a western Sicilian fragment based the surface finish and on comparison with known Sicilian coarse ware samples.

4.8.3.1 MLT84/25238: Handle. Local Fabric 1? Hard-fired brick-red clay with lots of fine yellow lime, lime halos and foraminifera inclusions; thick pale yellow rough slip/skin. Context: Melita SU 1072, mixed.

4.8.4 Pointed knob *Figure I.75*

This sherd might form part of a lid, possibly similar to a knob form Berenice.[1165]

[1164] See similar examples at Berenice and the references therein (Riley 1979, 353, fig. 128, nos 959–965).

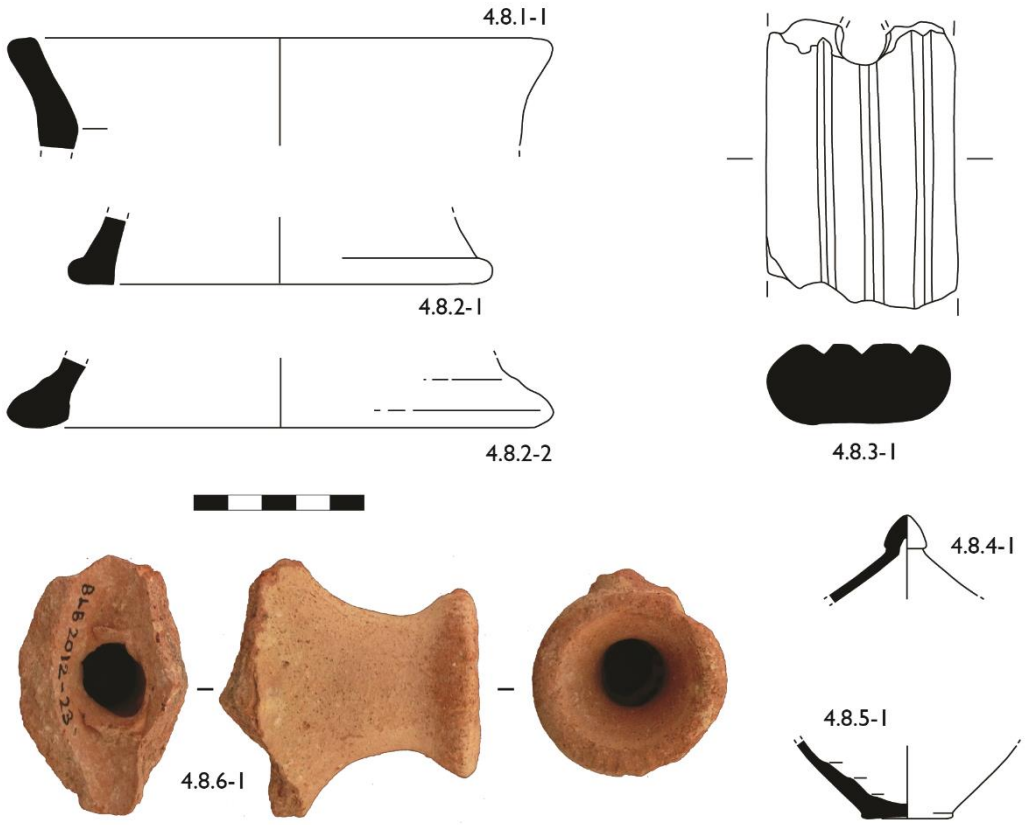
[1165] Riley 1979, fig. 119 no. 793.

4.8.4.1 FRM08/42/134: Lid knob? Local Fabric 2: Pale yellow/brown clay with fine black and brown glauconite and fine white foraminifera inclusions; unslipped. Context: Foreman Street SU 42.

4.8.5 Imported base *Figure I.75*

This undiagnostic base belongs to a small closed vessel and the fabric and finish points towards a central Mediterranean source, possibly North Africa or western Sicily. No clear parallels have been found.

4.8.5.1 FRM08/42/99: Base, d. 3. Fabric: Hard-fired, compact red/brown clay with fine quartz/gypsum, fine grey shell-like inclusions, white lime and some fine black inclusions; unslipped red surface with dark grey skin on part of body and base akin to black-topped ware surface treatments. Source: North African or western Sicilian? Context: Foreman Street SU 42.



5 Figure I.75: Miscellaneous coarse ware forms, types 4.8.1–4.8.6.

5.1.1 Frying pan handle or spout? *Figure I.75*

This sherd is a distinct hollow, hyperboloid attached to a separate wall on one end. This unusual fragment might have acted as a frying pan handle, but the hollow through the entire length of the vessel suggests that this

feature might have actually been a spout for a bottle or large basin of some sort.

5.1.1.1 BLB12/23/7: Handle? Spout? Fabric: Hard-fired granular clay with fine round quartz, black sand, paste voids, white foraminifera and yellow inclusions; pale yellow/pink skin. Context: Bulebel SU 23, phase 1.

* * *

APPENDIX II: QUANTIFICATION OF MALTESE POTTERY

Within this section the pottery studied for this research (the three Maltese assemblages from Bulebel, Foreman Street (Gozo) and the Melita excavations) has been quantified according to the classification system devised for the catalogue in Appendix I. The data are presented in a series of tables (amphorae, fine wares, cooking wares and coarse wares), which have been organised in a manner that distinguishes between each assemblage and the various phases within each.

The material was divided according to the types listed within the catalogue (i.e. 1.1.1 = local Maltese Punic egg-shaped amphora), and have been further divided into assemblage (i.e. Bulebel, Foreman Str. etc.), phases, and total number of fragments (RBHS) and suspected minimum number of individuals (MNI). Fragments which could not be classified according to a specific type were classed under more general categories (i.e. 1.1 = local Maltese amphora sherds; 1.2 = imported undiagnostic amphora sherds; 4.1 = local coarse ware, open vessel sherds, etc.) found after the most specific types are listed.

AMPHORAE

	BULEBEL										FOREMAN STR.		MELITA (MUSEUM ESPLANADE)								TOTAL	
	Phase 1		Phase 2		Tomb 1		Tomb 3		Total				Phase 1		Phase 2		Phases 3-5		Total			
TYPE	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI
1.1.1	5	4	4	4					9	8			10	4	6	4	5	5	21	13	**30**	**21**
1.1.2	16	9	4	4					20	13					1	1	2	2	3	3	**23**	**16**
1.1.3											1	1					1	1	1	1	**2**	**2**
1.1.4																	2	2	2	2	**2**	**2**
1.2.1																	2	2	2	2	**2**	**2**
1.2.2			1	1					1	1					1	1	2	2	3	3	**4**	**4**
1.2.3																	1	1	1	1	**1**	**1**
1.2.4			1	1					1	1											**1**	**1**
1.2.5	34	13	8	5					42	18			1	1	3	2	2	1	6	4	**48**	**22**
1.2.6	19	3	5	4					24	7							1	1	1	1	**25**	**8**
1.2.7			54	10					54	10					39	2			39	2	**93**	**12**
1.2.8			63	7					63	7							3	3	3	3	**66**	**10**
1.2.9																	59	14	59	14	**59**	**14**
1.2.10			2	1					2	1											**2**	**1**
1.2.11			1	1					1	1											**1**	**1**
1.2.12																	5	2	5	2	**5**	**2**
1.2.13																	2	2	2	2	**2**	**2**
1.2.14																	1	1	1	1	**1**	**1**
1.2.15			163	1					163	1							7	4	7	4	**170**	**5**
1.2.16																	1	1	1	1	**1**	**1**
1.2.17																	1	1	1	1	**1**	**1**
1.2.18																	10	7	10	7	**10**	**7**
1.2.19																	3	1	3	1	**3**	**1**
1.2.20	2	2	2	2					4	4	3	3	3	3			11	10	14	13	**21**	**20**
1.2.20 Adr.	1	1	1	1					2	2							2	1	2	1	**4**	**3**
1.2.20 Aeg.																	1	1	1	1	**1**	**1**
1.2.20 Afr.			2	2					2	2											**2**	**2**
1.2.20 East															14	1	2	2	16	3	**16**	**3**
1.1	73	46	36	15	2	2			111	63			1	1	4	2	6	6	11	9	**122**	**72**
1.2	74	22	72	24			2	2	148	48	27	27	5	2	4	2	35	24	44	28	**219**	**103**
1.2 Adr.	79	12	133	27	1	1	1	1	214	41			29	6			9	9	38	15	**252**	**56**
1.2 Afr.	16	12	150	18	2	2			168	32	63	63	4	4	43	7	106	56	153	67	**384**	**162**
1.2 P. Afr.	8	2							8	2					4	3	1	1	5	4	**13**	**6**
1.2 Camp.	17	7	87	11					104	18			2	2	22	3	3	3	27	8	**131**	**26**
1.2 East	7	1							7	1	6	6					15	10	15	10	**28**	**17**
1.2 Gr.It.	3	3	1	1					4	4											**4**	**4**
1.2 Imp.			1	1					1	1											**1**	**1**
1.2 Rep.	3	2	7	2					10	4			1	1			1	1	2	2	**12**	**6**
1.2 Sic.	3	2	180	22					183	24			25	4	4	2	13	9	42	15	**225**	**39**
1.2 Sp.	46	2	6	1					52	3											**52**	**3**
TOTAL	**406**	**143**	**984**	**166**	**5**	**5**	**3**	**3**	**1398**	**317**	**100**	**100**	**81**	**28**	**145**	**30**	**315**	**186**	**541**	**244**	**2039**	**661**

FINE WARES

	BULEBEL										FOREMAN STREET		MELITA (MUSEUM ESPLANADE)								TOTAL	
	Phase 1		Phase 2		Tomb 1		Tomb 3		Total				Phase 1		Phase 2		Phases 3-5		Total			
TYPE	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI
2.1.1			6	3					6	3	1	1									**7**	**4**
2.1.2			1	1					1	1											**1**	**1**
2.1.3			1	1					1	1											**1**	**1**
2.1.4	1	1							1	1											**1**	**1**
2.1.5											5	5					2	1	2	1	**7**	**6**
2.1.6											3	3									**3**	**3**
2.1.7											2	2					2	1	2	1	**4**	**3**
2.1.8			2	1					2	1	1	1									**3**	**2**
2.1.9							7	2	7	2							11	9	11	9	**18**	**11**
2.1.10							4	1	4	1											**4**	**1**
2.1.11							14	1	14	1											**14**	**1**
2.1.12							8	1	8	1					1	1			1	1	**9**	**2**
2.1.13																	12	9	12	9	**12**	**9**
2.1.14																	2	2	2	2	**2**	**2**
2.1.15																	1	1	1	1	**1**	**1**
2.1.16											1	1					5	5	5	5	**6**	**6**
2.1.17																	1	1	1	1	**1**	**1**
2.1.18																	1	1	1	1	**1**	**1**
2.1.19																	1	1	1	1	**1**	**1**
2.1.20			4	3					4	3	3	3					12	7	12	7	**19**	**13**
2.1.21											3	3					9	4	9	4	**12**	**7**
2.1.22															1	1	8	6	9	7	**9**	**7**
2.1.23			2	2					2	2	3	3			1	1	56	39	57	40	**62**	**45**
2.1.24			2	2	1	1			3	3					6	6	63	35	69	41	**72**	**44**
2.1.25	1	1	2	2					3	3	24	24					11	11	11	11	**38**	**38**
2.1.26	1	1							1	1											**1**	**1**
2.1.27			8	1					8	1											**8**	**1**
2.1.28	1	1	1	1					2	2	1	1					1	1	1	1	**4**	**4**
2.2.1	7	6	12	12					19	18											**19**	**18**
2.2.2	1	1	1	1					2	2											**2**	**2**
2.2.3			6	1					6	1											**6**	**1**
2.2.4																	1	1	1	1	**1**	**1**
2.2.5													13	1					13	1	**13**	**1**
2.2	3	2	18	12					21	14					3	2	4	3	7	5	**28**	**19**
2.3.1			1	1					1	1											**1**	**1**
2.3.2			1	1					1	1											**1**	**1**
2.3.3	1	1							1	1											**1**	**1**
2.3.4			1	1					1	1											**1**	**1**
2.3.5											2	2									**2**	**2**
2.3			2	2					2	2	4	4	2	1			1	1	3	2	**9**	**8**
2.4.1			2	2					2	2							1	1	1	1	3	3
2.4.2	2	2	1	1					3	3					1	1	4	4	5	5	**8**	**8**
2.4.3	4	2	3	2					7	4					1	1			1	1	**8**	**5**
2.5.1			4	2					4	2							1	1	1	1	**5**	**3**
2.5.2			1	1					1	1											**1**	**1**
2.5.3			3	3					3	3	1	1			1	1	1	1	2	2	**6**	**6**
2.5.4											8	6									**8**	**6**
2.5.5.1																	3	1	3	1	**3**	**1**
2.5.5.2											1	1									**1**	**1**
2.5.5.4							26	1	26	1	1	1					1	1	1	1	**28**	**3**
2.5.5.5																	1	1	1	1	**1**	**1**
2.5.5.6																	1	1	1	1	**1**	**1**
2.5.5.8					59	1	50	1	109	2							29	13	29	13	**138**	**15**
2.5.5.9																	1	1	1	1	**1**	**1**
2.5.5.9 loc.															2	2			2	2	**2**	**2**
2.5.5.10											6	6			1	1	8	6	9	7	**15**	**13**
2.5.5											16	16			3	2	69	46	72	48	**88**	**64**
2.5											2	1									**2**	**1**
2 Imp.																	3	3	3	3	**3**	**3**
TOTAL	**22**	**18**	**85**	**59**	**60**	**2**	**109**	**7**	**276**	**86**	**88**	**85**	**15**	**2**	**21**	**19**	**327**	**219**	**363**	**240**	**727**	**411**

