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# Material Expressions of Social Change: Indigenous Sicilian Responses to External Influences in the First Millennium B.C.

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# MATERIAL EXPRESSIONS OF SOCIAL CHANGE: INDIGENOUS SICILIAN RESPONSES TO EXTERNAL INFLUENCES IN THE FIRST MILLENNIUM B.C.

by

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# ABSTRACT

# MATERIAL EXPRESSIONS OF SOCIAL CHANGE: INDIGENOUS SICILIAN RESPONSES TO EXTERNAL INFLUENCES IN THE FIRST MILLENNIUM B.C.

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William M. Balco Jr.

The University of Wisconsin-Milwaukee, 2012
Under the Supervision of Professor Bettina Arnold

Following the arrival of Greek colonists and Phoenician traders in the seventh century BC, indigenous Iron Age Sicilian populations underwent an intensive process of social transformation. As a result, many new behaviors, including those associated with Greek-style feasting and commensality, were introduced to indigenous Sicilians, together with the associated material culture. This study explores Iron Age indigenous Sicilian social responses to these interactions, focusing on the feast as a conduit of change and the concomitant transformation of feasting accoutrements. Vessel form, manufacturing technique, and surface treatment impact the emblemic ceramic styles used to communicate ethnic affiliations in the various social middle grounds that developed to mitigate cultural differences. These morphologic variables are compared in order to identify mixed-style vessels resulting from social entanglement. Social as well as economic interpretations of the development of mixed-style pottery are posited. Compositional X-ray fluorescence (XRF), X-ray diffraction (XRD), and ceramic petrography of a sub-sample of pottery vessels from seven sites across the island are used to model and map the production and manufacture of mixed-style feasting vessels. The results of this study suggest that economic as well as social forces led to the development of mixed-style vessels manufactured at multiple population centers in response to interactions with foreign colonists and merchants.

# SOMMARIO ITALIANO
# MATERIAL EXPRESSIONS OF SOCIAL CHANGE: INDIGENOUS SICILIAN RESPONSES TO EXTERNAL INFLUENCES IN THE FIRST MILLENNIUM B.C.

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Dopo l'arrivo di coloni Greci e Fenicio-Punica commercianti nel VII secolo a.C., le popolazioni indigene dell'Étà del Ferro Siciliane ha subito un intenso processo di trasformazione sociale. Come risultato, molti nuovi comportamenti, compresi quelli connessi con stile Greco feste e commensalità, sono state introdotte per i Siciliani indigeni, insieme con la cultura materiale associato. Questo studio esplora indigeni Siciliani dell'Étà del Ferro risposte a queste interazioni sociali, con particolare attenzione per la festa come un condotto di cambiamento e la trasformazione concomitante di equipaggiamento festa. Forma del serbatoio, technica di produzione, trattamento e impatto sul manto gli stili emblemic ceramici utilizzati per comunicare affiliazioni etniche nei vari motivi sociali medie che si sono sviluppate per mitigare le differenze culturali. Queste variabili morfologiche vengono confrontati per identificare misto stile navi derivanti da groviglio sociale. Interpretazioni sociale oltre che economico che rappresentano lo sviluppo di stile misto della ceramica sono poste. Compositiva fluorescenza a raggi X (XRF), diffrazione di raggi X (XRD), e petrografia ceramica di un sotto-campione fabbricazione di vasi in stile misto festa. I risultati di questo studio

suggeriscono una spiegazione conti economici per lo sviluppo di stile misto navi prodotte presso i centri di popolazione più in risposta alla interazione sociale con i coloni stranieri e mercanti.

For My Parents, Bill and Linda

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# CHAPTER I: INTRODUCTION

Culture contact has been, and remains, a popular topic of inquiry spanning the entirety of archaeological space and time. Numerous explanatory frameworks have been developed in response to the many issues related to social interaction and how it can be recognized archaeologically. Alterations to indigenous cultures resulting from intense social contact with foreign colonizers and traders are the object of directed research and debate because such interactions are both complex and common in the ancient world. Of the many types of cultural contact documented both historically and archaeologically, mercantile and colonial interaction with indigenous populations are only two; however, they are two of the most important because they foster complex social entanglements affecting all the cultures involved. Within a colonial encounter, the adoption of foreign cultural elements in indigenous material culture, architecture, language, economic systems and general lifeways testifies to local reactions to an exponentially more complex regional social climate. Indigenous responses to the spread of foreign migrants and traders, particularly those resulting from the establishment of permanent outposts, or colonies, has been debated from various theoretical perspectives (Gosden 2004; Hill 2001; Hodos 2006; Millett 1990; Stein 2005; van Dommelen 1998), demonstrating the fluidity of diverse approaches to the study of social contact and transformation.

This thesis examines indigenous reactions to intense social contact in western Sicily from the eighth to fourth centuries BC. During this period, the indigenous western Sicilian populations, collectively termed the Elymi, underwent significant social change resulting from contact with newly established Greek colonies and Phoenician *emporia*. Many, often divergent, explanations for the establishment of these distant Greek and

Phoenician outposts have been discussed elsewhere (Boardman 1999; Dunbabin 1948; Kristiansen 1998; La Torre 2011); however, there is general agreement that resource extraction was a common goal shared by these foreign peoples. From as early as the eighth century, Greek colonies were established in Sicily and southern Italy to extract raw materials including ore, grain, olives, grapes, and wool while serving as political centers exerting hegemony over vast tracts of the western Mediterranean (Boardman 1999:162; La Torre 2011:24-25). Like the Greeks, the Phoenicians sought to extract raw materials from the same area; however, the *emporia* they established settled merchants and traders in politically independent centers which facilitated trade, yet did not control the surrounding landscape (Boardman 1999:210; Kristiansen 1998:124-125). The differences between the Greek and Phoenician strategies are most apparent in the characterization by scholars of these foreigners as Greek colonists and Phoenician merchants. This study proposes, among other goals, to demonstrate that this distinction is perhaps not as clear cut as previous scholarship has made it seem. Although Greeks and Phoenicians established settlements in Sicily from the eighth century on, the sixth century appears to have been the period of maximum interaction between foreigners and indigenous Sicilians, with numerous colonies and *emporia* functioning alongside indigenous Sicilian polities.

The different populations that inhabited or arrived at Sicily between the eighth and fourth centuries included local Sicilians and migrants from diverse polities in the east and central Mediterranean. Although different terms have previously been employed to characterize these populations, this study will use the following three: indigenous Sicilian, Greek, and Phoenician. Table 1.1 presents these classifications and other terms

Table 1.1. Cultural classifications employed in this, and other, studies.

| **Terms used in this study** | **Indigenous Sicilian** | **Greek** | **Phoenician** |
|---|---|---|---|
| **Terms used in other studies** | Elymi | Greek | Phoenician |
| | Sican | Colonial Greek | Punic |
| | Sikel | | |

employed elsewhere. For the purposes of this study, the indigenous Sicilian Sikel, Sican, and Elymian polities will be characterized as indigenous Sicilian unless otherwise stated. The term Greek, unless otherwise noted, will be used to characterize the inhabitants of the ancient Greek world (as traditionally defined), Greek colonists, and the offspring of Greek colonists. Finally, the term Phoenician will be used to characterize both settlers and traders from Phoenicia and the Punic populations residing in Sicily.

Relations between indigenous Sicilians, Greek colonists, and Phoenician traders varied temporally, spatially, and culturally. Some of the Greek colonies may have initially maintained friendly relations with the indigenous populations as local support would have been essential in the initial founding phase of population centers (Leighton 1999:233). Other colonies, however, appear to have forcibly displaced indigenous populations; historical evidence suggests that Chalcidian Greeks occupied Leontini and Catania, displacing indigenous Sicilians who had previously inhabited the sites there (Thuc. 6.3-4). Other indigenous populations, such as those at Megara Hyblaea, were coerced by Greek settlers into abandoning their lands (Thuc. 6.3-4).

This study spans several chronological phases identified by modern scholars; therefore it is important to define and clarify the chronological terms employed here. The chronology of ancient Sicily is diverse and varied; for instance, the Iron Age persists in western Sicily for a longer period than in eastern Sicily. Table 1.2 presents these

Table 1.2. Chronological terms and dates employed in this study.

| | Aegean | Eastern Sicily | Western Sicily |
|---|---|---|---|
| Iron Age | 1200-700 | 900-700 | 900-600 |
| Archaic | 700-480 | 700-480 | 600-480 |
| Classical | 480-323 | | |
| Hellenistic | 323-146 | | |

chronological terms and dates as well as those commonly employed elsewhere (derived from Leighton 1999).

Most ancient colonial situations were binary contacts between indigenes and foreigners; however, western Sicily affords a very rare opportunity to examine the emergence of a tri-nodal social entanglement in the distant past in a bounded island context, involving indigenous groups as well as two separate colonial cultures, not simply multiple colonies. Sicily's geographic position in the western Mediterranean appealed to both the Greeks and the Phoenicians as a strategic location from which to expand trade and power into the west. As foreign settlements such as colonies and *emporia* were established in the western Mediterranean, they served as socio-political nodes interacting with eachother as well as local indigenous populations. Close interaction between indigenes and Greek and Phoenician settlers occurred at very few locations in the Mediterranean, specifically eastern Spain (Rouillard 2009:131) and western Sicily (Kolb and Speakman 2005:795; Montana, et al. 2009:87; Morris and Tusa 2004:36) (Figure 1.1). Such foreign settlements in ancient Sicily facilitated tri-nodal cultural interaction between Greeks, Phoenicians, and indigenous Sicilians. As a result, ancient Sicily is an ideal location to explore social interaction and transformation in the past through the lens of feasting-related ceramics.

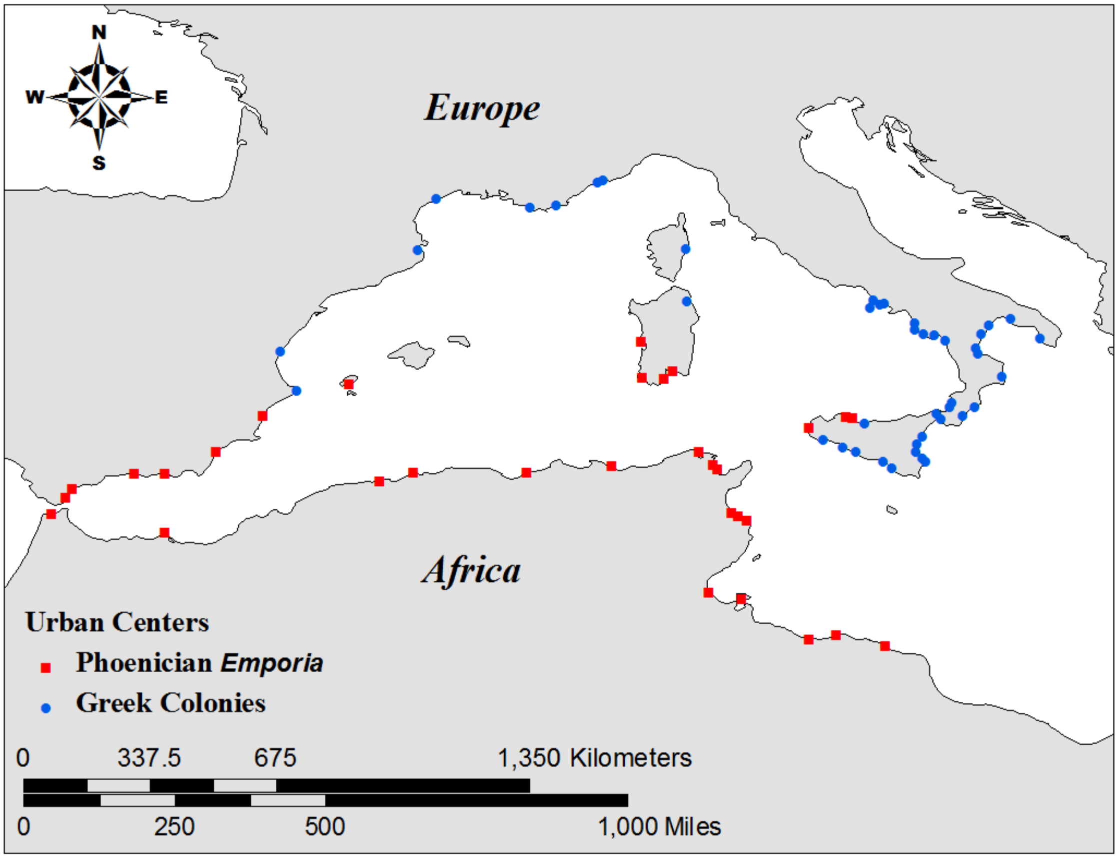



Figure 1.1. Locations of Greek and Phoenician settlements in the western Mediterranean.

This research focuses on the indigenous western Sicilian reaction to social and economic pressures stemming from the neighboring Greek colonies of Selinus and Himera and the Phoenician *emporia* located at Mozia, Solunto, and Panormus. These foreign colonial and mercantile outposts were established in very close proximity to the indigenous western Sicilian populations, fostering the quick development of intense social contact followed by entanglement, and finally transformation. After the arrival of foreign colonists and traders in the eighth century, many indigenous peoples lost their land and hegemony, often being forced into subservient roles dictated by the newly established Greek colonies (Serrati 2000:10). The power struggle which developed between the Greeks and Phoenicians culminated in violent encounters in the sixth century, encounters which destabilized the existing Greek hegemony and gave rise to tyrants who centralized their power from the colonies (Serrati 2000:11).

Indigenous Iron Age western Sicilian cultures were active participants in a developing regional colonial complex. In order to investigate the resulting societal changes, pottery styles, specifically decoration and vessel form, are examined and compared to the results of compositional analysis of the clay bodies of these vessels. Most other material culture studies have approached social change within polarized, binary colonial entanglements; those accounting for interaction between only two distinct cultures. Unlike these earlier studies, this thesis examines transformations in pottery styles to explore the possible development of hybrid cultures in Iron Age western Sicily during a period of intense, multi-nodal colonial contact. As a result, this study contributes to the understanding of cultural change within complex social entanglements more generally while specifically considering the dynamic role of multi-faceted colonial situations in fostering hybrid cultures.

One approach to this complex topic that has been growing in popularity and developing in applicability is based on the theory of cultural hybridity. Hybridity theory draws on the creation of a "third space" (Bhabha 1990), or "middle ground" (Malkin 2005; White 1991), which is neither indigenous, nor migrant, but rather is forged as a cultural amalgam of the two. It is well suited for the study of colonial situations in which the cultures involved break from a social binary opposition in the period following initial contact (Antonaccio 2003:60; Counts 2008:12). The resulting hybridized cultures, conceived from intense social contact, remain archaeologically visible through ethnohistoric records, material culture, architecture, and mortuary customs.

The theory of cultural hybridity has tended to be applied in studies of the use of foreign style goods in indigenous or hybrid cultural practices and societies. Style requires careful consideration within any archaeological study, but particularly when applying the theory of cultural hybridity. Stylistic variation can attest to alterations in individual or group identity because it serves as a form of non-verbal behavior, classified as either assertive (associated with individual identity), or emblemic (associated with group identity) (Wiessner 1983:257-259; 1990:106). However, stylistic analyses must recognize the duality of style and function present throughout the material culture assemblage (Sackett 1977:371). Dividing style from function divorces the social meaning of style (Dietler and Herbich 1998:238), therefore style must be further divided into "style of action" and "material style" (Dietler and Herbich 1998:236). Dietler and Herbich distinguish between the two in order to emphasize the "ways of doing things" (style of action) as separate from the "patterns of material attributes in objects" (material style) (1998:236). Such a theoretical distinction is important to consider within hybridized colonial entanglements because the two may remain independent of eachother. No single definition or methodology can cope with the context-dependent contingent variability of stylistic transformations unique to specific material culture categories. Pottery, as one of the most frequently studied types of material culture because of its ubiquity, rapid response to changes, and high visibility in socially and politically dynamic theaters of action, is a particularly good example.

The theory of cultural hybridity has been applied to numerous colonial situations within the western Mediterranean (Antonaccio 2003; Hodos 2000a; Hodos 2006; Leighton 2000; van Dommelen 1998, 2005, 2006). Early considerations of hybrid cultures suggested that indigenous goods and cultures incorporated styles representative of foreign cultures (Dunbabin 1948; MacIver 1931). For example, as early as 1948, Dunbabin suggested that eastern Sicilian sculptures "express a spirit which is un-Greek and may be assigned to the Sikel element in a culture and society formed by a fusion of Greek and Sikel" (1948:174). Such preliminary theories accounted for culture contact as evidenced through the material culture record, yet largely ignored the social processes involved with developing social entanglements.

Hybridized styles of action have been previously identified in western Mediterranean contact scenarios. For instance, van Dommelen (2006) discussed the shift from locally produced coarse lamps to imported black glaze or red slip lamps found in ritual deposits in Sardinia. Variations in the styles of these lamps coupled with the adoption of the cult of Demeter were explored in his study, resulting in the determination that the presentation of the lamp to the goddess was a significant component of this cult practice, although the style of lamp could be modified based on local preferences (van Dommelen 2006:144). Such an indigenous development utilizing foreign material culture styles exemplifies use alteration resulting from cultural hybridization. The Sardinian lamp styles examined by van Dommelen are interpreted as reflecting an assertive foreign style within an indigenous Nuragic cult practice (van Dommelen 2006:144).

Although binary colonial contexts have been examined via the theory of cultural hybridity, there are no discussions of the development and spread of cultural hybrids resulting from multi-nodal social entanglements. As the establishment of Greek colonies and Phoenician *emporia* altered the social and material lifeways of the indigenous Iron

Age populations in western Sicily (Balco and Kolb 2009:177; Hodos 2006:92; Kolb 2007:182; Morris, et al. 2001:253), the combined social impact from *both* of the foreign cultures influencing indigenous Sicilians has yet to be considered. This is particularly important because research focusing on developing social interactions between indigenous and foreign cultures has tended to rely on binary colonial situations, maintaining the current deficiency in studies of multi-nodal colonial situations and complex social entanglements. Within the context of this study, binary colonial situations are defined as contact scenarios in which there is a simple colonizer – colonized dichotomy. Social entanglements can certainly result from such situations; however, the presence of a third culture further complicates this cultural medley. The study of colonial encounters has, in the past, relied largely on binary colonial models examining the role of Greeks and "others", yet disregarded more intricate contact scenarios between Greeks and indigenes (Malkin 1998:xi). Such models cannot cope with the kind of complex, multi-faceted contact scenario that developed in western Sicily in the first millennium BC.

The tri-nodal development of hybrid cultures in western Sicily is only now being considered both because of recent advances in the theory of cultural hybridity and due to what Morris (2002:181) has called a previous lack of adequate detail from research excavations in western Sicily prior to the 1990s (Morris, et al. 2002:181). This lack of adequate research was not solely restricted to excavations; historical considerations of Sicily's past were, until at least 1959, impeded by a limited corpus of textual data (Westlake 1959:269). Numerous questions regarding the development, dispersion, and scale of hybrid cultures in western Sicily still remain to be investigated, and have the potential to provide a more comprehensive understanding of the complex processes driving cultural transformation. For instance, we do not know: 1) if indigenous Sicilian populations developed hybrid cultures based on Greek, Phoenician, or a mixture of influences; 2) if indigenous population centers adopted cultural hybrids independently, or as a social complex; or 3) if hybrid cultures developed at the same time among all indigenous Sicilian population centers. At least as important, we have no real sense of the mechanisms or actors that were the primary impetus for the changes we see, especially in ceramic assemblages. Such questions can be addressed through a stylistic and contextual analysis of indigenous Sicilian pottery supplemented by historic, architectural, and epigraphic evidence. Emblemic pottery styles, reflecting common vessel forms or decorative elements associated with group identity, may reveal alterations to indigenous Sicilian social contexts in which hybrid cultures developed. For instance, locally produced indigenous *kraters*, a traditionally Greek vessel form employed in feasting, have been recovered at indigenous Monte Maranfusa (Campisi 2003:188), Cozzo Paparina (Tusa, et al. 1990:41-42), Monte Castellazzo di Poggioreale (Stibbe 1989:124), Segesta (De La Genière and Tusa 1978:14), and Monte Polizzo (Mühlenbock 2008:89). The indigenous production of imitation *kraters*, a vessel form unknown to indigenous Sicilian cultures prior to the initiation of colonial and mercantile contact in the eighth century BC, may attest to the adoption of social wine consumption and feasting rituals based on Greek examples. The presence of indigenous painted motifs on the *kraters* from Monte Maranfusa, similar to those on other local vessel forms, provides evidence for the combined incorporation of local and foreign styles, an indigenous development possibly resulting from both hybridized culture and economic pressures.

## Research Questions

Interpretation of Sicily's ancient past has significantly contributed to an understanding of the cultures which interacted with eachother in the first millennium BC; however, there is still a general absence of evidence regarding: 1) the scale of cultural hybridization in western Sicily; 2) the temporal adoption of mixed emblemic style material culture in western Sicily; and 3) the stimuli involved in indigenous Sicilian cultural hybridization. Hodos (2006: 105) suggests that cultural adoption accounts for the social changes the indigenous Sicilian populations experienced, resulting in the formation of a middle ground incorporating material, social, and political elements (2006: 152). Alternatively, Bratton (2010: 89) has suggested that hybridization represents a form of resistance to colonial influences, citing western Sicilian imitation *skyphoi*, which combine elements of both Corinthian and Attic emblemic styles as evidence. Such opposing models demonstrate the importance of defining cultural hybrids, examining the social stimuli involved in the development and spread of hybridity, and exploring how hybridity can have an impact on social change and development in a tri-nodal colonial entanglement context. To address issues of cultural hybridization within western Sicily, the following research questions have been investigated:

1) Are there emblemic style variations in pottery form and decoration which might attest to varying degrees of social hybridization among western Sicilian indigenous cultures?

2) Does material culture hybridization necessarily equate to cultural hybridization?

3) Did indigenous cultural hybridization serve as a form of emulation, was it a form of resistance, or was it both?

4) Does the development of hybridized culture preserve elements of Iron Age indigenous Sicilian cultural identity?

In order to explore the issues related to cultural hybridization, pottery dating from the seventh through fourth centuries BC was sampled and examined from seven indigenous population centers and one Phoenician *emporion* in western and central Sicily: Salemi, Monte Polizzo, Monte Finestrelle, Montagna Grande, Entella, Monte Bonifato, Sabucina, and Mozia (Table 1.3 and Figure 1.2). All eight population centers exhibit evidence for substantial interaction between Greek, Phoenician, and indigenous cultures. This analysis of potentially hybridized emblemic material styles, focusing on vessel form, manufacturing technique, and decoration, explored feasting paraphernalia to test the hypothesis that Iron Age indigenous Sicilian pottery assemblages incorporated such hybrid styles following contact and interaction with foreign colonizers and merchants. Feasting vessels are key components of this study because of their importance in social ritual and conspicuous consumption; vessels which contained and served the social lubricant which facilitated interaction, entanglement, and transformation. Bowls used for mixing and cups used for drinking wine provide evidence for a partial or wholesale adoption of foreign (in this case Greek sympotic) social practice among indigenous Sicilians.

Prior to the arrival of Greek colonists and Phoenician merchants, indigenous Iron Age Sicilian populations had their own feasting traditions. Although little is known about the indigenous feast, stylized drinking cups have been recovered from Iron Age domestic contexts. These stylized cups appear to have been modeled after undecorated forms; however, they are much less common, suggesting a ritual or social rather than

Table 1.3. Sites in western and central Sicily from which pottery was sampled.

| Site | Location | Culture |
|---|---|---|
| Entella | Western Sicily | Indigenous |
| Montagna Grande | Western Sicily | Indigenous |
| Monte Bonifato | Western Sicily | Indigenous |
| Monte Finestrelle | Western Sicily | Indigenous |
| Monte Polizzo | Western Sicily | Indigenous |
| Mozia | Western Sicily | Phoenician |
| Sabucina | Central Sicily | Indigenous |
| Salemi | Western Sicily | Indigenous |

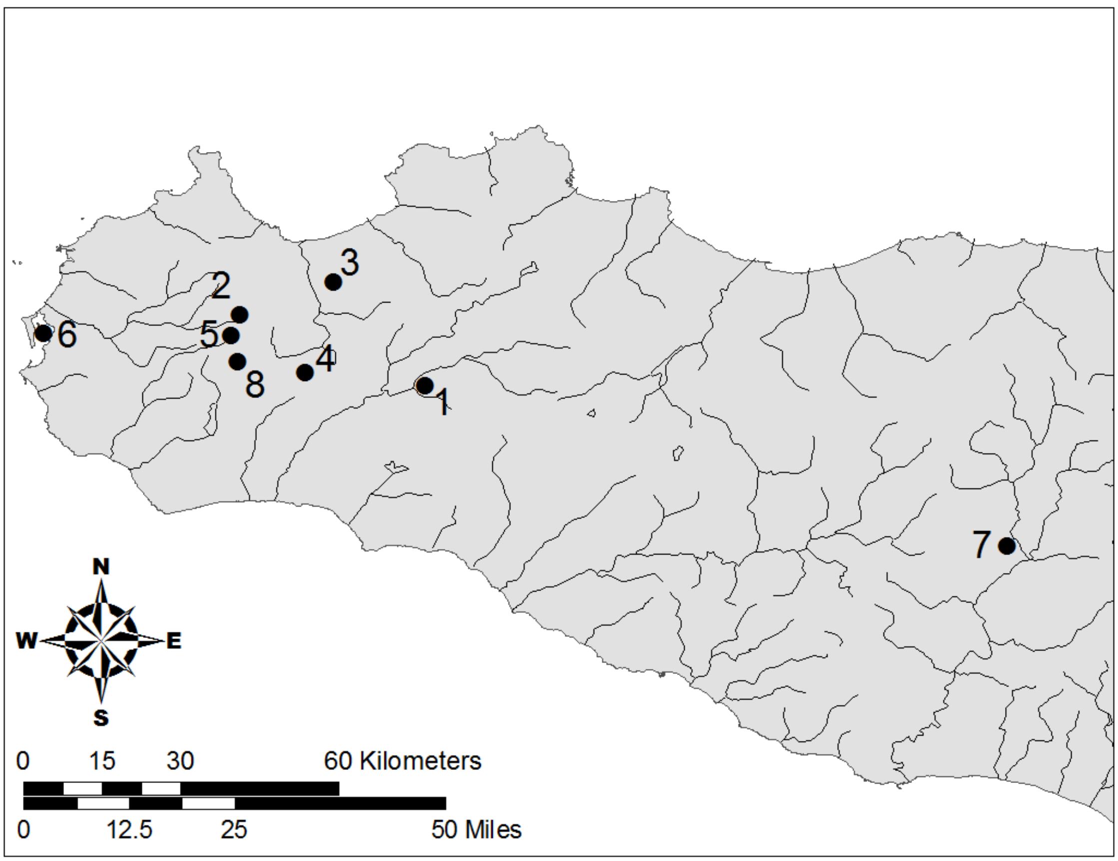



Figure 1.2. Map showing sites in western and central Sicily included in the study: 1 Entella; 2 Montagna Grande; 3 Monte Bonifato; 4 Monte Finestrelle; 5 Monte Polizzo; 6 Mozia; 7 Sabucina; 8 Salemi.

everyday use. Additionally, the type of liquid consumed remains unknown. Indigenous populations had access to grapes; however, many of the indigenous Iron Age populations in much of the western Mediterranean and southern Europe may have consumed a beverage similar to beer (Dietler 2010:193). A brewery complex excavated on Cyprus in 2012 illustrates how little is known about the alcoholic beverages that predated wine in the ancient Mediterranean (Crewe and Hill 2012). It is quite possible that such beverages continued to be consumed even after the introduction of the grape.

The appearance of wine jars coupled with the adoption of Greek sympotic material culture suggests that indigenous populations adopted emblemically Greek feasting (in this case drinking) paraphernalia as one component of a more general adoption of social wine consumption ritual. This may have been the result of coercion by Greek settlers, or due to the synthesis of a new consumptive tradition with an existing one developed by indigenous populations.

This study also examines the mode of material and social hybridization, whether independently in each population center, or on a larger scale in groups of affiliated polities, employing archaeometric analyses to reconstruct the ancient exchange of pottery in order to determine whether hybridized pottery was produced in one locus, or multiple loci. Comparable archaeometric analyses utilizing a variety of methods have very effectively reconstructed ancient exchange patterns across a spatially and temporally varied range of contexts, including Nubia (Carrano, et al. 2009), Egypt (Morgenstein and Redmount 2005), Newfoundland (Kristmanson 2004), Spain (García-Heras 2000; García-Heras and Rincón 1996), Peru (Vaughn and Neff 2000), Mesopotamia (Grave, et al.

1996), and China (Cheng, et al. 2005) and were applied in this study due to their successful application elsewhere.

Archaeometric analyses within western Sicily have just begun to generate interpretations of the configuration of ancient exchange systems of a variety of pottery vessel forms and other ceramic objects, including *amphorae* (Amadori, et al. 2002; Castellani 2008), *skyphoi* (Bratton 2010), Iron Age incised pottery (Kolb and Speakman 2005), Iron Age painted pottery (Pitrello 2010), loomweights (Balco 2007), and Hellenistic tablewares (Montana, et al. 2009; Montana, et al. 2003). The results of these analyses have already contributed to a better understanding of the sophisticated exchange networks in western Sicily during the seventh through fourth centuries BC. However, they only superficially illuminate the complex cultural interconnectedness of western Sicily at that time.

To provide a more detailed and indepth perspective, this study utilized compositional X-Ray Fluorescence (XRF) analysis complemented by mineralogical X-Ray Diffraction (XRD) and petrographic analyses, examining the production and exchange of socially transformed drinking paraphernalia from several western Sicilian indigenous population centers. Multiple mineralogical and compositional analyses were conducted to test the results of each method and generate more robust interpretations about compositional groups, while also providing more reliable data for modeling the exchange of hybridized material culture. The incorporation of socially transformed pottery within domestic contexts, supplemented by epigraphic and architectural evidence, provides a sense of the degree of social hybridization within indigenous western Sicilian culture from the seventh through fourth centuries BC.

Understanding the social role of hybridized artifacts within each urban center is a crucial component of any attempt to comprehend the development of the complex and entangled regional climate. The presence of foreign or mixed-style material culture alone may not necessarily indicate the presence of a socially transformed, hybridized culture; mercantile exchange may have introduced foreign or mixed-style goods from other population centers. Conversely, the absence of mixed-style or hybridized artifacts does not necessarily preclude social transformation.

The impetus for material and/or social transformation in the Mediterranean has been hotly debated. Previous interpretations employing models such as Hellenization, acculturation, orientalization, or cultural amalgamation have emphasized the role of the Greeks in shaping indigenous social developments. Dietler (2010: 60) suggests that such approaches devalued indigenous agency as exemplified by characterizations of the consumption of emblemically Greek artifacts by indigenous Gauls as a “clumsy attempt to imitate Greek culture”. Current post-colonial approaches break from these earlier models, choosing instead to examine social change from an indigenous, de-colonized, point of view to elucidate the stimuli for social transformation.

Determining whether social hybridization was a form of emulation or resistance, or a context-dependent combination of the two, is a major component of this research. Preservation of ethnic identity remains one possibility for the development of hybridized culture. Indigenous Sicilian populations may have retained elements of their own indigenous culture in order to preserve their social identities as distinct from those of the colonizing Greeks and Phoenicians. Retaining elements of their own culture could have had a political purpose, enabling indigenous populations to remain flexible in their responses to colonial encounters with both the Greeks and Phoenicians while appearing to be culturally and therefore politically neutral.

The development of mixed-style, hybridized material culture is here examined as a component of social transformation, yet the reasons driving this development range widely from emulation to resistance to simple economics. The combination of indigenous and foreign emblemic elements may have preserved indigenous social identities through social transformation of the material culture, however such combinations may also have appealed to a wider consumer demographic. The division between material and social hybrids is most apparent here. If imported sympotic vessels were scarce among indigenous populations at certain times, local potters could have seized upon the opportunity to capitalize on a new market niche. The presence of repairs one some imported vessels might indicate curation beyond normal use-life, possibly attesting to import scarcity. Frequent deposition of imported vessels in mortuary contexts at the Greek colonies suggests that while imported vessels were abundant there, their distribution within the indigenous population remained restricted, possibly the result of a political obstruction to exchange.

Likewise, if material hybrids developed as a form of resistance to foreign social stimuli, the retention of indigenous emblemic style attributes, such as vessel form or decoration, might have been retained in domestic assemblages where they would not have been readily visible publically. If, on the other hand, material hybrids developed as a means to emulate foreign commensality, then hybridized pottery should have remained readily visible as a form of conspicuous consumption. If material hybrids developed mainly as a result of economic stimuli, then hybridized pottery would have developed primarily to fill a market niche and offer an alternative to potentially higher priced foreign imports. A similar development is seen in Etrusco-Corinthian pottery; imitations of Greek sympotic vessels were manufactured by Etruscan potters for local consumption (Regter 2003). For these reasons, vessel manufacture, function, and use-context are critical components of this study.

Exploring the stimuli responsible for the development of hybridized cultures entails similar considerations. If indigenous cultures in Sicily became hybridized as a result of emulation, then the conspicuous consumption of emblemic foreign goods should be publically visible. If resistance triggered indigenous social hybridization, then emblemic indigenous goods would have been retained in private domestic contexts while foreign or hybridized goods were displayed primarily in public contexts. Additional lines of evidence, including architecture and language will be drawn on to complement the studies of both material and social hybridization.