COOKING WARES

	BULEBEL										FOREMAN STREET		MELITA (MUSEUM ESPLANADE)								TOTAL	
	Phase 1		Phase 2		Tomb 1		Tomb 3		Total				Phase 1		Phase 2		Phases 3-5		Total			
TYPE	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI
3.1.1.1	11	5	12	7					23	12							1	1	1	1	**24**	**13**
3.1.1.2	6	2							6	2											**6**	**2**
3.1.1.3			3	3					3	3			1	1	1	1			2	2	**5**	**5**
3.1.1.4																	1	1	1	1	**1**	**1**
3.1.1.5											1	1									**1**	**1**
3.1.1.6											1	1									**1**	**1**
3.1.1.7																	1	1	1	1	**1**	**1**
3.1.1													11	4	1	1	3	3	15	8	**15**	**8**
3.1.2.1	1	1							1	1											**1**	**1**
3.1.2.2			4	1					4	1											**4**	**1**
3.1.2.3	6	1							6	1											**6**	**1**
3.1.2	2	2							2	2							1	1	1	1	**3**	**3**
3.1.3.1	2	2	1	1					3	3							4	3	4	3	**7**	**6**
3.1.3.2	1	1							1	1					1	1	2	2	3	3	**4**	**4**
3.1.3.3																	2	1	2	1	**2**	**1**
3.1.3.4			4	4					4	4											**4**	**4**
3.1.3													3	3	3	2	3	2	9	7	**9**	**7**
3.1	14	14	5	5	5	5	3	3	27	27					14	13	6	4	20	17	**47**	**44**
3.2.1.1	11	10	10	10	1	1			22	21					1	1	9	6	10	7	**32**	**28**
3.2.1.2	39	11	5	5					44	16											**44**	**16**
3.2.1.3	5	5	47	34					52	39	2	2			3	3	7	2	10	5	**64**	**46**
3.2.1.4																	3	3	3	3	**3**	**3**
3.2	91	91	150	100	4	4	1	1	246	196	11	11	8	1	7	7	24	20	39	28	**296**	**235**
3.3.1.1			1	1					1	1							1	1	1	1	**2**	**2**
3.3.1.2																	2	1	2	1	**2**	**1**
3.3.1			3	3					3	3											**3**	**3**
3.3.2.1			1	1					1	1											**1**	**1**
3.3.2.2			4	1					4	1											**4**	**1**
3.3.2.3															1	1			1	1	**1**	**1**
3.3.2			1	1					1	1					1	1			1	1	**2**	**2**
3.3.3.1	1	1	2	1					3	2											**3**	**2**
3.3.4.1			17	3					17	3											**17**	**3**
3.3.4																	1	1	1	1	**1**	**1**
3.3.5.1																	1	1	1	1	**1**	**1**
3.3			8	8	2	2			10	10	2	2	11	3	3	3	18	15	32	21	**44**	**33**
3.4.1.1															3	1			3	1	**3**	**1**
3.4.1																	1	1	1	1	**1**	**1**
3.4.2.1											2	2									**2**	**2**
3.4.2.2											1	1									**1**	**1**
3.4.2.3			4	2					4	2	1	1					14	4	14	4	**19**	**7**
3.4.2.4											2	1									**2**	**1**
3.4.2.5											1	1					5	3	5	3	**6**	**4**
3.4.2.6											12	12					6	6	6	6	**18**	**18**
3.4.2.7																	1	1	1	1	**1**	**1**
3.4.2.8																	12	10	12	10	**12**	**10**
3.4.2															1	1			1	1	**1**	**1**
3.4.3.1											1	1			1	1			1	1	**2**	**2**
3.4.3.2			1	1					1	1	5	5			3	2	9	9	12	11	**18**	**17**
3.4.3.3											6	6			4	1	11	11	15	12	**21**	**18**
3.4.3.4			1	1					1	1	1	1									**2**	**2**
3.4.3.5											1	1									**1**	**1**
3.4.3.6											1	1									**1**	**1**
3.4.3																	2	2	2	2	**2**	**2**
3.4											38	38			9	5	118	83	127	88	**165**	**126**
3.5.1.1											2	2									**2**	**2**
3.5.1.2											1	1									**1**	**1**
3.5.2.1											12	12					6	4	6	4	**18**	**16**
3.5.2.2																	13	6	13	6	**13**	**6**
3.5.2.3																	2	2	2	2	**2**	**2**
3.5.3.1			1	1					1	1							2	2	2	2	**3**	**3**
3.5.3.2											1	1					1	1	1	1	**2**	**2**
3.5.3.3											2	2									**2**	**2**
3.5			3	3					3	3	40	40			2	2	27	20	29	22	**72**	**65**
3 Imp.															1	1	12	3	13	4	**13**	**4**
TOTAL	**190**	**146**	**288**	**197**	**12**	**12**	**4**	**4**	**494**	**359**	**147**	**146**	**34**	**12**	**60**	**48**	**332**	**237**	**426**	**297**	**1067**	**802**

COARSE WARES

	BULEBEL										FOREMAN STREET		MELITA (MUSEUM ESPLANADE)								TOTAL	
	Phase 1		Phase 2		Tomb 1		Tomb 3		Total				Phase 1		Phase 2		Phases 3-5		Total			
TYPE	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI
4.1.1	1	1	3	3					4	4	2	2									**6**	**6**
4.1.2			3	3					3	3					1	1	1	1	2	2	**5**	**5**
4.1.3											1	1			1	1	1	1	2	2	**3**	**3**
4.1.4	3	1							3	1											**3**	**1**
4.1.5	2	2	16	15					18	17					1	1	7	6	8	7	**26**	**24**
4.1.6	15	14	7	7					22	21	9	9	21	1	2	2	3	3	26	6	**57**	**36**
4.1.7	2	2	1	1					3	3							6	5	6	5	**9**	**8**
4.1.8	7	2							7	2											**7**	**2**
4.1.9											253	253									**253**	**253**
4.1.10											81	81									**81**	**81**
4.1.11											84	84									**84**	**84**
4.1.12											78	78									**78**	**78**
4.1.13											2	2									**2**	**2**
4.1.14											1	1									**1**	**1**
4.1.15											60	60									**60**	**60**
4.1.16	1	1							1	1	1	1									**2**	**2**
4.1.17																	9	7	9	7	**9**	**7**
4.1.18							46	4	46	4											**46**	**4**
4.1.19																	1	1	1	1	**1**	**1**
4.1.20			1	1					1	1											**1**	**1**
4.1.21																	1	1	1	1	**1**	**1**
4.1.22											6	6									**6**	**6**
4.1.23			2	2					2	2							3	3	3	3	**5**	**5**
4.1.24															1	1			1	1	**1**	**1**
4.1.25	5	3							5	3											**5**	**3**
4.1.26	3	3	4	4					7	7							3	3	3	3	**10**	**10**
4.1.27	7	6	50	36					57	42			1	1	1	1	11	11	13	13	**70**	**55**
4.1.28																	3	3	3	3	**3**	**3**
4.1.29			17	7					17	7											**17**	**7**
4.1.30																	2	1	2	1	**2**	**1**
4.1.31											1	1									**1**	**1**
4.1	16	15	35	32			0	1	51	48	138	138	1	1	15	12	31	28	47	41	**236**	**227**
4.1 Afr.													1	1					1	1	**1**	**1**
4.1 Camp.																	1	1	1	1	**1**	**1**
4.1 Imp.			1	1					1	1											**1**	**1**
4.1 lid?	1	1							1	1					1	1			1	1	**2**	**2**
4.2.1	6	1							6	1											**6**	**1**
4.2.2			1	1					1	1											**1**	**1**
4.2.3			5	4					5	4							1	1	1	1	**6**	**5**
4.2.4			1	1					1	1							1	1	1	1	**2**	**2**
4.2							1	1	1	1	4	4									**5**	**5**
4.3.1	6	6	7	7					13	13							4	3	4	3	**17**	**16**
4.3.2	10	2	2	2					12	4							5	5	5	5	**17**	**9**
4.3.3			4	4					4	4	2	2			1	1			1	1	**7**	**7**
4.3.4											43	43									**43**	**43**
4.3.5			1	1					1	1	42	42									**43**	**43**
4.3.6											4	4					20	17	20	17	**24**	**21**
4.3.7											3	3	1	1			17	13	18	14	**21**	**17**
4.3.8																	1	1	1	1	**1**	**1**
4.3.9															1	1	2	2	3	3	**3**	**3**
4.3.10															1	1	10	8	11	9	**11**	**9**
4.3.11	8	1	1	1					9	2	3	3									**12**	**5**
4.3.12	1	1	4	3					5	4							1	1	1	1	**6**	**5**
4.3.13											2	2									**2**	**2**
4.3.14											9	9									**9**	**9**
4.3.15											2	2									**2**	**2**
4.3.16	6	3	9	7					15	10	1	1					1	1	1	1	**17**	**12**
4.3.17	2	2	3	3					5	5	2	2					1	1	1	1	**8**	**8**
4.3	12	12	30	29	1	1			43	42	11	11			6	6	23	18	29	24	**83**	**77**
4.3 Afr.																	2	2	2	2	**2**	**2**
4.4.1	2	2	3	3					5	5					2	2	3	2	5	4	**10**	**9**
4.4.2	2	2	86	6	1	1			89	9					3	1	2	2	5	3	**94**	**12**
4.4.3			2	1					2	1											**2**	**1**
4.4.4	16	12	21	20					37	32	4	4			1	1	5	5	6	6	**47**	**42**
4.4.5			1	1					1	1							3	3	3	3	**4**	**4**

	BULEBEL										FOREMAN		MELITA (MUSEUM ESPLANADE)								TOTAL	
	Phase 1		Phase 2		Tomb 1		Tomb 3		Total		STREET		Phase 1		Phase 2		Phases 3-5		Total			
TYPE	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI	Qty	MNI
4.4.6			2	1					2	1											**2**	**1**
4.4.7	1	1							1	1	25	25					4	4	4	4	**30**	**30**
4.4.8											31	31									**31**	**31**
4.4.9											4	4									**4**	**4**
4.4.10	11	3	15	7					26	10											**26**	**10**
4.4.11											25	25									**25**	**25**
4.4.12			2	2	36	1	44	2	82	5					4	2	44	23	48	25	**130**	**30**
4.4.13							17	1	17	1											**17**	**1**
4.4.14			30	4			30	1	60	5	6	6					3	3	3	3	**69**	**14**
4.4.15											1	1					4	1	4	1	**5**	**2**
4.4.16																	2	2	2	2	**2**	**2**
4.4.16 Afr.											1	1									**1**	**1**
4.4	157	97	616	492	5	3	4	3	782	595	171	171	36	25	53	45	344	289	433	359	**1386**	**1125**
4.4 Afr.			12	12					12	12					4	1	1	1	5	2	**17**	**14**
4.4 Camp.			1	1					1	1							1	1	1	1	**2**	**2**
4.4 East																	1	1	1	1	**1**	**1**
4.4 Imp.			9	9					9	9	21	21			9	4	18	11	27	15	**57**	**45**
4.4 tref.			5	4	75	1			80	5	3	3					6	6	6	6	**89**	**14**
4.5.1	2	2	1	1					3	3											**3**	**3**
4.5.2	12	2	8	7					20	9					1	1	1	1	2	2	**22**	**11**
4.5.3	1	1							1	1											**1**	**1**
4.5.4	1	1							1	1											**1**	**1**
4.5.5	62	1	3	2					65	3					2	2	1	1	3	3	**68**	**6**
4.5.6			1	1					1	1											**1**	**1**
4.5.7	1	1	2	2					3	3							2	2	2	2	**5**	**5**
4.5.8																	1	1	1	1	**1**	**1**
4.5.9	6	3	2	2					8	5					1	1			1	1	**9**	**6**
4.5.10	16	4	1	1					17	5							1	1	1	1	**18**	**6**
4.5	52	30	152	51					204	81	5	5	2	2	3	3	20	14	25	19	**234**	**105**
4.6.1	1	1	8	5					9	6					1	1	2	2	3	3	**12**	**9**
4.7.1	1	1							1	1											**1**	**1**
4.7.2			2	2	48	4			52	8							1	1	1	1	**53**	**9**
4.7																	3	3	3	3	**3**	**3**
4.7 Afr.											1	1									**1**	**1**
4.7 Imp.																	6	5	6	5	**6**	**5**
4.7 Pun.											1	1									**1**	**1**
4.8.1											1	1									**1**	**1**
4.8.2											2	2									**2**	**2**
4.8.4											1	1									**1**	**1**
4.8.5											1	1									**1**	**1**
4.8.6			1	1					1	1											**1**	**1**
4	253	251	343	343	11	11	13	13	620	618	2123	2123			7	6	8	8	15	14	**2758**	**2755**
4 Afr.					2	2			2	2											**2**	**2**
TOTAL	**711**	**494**	**1537**	**1156**	**179**	**24**	**155**	**26**	**2584**	**1702**	**3272**	**3272**	**63**	**32**	**123**	**99**	**659**	**542**	**845**	**673**	**6701**	**5647**

APPENDIX III: POTTERY FROM GĦAR IX-XIH (GOZO)

This short appendix lists the catalogue entries for the ceramic material selected, discussed and illustrated in Section 3.6.2 (Figures 17–18). These selected fragments came from the University of Malta's excavations at Għar ix-Xih, Gozo, undertaken between 2005 and 2010. The entire assemblage was studied by Dr Alessandro Quercia and myself on three separate occasions between 2008 and 2011 with the aim of eventually publishing the ceramic data together with the final excavation report in the near future.

Amphorae *Figure 17*

1. GRX05/112/28: Rim, d. 19. Fabric: Pale brown/pink-buff clay (10YR 8/3) with fine micaceous inclusions; unslipped. Type: Dressel I or Lamboglia 2. Source: Imported; Adriatic?; Date: c. second half of the 2nd century–1st century BC.
2. GRX05/101/14: Rim, d. 11. Fabric: Red/orange clay (5YR 6/8) with fine quartz and fine white inclusions; cream exterior skin. Type: Africana IID.1 (see type 1.2.16 in Appendix 1). Source: Central Tunisia, possibly Salakta. Date: Mid-/end of the 3rd–4th century AD.
3. GRX05/151/7: Rim, d. 16. Fabric: Pale red clay (5YR 6/6-8) with fine white lime inclusions; cream slipped; heavily encrusted. Type: Unknown. Source: Imported? Date: Unknown.
4. GRX05/150/11: Rim, d. 19. Local Fabric 1: Red/brown-dark orange (5YR 5/8) clay with fine to medium-sized yellow lime inclusions; thin white/cream slip. Source: Local. Type: Unknown; possibly Malta type 1 variant? Date: c. 2nd–1st century BC?
5. GRX05/121/6: Peg. Local Fabric 1: Hard-fired pink (5YR 7/6) clay with red grains and fine shell inclusions; unslipped. Type: Possibly Malta type 1. Source: Local. Date: End 2nd–1st century BC.
6. GRX05/151/9: Rim, d. 10. Fabric: Orange (7.5YR 6/6) clay with a darker core (7.5YR 5/4) with fine white lime, round black matt inclusions and some flecks of mica; ribbed amphora neck with a thin cream (10YR 8/3) slip, which is heavily eroded. Type: MRA 1b, Catania flat-bottomed form 1 (see type 1.2.8). Source: Eastern Sicily, Catania region. Date: Mid-1st–mid-2nd century AD.
7. GRX05/250/*1: Rim and handle, d. 8. Fabric: Orange (7.5YR 6/6) clay with a darker core (7.5YR 5/4) with fine white lime, round black matt inclusions and some flecks of mica; ribbed amphora neck with a thin cream (10YR 8/3) slip, which is heavily eroded. Type: MRA 1b, Catania flat-bottomed form 1 (see type 1.2.8). Source: Eastern Sicily, Catania region. Date: Mid-1st–mid-2nd century AD.