The examination of hybridized material culture also must consider the incorporation of foreign and indigenous emblemic vessel forms, decorations, and manufacturing techniques. If hybridized material culture retained forms or decorations common to indigenous objects, then the resulting emblemic hybridized artifacts would be expected to preserve select motifs common to Iron Age indigenous Sicilian cultural identity. If hybridized artifacts incorporated a mixture of foreign Greek and Phoenician emblemic forms and decorations without indigenous elements, then the hybridized material culture might not have served to specifically preserve indigenous Iron Age cultural identity. This latter scenario could indicate an attempt by the indigenous people to distance themselves from their previous identity through the formation of a new one.

## Research Significance

Despite having been applied to numerous colonial situations in which there is a simple colonizer/colonized dichotomy, archaeological investigations so far have not applied the theory of cultural hybridity to the tri-nodal social entanglement that existed in western Sicily from the seventh through fourth centuries BC. Additionally, no previous studies in western Sicily have attempted to utilize stylistic analyses of vessel form, decoration, and manufacturing technology to examine the development and adoption of hybridized cultures. Indigenous decorative schemes on vessels adopting foreign Greek or Phoenician emblemic forms are one possible way in which the hybridization of material culture may have manifested itself in this context.

Changes in Iron Age indigenous Sicilian cultures resulting from complex social entanglements have been modeled variously as Hellenization (Dunbabin 1948:176; MacIver 1931:221; Miller 1965:50), assimilation (Freeman 1891:20; Pontrandolfo 1998:186), acculturation (Hodos 2000a:41), Romanization (Millett 1990:212), orientalizing (Burkert 1992:128), and now hybridization. This study examines social transformation through hybridized material culture, uniquely combining compositional and stylistic analyses to investigate the exchange of materials and motifs and the concomitant processes of material and cultural transformation in a particular Iron Age Mediterranean contact scenario. Such an approach generates a more comprehensive understanding of the development, spread, and adoption of hybridized pottery more generally, especially drinking paraphernalia, within the increasingly complex cultural entanglements of the seventh through fourth centuries BC in the western Mediterranean and beyond.

# CHAPTER II: PHYSICAL, HISTORICAL, AND SOCIAL SETTINGS

"What a wonderful prospect broke on us with the day – wild, grey, barren eminences tossed about, many with their heads cut off by clouds, others lighted up by the sun!" John Henry Newman writing about the Sicilian landscape in 1833.

Sicily's impressive physical setting includes a very diverse topography ranging from seaside plains to rugged mountains. With elevations reaching over 3300 meters asl, the island is characterized by steep mountains separated by broad valleys (Figure 2.1). As a result, Sicily is an island of impressive vistas from which numerous sites dating to diverse periods are visible (Figure 2.2).

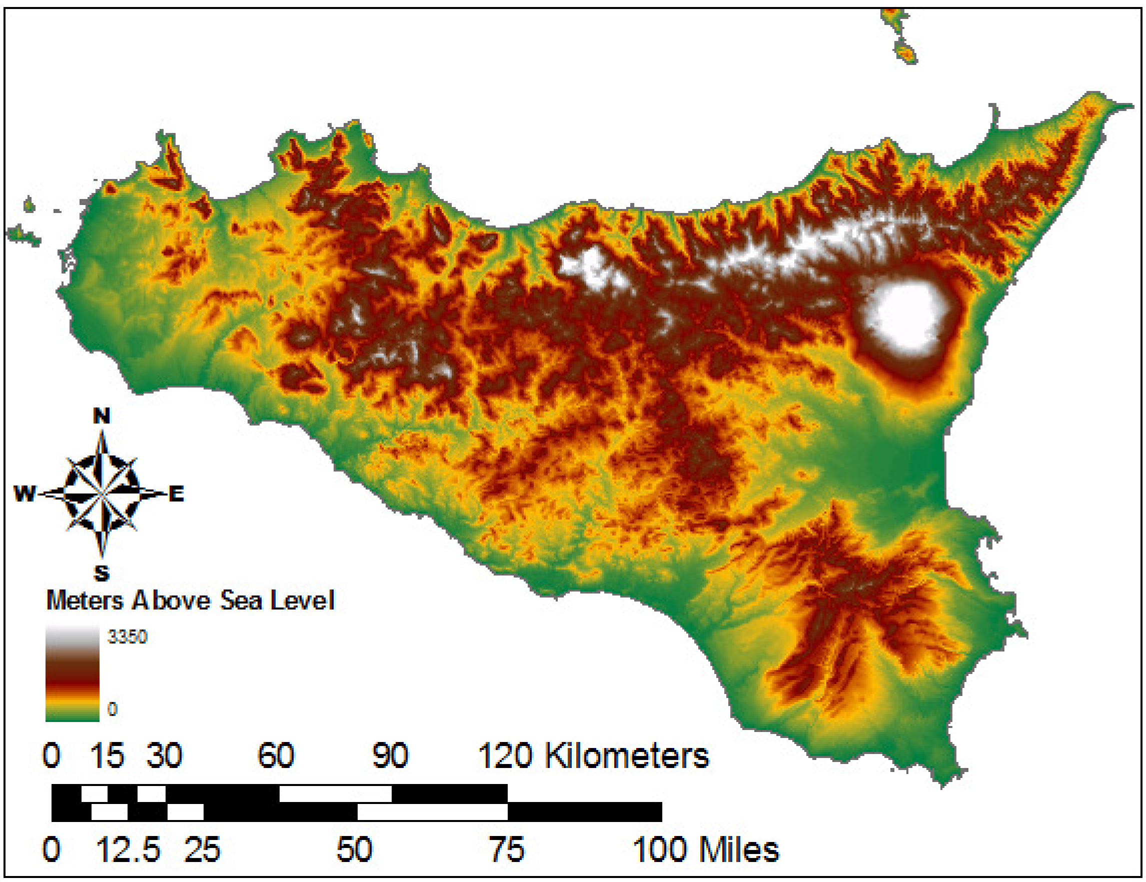



Figure 2.1. Topography of Sicily.

Figure 2.2. Photographic representation of western Sicily's typical topography (Photo W. Balco).

The fertile landscape has facilitated the growing of agricultural staples such as grapes, olives, grain, and citrus, one of the reasons Sicily became an important asset to a succession of cultures over the millennia. Its importance was amplified by its geographic position as a gateway linking central and western Mediterranean populations to eachother as well as to north Africa. The interconnected relationships between ancient cultures and agriculture are still visible today; grain fields surround Iron Age Segesta and olive groves are still found around the Greek colony of Selinus (Figure 2.3), testimony to the continuing agricultural importance of the island to modern Italy.

Figure 2.3. Olive grove located north of Temple G at Selinus (Photo W. Balco).

The geology and geography of Sicily have been the foci of many research projects (Abate, et al. 1978; Broquet 1972; Catalano, et al. 1996; Catalano and Montanari 1979). Studies of ancient Sicily's physical landscape have often explored the social landscape as well, facilitating geoarchaeological investigations of the island's past. Such synthetic studies have contributed to a more nuanced understanding of the role of anthropogenic landscape changes over the course of several millennia. Geoarchaeological perspectives frequently explore past resource acquisition and use, including clay, rock, shell, minerals, and water, all vital components of pottery production. A geoarchaeological discussion of western Sicily is briefly presented here because the different cultures of Sicily utilized these resources in a multitude of ways in order to produce fired-clay consumables.

## Geology of Sicily

The earliest geologic/geomorphologic studies of Sicily date back to the late 1960s (Heinzel and Kolb 2011:97). Such studies are often site or micro-regional specific, focusing on local environments while only generally outlining the larger macro-regional environment. Several regional studies have explored the geology of western Sicily in recent decades, often in conjunction with archaeological research projects. The major geologic structures of western Sicily include Pleistocene, Synorogenic, Numidian Flysch, Platform, Platform-Seamount, and Slope to Basin deposits and units (Di Stefano and Mindszenty 2000:39) (Figure 2.4). These structures are largely characterized by mixed deposits of limestone, shale, siltstone, sandstone, conglomerate, and gypsum formed during the evolution of the Tethys Sea (Heinzel 2004:11; Heinzel and Kolb 2011:99). During the Pliocene-Quarternary period, evaporite basins within the Tethys were uplifted, emerging as Sicily, Calabria, the Apennines, Crete, and Cyprus (Hsü and Bernoulli 1978:948).

A later deformation event during the Neogene impacted the older Trapanese domain, forming the Sicilian-Maghrebian chain accounting for the majority of the mountains of western Sicily (Catalano and D'Argenio 1982:23; Catalano, et al. 1996:302; Di Stefano, et al. 2002:274; Nigro and Renda 2002:88). However, several mountains, including Roccapalumbra, Monte Rose, Monte Barracù-Monte Colomba and Pizzo Mondello, were derived from the Sicanian domains instead (Catalano and Montanari 1979:289). The presence of these two domains demonstrates the geologic diversity of western Sicily, further complicated by aeolian and hydraulic deconstruction of parent material and, much later, anthropogenic mass wasting.

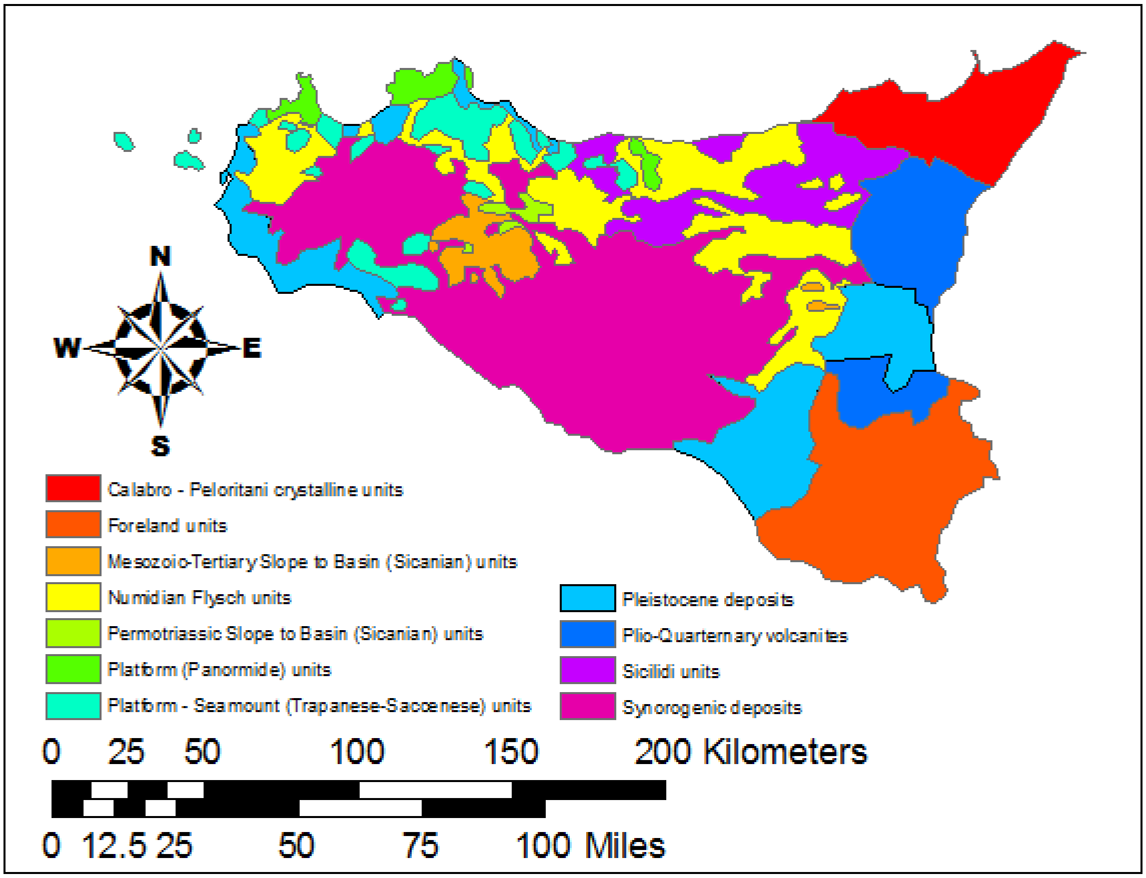



Figure 2.4. Geological map of Sicily.

## Soils in Sicily

Soil pedons are key elements of any geoarchaeological discussion because the various components of soil are often utilized for and affected by anthropogenic activities. Soil development in western Sicily is highly variable due to a diverse range of parent material, an arid climate, and anthropogenic modification (Heinzel 2004:32). Soil pedons across western Sicily have been mapped by Ballatore and Fierotti (1968); however, few paleosols have been identified across western Sicily (Heinzel 2004:33; Ortolani and Pagliuca 2003:15). Deforestation and agricultural tilling have accelerated soil erosion (Butzer 1982:123-45; Todaro 1998:33; van Andel, et al. 1990:379), creating alluvial deposits that often cover archaeological sites and the associated paleosols across the

Mediterranean region (Brückner 1986:7). Western Sicily is no exception; cultural strata have been identified beneath alluvium in the Chuddia Valley (Heinzel 2004:83), at Pitrazzi (Kolb, Osborn, et al. 2007:189), Monte Polizzo (Cooper 2007:10), and other locations.

In order to best understand soil diversity across western Sicily, area calculations of different soil types found on Sicily were calculated from Ballatore and Fierotti's (1968) map. A large format scan of the map was obtained and imported into ArcGIS. Soil shapes as defined on the scanned map were then digitized using snapping tools, forming a new shapefile composed of 820 unioned shapes representing different soil types. Soil types follow Ballatore and Fierotti (1968), identifying ten main soil types. Figure 2.5 illustrates the percentages of each soil type identified by Ballatore and Fierotti across all of Sicily as well as the Aeolian, Egadi, and Lipari islands and the island of Ustica.

Regosols account for the vast majority (approximately 54%) of soil types identified across Sicily. Originally derived from "regolith", a term first employed in the eighteenth century to describe weathered rock (Foth 1984:1), regosol is classified as unconsolidated weathered rock mixed with soil (Winegardner 1996:241), also described as "all other soils" (Ashman and Puri 2002:105). It is no surprise that most of Sicily's surface is classified as regosol; weathered outcrops contributing unconsolidated parent material to the surface are readily visible over much of the island (Figure 2.6). Regosols are a vital component of this pottery study because as regolith weathers, it transforms into a multitude of transformed minerals, many of which are clay minerals resulting from chemical weathering of silicates (Nichols 2004: 82).

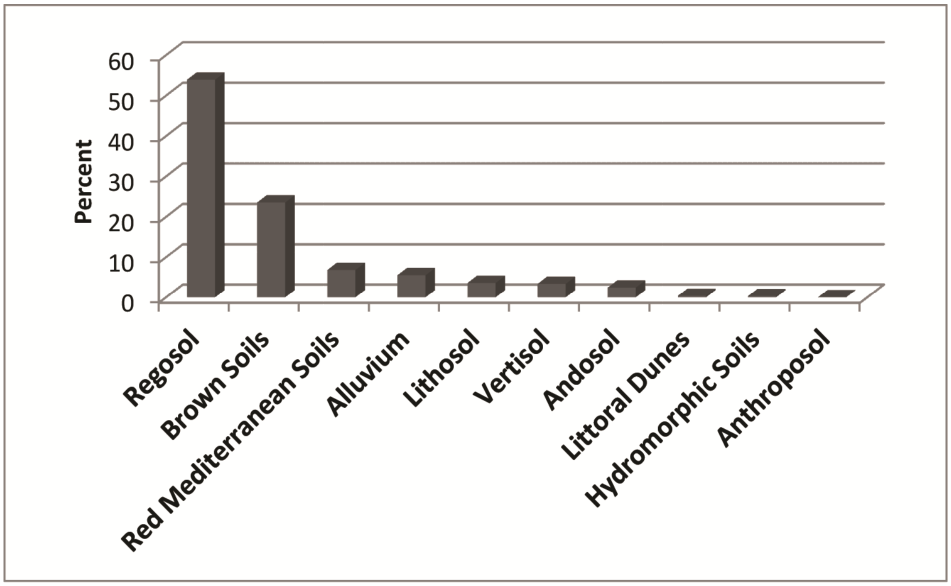



Figure 2.5. Proportions of different soil types located on Sicily and the Aeolian and Liparian islands (after Ballatore and Fierotti 1968).

Figure 2.6. Regolith on the south slopes of Monte San Giuliano (Photo W. Balco).

Early soils classifications by agriculturalists were often based on color, the most obvious physical characteristic of soil. Soils were frequently classified as "black," "brown," "red," and "white;" colloquial classifications which conveyed, at best, little information about the chemical or physical properties of the soil (Coffey 1912:29). For example, brown soils were informally characterized as well drained soils with no gleying and well suited for agricultural purposes (Ashman and Puri 2002:103). Despite a subjective basis, such classifications persisted until the late 1960s. As just one of many examples, Ballatore and Fierotti (1968) classified approximately 24 percent of Sicily's surface as "Brown Soil" (*suoli bruni*) in their soil classification and distribution study.

Unlike other colloquially defined soil types, Red Mediterranean soils are a formally characterized soil throughout the Mediterranean. They are characterized as red colored soils with a hue redder than 5YR as measured using Munsell soil color charts (Yassoglou, et al. 1997:262). This soil type typically has a subangular blocky A horizon atop a prismatic B horizon (Bech, et al. 1997:220) and is formed as a result of clay illuviation (Fedoroff 1997:186). Also termed Terra Rossa, Red Mediterranean soils are found from Spain (García Marcos and Santos Frances 1997:231) to Turkey (Atalay 1997:247) and are typically located on moderate slopes (Yassoglou, et al. 1997:276) (Figure 2.7). Red Mediterranean soils account for approximately seven percent of Sicilian soils.

Approximately six percent of Sicily is composed of alluvial deposits resulting from fluviatile, marine, or lacustrine depositional processes (Avery 1973:334). The process of cumulization adds new strata to alluvial deposits at a faster rate than the material can be assimilated into pedogenic horizons (Buol, et al. 1997:275; Riecken and

Poetsch 1960: 275). This process preserves remnants of soil transported from distant strata, frequently including entisols and vertisols (Lynn, et al. 2002:695-696). As a result, alluvial deposits correspond with major watersheds, such as the Marcanzotta, Chuddia, Arena, Dèlia, Belice, Carbo, Verdura, Platani, Magazzolo, Iato, and Orato rivers in western Sicily (Figure 2.8). Alluvial deposits across Sicily date from the Tortonian to Holocene periods and include the Terravecchia formation, Gessoso-Solfifera formation, and other Holocene colluvial deposits (Dazzi and Monteleone 2002:75; Monteleone 1993:42).

Figure 2.7. Red Mediterranean soils on Levanzo, Sicily (Photo C. Smith).

Although all soil contains clay as one of its constituent components, clay content varies among different soil types. Vertisols tend to develop from wetting and drying cycles, forming blocky pedons between 10 and 60 cm thick (Kapur, et al. 1997:297) above geologic formations and, as a result, often consist of >50% clay (Lynn, et al. 2002:695). The high content of swelling clays (those with a 2:1 expansion) found in vertisols (Dixon and Nash 1968:19), coupled with hydration and dehydration cycles facilitates the process of argillopedoturbation, the shearing of clay minerals within the soil pedon (Buol, et al. 1997:365). The process of argillopedoturbation results in a uniform distribution of heavy metals in vertisol pedons (Palumbo, et al. 2000:263), an important consideration when attempting to identify compositional groups of fired clay artifacts. Vertisols account for only approximately 3.4% of Sicily's surface soil, yet remain one of the most important soil types for geoarchaeological study. The remaining seven percent of the Sicilian landmass is composed of lithosols, andosols, littoral dunes, hydromorphic soils, and anthroposols.

The geologic development of Sicily has created a diverse topography that varies from flat plains to rugged mountains, impressing both past and present visitors. This landscape is characterized by mountain ranges along the north coast, the eastern limit, and the central zone, opening to the south and west, respectively, with the Mazara and Marzala plains. The vast majority of western Sicily is characterized by Quaternary and Neogene basins formed during the Miocene and Mio-Pliocene periods (Mascle 1970:236). These basins account for the relatively flat plains along the west and south coasts of western Sicily.

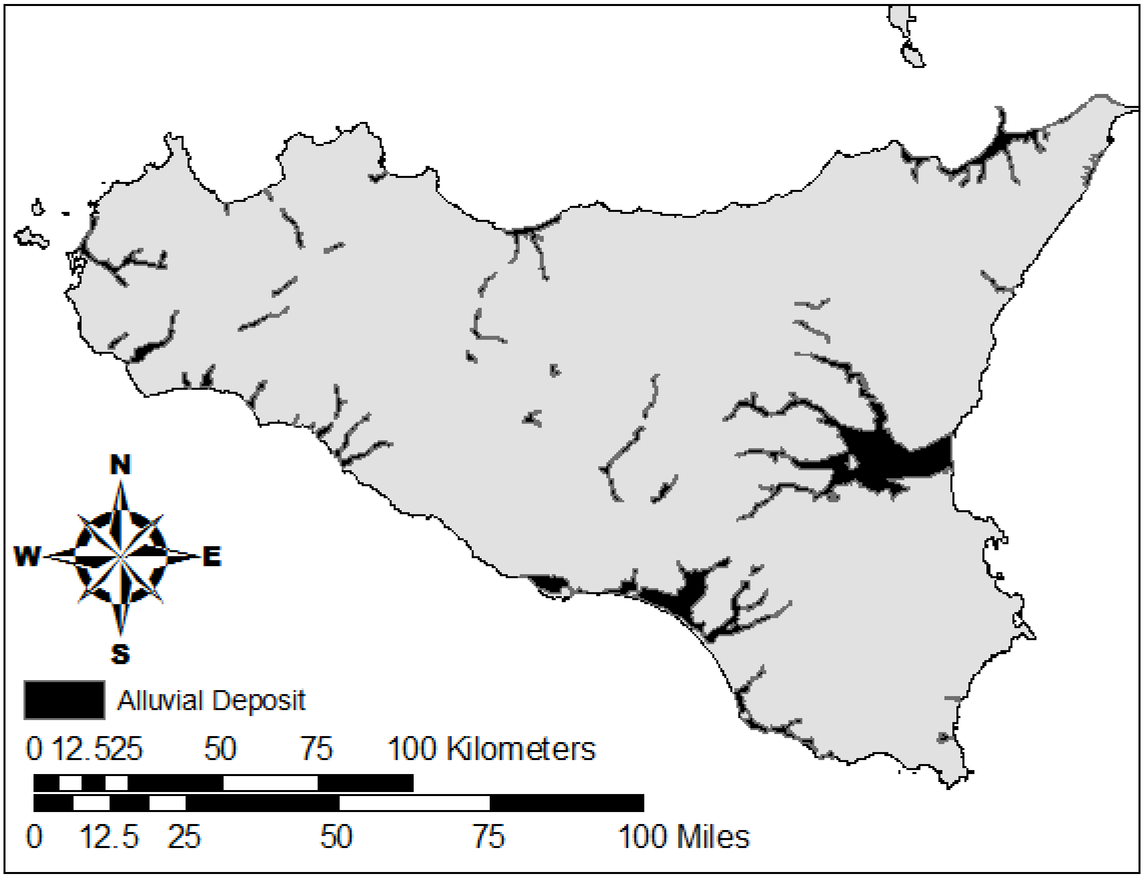



Figure 2.8. Map showing alluvial deposits in Sicily (based on Ballatore and Fierotti 1968).

## Perceptions of Past Perceptions: A Cultural History of Iron Age Western Sicily

Sicily's prominent physical features have long intrigued authors willing to pen vivid and exaggerated descriptions of foreign people and places. The island attracted both Greeks and Phoenicians, offering fertile farmland and a strategic point from which to access the resources of the western Mediterranean (De Angelis 2003:11). The physical features, fertility and natural beauty of Sicily impressed ancient travelers and merchants alike, luring foreign entrepreneurs and providing subject material for ancient authors to embellish with mythic associations. One such ancient description, penned by Diodorus

Siculus, a Roman author native to Sicily, attests to the exaggerated allure of Sicily, appealing to audiences both ancient and modern:

> There are in Sicily, namely, the Heraean Mountains, which, men say, are naturally well suited, by reason of the beauty and nature and special character of the region round about, to relaxation and enjoyment in the summer season. For they possess many springs of exceptionally sweet water and are full of trees of every description. On them also is a multitude of great oak-trees which bear fruit of extraordinary size, since it is twice as large as any that grows in other lands. And they possess as well some of the cultivated fruits, which have sprung up of their own accord, since the vine is found there in profusion and tree-fruits in quantities beyond telling (Diod. Sic. 4.84).

A number of other ancient Greek and Roman historians, geographers, poets and politicians chronicled the affairs of ancient Sicily, yet seldom recorded details of the extant Iron Age Sicilian populations inhabiting the island prior to the establishment of the Greek colonies in the eighth century BC. The Homeric tradition remains the earliest to discuss the indigenous people of Sicily, albeit in a mythic manner, describing the inhabitants of Sicily as Cyclopes (Hom. *Od.* 9.113), a persistent trope employed later by Thucydides (6.2.1).

Historic texts include information that does not readily preserve archaeologically, therefore they remain important sources of data that must be considered when examining the complex social entanglements that developed and flourished in western Sicily. Divorcing the archaeological data from the textual evidence would demonstrate an irresponsible ignorance on the part of the archaeologist. However, historical texts must always be approached with caution because ancient Greek and Roman authors often embellished their works with misinformation in order to make their material exciting for the reader (Grant 1995:61). Homer could just as easily have avoided a discussion of the people of Sicily, but his Cyclopean characterization may have piqued the interest of his audience. In works describing the idealized, the routine, and the sensational, several ancient authors preserved the names of three indigenous Sicilian ethnic groups and associated each with certain population centers: the Sikels, Sicani, and Elymi.

This introduction to the cultural history of western Sicily begins with an overview of the source material, culminating in a discussion of Iron Age Sicilian ethnicity and the associated population centers as represented in the Greek and Roman sources. This is followed by a brief review of historical accounts of the Greek and Phoenician mercantile centers that were established adjacent to the western Sicilian indigenous communities. Employing historical texts as a background against which to test archaeological evidence is a technique commonly employed by Italians when interpreting the material testimony of the past (Tusa 1989:17). Historical texts provide an opportunity to consider the nuanced social, political, and economic contexts which may not be archaeologically visible. Such an approach is also holistic; incorporating the two datasets provides a more detailed social base on which to build interpretations of the complex cultural mosaic of first millennium BC western Sicily. Few Anglo-American studies, however, have used historical and archaeological evidence in tandem in order to explore the social processes underlying past behavior in Iron Age Europe (Arnold 1999:71-72).

## Etic Interpretations of Indigenes

Colonial Greek populations interacted with neighboring Iron Age Sicilian populations to such an extent that the names of three indigenous Sicilian populations, the Sikels, Sicani, and Elymi, became immortalized in the histories, geographies, poems, and decrees/treaties of later authors (Figure 2.9). Some of these historic descriptions of the non-Greek, indigenous Iron Age Sicilian populations were once interpreted as ethnographies "written by Sicilians in resemblance to all local history" (Jacoby 1949:118). Current interpretations are, however, more critical, particularly when considering historic accounts of a western Sicilian "Elymian ethnicity". Colonial Greek accounts of the Elymi (as well as any other indigenous group) remain highly problematic because they are few in number and describe the colonial etic perspective of indigenous Iron Age Sicilian polities (Hodos 2006:93; Leighton 2000:20). Within the surviving historic texts, the indigenous Iron Age western Sicilian populace was classified as Elymian. Such ethnic classifications served to identify groups or populations that existed outside the *polis* where the author lived (Fraser 2009:61). In this way, an Elymian ethnos remains an etic construct representing a non-Greek population open to interpretation by Greeks. Based on current evidence, it is clear that the Elymi were poorly understood by the Greek and Roman authors alike; confused, often contradictory accounts preserve the few historic details known of the Elymi.

Attempting to parse the archaeological populations of Sicily into different ethnic categories remains a challenge for modern scholars. The concept of ethnicity is "socially constructed and subjectively perceived" (De Vos and Romanucci-Ross 1995:350); an abstraction further complicated by time and the misperceptions of later authors. Ethnicity is used here as defined by Jonathan Hall: a "definitional set of attributes by which membership in an ethnic group is ultimately determined" (Hall 1997:20). Such attributes, Hall continues, "are the result of a series of conscious and socially embedded choices" (1997:20). As a result, classifying the different indigenous Sicilian ethnicities is difficult at best, and can only be considered within the limited context of an incomplete archaeological record complemented by potentially biased historical texts.

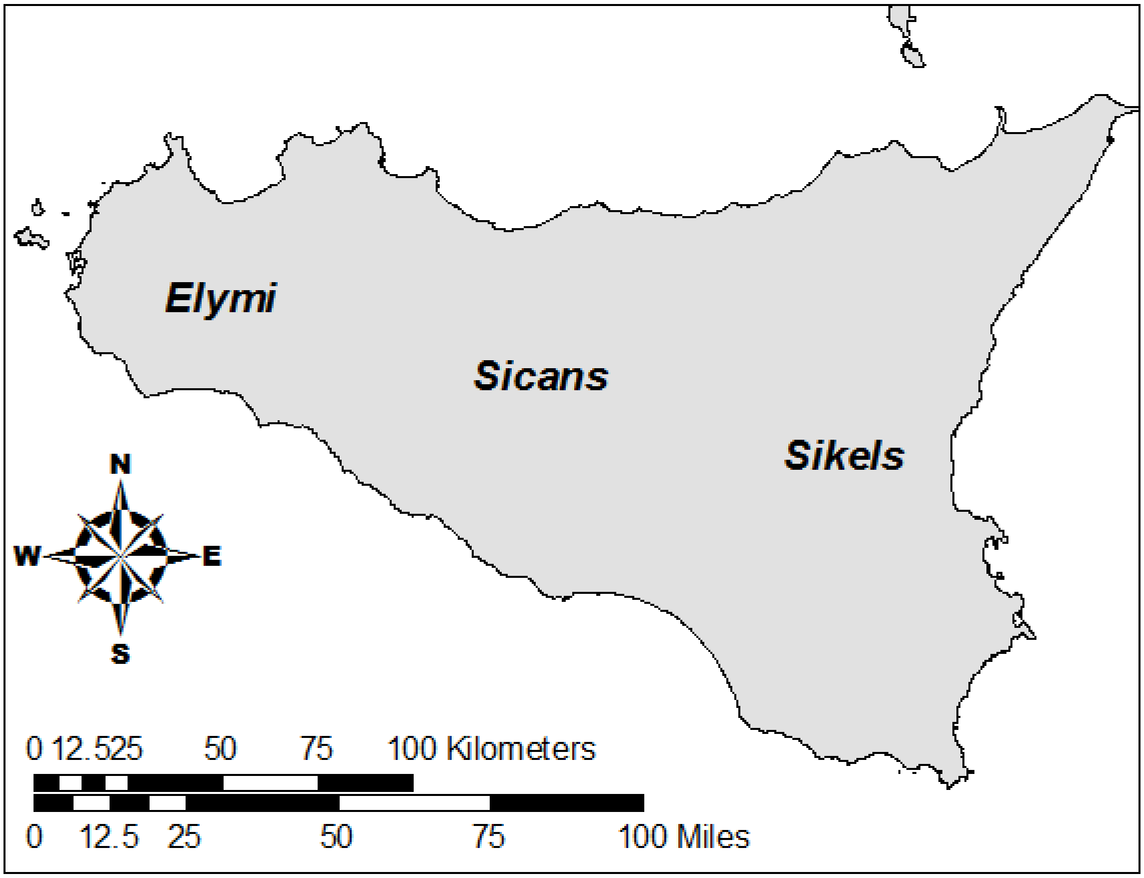



Figure 2.9. Map showing the general distribution of Iron Age Sicilian cultures based on ancient texts.

Very few of the ancient authors discuss the western Sicilian indigenes; only eight historic texts and fragments employ the term Elymi (Ελνμοι) (Manni 1981:128). Four of the ancient authors are problematic because their works are no longer extant, but rather are preserved as fragments within the texts of later authors (Table 2.1). Few works have thoroughly dissected the ancient historical descriptions of the Elymi (Tusa 1989). However, these texts must be discussed here because the concept of an Elymian ethnicity is a Greek, etic cultural classification that should be subjected to critical review and interpretation.

Table 2.1. Ancient sources that employ the Elymian ethnonym.

| Author | Source Type | Date |
|---|---|---|
| Antiochus of Syracuse | Fragmentary | Fifth Century BC |
| Hellenicus of Lesbos | Fragmentary | Fifth Century BC |
| Pseudo-Skylax | Fragmentary | Fourth Century BC |
| Philistus of Syracuse | Fragmentary | Fourth Century BC |
| Thucydides | Primary | Fourth Century BC |
| Dionysius of Halicarnassus | Primary | First Century AD |
| Pausanias | Primary | Second Century AD |
| Nonnos | Primary | Fifth Century AD |

Many of the earliest accounts naming the Elymi were preserved as fragments in the form of brief summaries copied by later authors. The degree to which these summaries were transformed to fulfill the agendas of these later writers remains unknown. However, referential statements by earlier authors served to justify or legitimate the work of later ancient critics familiar with these lost texts. For example, Antiochus of Syracuse, writing in the late fifth century BC, constructed the earliest known historical record of Sicily (Asheri 2004:134), but little is known about him or his history; only fragments of the original work remain preserved in later sources. Antiochus presented the Elymi as allies of the Phoenicians in a war with the people of Lipara, as cited by Pausanias, a geographer from Asia Minor writing in the second century AD (Arafat 1996:8; Pikoulas 2007:38), who described the alliance between the Elymi and Phoenicians as follows:

> …they [Liparians] built a city on Cape Pachynum in Sicily, but were hard pressed in a war with the Elymi and Phoenicians (Paus. *Phocis* 11.3).