8. GRX05/250/*1: Base, d. 10. Belongs to the same vessel as above; see details above.
9. GRX05/112/22: Rim, d. 7. Fabric: Red/orange-coloured clay (5YR 6/8) with fine white and some medium-sized red inclusions; thin cream-slipped surface. Type: MRA 1b, Catania flat-bottomed form 2. Source: Eastern Sicily, Catania region. Date: c. Mid-1st–beginning of the 3rd century AD.[1166]
10. GRX05/154/14: Rim, d. 8. Local Fabric 1: Fine dark brown clay (2.5YR 4/1) with a red (2.5YR 5/6) core; contained fine paste voids and crushed lime inclusions; unslipped, fairly smooth surface Type: Unknown. Source: Local? Date: Unknown.

Cooking ware *Figure 17*

11. GRX05/165/13: Rim, d. 16. Fabric: Fine orange/brown clay (5YR 5/8) with fine quartz and micaceous inclusions; unslipped. Source: Imported, North Africa? Type: Unknown, Hellenistic casserole dish. Date: c. 3rd–2nd century BC.
12. GRX05/154/6: Rim, d. 16. Fabric: Fine, granular red/orange clay (2.5YR 5/8) with round quartz and some fine lime inclusions; unslipped. Type: Early Hayes 194/Sabratha form 35/Vegas form 68.3. Source: North Africa. Date: c. 3rd–late 2nd/early 1st century BC.
13. GRX05/154/8: Rim, d. 18. Local Fabric 4: Fine dark orange clay (2.5YR 5/8) with some fine quartz/gypsum, spherical black matt inclusions (>0.5mm) and occasional fine lime inclusions; unslipped. Source: Local. Type: 3.1.1.3 variant? Date: c. 3rd–1st century BC?
14. GRX05/150/7: Rim, d. 28. Local Fabric 5: Grey/brown fabric (7.5YR 4/1, core) and (5YR 5/6, outer edges) with limestone inclusions; unslipped. Type: Quercia form B5. Source: Local. Date: second half of the 4th–first half of the 2nd century BC.
15. GRX05/101/11: Rim, d. 18. Fabric: Fine red-brown (5YR 4/4) clay with fine quartz, white lime and some fine mica; unslipped. Type: Unknown. Source: Imported; North Africa? Southern Italy? Date: 1st century BC to 1st century AD?
16. GRX05/122/8: Rim, d. 20. Local Fabric 1: Coarse grey/brown (10YR 6/6) clay with large lime and red grain inclusions; light brown slipped surface (10YR 6/6 and 7.5YR 6/6). Type: Local Casserole type 2 (see 3.1.2.2). Source: Local. Date: Late 1st century BC.
17. GRX05/161/11: Rim, d. 18. Fabric: Fine, granular red/orange clay (5YR 5/8) with some fine mica and occasional matt black spherical inclusions (0.5mm); unslipped. Type: Unknown. Source: Import? Campania? Date: 1st century BC to 1st century AD?

[1166] Franco 2014, 229–230.

18. GRX05/120/10: Rim, d. 18. Fabric: Gritty brown clay (5YR 5/4) with lots of fine quartz, sporadic black glass(?) and lime inclusions; unslipped pale brown surfaces. Type: Sabratha form 59/Hayes 183/4. Source: North Africa. Date: 2nd–4th century AD.
19. GRX05/112/29: Rim, d. 24. Fabric: Gritty grey/brown (7.5YR 5/2) clay with small to medium-sized irregular lime and quartz inclusions; unslipped. Type: Sabratha form 60. Source: North Africa. Date: c. 2nd century AD.
20. GRX05/142/1: Ring lid knob. Fabric: Gritty, dark red/brown clay (2.5YR 4/6) with large angular quartz and black volcanic glass; smooth, pale brown/grey skin. Type: Similar to Scauri lid type 1. Source: Pantelleria. Date: 1st–7th century AD.

Coarse ware *Figure 18*

1. GRX05/150/8: Rim, d. 14. Local Fabric 1: Orange clay (2.5YR 6/8) with fine white foraminifera and yellow lime inclusions; smoothed cream-coloured slipped surface. Type: Quercia cup form 5/Coarse ware bowl type 3 (see type 4.1.3). Source: Local. Date: 4th–3rd century BC, possibly until the early 2nd century BC.
2. GRX05/165/15: Rim, d. 16. Local Fabric 1: Fine orange clay (2.5YR 6/8) with fine white foraminifera and lime inclusions; pale pink to cream-slipped surfaces. Type: variant of Quercia cup form 5/Coarse ware bowl type 3 (see type 4.1.3). Source: Local. Date: 4th–3rd century BC, possibly until the early 2nd century BC.
3. GRX05/165/12: Rim, d. 13. Local Fabric 1: Fine orange clay (5YR 7/8) with fine white foraminifera and lime inclusions; smooth cream-slipped surfaces. Type: Early variant of Quercia cup form 5/Coarse ware bowl type 3 (see type 4.1.3). Source: Local. Date: 4th–3rd century BC.
4. GRX05/120/6: Complete profile, d. 7 (rim), d. 3.5 (base). Local Fabric 1: Orange clay (5YR 7/6–6/6) with fine white lime, foraminifera and red grain inclusions; unslipped yet smoothed; string-cut flat base. Type: Unknown; small version of above type? Source: Local. Date: c. 3rd–1st century BC?
5. GRX05/165/16: Complete profile, d. 6 (rim), d. 4.3 (base). Fabric: Orange-coloured clay (5YR 6/8) with fine white lime and foraminifera inclusions; unslipped, encrusted surfaces; string-cut flat base. Type: Unknown; small version of above type? Source: Local. Date: c. 3rd–1st century BC?
6. GRX05/161/4: Rim, d. c. 24. Fabric: Fine, granular dark red clay (2.5YR 5/8) with fine quartz inclusions; ARS? Damaged and eroded surface so no trace of slip. Type: Unknown. Source: North Tunisia. Date: late 1st–3rd century AD?
7. GRX05/108/2: Rim, d. 20. Local Fabric 1: Orange fabric (5YR 6/8) with fine red grains, fine white lime and foraminifera inclusions; pale yellow/cream slipped surfaces/ Type: Coarse ware bowl type 15 (see type 4.1.14); early variant,

similar to Cagiano de Azevedo 1967, fig. 13.9. Source: Local. Date: c. 3rd–1st century BC?

8. GRX05/108/1: Rim, d. 36. Local Fabric 1: Orange fabric (5YR 6/8) with fine yellow lime and foraminifera inclusions; cream-coloured skin. Type: Similar to Coarse ware Basin type 14 (see type 4.3.14). Source: Local. Date: Late Punic/Roman period.
9. GRX05/175/8: Rim, d. 40. Local Fabric 2: Grey fabric (4N) with thin red edges (2.5YR 5/6) with fine black glauconite, white lime and foraminifera inclusions; unslipped grey surface. Type: see Coarse ware Basin type 6 (see type 4.3.6). Source: Local. Date: Roman period.

APPENDIX IV: STRATIGRAPHIC INFORMATION FOR THE BULEBEL EXCAVATION

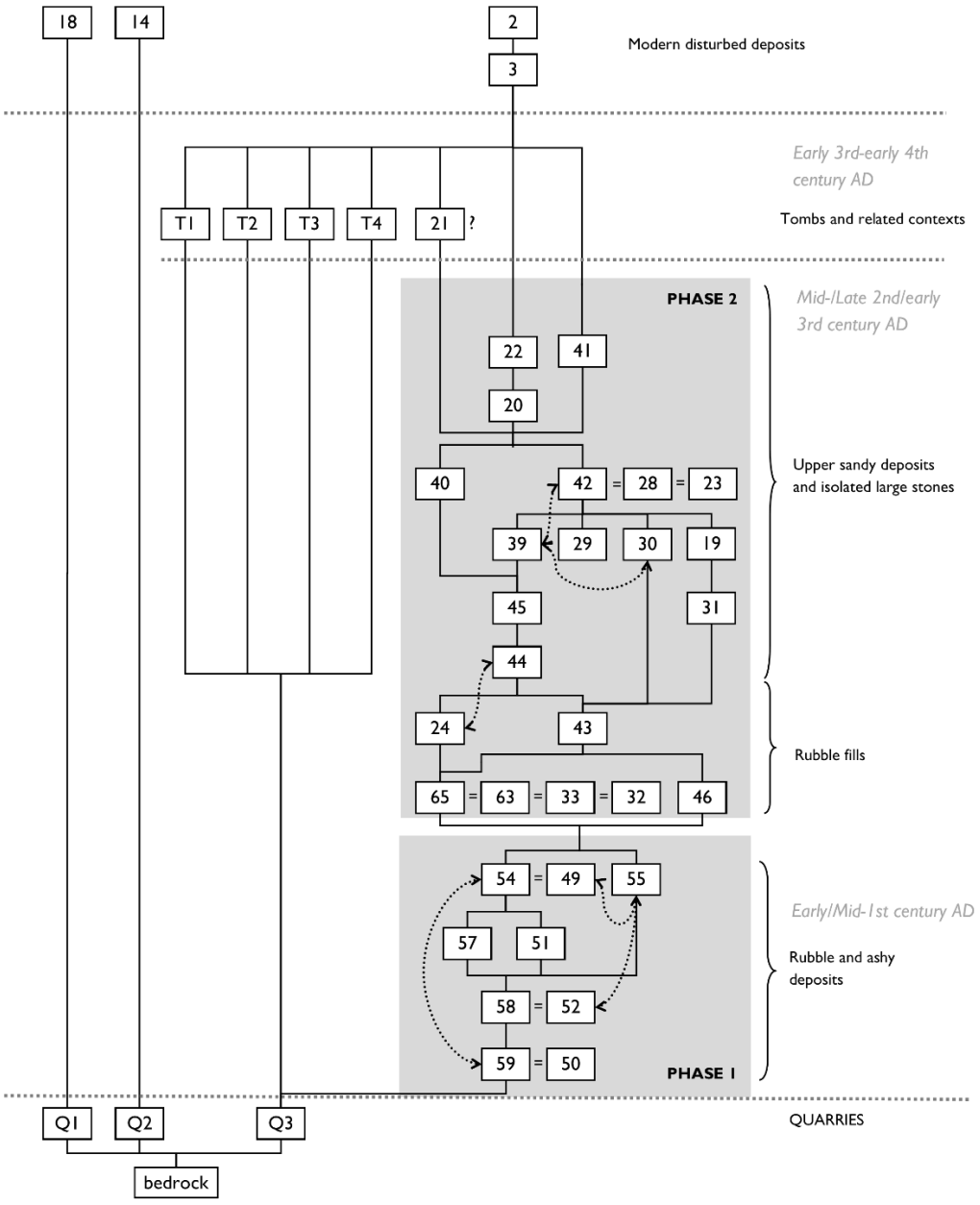


Figure IV.1: Harris matrix for the Bulebel excavations.

The above matrix includes all the stratigraphic units (SU) analysed from the Bulebel excavations carried out in 2012 under the direction of the Superintendence of Cultural Heritage in Malta (SCH). The dotted arrows represent contexts that contained pottery fragments that joined together (Figure IV.1).

The SUs studied within the tomb contexts are as follows: Tomb 1 (73, 74, 75, 76, 77) and Tomb 3 (11, 69, 70, 71). Only two lamps from SU 84 from Tomb 2 were available for study; whilst no material was recovered from Tomb 4, which was not preserved.

Each pottery sherd that was selected for drawing and fabric referencing was given a unique Special Find number. The catalogue reference for each sherd uses the following format: BLB12/SU number/SF number. Each sherd listed in the catalogue should have such a reference together with specific information regarding the context and phase it belongs to.