Hellenicus of Lesbos, writing in the fifth century BC, produced detailed chronologies of the history of Athens (Jacoby 1949:89) as well as other populations known to the Greeks (Edson 1947:90; Toye 1995:285). Hellenicus' sources remain unknown, but were possibly derived from local oral histories (Möller 2001:247). Another early historian to mention the Elymi was Philistus of Syracuse, a Syracusan politician and military leader who wrote in the first half of the fourth century BC (Pearson 1987:19-20). Unfortunately, only fragments of the works of Hellenicus and Philistus remain, preserved as brief summaries in texts by later authors. Dionysius of Halicarnassus, writing a history titled *Roman Antiquities* in the first century AD (de Jonge 2008:1), preserved two accounts of Elymian ethnogenesis by citing both Hellenicus and Philistus:

> …according to Hellenicus of Lesbos…two Italian expeditions passed over into Sicily, the first consisting of the Elymians, who had been driven out of their country by the Oenotrians, and the second, five years later, of the Ausonians, who fled from the Iapygians (Dion. Hal. *Ant. Rom.* 1.22.3).

> But according to Philistus of Syracuse…the people who passed over from Italy were neither Ausonians nor Elymians, but Ligurians (Dion. Hal. *Ant. Rom.* 1.22.4).

Thucydides, in his historical narrative of the Peloponnesian war, written at the beginning of the fourth century BC (Hanson 1998:x; Hedrick 1995:65), is the earliest fully extant source to discuss the Elymi as an ethnic group. Thucydides considered the elements of place, subject, and time together (Dewald 2005:145), providing a narrative of the spatial, temporal and political context of the cultures in his history, including the Elymi. His account preserves Greek perspectives of Elymian ethnogenesis, political alliances, and population centers. His discussion of the origins of the Elymi, preserved in two passages in Book 6, differs from that of Hellenicus:

> On the fall of Illium, some of the Trojans escaped from the Achaeans, came in ships to Sicily, and settled next to the Sicanians under the general name of Elymi; their cities being called Eryx and Egesta (Thuc. 6.2.3).

> But when the Hellenes began to arrive in considerable numbers by sea, the Phoenicians abandoned most of their stations, and drawing together took up their abode in Mozia, Soloeis, and Panormus, near the Elymi, partly because they trusted in their alliance with them, and also because these are the nearest points for the voyage between Carthage and Sicily (Thuc. 6.2.6).

Thucydides is thought to have been the most influential source for successive ancient authors (Kagan 2009:7); later descriptions closely parallel Thucydides' accounts. For example, the fourth century BC author known as Pseudo-Skylax followed Thucydides in describing the inhabitants of Sicily as, "the following barbarian communities: Elymoi, Sicanoi, Sikeloi, Phoinikes, and Troës" (13.1). Dionysius of Halicarnassus discussed the origin of the Elymi in much the same way. Contradicting his earlier reference to Hellanicus of Lesbos, Dionysius here describes the Elymi in two similar passages as Trojans who escaped to Sicily:

> The Trojans with Elymus and Aegestus, then, remained in these parts [Sicily] and continued to be called Elymians; for Elymus was the first in dignity, as being of the royal family, and from him they all took their name (Dion. Hal. *Ant. Rom.* 1.53.1).

> …they [The Trojans] sailed as far as Sicily; when they had landed there that year came to an end, and they passed the second winter in assisting the Elymians to found their cities in Sicily (Dion. Hal. *Ant. Rom.* 1.63.2).

Nonnus of Panopolis is the latest of the ancient authors to mention the Elymi. His fifth century AD poetic history of Dionysos was embellished with Greek mythology and earlier historical collections (Chuvin 1991:11). Nonnus mentioned the Elymi only in passing:

> To him came from Sicily longshot Achates, and shieldbearing comrades with him, a great host of Cillyrioi and Elymoi (Nonnus, *Dion.* 13.311).

In addition to discussing an Elymian ethnic identity, Greek and Roman authors supplied the names of four Elymian population centers, their political alliances, and economic relations, contributing a socio-political component to the Elymian historical context (Figure 2.10). Thucydides associated the Elymi with the western Sicilian population centers located at Eryx and Segesta (Thuc. 6.2.3). These remain the only positive historical associations between the Elymi and any specific Sicilian population centers. Other ancient authors discussed Eryx and Segesta in conjunction with other communities, some of which may also have been Elymian. Accounts of cities such as Entella and Halicyae, frequently mentioned in association with Eryx and Segesta, could form the basis for what might have been an Elymian culture (De Vido 2000:397). Historic descriptions of these cities preserved details of the political alliances and economic relations between the Elymi and their neighbors, adding a regional social context to western Sicily. Still, caution must be exercised when attempting to deduce any socio-political associations between populations, the few details of which reflect etic Greek perspectives of an indigenous "other".

Likewise, historic accounts of Eryx, located atop Monte San Giuliano, focus on its mythic origin and role as a major cult center. Greek myths, deeply ingrained within tales of the urbisgenesis of Eryx, were employed by ancient Greek authors in attempts to rationalize the sophisticated indigenous architecture and cultic ritual observed by the Greeks. The Greeks felt the Elymi were not capable of creating the technologically sophisticated fortification walls present at Eryx, instead choosing to attribute such architectural feats to the works of mythical Greek predecessor populations. Herodotus exemplified this perspective, suggesting Eryx and the surrounding land had been acquired by Herakles (Herod. 5.43.1), establishing an origin myth the Greeks could associate with.

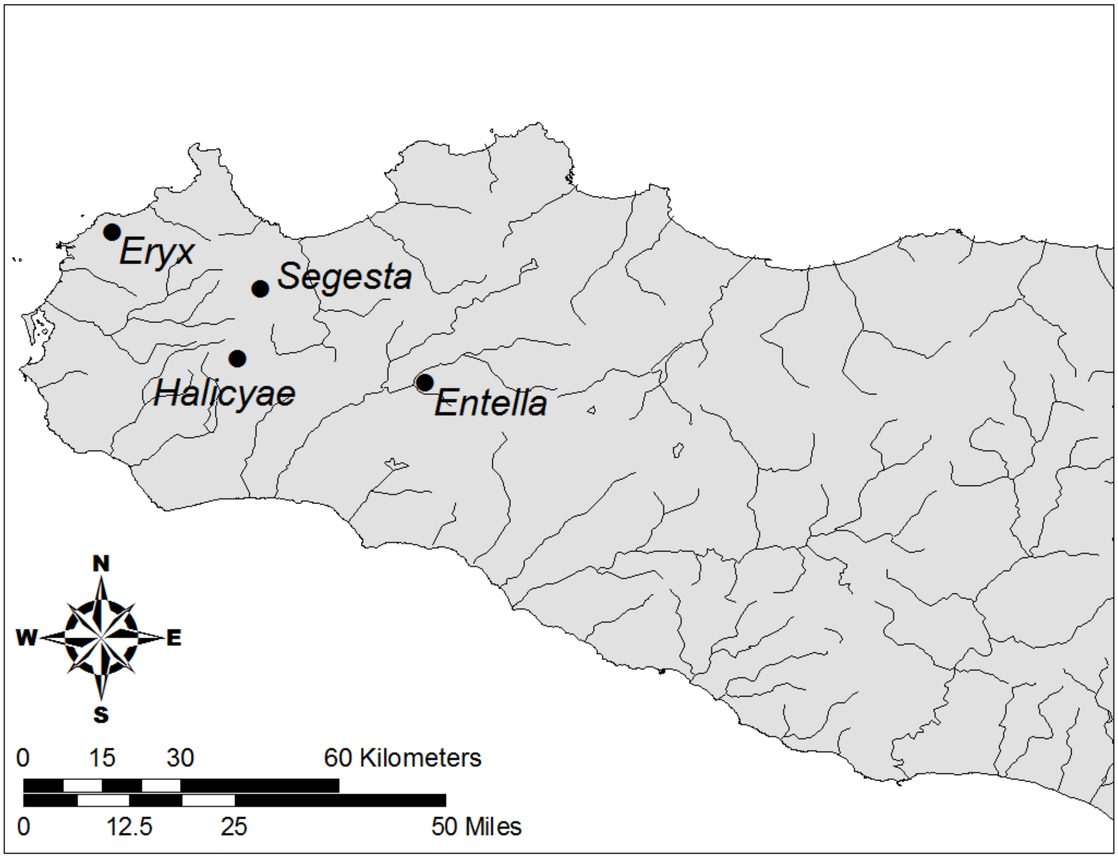



Figure 2.10. Map showing Elymian sites named by ancient authors.

Such ethnocentric characterization was perpetuated by Diodorus, who attributed the large thick walls at Eryx to the work of Daedalus (Diod. Sic. 4.78.4). Daedalus, according to Ovid, escaped from imprisonment on Crete by using beeswax to affix feathers to his arms (Ov. *Met.* 8.183). Attributing Sicilian architecture to the works of mythic figures such as Herakles and Daedalus attests to the elasticity of Greek myth (Nyenhuis 2003:32) while preserving ethnocentric biases by devaluing indigenous Sicilian technological accomplishments. Strabo described Eryx as a hilltop settlement with a temple of Aphrodite containing female temple slaves dedicated by people from both Sicily and abroad (6.2.6). Later authors perpetuated the association between Eryx and a cult to Aphrodite, including Silius Italicus: "Aphrodite was looking down…happily from high Eryx" (6.697); Theocritus: "Lady of Golgi and Idaly and lofty Eryx, Aphrodite playing with gold" (15.100); and Solinus: "Aetna is sacred to Vulcan, Eryx to Venus" (5.9). Polybius provided additional detail on the physical location, and natural fortification, of Monte San Giuliano:

> On its summit, which is flat, stands the temple of Venus Erycina, which is indisputably the first in wealth and general magnificence of all the Sicilian holy places. The city extends along the hill under the actual summit, the ascent to it being very long and steep on all sides (Polyb. 1.55.8-9).

Attributing prominent Sicilian architectural features to the work of mythic Greek figures devalued the indigene as technologically incapable while providing ready justification for Greek subjugation of indigenous peoples. As ancient literature and iconography preserved characters from earlier oral histories in the "mythical world familiar to all" (Veyne 1988:44), these characters were understood by Greek and Roman audiences as "inauthentic and invented myths" (Sext. Emp. *Pyr.* 1.147). These same Greek and Roman myths did, however record physical details about Eryx and the surrounding environment that are consistent with the actual topography of Sicily. Situated atop Monte San Giuliano, Eryx controlled a strategic location with a harbor located on the peninsula to the west of the foot of the mountain (Diod. Sic. 15.73.3).

Segesta, the other population center positively associated with the Elymi by Thucydides, is discussed by numerous ancient authors. Segesta actively participated in political alliances across western Sicily and beyond, a political acuity which might account for the more prolific amount of detail regarding this site preserved within historical texts. Similar to Eryx, historic accounts penned by Greeks attribute the founding of Segesta to the fall of Troy, a mythic event readily recognizable by all Greeks. Dionysius of Halicarnassus credited the founding of Segesta to Aeneas, a city established in order to provide relief for some of his men (Dion. Hal. *Ant. Rom.* 1.52.4). Strabo attributed Trojan origins to Segesta (Strabo 6.2.5), a claim also made by Cicero (Cic. *Verr*. 2.4.72). The physical location of Segesta is only alluded to during the Roman period; the third century AD *Itinerarium Antonini Augusti* (*It. Ant.* 91.2), compiled by an unknown author, measured the distance between the port of Segesta (possibly modern Castellamare) as approximately 14 Roman miles from Tindari (Parthey and Pinder 1848:42; Tsafrir 1986:134).

Numerous political alliances between Segesta and a number of powerful cities are historically recorded from different periods in antiquity. The western Sicilian political climate during the late sixth and fifth centuries was destabilized; Segesta at this time apparently shifted allegiances for a variety of reasons. An alliance with Phoenicians led to the defeat of Spartan colonists in western Sicily at the end of the sixth century BC (Herod. 5.46). Tensions arose between the Greek, Phoenician, and Iron Age Sicilian population centers as the number of inhabitants grew during the fifth century BC. These tensions combined with external pressures, leading to shifts in alliances between the different neighboring populations of western Sicily. Past alliances between Segesta and Phoenicians shifted again during the mid-fifth century; war characterized the relationship between the peoples of Segesta and Lilybaeum (most likely Phoenicians associated with Mozia) over territory near the Mazarus River (Diod. Sic. 11.86.2). Late in the fifth century, Segesta sent an embassy to Nicias in Athens (Plut. *Nic.* 12.1), securing an alliance against Syracuse (Thuc. 7.57.11). Diodorus recorded yet another alliance between Segesta and Agathocles of Syracuse in 307 BC (Diod. Sic. 20.71.1). This alliance soured when Agathocles collected tribute from the Segestans, inciting a revolt which resulted in the torture and massacre of a number of Segesta's residents, some of whom were "placed bound in the catapults and shot forth" (Diod. Sic. 20.71.2).

Few details survive recounting the everyday lifeways of the Segestans, a deficiency further complicated by Greek and Roman perceptions embedded within the few accounts which survive. Aelian, a Roman who wrote during the third century AD for a Greek audience (N. G. Wilson 1997:1-3), provides only sketchy descriptions of a cult practice at Segesta. In his *Varia Historia*, Aelian stated "The Egestans honour the Porpax, Crimisus, and Telmessus in the form of men" (Ael. *VH* 2.33), a Greek practice in which rivers and streams were honored in association with fertility cults (Larson 2007:65-66).

The Elymian city of Halicyae is discussed in very few historical texts and remains a problem for both historiography and archaeology. The earliest text to mention Halicyae is a fragment of an Attic decree, *IG* $I^2$.20. The fragment records an alliance between Halicyae and Athens, implying that Halicyae was an Elymian city (Raubitschek 1944:13). Thucydides contradicts this inscription, describing Halicyae as a Sicel rather than an Elymian center (Thuc. 7.32.1). The location of Halicyae was never identified with certainty by any of the ancient authors; however, Diodorus identified Halicyae as being in the "domain of the Carthaginians", i.e. Phoenician dominated western Sicily (Diod. Sic. 14.54.2). Pliny described the citizens of Halicyae (Halicuenses) as inhabiting a town in the interior of Sicily and possessing Latin rights (Plin. *HN* 3.8.91). Stephanus of Byzantium, writing in the sixth century AD, situated Halicyae between Entella to the east, and Lilybaeum (Marsala) to the west (Billerbeck, et al. 2006:155). Halicyae was also mentioned as an important political center, frequently aligning itself politically with neighboring Segesta to the north. During the fourth and third centuries BC, Halicyae shifted between alliances with Sicilian tyrants, Carthage, and later Rome (Diod. Sic. 14.48.4, 22.10.2 and 23.5.1). Halicyae remained a population center after the Roman conquest of Sicily in 241 BC. Under Roman control, Halicyae was described by Cicero as a free state exempt from taxation (Cic. *Verr*. 3.6.13).

Entella, once interpreted as a Sican rather than Elymian center (Freeman 1891:122), was mentioned in ancient texts by a number of authors (see De Vido 1993 for a discussion of the sources). Entella, described as, "abundantly green with [grape] vines" (Sil. *Pun.* 14.204) was most often noted for its political alliances, which entangled its citizens, the Entellinoi, with a number of population centers across Sicily. Diodorus recorded a series of changing alliances beginning in the early fourth century BC, with centers such as Carthage, Halicyae, Solunto, Segesta, and Panormus (Diod. Sic. 14.48.4), as well as Aetna (Diod. Sic. 16.67.4), against the Phoenicians (Diod. Sic. 16.67.4). Historically, Entella was besieged twice during the fourth century BC. Diodorus discussed these sieges, suggesting Entella may have been a fortified settlement:

> [Dionysius] laid siege to Aegesta and Entella with strong forces and launched continuous attacks upon them, seeking to get control of them by force (Diod. Sic. 14.48.5).
>
> They [the Carthaginians] devastated the countryside and blockaded the country people inside the city (Diod. Sic. 16.67.3).

Entella's loyalty to Carthage cost them dearly; after being captured by Timoleon in 342 BC, fifteen Entellinoi who supported Carthage were put to death (Diod. Sic. 16.73.2). This act suggests that the Entellinoi maintained a strong allegiance to Carthage, which directly challenged Timoleon's Sicilian conquest.