APPENDIX V: STRATIGRAPHIC INFORMATION FOR THE MUSEUM ESPLANADE (RABAT, MALTA) EXCAVATION

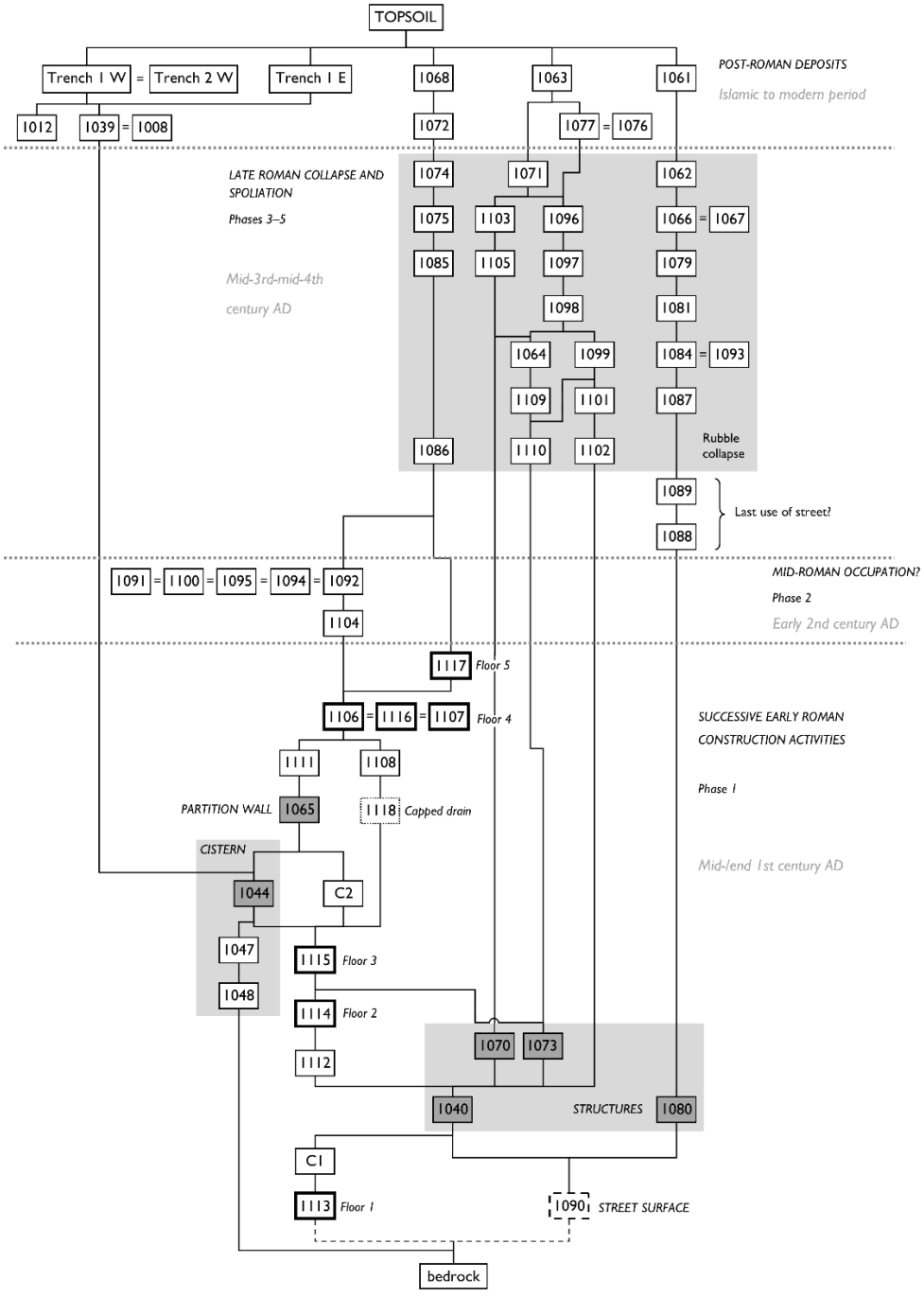


Figure V.1: Harris matrix for the Melita esplanade excavations.

The above Harris matrix represents the stratigraphical sequence for the 1983–1984 excavations in the area known as Museum esplanade in Rabat

(ancient Melita), Malta (Figure V.1).[1167] No context sheets from the excavation were found, but two somewhat detailed preliminary reports and trench notebooks were available and allowed the stratigraphy to be reconstructed.[1168] Some details were not clear, and there are omissions of SUs that either had no pottery or that contained modern disturbed material.

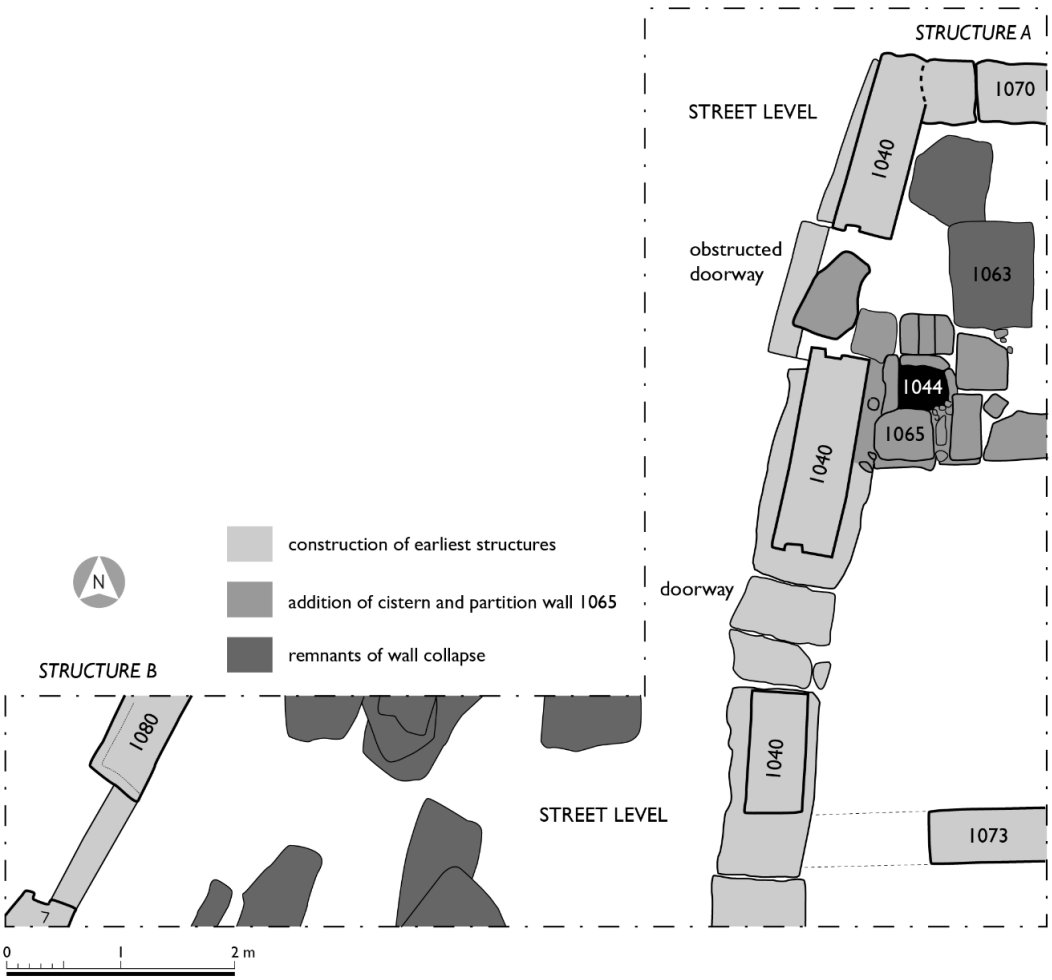


Figure V.2: Plan of Melita excavation trench showing the structures discovered (after Lander 1984, site plan).

[1167] The compilation of this short stratigraphic report is partly based on some work already undertaken by David Cardona, who kindly provided me with the databases and literature he drew up.

[1168] The preliminary reports include Lander 1983 and 1984; whilst site notebooks (Cilia 1984, M. Zammit 1984, and V. Zammit 1984) were kindly made available to me by Sharon Sultana and David Cardona form the National Museum of Archaeology, Valletta, Malta. A short newsletter article summarising the short excavation was published in 1984 (Elster, Lander and Molitor 1984).

Construction of street and adjacent buildings (Phase 1)

The earliest phase is linked to the construction of the only visible structures (A and B) either side of a hard, concrete-like street surface (1090). The largest structure (A) consists of a linear ashlar wall (1040), running diagonally along a roughly north-south axis. The wall extends from the southern trench section for about 7.75 m, where it is joined by a return wall (1070) at an oblique angle, which runs for about 1 m before it goes into the east trench section. The wall survived to a level of three courses (c. 1.60 m high) and contains two doorways with wide stone thresholds, and connect the street to the interior of the structure (Figure V.3).

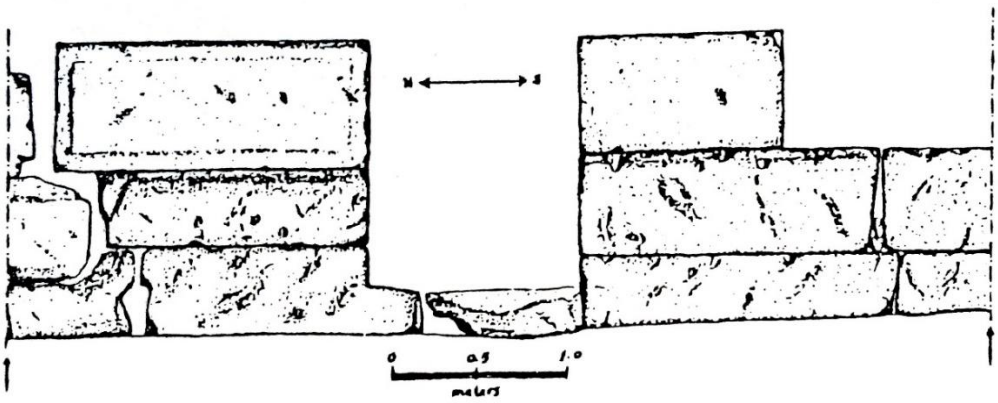


Figure V.3: West-facing elevation of wall 1040 (Elster, Lander and Molitor 1984, fig. 5).

Information regarding the foundation trenches for these walls is elusive in the site notebooks and preliminary reports, but Lander mentions that "at the lowest level excavated […] this level marks the bottom of a cutting which at first appeared to be a pit but which is now considered to be probably [sic] a construction trench (1112) for the west wall (1040) of Structure A."[1169] Two more "hard" and "concrete-like" surfaces (1113 and 1114 respectively) are said to pre-date or be cut by structure A (1040) and thus provides the earliest floor deposits for an earlier building. No pottery was found that is directly associated with these floors. The finds belonging to fill 1112 were not found when the study of the material was underway in August 2013, however, Lander mentions that "in the small area [1112] excavated (and on the last day of the excavation!) we found about one-third of a very fine Arretine serving-dish approximately 50 cm in diameter.

[1169] Lander 1984, 3. From a detailed reading of the preliminary reports, it is clear that no distinction was made between cuts and their subsequent fills making it difficult to determine these contexts on the accompanying plans.

Immediately above this deposit lay a coin (Number 9), which at the time of writing has not yet been cleaned well enough for a reading."[1170]

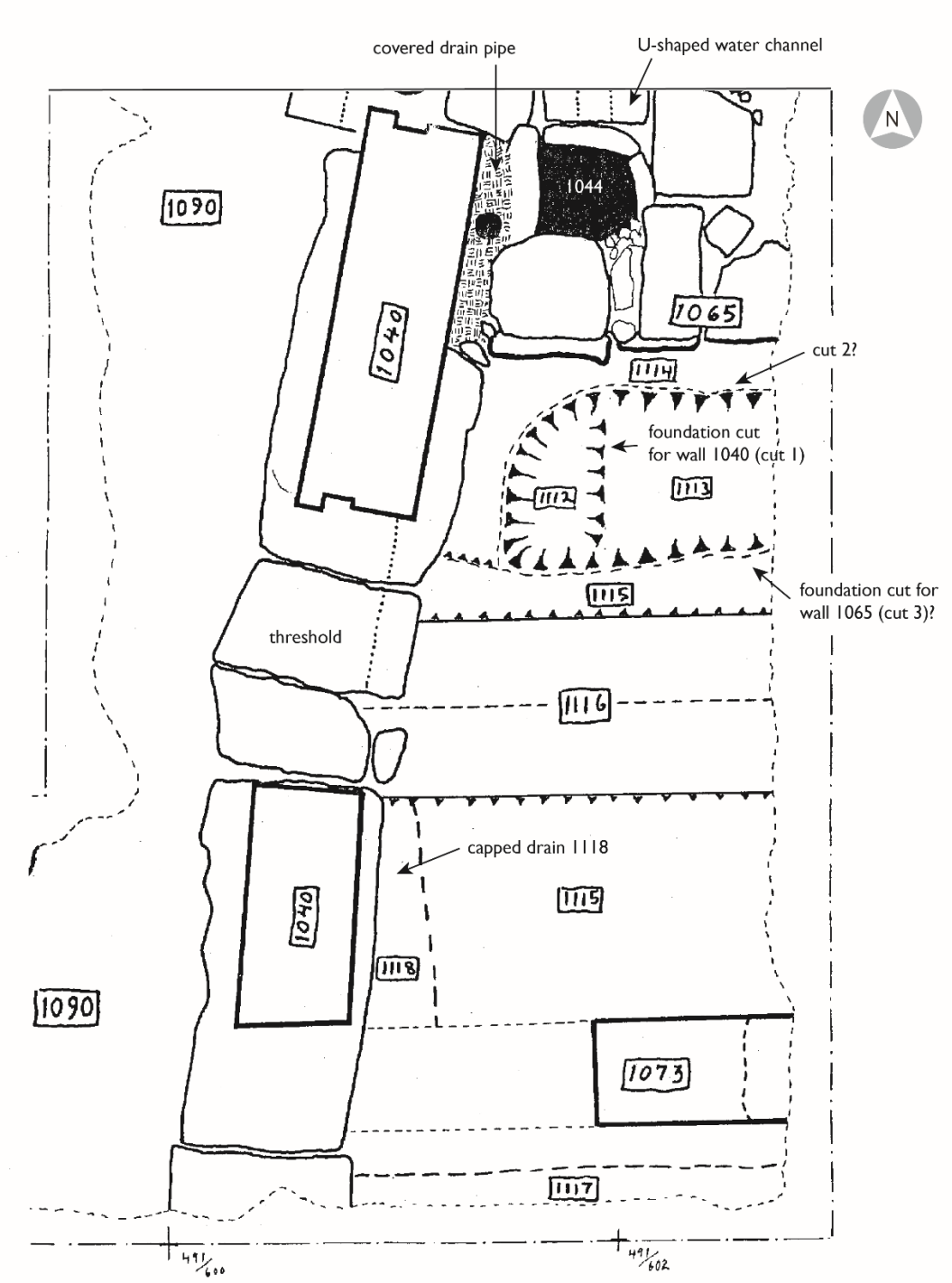


Figure V.4: Detailed plan of interior floor levels within structure A (Lander 1984; annotations are my own).

[1170] Lander 1984, 3. No additional information regarding the coins is known other than the cataloguing of three Maltese mints in a recent publication by Claudia Perassi (2013). Only one coin (no. 1 from the cistern context 1044) can be properly linked; the other two catalogue entries do not contain context information.

From the data available the stratigraphy can be interpreted as follows (Figure V.4): The earliest 'floor' belongs to a hard brown sloping layer 1113 thought to be part of the preparation layer for an overlying floor surface, probably 1114, described as a concrete surface that reaches a height of 190.68–74 m above sea level (sloping from west to east).[1171] However, from the available plan, it appears that prior to the laying of 1114, a linear trench running along a north-south axis was cut into the hard brown surface 1113 [cut 1] and can be linked to the construction trench for wall 1040. This trench was filled with a loose soil fill 1112 (filling cut 1).

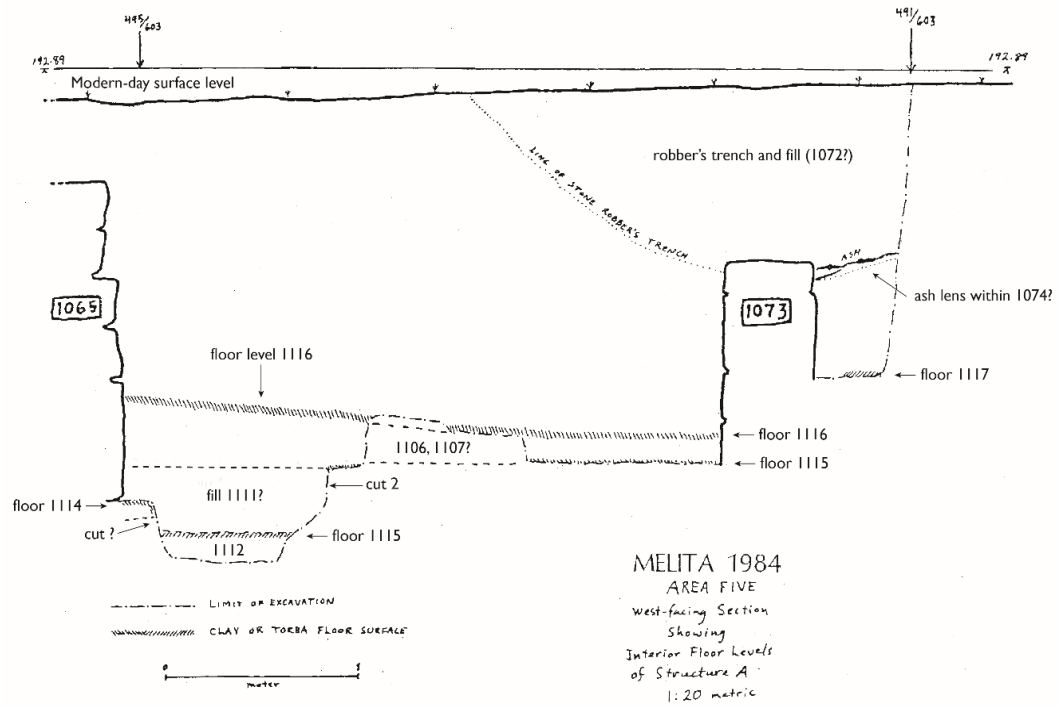


Figure V.5: West-facing section drawing of interior of Structure A (Lander 1984; annotations are my own).

Another second (and stratigraphically later) pit appears to cut through floors 1114 and 1115 (cut 2), and is filled by a loose soil fill 1111. What remains unclear is the exact relationship between wall 1040 and floor 1114. Zammit claims that the floor extends beneath both 1040 and 1065. The latter can clearly be seen in the west-facing section of Area 5 (Figure V.5), however no clear plans, sections or sketches feature the former. If this is the case, then it would not be stratigraphically possible for 1114 to underlie wall 1040, yet seal its foundation trench (cut 1 and fill 1112). Thus, exactly how wall 1040

[1171] Lander does mention in his last report that natural deposits (i.e. bedrock) was not reached beneath the interior archaeological layers. However, he calculated that another 70 cm from the lowest excavated level to bedrock which was identified during exploration of the cistern (Lander 1984, 6).

relates to the earliest surfaces remains unclear.[1172] It is also possible that levels 1113 and 1114 are not contemporary and do not belong to the same activity.

A later phase of building activity is linked to construction of a bell-shaped cistern (1044) and the addition of a second interior partition wall (1065) following the alignment of the stratigraphically earlier wall 1073. This wall extends eastwards from the ashlar wall 1040, towards the east section for about 2 m, and is constructed using smaller unworked limestone blocks. It is shown to lie directly over level 1114 and survives to a height of 1.60 m. Cut 2 may be the construction trench that cuts into floor surface 1115, for the new wall 1065, although the material associated with this supposed construction fill remains unclear, and may actually also filled by 1111. A sketch showing the layers revealed once 1111 was excavated show 1114 and 1112, thus 1111 post-dates all of these and appears to be the construction fill for wall 1065.

The construction of a cistern (1044) resulted in the obstruction of an existing doorway. The exact association of the cistern and structure A remained uncertain by the end of the 1984 season, however, it was clear that the construction of the cistern head certainly post-dated wall 1040, but was overlaid and incorporated into the second partition wall 1065, either pre-dating, or being contemporary with it.[1173] The main part of the cistern was hewn directly out of bedrock (the bedrock level reached was 189.74 m above sea level; Figure V.6). Spot heights and further stratigraphic details pertaining to the excavation of the areas surrounding the cistern head and wall 1065 remain elusive. The cistern's interior was lined with a water-proof plaster lining and contained at least two SUs (1047 and 1048), which filled the cistern. Only a small sample of the material filling the cistern was studied (1044) and it was not included in this study. Nevertheless, the sample suggested that the pottery from the cistern fill (1044) was composed of local coarse ware jar/jug bases consistent with flagons similar to type 4.4.4. Very little diagnostic material was identified but no material consistent with the Late Roman spoliation appears to be associated with the cistern assemblage and may suggest that the cistern went out of use before

[1172] Although unclear, Lander also seems uncertain about the earliest sequence of floor levels (Lander 1984, 3).
[1173] Lander 1984, 6.

the destruction of the houses themselves. The presence of coarse ware pottery made in Local Fabrics 2 and 3 suggests a post-1st century date; whilst one coin provides a *terminus post quem* of the 2nd century BC.[1174] Careful attention was paid to the cistern's material during the excavation, including the sieving of all the material excavated. The excavators also believe that there were a few pots which could easily be reconstructed.[1175] The scenario would then be consistent with coarse pottery jugs and jars that were lost whilst drawing water.

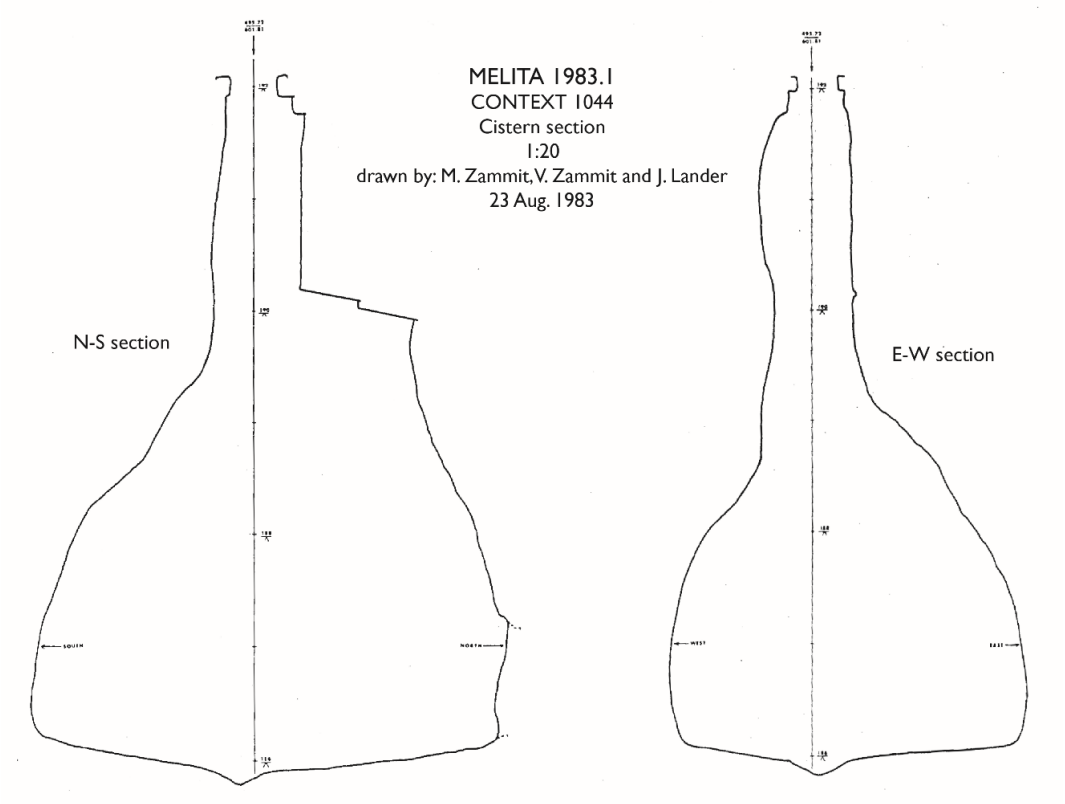


Figure V.6: Section drawings of cistern 1044 (after Lander 1984, figs VI–V).

More clear is the laying of a fourth floor surface (1116) which is linked to two hard crusts with embedded pottery sherds (1106 and 1107). This surface sealed all the existing walls in structure A (1040, 1065 and 1073) and was raised to the level of the threshold block. A fifth floor surface (1117), only surviving south of the partition wall 1073, appears to be the latest floor surface within structure A. A capped drain placed within a linear trench cut into the earlier floor 1115, and running parallel to wall 1040, was filled with a loose rubble deposit 1108, before being covered and sealed by the fourth floor 1116. This drain is aligned with another further north, and presumably

[1174] Lander 1984, 5; Perassi 2013, 40, no. 1.

[1175] Elster, Lander and Molitor 1984, 3.

drained water into the adjacent cistern (1044).[1176] A circular hole within the northern drain pipe was probably attached to a vertical pipe that directed water from the roof or a second storey. Another U-shaped block appears to have directed water collected from the northern part of the structure (Figure V.4).

Very little of Structure B was exposed. A stone slab belonging to a threshold, in between two worked limestone ashlar blocks, one with a carved jamb niche, runs roughly parallel to structure A (Figure V.2).

Mid-Roman occupation? (Phase 2)

This phase was reconstructed based on the fact that these SUs are not associated with any construction/floor levels in Phase 1. This large homogenous deposit was excavated in spits of 10–15 cm and is made up of loose soil with small rubble stones (1091, 1092, 1094, 1095, 1100 and 1104). These deposits were contained within the confines of structure A; and none of the material dates to later than the early/mid-2nd century AD. At least one bronze coin was found in SU 1086, however little information, other than that it could be a local issue, is available.[1177] That the building was already abandoned by this phase is suggested by the presence of architectural fragments such as a limestone cornice in one of the deposits.[1178] This date is in keeping with the abandonment of the Roman domus located a short distance away, which is thought to have occurred sometime before the end of the 2nd century.[1179]

Late Roman Spoliation (Phases 3–5)

This activity is clearly associated with the latest Roman-dated phase and possibly with the final abandonment, disuse and destruction of the structures, marked by the accumulation of rubble and large worked stone blocks, which are remnants of the collapse of the structure's walls (1064). The excavator's commented on the fact that the position of the fallen blocks

[1176] Lander 1983, 6. This part of trench 1 was excavated during the 1983 season where fewer stratigraphic details were recorded. The exact SU numbers and their stratigraphic relationships for the drain, cistern and wall 1065 are not clear. Nevertheless, the general sequence of events can be deduced.
[1177] Zammit 1984, 18. If the coin is a local Roman mint than this would date to after the 2nd century BC.
[1178] Zammit 1984, 17–18.
[1179] Caselli 2013, 35.

indicated that the structures, at least those belonging to Structure B, collapsed onto the street (1081). Associated with these collapse layers are plain and painted wall plaster which probably formed part of the interior of one of the buildings. Also of interest are the discovery of many metal nails and several worked bone cylinders measuring about 30 mm. These finds were concentrated around the doorway of structure A (1080) and most probably are the remnants of wooden doors complete with hinges. Only a few fragments of brick and roof tiles were identified providing some evidence for the methods of construction, although, far too few were recovered that could have covered an entire roof. In fact, roof tiles are not at all common on the islands and could point towards alternative methods for constructing roofs. A large fragment of *deffun* (a mixture of lime and crushed pottery used for sealing flat roofs on the island) was found in context 1079 attached to a large block of stone and may have come from a fragment of the roof. In addition to these, many more lozenge-shaped floor tiles made in fabrics similar to Local Fabric 1 and 3 were recovered from the collapse debris. These are the most common type of floor tiles found on Malta from the Early Imperial period, both in urban and rural settings. It appears that the main collapse of the buildings fell more or less directly over a relatively clean street surface, which did not contain any other debris other than a few small worn sherds, some of which were embedded in the concreted surface (1087, 1088 and 1089).

The latest ceramic material dated to the early to mid-4th century AD, and is consistent with the preliminary dating of the majority of the 14 coins found during the excavations; the latest-dated coin belonged to Constantius II (337–361 AD), thus providing a useful *terminus post quem* for the last Roman phase prior to the Post-Roman period that is thought to be Islamic in date due to the green-glazed pottery found in the deposits.[1180] Lander concluded the possibility that the dating of the mid-4th century rubble and wall collapse could indicate that buildings located within the outskirts of Melita (modern-day Mdina) were already abandoned and in severe disrepair before the Byzantine and later Islamic period. The neighbouring Roman domus, which was excavated (or rather cleared) in the 1880s and again in

[1180] Lander 1984, 6.

1920s was already in ruins prior to the use of the ground above it as an Arab cemetery (Figure 103).[1181]

Post-Roman period (phase 6)

Details for this period are not clear in the 1983 report and because the pottery was found to be mixed with Medieval and Early Modern material, it was not studied. A quick glance at some of these deposits however, indicate that levelling of the area may have taken place during or after the High Medieval period (14th-15th century) on account of the handmade pottery with a distinctive burnished red slip. A few green/brown glazed sherds were also noted. Possible stone robbing is evident in the east section (Figure V.5) and a close reading of the notebooks suggests that the robbing took place sometime after the mid-4th century collapse.

In conclusion, this excavation has provided crucial stratigraphic and ceramic evidence for the possible decline of urban spaces at least after the early to mid-4th century AD. This date is consistent with the amphorae evidence gathered by Bruno suggesting a marked decline in imported material at Tas-Silġ and San Pawl Milqi from the 4th century.[1182]

[1181] Lander 1984, 6; Caruana 1881; Zammit 1922; 1923.

[1182] Bruno and Cutajar 2013.

APPENDIX VI: AMPHORA, FINE WARE AND COOKING WARE QUANTIFICATION FOR THE NETWORK GRAPHS IN CHAPTER 5.

The tables within this appendix list the variety and frequency of types of amphorae, fine wares and cooking wares for each central Mediterranean assemblage used in the network analysis graphs in Chapter 5. The source and quality of the data are discussed in Section 1.5.