Historic sources carefully classified the cultures of western Sicily in order to distinguish between Hellenes and the “Other”. These historical classifications are complex and preserve Greek and Roman perspectives of the different people who inhabited Sicily at different points in time. Thucydides went so far as to divide the non-Greek inhabitants of colonial period Italy and Sicily as follows: 1) Italians; 2) Sicilians; and 3) barbarians, including Segestans and Sicels (Thuc. 7.57.11). Diodorus added the term Siceliot-Greek (Diod. Sic. 14.61.5, 16.83.1, and 16.89.3), employing it to distinguish between Greeks born in Greece and Siceliotai, people born in the Greek colonies in Sicily. Historical descriptions of Sicilian indigenes varied widely and often contradicted each other. The Elymi were just one of the many indigenous cultures poorly understood by the ancient authors; multiple contradictory ethnogenesis stories as well as conflicting accounts within the work of Dionysius of Halicarnassus testify to the degree to which etic interpretations of the Elymi varied in antiquity.

## The Greek Colonies

Ancient texts provide a plethora of information about the Greek colonies established throughout the Mediterranean (Figure 2.11) and Sicily in particular (Figure 2.12). Historical texts are rich in details of the Greek colonies in Sicily. The fact that much more is recorded about the Greek colonies in Sicily than the indigenous populations comes as no surprise; colonists were the focal point of Greek accounts, which frequently mention the indigenes only in passing.

Two ancient authors, Ephoros and Thucydides, discuss the establishment of the first Greek *poleis* in Sicily (De Angelis 2003:11). Thucydides remains the leading ancient source, having recorded a detailed chronology of the Greek colonial expansion into

Sicily. The earliest permanent Greek colony established in Sicily was Naxos, founded by Chalcidians in the eighth century BC along a small promontory on the northeast coast.

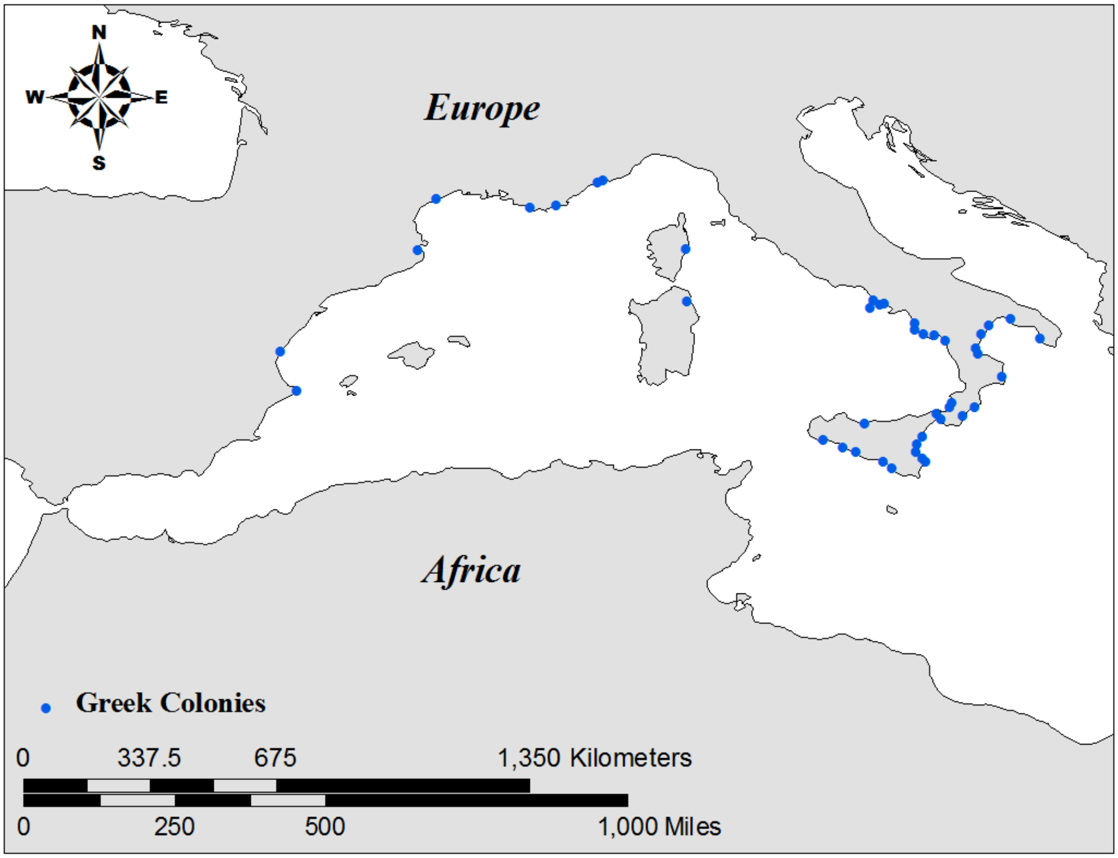



Figure 2.11. Locations of Greek colonies in the western Mediterranean.

According to the Thucydidean chronology, Naxos was founded in approximately 734 BC (Dunbabin 1948:8), a date supported by archaeological evidence (Morris 1996:56). Following the establishment of Naxos, Corinthian and Megarian colonists established additional Greek colonies along the eastern and southeastern coasts of Sicily, fostering a Greek presence composed of different ethnic Hellenes on the island. Beginning in the seventh century BC, several of the Greek colonies of eastern Sicily expanded westward, founding secondary colonies such as Himera and Selinus along both the north and south coasts of western Sicily. Himera, the first of the Greek colonies in

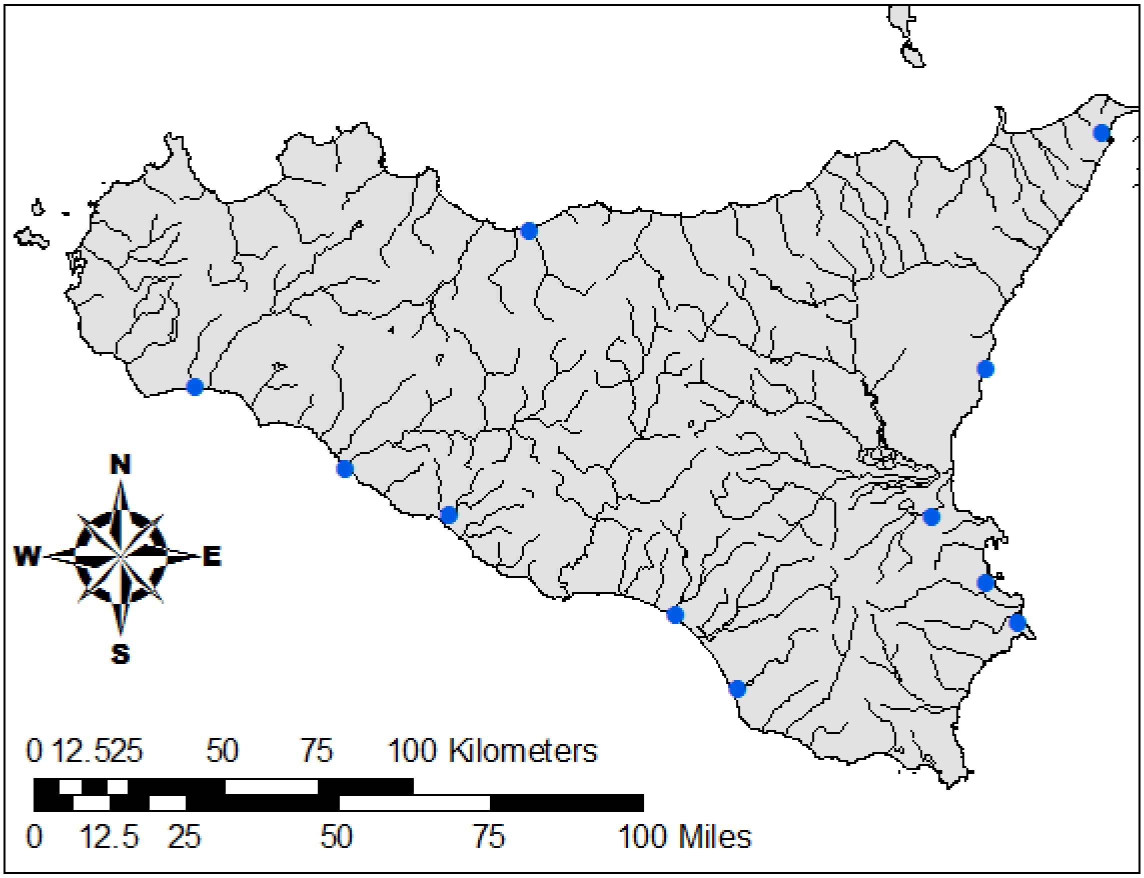



Figure 2.12. Locations of Greek colonies in Sicily.

western Sicily, was established by a mixed contingent of Chalcidians from Zancle (Messina) and exiles from Syracuse (Thuc. 6.5.1) in approximately 648 BC (Diod. Sic.13.62.4). According to Diodorus (Diod. Sic. 14.47.6), the Himeraeans frequently shifted political alliances. During the second quarter of the fifth century, Himera came to the aid of Syracuse (Diod. Sic. 11.68.1), which was attacked by a mixed contingent of Iron Age Sicilians and Athenians during the mid-fifth century BC (Thuc. 3.115.1). They once again formed an alliance with Syracuse during the last quarter of the fifth century (Thuc. 8.58.2), flatly refusing to permit Athenians within their *chora* (Thuc. 6.62.2). The *chora* was the agricultural territory on which a colony's economy was based (Trelogan, et al. 1999:2569), therefore to refuse the Athenians access was also an embargo of sorts, demonstrating the use of the local economy as a political weapon.

The Greek colonies established in Sicily mimicked the political alliances and rivalries of their founding *poleis* (Figure 2.12). Megara Hyblaea, a colony of Greek Megara, for example, may have considered Syracusa, founded by Corinth, as a rival because of hostilities between Corinth and Megara (De Angelis 2003:48). Such political relationships between *polis* and colony certainly affected the political decisions of the colonies, regardless of the degree of autonomy between the two. In addition to the initial Greek colonies in Sicily, secondary and tertiary Greek colonies, established not by Greeks in Greece, but by Greeks already inhabiting the Greek colonies of Sicily, were founded after the first colonizing phase in the early eighth century BC. Unfortunately, very little is known about the socio-political development of these secondary and tertiary colonies (De Angelis 2003:152).

Himera remained the sole Greek colony in western Sicily for only about one generation prior to the establishment of Selinus. According to Thucydides (Thuc. 6.4.2), Megara Hyblaea established Selinus with the help of the Megarian Pamillus in approximately 628/7 (De Angelis 2003:124). Selinus became an important port city controlling a chora "planted with palms" (Sil. *Pun.* 14.200) and was involved with a number of political alliances, choosing to aid the Syracusans during the second quarter of the fifth century (Diod. Sic. 11.68.1) and again during the last quarter of the fifth century (Thuc. 7.58.1). This later alliance between Syracuse and Selinus resulted in a combined offensive, engaging the Segestans in territorial disputes and marriage issues (Thuc. 6.6.2). Two additional Greek colonies were established in western Sicily: Akragas, formally founded as a colony in 580 BC developed from a trading-post previously established by the Greek colony of Gela (Dunbabin 1948:137), and Eraclea Minoa, located between Selinus and Akragas, which was established in the mid-sixth century BC as a satellite site serving Selinus (DeAngelis 2003:149).

Ancient sources frequently distinguished between primary Greek and secondary Greek colonies, considering both Himera and Selinus as the latter because they were established by Sicilian-born emigrants from the Greek colonies of Zancle and Megara Hyblaea. These two secondary colonies grew to become the most important of the centers that directly interacted with the indigenous Elymi of western Sicily.

### The Phoenician *Emporia*

Like the Greeks, the Phoenicians expanded into the western Mediterranean in the early Iron Age (Figure 2.13); however, unlike the Greeks, the Phoenicians did not establish formal colonies. When considering the Phoenician population centers established on Sicily, Thucydides once again is the leading historical authority. This is not perpetuating a Hellenocentric bias; there are simply no Phoenician historical works that survive (Isserlin 1974a:3). As a result, accounts preserved by later Greek and Roman authors remain the primary avenue of historic discussion of the Phoenician population centers on Sicily. Diodorus Siculus is another key source, supplemented further by Polyaenus and Stephanus of Byzantium, authors who briefly discussed Mozia but provided only a few historiographic details (Isserlin 1974a:3).

Thucydides describes the Phoenicians as occupying numerous coastal sites around Sicily in order to trade with the indigenous populations (Thuc. 6.2.6). After the westerly expansion of the Greek colonies on the island, Phoenician exploits in Sicily were

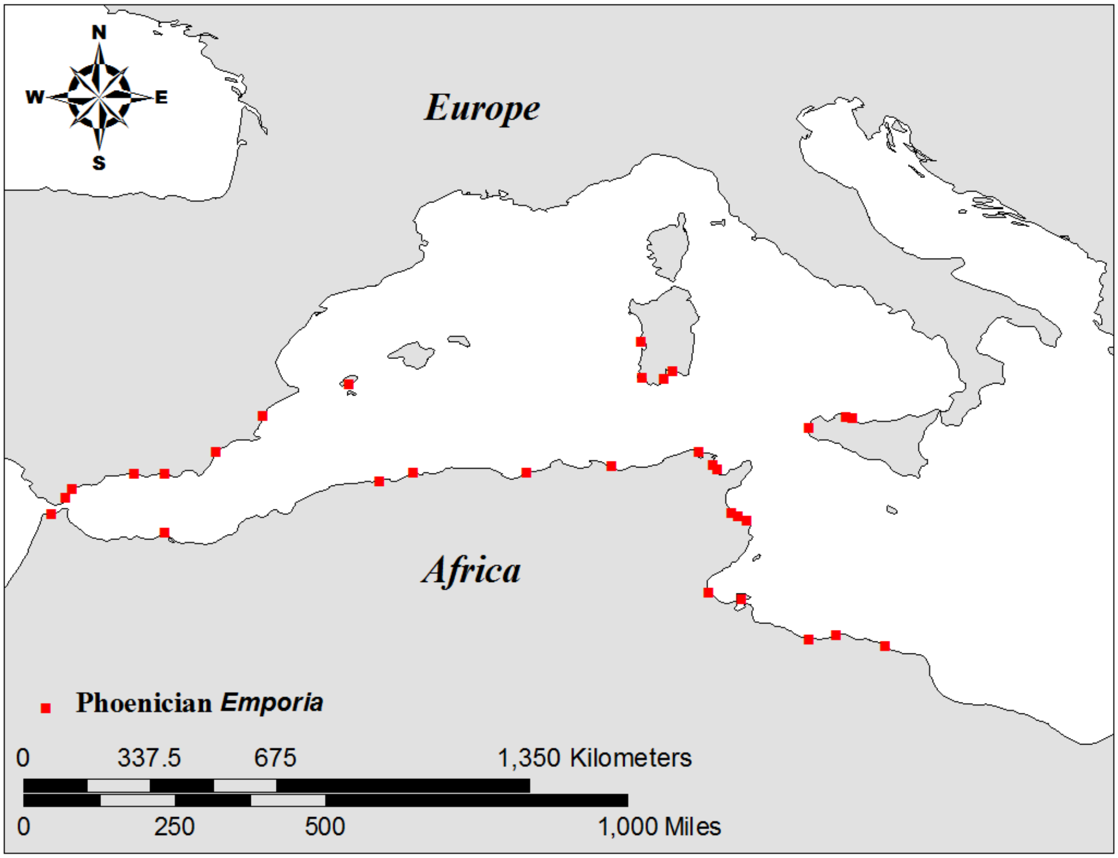



Figure 2.13. Locations of Phoenician *emporia* in the western Mediterranean.

consolidated among three settlements along the west and northwest coasts of Sicily (Fig. 2.14). According to Thucydides, sites located at Mozia, Solunto, and Panormus were preferred because of an alliance between the Phoenicians and the neighboring Elymi (Thuc. 6.2.6). First established in the eighth century BC (Serrati 2000:11), Mozia, Panormus, and Solunto were trade outposts significantly different from the Greek colonies to the east (Figure 2.14). Historical Greek texts preserve more about the Phoenicians in Sicily than about indigenous Sicilians, although all historical accounts of the Phoenician *emporia* on Sicily record the Greek etic perspective.