Notes

Amphorae:

* The number of unknown amphora forms for Berenice have been omitted from this list.

** The numerical data for Carthage represent the weight (grams) of the classified assemblages. Since the quantified tables were not particularly type-specific, the number of amphora types extrapolated from the main pottery catalogue have also be included within this list.

Fine wares:

The figures listed for Ostia are percentages (%) and have been extracted from Archer Martin's overview of the fine wares from Ostia (see Section 1.5.1.7).

Cooking wares:

No quantified cooking ware data were available for Pantelleria, so in order to attempt including this site assemblage within this comparative exercise, the material was listed as present (x), common (c) or uncommon/rare (r). See Section 1.5.1.9 for further details.

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=57)
Africana I	N./C. Tunisia	150	275	5	1	1	71	5				19	13		16			4	111	51				4			
Africana IA	Leptiminus	175	225								402																
Africana IB	Leptiminus	100	250								434		2			4											
Africana IC	Leptiminus	100	300								316																
Africana II	C. Tunisia	175	300											2				2									
Africana II	N. Tunisia	175	300					4						1		5			6	1	5						
Africana II	S. Tunisia/ Tripolitania	175	300													1											
Africana IIA	Leptiminus	175	300								141																
Africana IIA (MRA 16)	N./C. Tunisia	175	300	1		1	37			1	41	43	15	4	1	2	14										
Africana IIB	C. Tunisia	200	300	2							1																
Africana IIC	Leptiminus	250	300								237																
Africana IIC	N./C. Tunisia	250	300			1	1				99	18	6	1		1											
Africana IID	C. Tunisia	250	300	2								26				4											
Africana IID	Leptiminus	250	300								531																
Africana IIIA	Leptiminus	300	400								34					19											
Africana IIIA-C/Keay 25	C./S. Tunisia	300	400	2				33		2		94	15		3	13			2								
Africana IIIB	Byzacena	300	400								15					3											
Africana II-III v	Leptiminus	100	400								190																
Agora F65-F66/MRA 3	Ephesus/ Pergamon	-50	400													16	11							9	13		
Agora G199/MRA 4	Cilicia	0	400													4	11	1							2		
Agora K109/Ostia 4	Mauretania	300	500									3													2		

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Agora M177	Eastern	100	300															1									
Agora M235/M327	Crete															21										3	
Agora M273 (Samos Cistern type)/Opait type 3B	Aegean/Eastern	300	500													2									1	2	
Agora M334	Levant																									1	
Agora M54	Cyprus/E. Asia Minor	0	100																3	2						1	
Agora M94	Eastern	75	150																1	6						1	
Almagro 50	Spain	300	500				1				3	2				1			1	2							
Almagro 51	Lusitania	200	600			1					1																
Almagro 51A	Lusitania	200	600			1		5								1											
Almagro 51C	Spain	200	450			1	1	1								3											
Beirut 2?	Beirut	0	100																					2			
Beltran 2A/Augst 28 (ERA 7)	Spain	25	150					1					2				3		46	59				400			
Beltran 2B/Augst 28 (ERA 7)	Spain	75	150	1								5				1			8	87							
Beltran 3/Dressel 12	Spain	50	175																	3							
Bonifay type 30	Mauretania	100	275																	1							
Brindisi amphora	Brindisi	-125	-25										1														
Cam. 184/Rhodian type/HA3	Rhodes	75	150							1		1					11		45	56	1					1	
Cam. 189 (carrot)	Beirut/ Palestine	-25	125			1										1				4							
CAM1301	Leptiminus	100	200								35																
CAM1301	Leptiminus	100	200								6																
CAM1500	Leptiminus	300	500								46																

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=57)
Corinthian B	Aegean														220												
Cretoise 1 /Agora G197/ MRA 2	Crete	25	350	9		3					1	1		2		13	412		108	104						6	
Cretoise 2/ ERA 1	Crete	25	225	7										2			78		3					2		1	
Cretoise 3	Crete	25	250																2	1						1	
Cretoise 4/Dressel 43	Crete	25	225	1		2					3			1			1		62	41					1	1	
Dressel 1	Unknown	-150	-50										14														
Dressel 1 (HA 9)	Italy	-150	-50		6			8		9	10	101	24	21	22		5	2	1	14	14			3637			1
Dressel 14A	Lusitania	50	175		2												1		232	176	1						
Dressel 14B	Lusitania	50	175																85	104							
Dressel 17	Spain	50	100																	13							
Dressel 20 (ERA 9)	Spain	75	225	1	1		2	1				1	2		1		5	4	183	119	7						
Dressel 21-22	S. Italy	-25	75	2		1													7	22			5				
Dressel 21-22	Sicily/Segesta	-25	75		35					2																	
Dressel 21-22	Tarraconensis	-25	75	1																							
Dressel 21-22	Unknown	-25	75										1						1	15							
Dressel 23	Spain	200	600						1									1									
Dressel 23/Late Dressel 20	Spain	200	600								1																
Dressel 2-4	Aegean	-100	75																13	10	1			3			
Dressel 2-4	Lipari	-100	75	17															1								
Dressel 2-4	N. Tunisia	-100	100																4	7				5			
Dressel 2-4	S. Gaul	0	100																	4							
Dressel 2-4	Spain	75	125		12		1				102		7		1				3	26	1						

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Dressel 2-4	Unknown	-100	75	10									19														
Dressel 2-4 (ERA 4)	Campania	-100	75	1		7	21		2		254	116	20	12	25	2	43	1	15	44	2			201	1	1	
Dressel 2-4/Dressel 5	Cos	-100	100	1								8			3				38	24						1	
Dressel 26/Ancient Tripolitanian	C. Tunisia/ Tripolitania	-150	0	1									18								2			2			
Dressel 28 (Oberaden 74)	Spain	25	150									3							12	16							
Dressel 29/MRA 13	Italy	200	375		1												2										
Dressel 30/Keay 1a/MRA 12	Mauretania	200	300	1	1		6					13	2	7		7	2	2	1							1	
Dressel 30/Keay 1b	Mauretania	275	400												3												
Dressel 6/ERA 5	Adriatic	-25	150	1	1	1						4			4		13							250	2	1	
Dressel 7	Spain	-50	75	5	2	3	1																				
Dressel 7/11 (ERA 6)	Spain	-50	75									4			3		5		10	3	1						
Dressel 9	Beatica	0	100					1	2				7														
East Greek amphora	Aegean												7														
Egloff 172/AE 3/AE 3T-1	Egypt	375	475			2										3											
Empoli	Italy	100	400													1											
ERA 12	Unknown													1			22										
ERA 13	Naxos (Sicily)	0	100											1			2										
ERA 14	Cyrenaica																34										
ERA 2/Agora G198/Pompeii 13	Cilicia? Eastern	75	200														4								1	1	
Fontana 1997, 34 (Trip. Imitation of MRA 1a)	Tripolitania	150	350													3											

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Forlimpopoli	N. Italy	-100	300	1								6				5		2	3	199					2	1	
Gauloise 1	S. Gaul	0	300																	2							
Gauloise 1-5	S. Gaul	0	300																8								
Gauloise 2-3	S. Gaul	-100	100																	5							
Gauloise 4/Pelichet 47/MRA 11	Gaul	50	275	4	1	1						1				4	4	20	104	286							
Gauloise 5	Gaul	50	125																3	23							
Greco-Italic (HA 7)	Campania									1		72		5	106		2	1			16			301			1
HA 1 (Greek type)	Cyrenaica	-300	25														35										
HA 4 (Zeest type 48)	Knidos	-300	0														2										
Haltern 70	Beatica	-50	200										2			2		2	5	7	1			5			
Hammamet 1	Hammamet	100	325										1						2	3							
Hammamet 2	Hammamet	350	500										1														
Kapitan 1	Aegean	75	300	1			21						1			6			73	17							
Kapitan 2 (MRA 7)	Black Sea	200	400			1	22				8	26			1	54	151		2	1	1				10	5	
Keay 27	N. Tunisia	350	500										4														
Keay 34	C. Tunisia	500	600					1																			
Keay 35A	N. Tunisia	400	500			1						3															
Keay 35B	N. Tunisia (Nebeul)	400	500																								
Keay 39	N. Africa (Algeria?)	350	450									1															
Keay 42	N. Africa	300	500					1				1															

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Panttelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Keay 44	N. Africa	300	500									1															
Keay 52	Sicily/Calabria	350	700			14	2					9				5										7	
Keay 52	Tripolitania	350	700													2											
Keay 56B	Zeugitana	475	550										3														
Keay 59	C. Tunisia	375	425	1											4												
Keay 61	C. Tunisia	450	700	1							83		1		4			1									
Keay 61	Leptiminus	450	700								531																
Keay 62	Leptiminus	475	550								1012																
Keay 62	N./C. Tunisia	475	550			2		1					2		3					2				2			
Keay 62	Sullechtum	475	550								4																
Keay 62D/F	Leptiminus	475	550								81																
Keay 62Q	Sahel	475	550								21		2														
Keay 8A	Leptiminus	625	675								100																
Kingsholm 117/cigar-shaped amphora/P&W 66	Beirut	0	100																11	4							
Knossos 18/Ostia I, 586	Crete	250	350				1									1				2							
Laetana 1	Tarraconensis	-50	50										2														
Lamboglia 2	Adriatic	-200	-25					1				2		8													
Lamboglia 2/Dressel 6	Adriatic	-100	125										50						3	5							
Late Campanian	Campania	200	350																3	12							
Late Schone 5	Eastern	0	100																1								
Leptiminus 1	Leptiminus	75	225								79		1						33	7		1		15			
Leptiminus 2	Leptiminus	75	225																5	3							

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=57)
Leptiminus 5	Leptiminus	100	200								140																
LRA 1	Cilicia/Cyprus	200	700	2		14	24	47			4				14	3	14	1							1		
LRA 2	Aegean	300	700			7	20	3			43			2	4	1											
LRA 3	W. Asia Minor	300	600			3					12															18	
LRA 4	Gaza					5	3	1								2											
LRA 5	Palestine	0	700								3																
LRA 5/Agora K108/Pasetinian bag-shaped	Levant	0	700								2															2	
LRA 6/"Baged-shaped"	Syria/Palestine/Egypt	200	800													1	2									3	
LRA 7	Egypt	350	700			1							1														
Luni II, tav. 279	Tunisia							1																			
Majcherek 07, fig. 6.40	Eastern																		2	1							
Malta type 1	Malta	-200	0											15													
Malta type 2	Malta	0	200											1													
Mana D	N. Tunisia											311		2										4			
Mana D (beaded whole-mouth)	Import																							1			
Mana D (beaded whole-mouth)	N. Tunisia																						15				
Mana D (Sabratha T3)	Tripolitania										37				184												
Mana D (Sabratha T3)/T-4.2.1.2	N. Tunisia										53													13			

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Mana D (Sabratha T4)	Tripolitania														264												
Mana D (Sabratha T4)/T-4.2.1.5	N. Tunisia																							62			
Mana D (Sabratha T5)	N. Tunisia?																							2			
Mana D (Sabratha T5)	Spain														4												
Mas 1975, fig. 135	Eastern	200	300													3	4			1				4			
Massaloite	Gaul														25				1								
Mau 35	Jerba	25	175									862 (loc.)	4			7			125	116							
Mau 38	Knidos	0	100																2	3							
Mau 41	Eastern	50	150																	4							
MRA I	Sicily	0	400	1		1	1					9		14		82			63	32					1		
MRA I	Tripolitania	0	400													4											
MRA I	Tunisia	50	350					1											1								
MRA I	Unknown	0	400			1																					
MRA Ia	Catania, Sicily	150	350								2		1	15	7	108	79								1		
MRA Ib	Catania, Sicily	50	150											9	8	15	4							1			
MRA 3	Sicily	-50	400				2									1											
MRA 8	Cyranaica	200	250													1	35			17							
MRA 9	Cyrenaica	200	225														2										
Neo-Punic amphora	N. Tunisia																		6	21				1			
One-handled amphora	Eastern																		33	45							

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=57)
Opait type 8	Crete?	600	700																1	12							
Ostia 23	Leptiminus	75	225								27								17	100							
Ostia 23	Tunisia	75	225				2																				
Ostia 23/59	N. Tunisia	75	225																1								
Ostia 59	N. Tunisia	50	150				1					13	1						10	125							
Ostia I, 455	East Sicily (Etna)			6		2									1	15											
Ostia I, 456	Tunisia							2																			
Ostia I, 484	Eastern																			5							
Ostia I, 520 (looks quite similar to an Uzita, 51, pl. 10)	N. Africa																			11							
Ostia I, 568	Eastern																		3								
Ostia II, tav. 39, 569	Unknown														1												
Ostia III, 369-70 (Spello?)	Valle del Tever	25	175																112	162							
Ostia IV, 147	N. Tunisia					1																					
Ostia IV, 166	Sicily						1									1											
Ostia IV, 263	N./C. Tunisia															1											
Ostia IV, 284-5	Eastern																		4								
Ostia IV, 447	N. Africa																		3								
Palatine East I	Naxos (Sicily)														2	4											
Pamphylian amphora	Pamphylia	0	400																					1			
Pascal I	Tarraconensis	-50	75										1														
Pompeii 6	Kos	50	100																	3							

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Cartahage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Pompeii 9	Italy																			1							
Punic amphora	Import													1													
Punic amphora	Italy																										
Punic amphora	Jerba											4															
Punic amphora	N. Tunisia												55	6										9650			
Punic egg-shape	Malta													19													
Punic egg-shape/Berenice D91 (T10)	Malta														3												
Punic egg-shape/Berenice D91 (T10)	W. Med.														48												
Pupput T700.4	Byzacena	100	200																			1					
Rich. 527 1a	Lipari	-100	0	104									1														
Rich. 527 2a	Lipari	0	200	640																							
Rich. 527 2b	Lipari	0	200	3																							
Rich. 527 v	Lipari	0	200	8	2														7	1							
Sabratha II, fig. 14; T34n	Tripolitania							1																			
San Lorenzo 7	Eastern																			2							
Schone 8	Eastern																			11							
Spatheion	N./C. Tunisia	375	700	1		3	10	8	1				14		2												
Termine Imerese 151-354	Sicily	350	450	16				2																			
Trip. 1	Tripolitania	0	200	2	1		6					22	23	1		5			53	13							
Trip. 2	Tripolitania	0	400				1				28	3				44			23	30	1						
Trip. 3	Tripolitania	150	400	1		1	4				5	5				67	1			1				4			1

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=57)
Trip. V (ERA I 1a-b)	Tripolitania	0	400							2		17	3		289		10		1	2							
Trip. V (MRA 14), Trip. 1-3	Tripolitania	0	400														8										
Unknown	Aegean																		26	60				150			
Unknown	C./S. Tunisia																										
Unknown	Campania										279			19	1												
Unknown	Crete															1			8								
Unknown	Eastern				7					2																	
Unknown	Eastern										29			1						4	1						
Unknown	Italy										25			40		2				1							
Unknown	Leptiminus										176																
Unknown	Malta													71													
Unknown	N. Africa						2				264			32					28	70			10	26636			
Unknown	N./C. Tunisia						167									8					1			11			
Unknown	Pontic																			15							
Unknown	S. Gaul				2																						
Unknown	Sicily													24		16											
Unknown	Spain										4			3		1			12	7	2						
Unknown	Sullechtum										18																
Unknown	Syro-Palestine																		4	2							
Unknown	Tripolitania														9	78			1								
Unknown	Unknown						4		5		168			195	1			2		3				10391			
Uzita pl. 52,10	Sullechtum	75	200											1		1			3	1		1					
Van der Werff I	N. Tunisia	-200	100								7	41	57	4	90	1								137			2

Type	Source	Start date	End date	Lipari (n=863)	Segesta (n=75)	Catania (n=85)	Syracuse (n=436)	Agrigento (n=129)	Lilybaeum (n=11)	Palermo (n=20)	Leptiminus (n=6177)	Jerba (n=1126)	Pantelleria (n=473)	Malta (n=543)	Sabratha (n=1689)	Leptis Magna (n=691)	Berenice (n=1029)*	Marseille (n=46)	Rome (n=1807)	Ostia (n=2483)	Nora, Sardinia (n=63)	Lampedusa (n=5)	Solunto (n=15)	Carthage (n=51926)**	Corinth (n=31)	Athens (n=78)	Kerkennah (n=5?)
Van der Werff 2	Tripolitania	-150	0												91					17				17			
Van der Werff 2-3 (HA 12a)	Jerba	-225	0									117	68				1										
Van der Werff 3/Sabratha T7b	N. Africa	-225	0								29				224												
Zemer 36	Gaza	100	300													3											
Zemer 57	Crete	200	300													6											

Fine ware Type	Lipari (n=238)	Segesta (n=171)	Catania (n=737)	Syracuse (n=230)	Agrigento (n=242)	Lilybaeum (n=89)	Palermo (n=43)	Leptiminus (n=3717)	Jerba (n=1334)	Pantelleria (n=2030)	Malta (n=399)	Sabratha (n=2658)	Leptis Magna (492)	Berenice (n=4696)	Marseille (n=66)	Nora, Sardinia (n=1840)	Ostia (n=?)*	Lampedusa (n=5)	Solunto (n=65)	Circular Hrb, Carthage (n=8046)	Sanctuary, Corinth (n=596)
ARS all								177	475		98	1	19	1137						2320	50
ARS A	55	49	104	8	20	20	11	565	129	555		478	90		11	77	45.1	1	13	459	
ARS A/D		2	16	1	1				44	15			26			2	2.8				
ARS C	14	2	28	3	13	6		333	13	63		112	112		2	22	8.4	1			37
ARS D	89	7	511	19	167	29		1799		120		180	31		13	16		1			8
ARS E	1		1		3			140		15			16								
Black-Slip (import)			1					122	34	87	2	33		280	3			1		1634	
Black-Slip (local)			3						67	41		421				165					
Camp A			1					28	52	247	14	612		381		490				260	
Camp B								3	31	39		21		358		161					
Camp B-oid																16					
Camp C								6		8		60		70							
Corinthian relief ware								3			6	2		2	1						28
ESA	1	5	1	2	5			17	5		7		25	501		2	0.92			270	12
ESB	1	3						3						129			1.91				89
ESC/Candarli ware												1		79			0.86				66
Gaulish TS	5		1					20	215				7	4	24	17	4.23			7	1
Hisp. TS															1		0.28				

Fine ware Type	Lipari (n=238)	Segesta (n=171)	Catania (n=737)	Syracuse (n=230)	Agrigento (n=242)	Lilybaeum (n=89)	Palermo (n=43)	Lepcliminus (n=3717)	Jerba (n=1334)	Pantelleria (n=2030)	Malta (n=399)	Sabratha (n=2658)	Leptis Magna (492)	Berenice (n=4696)	Marseille (n=66)	Nora, Sardinia (n=1840)	Ostia (n=7)*	Lampedusa (n=5)	Solunto (n=65)	Circular Hrb, Carthage (n=8046)	Sanctuary, Corinth (n=596)
Import		19		32	11			4	1		3	163	9	232		16	0.01		2	464	
ITS	70	82	65	165	22	33		160	265	840	4	522	28	769		56	31.18		50	2197	129
Knidian fine ware	1					1					1	6		58							4
Late ITS		2					32								2		3.47				1
Late Roman C/Phocean RS ware			1					2	3						1			1			1
Late Roman D/Cypriot RS ware			2					1						19			0.14				
Lead-glazed ware																					2
Local	1							326			207			563							166
Painted buff Punic ware (some poss. Maltese)												4								84	
Pontic sig.														59			0.68				2
Punic RS																				65	
Trip. RS													107	3							
TWW import								8			13	24	22	52	8	320				286	
TWW local			2								44	18				480					

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Leptis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=28511)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
African KW	ACW	Byzacena	MR												
African KW	ACW	Carthage	MR												
African KW	ACW	N./C. Tunisia	MR										1		
Atlante CVII, fig. 11	ACW 1	N. Tunisia									1				
Atlante CVIII, fig. 10	ACW 2	N. Tunisia									1				
Bonifay KW 38	Bon. 38	N. Africa	LR	61											
Carthage casserole type 11	CCW 11	N. Tunisia	H											2	
Carthage casserole type 12	CCW 12	N. Tunisia	MR											2	
Carthage casserole type 13	CCW 13	N. Tunisia	MR											1	
Carthage casserole type 14	CCW 14	N. Tunisia	LR											1	
Carthage casserole type 16	CCW 16	Unknown	ER											1	
Carthage casserole type 17	CCW 17	Unknown	LR											1	
Carthage casserole type 18	CCW 18	Unknown	MR											1	
Carthage casserole type 19	CCW 19	Unknown	MR											1	
Carthage casserole type 20	CCW 20	Unknown	LR											1	
Carthage casserole type 21	CCW 21	Pantelleria	ER											1	
Carthage casserole type 23	CCW 23	N. Tunisia	MR											1	
Carthage casserole type 24/Fulford 1984 casserole type 3/Jerba type 8.6.7	CCW 24	C./S. Tunisia	LR		1									1	
Carthage casserole type 27/Fulford 1984 casserole type 4	CCW 27	N. Tunisia	LR											1	
Carthage casserole type 28/Fulford 1984 casserole type 15	CCW 28	N. Tunisia	LR											1	
Carthage casserole type 4/cf. Byrsa ii, fig. 24, nos 72, 74/Hayes 76, fig. 15.13	CCW 4a	N. Tunisia	ER											5	
Carthage casserole type 5/cf. Byrsa ii, fig. 64, no. 54	CCW 5	N. Tunisia	ER											1	
Carthage dish type 10	CDW 10	N. Tunisia	MR											2	

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Leptis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Carthage dish type 10	CDW 10	Pantelleria	MR											1	
Carthage dish type 2	CDW 2a	N. Tunisia	ER											3	
Carthage dish type 2	CDW 2b	Pantelleria	MR											1	
Carthage dish type 3/imitation 'orlo-bifido'/Scauri form 4.8	PAN 1	Pantelleria	MR			x [c]								1	
Carthage dish type 4	CDW 4b	N. Tunisia	LR											1	
Carthage dish type 5	CDW 5	Unknown	MR											1	
Carthage dish type 6	CDW 6	N. Tunisia	MR											1	
Carthage lid type 13	CLW 13	N. Tunisia	MR											2	
Carthage lid type 15/Fulford 1984 dish/lid 11/Hayes 196 variant?	CLW 15	N. Tunisia	MR											55	
Carthage lid type 16	CLW 16	N. Tunisia	LR											2	
Carthage lid type 17	CLW 17	N. Tunisia	ER											3	
Carthage lid type 18	CLW 18	Pantelleria	ME											1	
Carthage lid type 3/Hayes ERKW3b	CLW 3	N. Tunisia	ER											14	
Carthage lid type 5	CLW 5	N. Tunisia	LR											3	
Carthage lid type 6	CLW 6	N. Tunisia	MR											4	
Carthage lid type 8/Byrsa 1, 209, fig. 39.32	CLW 8	N. Tunisia	ER											9	
Carthage lid type 9 (small lid)	CLW 9	N. Tunisia	ER											12	
ERKW1	ERKW 1	Cyrenaica	ER							262					
ERKW2	ERKW 2	Cyrenaica	ER												
ERKW6/Knossos frying pan type 1 (Phocean frying pan)	ERKW 6	Phocea	ER							127					
Fry pans (Fabric 1)	FRY 1	Cyrenaica	ER							11					
Fry pans (Fabric 1)	FRY 1	N. Africa	ER				12	4							
Guiducci B/Scauri type 6.2-3	PAN 2	Pantelleria	MR						7						

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantellería (n=?)	Malta (n=300)	Sabratha (n=2163)	Lepcis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=28511)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Hayes 181	H 181	Byzacena/ C./S. Tunisia	MR	1848 (loc.)					24						
Hayes 181	H 181	Carthage	MR						18						
Hayes 181	H 181	N. Africa	MR	30		×	11	183	5		3				
Hayes 181	H 181	Tripolitania	MR						157						
Hayes 182	H 182	Byzacena/ C./S. Tunisia	MR	2729 (loc.)					19						
Hayes 182 (unslipped)/Ostia 1, figs 262, 264; 3, fig. 170/Fulford 1984 dish/lid type 9-10/Carthage lid type 12/Sabratha form 108/Jerba type 9.3.1-2	H 182	N. Africa	MR	1142	2		3	221				246		16	
Hayes 183/Ostia 1, fig. 271	H 183	N. Africa	MR					2	72			3			
Hayes 183-184	H 183-184	C. Tunisia	MR	195			1								
Hayes 184	H 184	Byzacena/ C./S. Tunisia	MR	1241 (imp.) + 58 (loc.)					3						
Hayes 184	H 184	Tripolitania	MR						3						
Hayes 184/Ostia 3, fig. 331	H 184	N. Africa	MR	192				12				22			
Hayes 185	H 185	Byzacena/ C./S. Tunisia	MR	556 (imp.) + 332 (loc.)					52		23	910			
Hayes 185/196/Ostia 1, figs. 260-261; Ostia 3, figs 108a, 332	H 185	Carthage	MR												
Hayes 185/Ostia 3, figs 333-334, 459/Sabratha form 109	H 185	N. Africa	MR	310			10	11			1	38			
Hayes 193 (without orlo bifido)/Ostia 1, fig. 273	H 193	N. Africa	ER									3			
Hayes 195	H 195	N. Africa	MR						1		2				
Hayes 195	H 195	Tripolitania	MR						14						
Hayes 195/Ostia 1, fig. 263	H 195	Carthage	MR						7			3			

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Lepcis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Hayes 196	H 196	C. Tunisia	MR	111											
Hayes 196-like with heavily ribbed underside/Ostia 2, fig. 302/Carthage lid type 14	H 196	N. Tunisia	MR									216		47	
Hayes 199/Hayes 1975 (Mich.) fig. 11.5/Ostia 1, fig. 268-269 (var)	H 199	N. Tunisia	MR								8	2			
Hayes 21 (ARS)	H 21	N. Tunisia	MR					6							
Hayes 23	H 23	N. Africa	MR	24				30							
Hayes 23A/Ostia 2, fig. 309	H 23A	Carthage	MR						4		7	1			
Hayes 23B	H 23B	Carthage	MR			×			18		13				
Hayes 23B	H 23B	N. Africa	MR	19			5								
HKW1	HKW 1	Cyrenaica	H							163					
HKW2	HKW 2	Cyrenaica	H							47					
HKW3	HKW 3	Cyrenaica	H							228					
HKW4	HKW 4	Cyrenaica	H							21					
HKW5	HKW 5	Cyrenaica	H							9					
Jerba type 7.2.1/Sabratha form 164 (coarse ware?)	SCW 164	S. Tunisia?	ER		2										
Jerba type 7.3.1	JER 7.3.1	S. Tunisia	LR		7										
Jerba type 7.4.1	JER 7.4.1	S. Tunisia	LR		1										
Jerba type 7.5.1	JER 7.5.1	S. Tunisia			3										
Jerba type 8.3.4	JER 8.3.4	S. Tunisia	ER		1										
Jerba type 8.4.1/Atlante CVIII, 9/Ostia 3, fig. 269	JER 8.4.1	S. Tunisia	MR		1										
Jerba type 8.6.6/Fulford 1984 casserole type 7/Hayes 184.2	JER 8.6.6	N. Africa	LR		5										
Jerba type 8.8.1	JER 8.8.1	S. Tunisia	MR		1										
Jerba type 8.9.1	JER 8.9.1	S. Tunisia	LR		1										
Jerba type 9.2.1	JER 9.2.1	Unknown													

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Lepcis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Jerba type 9.2.2/Ostia 1, fig. 20	JER 9.2.2	S. Tunisia	MR		17										
Kettle	KET	N. Africa	MR						20						
Kettle	KET	Tripolitania	MR						6						
Late Hayes 197	Late H 197	C. Tunisia	LR	12											
Lepti CHM10 0	Lepti CHM10 1	Pantelleria	MR	5											
lid	LID	Byzacena	MR						1		8				
lid	LID	Carthage	MR						2						
lid	LID	Tripolitania	MR						154						
Local KW	Local KW	Local	MR												
local/imported HM (RBH)	HM	Unknown								217					
LRKW1 (HM)	LRKW 1	Cyrenaica	LR							7					
LRKW1b (HM)	LRKW 1b	Cyrenaica	LR							1					
LRKW2	LRKW 2	Aegean	LR							1					
LRKW3	LRKW 3	Aegean?	LR							1					
Maltese types (various)	Maltese types (various)	Malta					90								
Marmite Pupput 1	PUP 1	Byzacena	MR	98					5						
MRKW1	MRKW 1	Uncertain	MR							425					
MRKW1/Knossos Cass type 2	MRKW 1	Aegean	MR												
MRKW1a	MRKW 1a	Uncertain	MR							32					
MRKW1b	MRKW 1b	Unknown	MR							10					