Of the three Phoenician trade centers located in western Sicily, Mozia was the most frequently discussed by Greek and Roman authors. Diodorus Siculus recorded

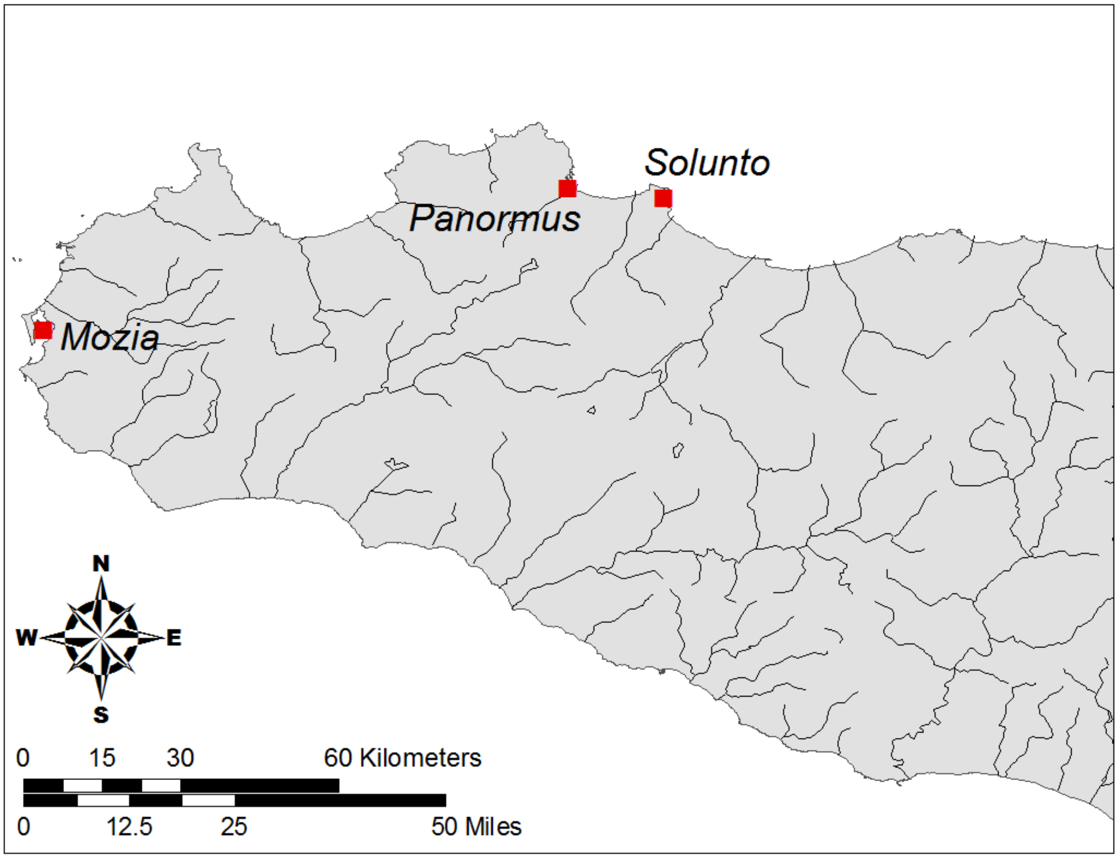



Figure 2.14. Locations of Phoenician settlements on Sicily.

socio-political details concerning Mozia, describing it as a Carthaginian colony (Diod. Sic. 14.47.4) which, among all the Sicilian population centers, was the most loyal to Carthage (Diod. Sic. 14.47.7). An island connected to the Sicilian mainland via a narrow causeway (Diod. Sic. 14.48.2), Mozia prospered because of its trade relations with local Sicilian populations as well as with the Greeks. Carthaginian Mozia was defeated by Dionysius during a siege in 397 BC, after which the surviving Mozians were sold into slavery (Diod. Sic. 14.53.5). Shortly after, Mozia was besieged again, this time by the Carthaginian Himilcon.

Panormus, modern Palermo, impressed few ancient authors; fewer still are the number of authors who recorded any details about Panormus or its environs. Although mentioned in the works of a number of different ancient writers, nearly all references to Panormus, and certainly all references to Solunto, simply preserve the names of the two centers. Silius Italicus was one of the few sources to provide some details of the area surrounding Panormus, describing it as a fertile land possessing forests populated by wild beasts (Sil. *Pun.* 14.261-62). Another ancient author to mention the site was Diodorus; Panormus, he stated, provided the best harbor in all of Sicily (Diod. Sic. 22.10.4) and was surrounded by a heavily wooded countryside (Diod. Sic. 23.18.4). One later work, the *Itinerarium Antonini*, located Panormus approximately 16 miles from the port-city of Tindari (*It. Ant.* 91.5).

Historical documentation is most scant for Solunto, the third Phoenician *emporion* in western Sicily named by Thucydides (Thuc. 6.2.6). The few authors to mention Solunto by name (including Diodorus, Pliny, and Cicero) go no farther than to describe it as a port-city. The third-century AD *Itinerarium Antonini* described Solunto as being approximately 12 Roman miles from Tindari (*It. Ant.* 91.6).

## Sicily's Archaeological Past

> In descriptions of Greek pottery, it was until quite recently common practice to exclude everything that dated before 1000 BC because it was thought that the Greeks had not appeared in Greece before then (Mingazzini 1966:8).

Such an unsophisticated approach was, until recently, also employed in attempts to produce comprehensive accounts of Sicily's past, which is a monumental task; human habitation and land use extends, without a hiatus, from the Paleolithic to the present. The earliest attempts were recorded in Greek cosmogonical and anthropogonical myths accounting for the origins of the universe and the different people encountered by the

Greeks (Blundell 1986:3). A philosophical shift during the sixth century BC initiated a transition from employing myths to drawing on philosophy to account for the world (Blundell 1986:24). The first Presocratic philosopher to explore Sicily's past was Xenophanes; his discussion of fossilized fish and marine flora discovered in a Syracusan quarry remains the earliest such critical evaluation (Blundell 1986:33; Leighton 1989:185). The Greeks and Romans knew of monuments built centuries earlier by culturally distant populations (Wace 1962:153); however, descriptions of previous people were bound by myth and limited to speculation. Despite the plethora of historical discussions among Greek and Roman authors, there was a dearth of systematic inquisitiveness among geographers, historians, and philosophers alike regarding the prehistory of the island. Although these descriptions preserve an etic interpretation of Sicily's past, they are important for this discussion because of the absence of indigenous Sicilian interpretations.

The earliest attempts to systematically evaluate Sicily's past occurred much later, possibly motivated by discoveries of gigantic bones in caves across Sicily. Known since antiquity, such bones were often attributed to a race of giants who, according to the Greek and Roman authors citing local lore, had inhabited the island in the distant past. Such conclusions were generally accepted by Medieval and early Renaissance Sicilians who looked to older sources for further justification (Leighton 1989:186). Other discoveries of faunal and material remains were, during the fourteenth to seventeenth centuries, attributed to holy relics (Leighton 1989:187). Systematic investigation of Sicily's past generally did not commence until the nineteenth century; at this point amateurs and amateurs-cum-experts alike began to express an interest in the material and architectural remains found throughout the island.

## The Shadows of Past Populations

Decades of unsystematic collection and modern, systematic excavation across western Sicily have recovered a plethora of material remains from different periods of Sicily's past. These assemblages represent a series of temporally and culturally confined artifacts that reflect sophisticated exchanges, contexts, and social values as understood and practiced by agents in the past. Fully appreciating the social importance of these assemblages is complicated; trade, time, and context are variables that challenge and affect interpretation. A number of materials, including stone, fired clay, and metal are associated with different periods, forming the basis for constructing site chronologies further refined via costly chronometric dating techniques. Chronologies are still poorly defined for much of Sicilian prehistory, an impediment increasingly mitigated by ongoing scientific research.

Past Sicilian cultures are often classified by period, pigeonholing populations into a number of chronologies derived from Thomsen's Three-Age System, further divided into early, middle, and late phases for each period (Table 2.2).

The basic components of this chronology are the same across the whole of Sicily, although specific chronologies vary across the island. For example, the eighth century arrival of Greek colonists along the eastern shores of Sicily serves as the arbitrary end of the Sicilian Iron Age there. However, Iron Age lifestyles persisted for several generations among indigenous Sicilian populations inhabiting the interior and western

Table 2.2. General chronology of western Sicily.

| Period | Approximate Years |
|---|---|
| Imperial Rome | 27BC-565 AD |
| Republican Rome | 146-27 BC |
| Hellenistic | 323-146 BC |
| Classical | 480-323 BC |
| Archaic | 600-480 BC |
| Iron Age | 900-600 BC |
| Late Bronze Age | 1200-900 BC |
| Middle Bronze Age | 1500-1200 BC |
| Early Bronze Age | 2500-1500 BC |
| Late Copper Age | 3000-2500 BC |
| Early Copper Age | 3500-3000 BC |
| Late Neolithic | 4000-3500 BC |
| Middle Neolithic | 5000-4000 BC |
| Early Neolithic | 6000-5000 BC |
| Mesolithic | 9000-6000 BC |
| Upper Paleolithic | 35000-9000 BC |

portions of the island. Therefore, established chronologies are spatially fluid as represented by the archaeological record for much of Sicily.

The earliest evidence of human habitation on the island is contested and still poorly understood; the oldest contextual archaeological evidence dates to the Paleolithic period. Upper Paleolithic (Epigravettian) remains are similar to those found in southern Italy, suggesting contact between the two regions (Leighton 1999:11). Open-air and cave sites provide evidence that humans occupied much of Sicily's coastline by the end of the Paleolithic. Paleolithic Sicilians created sophisticated rock art in several caves across western Sicily. These caves, including Cala dei Genovesi on the island of Levanzo and at Grotta Addaura on Monte Pellegrino, are decorated with petroglyphs of animals and the occasional human.

Following the Paleolithic, the Mesolithic period was a time of significant environmental and social change among prehistoric Sicilians. This temporal distinction between Paleolithic and Mesolithic is blurred by a scarcity of evidence; Grotta del'Uzzo and Perriere Sottano are two of the few securely excavated Sicilian Mesolithic sites. Although artifact assemblages between southern Italy and Sicily appear very similar, Mesolithic Sicilian hunters and gatherers utilized different marine, fluvial, and terrestrial resources than their peninsular neighbors (Leighton 1999:12). These varying subsistence strategies might attest to differing cultures across the two landmasses.

The transition from foraging to farming during the Neolithic broke with the cultural continuity established in the preceding periods. As food production technology spread from the Levant among a series of island colonization episodes, local Sicilian populations encountered new cultures and lifestyles, providing "a catalyst for social and ideological changes" (Bar-Yosef 2004:S2). Technological innovations accompanied the resulting social transformation, manifested in the form of new artifacts manufactured from new media, of which fired clay was one of the most important. The transition from Mesolithic to Neolithic remains largely indistinct; at some sites, early pottery, a Neolithic hallmark, is contextually associated with Epigravettian and Epiromanellian Mesolithic lithic industries (Tusa 1996:42).

Early Neolithic pottery is typically characterized as "impressed wares" because of the stamped and incised decorations commonly adorning the exterior of vessels (Leighton 1999:61; Tusa 1996:44). Impressed ware assemblages consisted of very simple vessel forms decorated with a wide array of simple motifs impressed into the exterior surface. Neolithic Sicilian pottery production and decoration became increasingly sophisticated through time, leading to a number of regionally diverse pottery traditions, including Stentinello and Kronio-wares.

Eastern Sicilian Neolithic pottery decoration became particularly refined, classified as “Stentinello” after the type-site located near Syracusa. Stentinello pottery includes both coarse and thin-walled pottery decorated with diverse impressed/incised geometric motifs of vertical and horizontal bands confining zig-zags, diamonds, cord-impressions, and lines on a smoothed and burnished surface (Leighton 1999:62; Tusa 1996:47). Typical of southern Italy and eastern Sicily, handmade Stentinello vessels were manufactured in a number of forms, including bowls, cylindrical-necked jars, and carinated cups (Leighton 1999:62; Tusa 1996:47).

In western Sicily, a slightly different impressed ware is typical of the Neolithic. Similar to the eastern Sicilian Stentinello, Kronio-ware, named for the type-site at Antro Fazello at Monte Kronio, is the earliest Neolithic pottery type identified in western Sicily (Kolb 2007:174; Leighton 1999:62). Early Kronio-ware is characterized by fine- to coarse-ware vessels with impressed “coffee grain” decoration and incised/impressed triangular motifs (Leighton 1999:62; Tinè, et al. 1994:251). Over time, Kronio-ware became more sophisticated, incorporating more complex geometric designs as decorative motifs adorning jars and bowls.

Shortly after it was first widely used among Neolithic Sicilians, pottery began being decorated with colored designs. The first colored applications were possibly dry-rubbed into incised grooves after firing. This technique, practiced by the contemporary Gisiga of Cameroons (David and Hennig 1972:6; Rice 1987:149), was also employed by Neolithic Sicilians. Early Stentinello pottery was sometimes decorated with crushed minerals filling incised grooves, providing a means of emphasizing the increasingly complex decorative motifs (Leighton 1999:62). The first painted Sicilian pottery appeared during the Neolithic as well. Often decorated with two or three pigments, Sicilian bichrome and trichrome wares were painted with red flames or bands bordered in black and have been recovered from a number of sites across Sicily and the Aeolian islands (Tusa 1996:49). Painted Neolithic pottery was utilized alongside impressed Stentinello wares (Tusa and Valente 1994:179).

The introduction of worked copper artifacts marks the beginning of the brief yet significant Copper Age, which spans the third millennium BC. The western Sicilian Copper Age culture is typically associated with a variety of open and closed-form vessels subdivided into several loosely defined phases, including Malpasso, Moarda, and San'Ippolito. The majority of western Sicilian Copper Age sites are classified within the Malpasso Phase (2500-2000 BC), characterized by tronco-conical pottery often burnished a monochrome red (Bernabò Brea 1957:79; Tusa 1997:57). Copper Age sites are sparsely located across western Sicily and have been excavated to varying degrees. Excavations at Partanna have recovered an assemblage of 44 Copper Age vessels, the most common of which is a red painted footed cup (Tusa and Pacci 1990:24).

The Copper Age was a significant period in Sicilian prehistory, a time during which local Sicilian cultures appear to have developed and maintained complex economic ties with other Mediterranean populations. Fired clay vessels from distant islands as well as mainland Europe are found contextually associated with local Malpasso and Moarda phase pottery at numerous Copper Age sites across western Sicily (Bernabò Brea 1957:86). The presence of Bell-Beaker material, some of which may have been imported from the Iberian Peninsula, as well as local imitations, suggests active participation in long-distance social and economic networks during the mid-to-late-third millennium BC.

During the Copper Age, culture contact with non-Sicilian populations is attested through the presence of foreign pottery styles and decorations. During the third millennium BC, trade routes appear to have shifted; mariners abandoned the Messina Strait in favor of a westerly passage (Pacci 1987:573). This shift facilitated contact between the people of Copper Age Sicily and more distant lands. Possibly as early as the mid third millennium BC, Bell Beaker (*bicchieri campaniformi*) material found in the vicinity of Palermo and in the lower Belice valley attests to contact between indigenous Copper Age Sicilians and Bell Beaker cultures (Figure 2.15) (Castellana 2002:104; Tusa 1997:57; 1999b:151). The degree to which Sicilians interacted with or were affected by these foreigners remains to be further explored. The earliest evidence of Sicilian contact with Bell Beaker cultures appears in sites surrounding modern Palermo. Within these sites, Bell Beaker forms evolved but never included painted decoration. Instead, the Bell Beaker tradition appears to have mixed with the local Capo Graziano tradition, synthesizing the Moarda style (Castellana 2002:108; Tusa 1999b:152).