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Lepcis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
MRKW1c/Knossos Cass type 2/Agora G194-195	MRKW 1c	Uncertain	MR							44					
MRKW2	MRKW 2	Cyrenaica	MR							50					
MRKW2a	MRKW 2a	Cyrenaica	MR							8					
MRKW3	MRKW 3	Cyrenaica	MR							531					
MRKW3/Knossos CP type 1/Sackett U40-44(?)	MRKW 3	Aegean	MR						5						
MRKW3a/Knossos CP type 2/Agora J55-56	MRKW 3a	Cyrenaica	MR							233					
MRKW3b	MRKW 3b	Cyrenaica	MR							4					
MRKW4/Knossos CP type 4/Agora G192, K101-104/Knossos CP type 4	MRKW 4	Cyrenaica	MR						3	2					
Ortisi type 322-323/Vegas form 60.1 (earlier version of Guiducci form H)	PAN 3	Pantelleria	ER			×									
Ostia 1, fig. 278 (possible coarse ware - see Bonifay)/Jerba type 8.3.1/Atlante CVIII, 12	JER 8.3.1	N. Africa	MR		2							1			
Ostia 3, fig. 324/Hayes 1975 (Mich.) fig. 11.11	Ostia 3, fig. 324	N. Tunisia									6				
Pantellerian ware (unknown forms)	PAN KW	Pantelleria	MR	154			22		7				1		
Pompeian RW	PRW	Campania	ER			×	1			116	3				
PRW Carthage dish type 2/similar to Goudineau 16 or 28	PRW 1	Campania	ER											5	
PRW Ostia 2, fig. 340/Goudineau 28	PRW 2	Campania	ER									102			
PRW Ostia 2, fig. 343 (sim. To 169)	PRW 3	Campania	ER									15			
PRW Ostia 3, fig. 168	PRW 3	Campania	ER									1			
PRW Ostia 3, fig. 169	PRW 4	Campania	ER									1			
PRW Ostia 3, fig. 213 (sim. To 168)	PRW 5	Campania	ER									2			
PRW Ostia 3, fig. 257	PRW 6	Campania	ER									1			
PRW Ostia 3, fig. 319 (sim. To 257)	PRW 7	Campania	ER									1			

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PRW Ostia 3, fig. 565/Goudineau 16	PRW 8	Campania	ER									4			
PRW Ostia 3, figs 413, 566/Goudineau 17	PRW 9	Campania	ER									5			
Pupput T643.4	PUP T643.4	Byzacena	MR						1						
Reynolds KW 34	REY 34	Eastern	MR						2						
Sabratha form 1	SAB 1	Import	ER					1							
Sabratha form 10	SAB 10	N. Africa	ER					2							
Sabratha form 100-101/Ostia 1, fig. 261/Hayes 192/Carthage lid type 2, 4, 10-11/Jerba 9.2.1	H 192	N. Africa	ER		137			103			21			94	
Sabratha form 102	SAB 102	N. Africa	ER					6							
Sabratha form 103	SAB 103	N. Africa	ER					7							
Sabratha form 104 (lid) - almond rim	SAB 104	N. Africa	ER			x		172	316						
Sabratha form 105-107	SAB 105-7	N. Africa	ER					9							
Sabratha form 15/Roman Hayes 194 (casserole)/Ostia 2, figs 303-304/Carthage casserole type 6/Jerba type 8.2.1a	H 194 Rom	Carthage	ER		5	x		9		1		155		3	
Sabratha form 152/orlo bifido/Hayes ERKW1G/Riley ERKW3/Ostia 2, figs 306-307/Carthage dish type 1 (African)	ERKW 3	N. Tunisia	ER	10		x		1		29	1?	52		21	
Sabratha form 152/orlo bifido/Hayes ERKW1G/Riley ERKW3a/Carthage dish type 1 (Campania)/Dyson 1976, dep. 22, II, nos 22-25	PRW 10	Campania	ER			x		8		28	2			4	
Sabratha form 153/Jerba type 7.1.2/MRKW 3 variant	SAB 153	N. Tunisia	MR		1 (loc.)			2							
Sabratha form 16/Roman Hayes 191 (casserole)/Carthage casserole 7	H 191 Rom	N. Africa	ER	5		x		50						16	1
Sabratha form 17	SAB 17	Campania	ER					2							
Sabratha form 17	SAB 17	N. Africa	ER					2							

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Sabratha form 18	SAB 18	N. Africa	ER					24							
Sabratha form 19	SAB 19	Campania	ER					3							
Sabratha form 2	SAB 2	Import	ER					1							
Sabratha form 2	SAB 2	N. Africa	ER					6							
Sabratha form 20	SAB 20	N. Africa	ER					9							
Sabratha form 21/Vegas form 68.2	SAB 21	N. Africa	ER			×		8							
Sabratha form 22	SAB 22	Campania	ER					1							
Sabratha form 22/ERKW5 (local frying pan)/Fulford (1986) dish form 1/Carthage dish type 7/Jerba type 7.1.1	ERKW 5	N. Africa	ER		1			1		145				8	
Sabratha form 286	SAB 286	Import	ER					4							
Sabratha form 296/Scauri type 4.6/Guiducci form M1/Jerba type 2	PAN 4	Pantelleria	MR	52	13	×	2	7	20						
Sabratha form 297	SAB 297	Import	MR					2							
Sabratha form 297/Carthage dish form 8/9.2/Scauri type 4ish/Ortisi form 319-321	SAB 297	Pantelleria	MR			× [c]		2						3	
Sabratha form 298/Guiducci G1-2	SAB 298-9	Unknown	LR					3							
Sabratha form 299/Guiducci A	SAB 299	N. Africa	LR					2	1						
Sabratha form 30	SAB 30	N. Africa	ER					4							
Sabratha form 308	SAB 308	Unknown	MR					5							
Sabratha form 31	SAB 31	Import	ER					2							
Sabratha form 32	SAB 32	N. Africa	ER					2							
Sabratha form 33 (Late Punic olla)	SAB 33	N. Africa	ER					52							
Sabratha form 36	SAB 36	Import	ER					3							
Sabratha form 37/ERKW4	ERKW 4	Campania	ER			×		6		23					

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Leptis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=28511)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Sabratha form 37-41/Hayes 198/Carthage casserole ERKW 1B/ERKW4/Carthage casserole type 9-10/Ostia 2, figs 310-313/Jerba type 8.1.1	H 198	N. Africa	ER		2	×		22				27		21	1
Sabratha form 4	SAB 4	N. Africa	ER					1							
Sabratha form 42	SAB 42	C. Tunisia	ER	50											
Sabratha form 42	SAB 42	N. Tunisia	ER					21							
Sabratha form 43	SAB 43	N. Africa	ER					9							
Sabratha form 44	SAB 44	C. Tunisia	ER	371	7										
Sabratha form 44	SAB 44	N. Africa	ER					35							
Sabratha form 45	SAB 45	N. Africa	ER					3							
Sabratha form 46-47/Jerba type 8.7.1	JER 8.7.1	C. Tunisia	ER	69	5										
Sabratha form 47	JER 8.7.1	N. Africa	ER					18							
Sabratha form 48	SAB 48	C. Tunisia	ER	117											
Sabratha form 48	SAB 48	N. Africa	ER					16							
Sabratha form 49	SAB 49	C. Tunisia	ER	2											
Sabratha form 49	SAB 49	N. Africa	ER					4							
Sabratha form 5	SAB 5	N. Africa	ER					1							
Sabratha form 50/Ostia 3, figs 324-330	SAB 50	N. Africa	MR					5				28			
Sabratha form 51	SAB 51	C. Tunisia	MR	6											
Sabratha form 51	SAB 51	N. Africa	MR					13							
Sabratha form 52	SAB 52	N. Africa	MR					1							
Sabratha form 53 (BT)	SAB 53	Tunisia	MR					2							
Sabratha form 54 (BT)	SAB 54	Tunisia	MR					1							
Sabratha form 55 (BT)/Ostia 1, fig. 270	SAB 55	Tunisia	MR					1				6			

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Sabratha form 56 (BT)/Hayes 197/Carthage casserole type 26/Ostia 3, fig. 108, 265-266/Jerba type 8.3.2/3	H 197	Carthage/ N. Tunisia	MR	12	2	×	6	21	18		15	994		22	
Sabratha form 57 (BT)/small Hayes 197	H 197 s	N. Africa	MR					4							
Sabratha form 6	SAB 6	Import	ER					1							
Sabratha form 6	SAB 6	N. Africa	ER					8							
Sabratha form 66/Ostia 2, fig. 314	SAB 66	N. Africa	MR					5				9			
Sabratha form 68	SAB 68	N. Africa	MR					4							
Sabratha form 69	SAB 69	N. Africa	MR					3							
Sabratha form 7	SAB 7	Import	ER					1							
Sabratha form 7	SAB 7	N. Africa	ER					8							
Sabratha form 70/Jerba form 8.6.8-9/Fulford 1984 form 3.2/Hayes 183.4	H 183.4	N. Africa	LR		2			5	243						
Sabratha form 8/Carthage casserole type 1-2	SAB 8	N. Africa	ER					2						12	
Sabratha form 9/Punic Hayes 194 (casserole)/Carthage casserole type 3/Hayes ERKW 2a/Jerba type 8.2.1b	H 194 Pun	N. Africa	ER		1	×		12						33	
Sabratha form 95	SAB 95	Campania	MR					17							
Sabratha form 95	SAB 95	N. Africa	MR					70							
Sabratha form 96	SAB 96a	Campania	MR					2							
Sabratha form 96/Jerba type 9.2.4a-b/Ostia 4, 61	SAB 96b	N. Africa	MR		10			18							
Sabratha form 97 (lid)	SAB 97	Campania	MR					4							
Sabratha form 97 (lid)	SAB 97	Import	MR					5							
Sabratha form 97 (lid)	SAB 97	N. Africa	MR					31			5				
Sabratha form 98	SAB 98	N. Africa	MR					89							
Sabratha form 99	SAB 99	Import	MR					4							

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Leptis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Sabratha form 99/Ostia I, fig. 18/Hayes 192	SAB 99	N. Africa	MR					98			8				
Sabratha forms 11-14	SAB 11-4	N. Africa	ER					19							
Sabratha forms 23-29	SAB 23-29	N. Africa	ER					9							
Sabratha forms 286-290/Scauri type 7.4/Carthage casserole type 8 /Fulford (1984) type 7/Ortisi type 325, 329/Guiducci form O1	SAB 286-290	Pantelleria	ER	2		x[c]		120						8	
Sabratha forms 287-290 (variants)/Guiducci O1	SAB 287-290	Import	ER					4							
Sabratha forms 291-292/Scauri type 7.3 and 8.1-2/Guiducci form O2/Jerba type 4	SAB 291-292	Pantelleria	ER	73	3	x [r]		39	4						
Sabratha forms 293-295/Scauri type 3 and 4.1/Guiducci form M2-3/Jerba type 1	SAB 293-5	Pantelleria	MR	130	8	x [c]	4	14	13						
Sabratha forms 298-299/Scauri type 2 and 6.1/Fulford (1984) form 2-3/Guiducci form A and G1-2/Jerba type 3	SAB 298-9	Pantelleria	LR	111	25	x		15	1						
Sabratha forms 301-302	SAB 301-2	Campania	MR					4							
Sabratha forms 303-307/Guiducci H	SAB 303-7a	N. Africa	MR					2							
Sabratha forms 303-307/Guiducci H/Scauri form 5	SAB 303-7	Pantelleria	MR	4		x [c]		89							
Sabratha forms 309-311/Scauri type 1/Fulford (1984) form 5/Guiducci form L1-3/Carthage lid type 6-7	SAB 309-11	Pantelleria	MR	46	4	x	4	18	8					2	
Sabratha forms 312-315 (Guiducci H variant)	SAB 312-15	Pantelleria	MR			x [r]		4							
Sabratha forms 313 (and 300)/Berenice D648/Scauri form 7.1 and 8.3/Guiducci form O3	SAB 313	Pantelleria	ER			x [c]		1							
Sabratha forms 316-327	SAB 316-27	N. Africa	MR					11							
Sabratha forms 34-35/Hayes 194 (olla)	H 194 olla	N. Africa	ER	7				101							
Sabratha forms 58, 60-65/Hayes 183 (Trip. Variant)/Jerba type 8.6.1-3	H 183 v1	Tripolitania	MR	5	31			126	417						

Cooking ware type	NA label	Provenance	Period	Leptiminus (n=11416)	Jerba (n=393)	Pantelleria (n=?)	Malta (n=300)	Sabratha (n=2163)	Lepcis Magna (n=1950)	Berenice (n=2559)	Nora, Sardinia (n=346)	Ostia (n=2851)	Lampedusa (n=3)	Cir. Hbr, Carthage (n=453)	Kerkennah (n=2)
Sabratha forms 59 and 67/Hayes 183 (Byzacena variant)	H 183 v2	Byzacena	MR	487	92			31	2		1		1		
Scauri 4.4	SCAURI 4.4	Pantelleria	MR				6								
Sidi Jdidi 3	Sidi Jdidi 3	N. Africa	MR						1						
Sidi Jdidi 4	Sidi Jdidi 4	N. Africa	MR						9						
Unknown	Unknown	C. Tunisia		587											
Unknown	Unknown	Campania		2			23								
Unknown	Unknown	Carthage							1						
Unknown	Unknown	Eastern							6						
Unknown	Unknown	Import					6								
Unknown	Unknown	N. Africa		69			93		136						
Unknown	Unknown	N. Africa		25											
Unknown	Unknown	N./C. Tunisia		57								3			
Unknown	Unknown	Tripolitania							15						
Unknown	Unknown	Tripolitania							129						
Unknown HM	Unknown HM	Italy					1								
Unknown HM	Unknown HM	Unknown						1							
Vegas form 64	VEGAS 64	N. Tunisia	H			x									
Vegas form 67	WEGAS 67	N. Tunisia	P			x									
Vegas form 68.1	VEGAS 68.1	N. Tunisia	P			x									
Vegas form 70/Guerrero V.1-2/Hayes 192 and 196 (thin lids)/Hayes ERKW 1H	H 192	N. Tunisia	ER			x									

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