Foreign contact with the Copper Age Sicilians of the lower Belice valley (Salemi to Castelvetrano) appears to have been quite different from that near Palermo. Pottery assemblages from sites in the lower Belice valley include both foreign Bell Beaker and local Malpasso tradition vessels. Excavations at Marcita suggest a direct technological and cultural connection between the Bell Beaker and local Castelluccio pottery in which

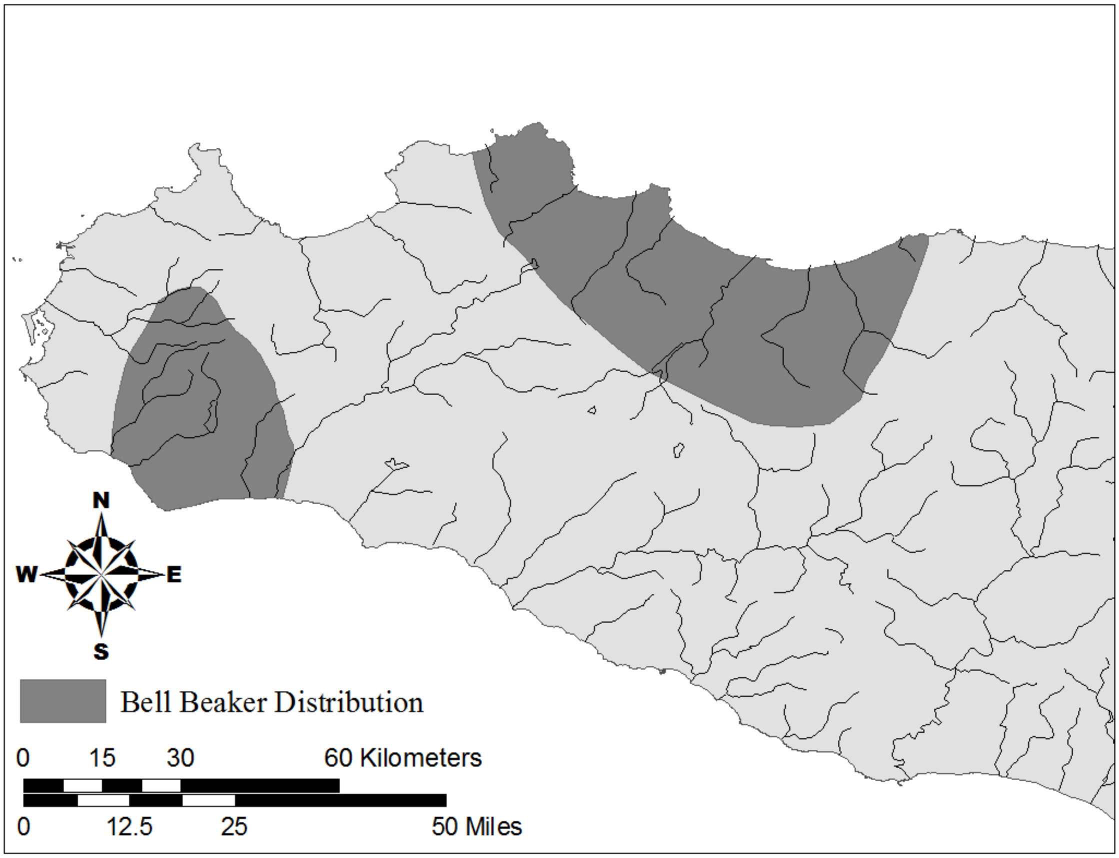



Figure 2.15. Map showing the general distribution of Bell Beaker material across western Sicily (after Tusa 1997:57).

both traditions exchanged ceramic characteristics through a process of cultural syncretism (Pacci 1982:203; 1987:573; Tusa 1999b:153). Such mixed-style vessels were identified at Marcita; *fruttiere* (high-footed fruit bowls) and jugs of the local Naro-Partanna style were decorated with painted Bell Beaker motifs (Tusa 1987:528).

The Bell Beaker influence upon the lower Belice valley appears to provide a connection between Sardinia and western Sicily during the Copper Age. Vessel forms and decorative motifs among lower Belice valley Bell Beakers are very similar to the Iglesiente-Sulcis and Cagliari regions of Sardinia (Tusa 1999b:154), suggesting strong Sardinian influence upon the Copper Age Sicilians. Connections with foreign cultures across the Mediterranean intensified through the Bronze and Iron Ages, continually redefining Sicilian culture.

Late Copper Age Sicilian cultures transitioned into the Early Bronze Age while retaining regional differences between north and south (Leighton 1999:113). Pottery production technology and decoration intensified significantly at the beginning of the Bronze Age, concomitant with the appearance of Castelluccian culture (2000-1400 BC). New vessel forms appeared, including high footed cups (sometimes called chalices) and one-handled pitchers. These vessels are often found together, suggesting a feasting function associated with liquid consumption (Maniscalco 1999:185). Castelluccian vessels typically break from earlier Malpasso forms most noticeably via the high, hollow stems characterizing the footed cups. These high footed vessels persist as cup and plate forms through the Middle Bronze Age (1400-1250 BC) Thapsos culture, the Late Bronze Age (1250-1000 BC) Pantalica North culture, and the Final Bronze Age (1000-800 BC) Cassibile Phase culture (Maniscalco 1999:188-90). The production and use of high-footed vessels appears to terminate during the Early Iron Age, possibly due to a shift in feasting traditions.

Trade and exchange continued to intensify during the Bronze Age, as Sicilians were introduced to people and goods from the eastern Mediterranean and elsewhere. Mycenaean, Egyptian, and Appenine goods have been recovered from a number of Bronze Age contexts across Sicily (Giannitrapani 1997:439; Smith 1987:102; Tusa 1994:166), suggesting contact with traders who exchanged both goods and ideas. Concomitant with contact with foreign traders, indigenous Bronze Age Sicilian cultures became proto-urban, shifting from circular or sub-circular huts to rectangular structures at a number of sites across western Sicily (Castellana 2002:128-9; Tusa 1999a:473-4; Tusa and Nicoletti 2000:965).

Late Bronze Age populations continued to be influenced by foreign traders, becoming more proto-urban (but not fully urbanized), and incorporating foreign goods within local assemblages, including more sophisticated metal objects. It was at this point in the tenth century BC that iron products were used with increasing frequency among indigenous Sicilian populations. Transitioning Late Bronze Age populations continued to utilize bronze for utilitarian vessels (Leighton 1999:187), possibly due to the scarcity of refined iron at that point in time. As indigenous Sicilians underwent social change yet again, so did their material goods. Assemblages from both Bronze and Iron Age sites have only begun to be used as an avenue to explore the development of indigenous social complexity. The earliest indigenous Iron Age Sicilian pottery forms date from the ninth century BC, attributed in the east to a "Siculization" process (Tusa 1999a:634).

It is impossible to characterize Iron Age Sicilian cultures as truly indigenous; instead, these people were an evershifting amalgam of local and foreign cultures from the Paleolithic on. Prehistoric tombs from Sant'Angelo Muxaro attest to foreign influences upon local Sicilian cultures. Mycenaean influences, likely introduced through mercantile relationships with the eastern Mediterranean, also affected local Sicilian mortuary practices. Tholos tombs from Sant'Angelo Muxaro might represent Bronze Age social entanglements, complicating characterization of Iron Age Sicilians as "local" or indigenous (Rizza 2004:19). The socially and biologically mixed nature of Iron Age Sicilian populations is characteristic of most post-Paleolithic European populations.

Scholarly discussion of Sicily's Iron Age has more often than not languished in the shadows of research on Greek and Roman civilizations; a predisposition toward the "sexier" Greek and Roman ruins has impeded comprehending the role of native Iron Age populations prior to, as well as during, Greek, Phoenician, and later Roman colonizations. Edward Freeman (1891:10), writing a history of Sicily, stated, "The true Sicily is the Hellenic Sicily and none other", reflecting the general research trend toward Hellenophilia at the end of the 19th century. Research questions regarding ancient Sicilian history often focused on the Greek inhabitants, relegating the indigenous people to a role as participants witnessing the birth of a "colonial greatness" (Freeman 1891:6). Few foreign antiquarians broke with this Hellenophilic obsession; studying the Greeks in Sicily remained in vogue at the turn of the century. Such attitudes preferring "classic" culture over Sicilian indigenes continue to permeate contemporary literature; according to Holloway, a leading Mediterranean archaeologist, "To most of us ancient Sicily means Greek Sicily" (Holloway 2000:43).

Largely due to Greek accounts, the indigenous Iron Age populations of western Sicily are generally thought to correspond with the historically named Elymi. Despite having been discussed by numerous ancient authors, the Elymi and their population centers remained a largely invisible ethnic group in western Sicily until the mid-twentieth century. The archaeological origin of the Elymi remains highly contested, with several competing theories employed in the search for supporting evidence. One ethnogenesis theory attributes the Elymi to origins in Anatolia (Vento 1989: 7), drawing close parallels to historic accounts of escaped Trojans.

Another theory proposes that Iron Age Elymi lifeways were a continuation of earlier Bronze Age traditions (Hodos 2006: 92), which subsequently developed into autonomous polities (Forte, et al. 1998: 292; Kolb and Speakman 2005: 795) similar to the indigenous Iron Age populations located in central and Eastern Sicily (Hodos 2006: 93; Maniscalco and McConnell 2003: 171). The ethnic origins of the Elymi notwithstanding, archaeological evidence suggests that a culture (or possibly several cultures) generalized by ancient and modern scholars as the Elymi was present in western Sicily as early as the twelfth century BC (Castellana 1989: 11). Associating a western Sicilian archaeological culture with the Elymi of historical record has been difficult at best because the textual data on the Elymi remains finite. Archaeological evidence of the Elymi continues to grow annually, however, adding to a larger compendium of evidence than that preserved in the historic sources.

Based on a shared material culture assemblage, similar domestic architecture, and mortuary customs, the Elymi are considered an archaeological culture associated with numerous hilltop settlements spanning the Belice river valley. Sites have been identified throughout western Sicily at Calatubo, Monte Bonifato, Monte Castellazzo di Poggioreale, Monte Finestrella, Monte Iato, Monte Maranfusa, Monte Polizzo, and Montagna Grande in addition to historically associated Eryx, Segesta, Entella, and Halicyae (Figure 2.16).

The indigenous Elymi of western Sicily remain a largely mysterious population. Their sites were typically located atop mountain tops for defense; a purpose evidenced by Iron Age and Archaic period fortification walls identified at Entella (Gargini, et al. 2003). Likewise, little is known about Elymian subsistence; however,

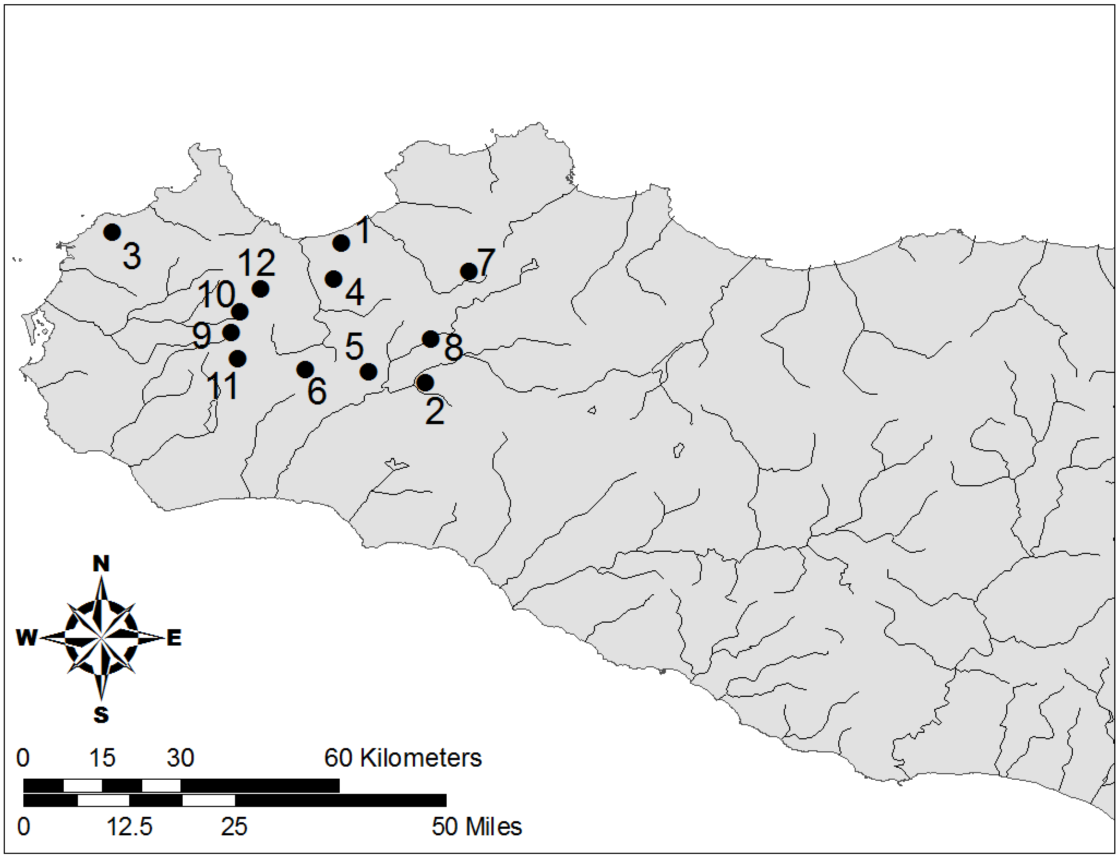



Figure 2.16. Map showing Elymian sites identified in western Sicily: 1 Calatubo; 2 Entella; 3 Eryx; 4 Monte Bonifato; 5 Monte Castellazzo di Poggioreale; 6 Monte Finestrelle; 7 Monte Iato; 8 Monte Maranfusa; 9 Monte Polizzo; 10 Poggio Roccione; 11 Salemi; 12 Segesta.

archaeobotanical remains from Monte Polizzo suggest a vegetal diet rich in barley and faba beans complemented by emmer and free-threshing wheats (Stika, et al. 2008). The indigenous Elymian economy apparently relied heavily on the manufacture and exchange of wool, textiles, pottery, and cultigens such as grapes, olives, and grains. Little is known of indigenous western Sicilian mortuary customs; Monte Polizzo remains the only Elymian necropolis to have been excavated and remains to be published.

Following the establishment of permanent foreign outposts in western Sicily during the eighth century BC, indigenous Sicilian populations including the Elymi underwent significant cultural transformations. Relations with their Greek neighbors to the south and their Phoenician neighbors to the north and west resulted in displays of their astute political complexity by the fifth and fourth centuries BC (Hodos 2006: 93; Kolb, et al. 2008: 33; Maniscalco and McConnell 2003: 170). Alterations in domestic and public architecture, urban landscapes, religion, production, and consumption attest to the influence of foreign cultures upon indigenous Sicilian lifeways. The presence of imported and colonial Greek pottery in indigenous Sicilian households represents archaeologically visible evidence of the material correlates of the developing social entanglements. For instance, imported Greek and Phoenician pottery found within Elymian domestic contexts atop Monte Polizzo (Morris, et al. 2003; Morris, et al. 2001, 2002; Tusa 1972a: 405) suggest the domestic incorporation of foreign goods into indigenous lifeways. Numerous other Iron Age Elymi urban centers throughout western Sicily exhibit a similar incorporation of imported and colonial Greek and Phoenician material culture (De Cesare and Gargini 1994; Kolb, Vecchio, et al. 2007: 197; Spatafora 1991: 10; 1996c: 1208; Tusa 1972a), attesting to contact with traders facilitating social alterations throughout western Sicily.

Evidence of an economic shift has also been uncovered in recent years. The adoption of foreign monetary standards in the form of coinage suggests that indigenous Sicilian populations, including the Elymi, transformed their local economies in attempts to accrue additional wealth through trade with neighboring Greeks and Phoenicians. Indigenous Sicilians appear to have adopted both Greek and Phoenician monetary standards, presumably as a result of commercial interaction with both foreign populations. Furthermore, numismatic evidence suggests that at least two Elymian centers, Segesta and Eryx, were minting coins using the Greek standard during the fifth century BC (Cutroni Tusa 2000).

More recent excavations at numerous hilltop sites across western Sicily have significantly contributed to an archaeological appreciation of indigenous Sicilian populations such as the Elymi. Population centers located at Eryx, Segesta, Halicyae, Entella, Montagna Grande, Monte Polizzo, Monte Bonifato, Monte Maranfusa, Monte Iato, Monte Castellazzo di Poggioreale, Calatubo, and Monte Finestrella provide evidence of fortified mountaintop settlements with shared material culture, architecture, mortuary customs, and economy. Systematic excavation of these population centers has faced numerous challenges: Iron Age and Archaic contexts were often destroyed by later Roman and medieval re-occupations, modern urban centers constructed above these contexts restrict excavation, modern re-forestation efforts have severely damaged ancient remains, and the *clandestini* (tomb robbers) have looted these sites for millennia. Despite these problems, research-based excavations have successfully proceeded at several of these indigenous Iron Age sites, assisting in the reconstruction of shared regional lifeways characterized as Elymian culture. Brief descriptions of each of the larger Elymian population centers, as well as the neighboring Greek and Phoenician outposts follow below, summarizing the varying extent of archaeological exploration of ancient western Sicily in each of these locations.

## Site Histories of Key Sites in Western Sicily

### Indigenous Eryx

Ancient Eryx lies beneath the medieval town of Erice, along the summit of Monte San Giuliano. Systematic research at ancient Eryx first commenced in the 1930s when the area believed to be the sanctuary of Aphrodite Ericina (Aphrodite of Eryx) (Cultrera

1935:296) was examined; later explorations focused on the Phoenician fortification walls (Bisi 1968:272). Much of what has been excavated at Eryx dates from subsequent Roman and medieval occupations, masking archaeological interpretation of ancient Eryx and Monte San Giuliano. The medieval city of Erice remains a major source of tourist revenue for western Sicily; therefore efforts to excavate there have often been hampered by a desire to preserve the tourist atmosphere and quaint medieval ambience. Despite these challenges, excavations at Eryx have begun to explore the Archaic period cult center, uncovering fragments of incised and painted indigenous pottery in the process (Bisi 1968:280-290). Unfortunately, no domestic contexts have been identified at ancient Eryx to date.

**Indigenous Segesta**

Excavations at Segesta have uncovered archaeological evidence of habitation dating from the fifth century BC through the Hellenistic, Roman and medieval periods. Early research focused on the prominently visible fifth century Doric temple located at Segesta (Hittorff and Zanth 1870:37; Leonora 1848 (1991):18; Paterno 1817:214), especially its construction and detail (Dinsmoor 1973:112); it was initially thought to have been constructed by Greek or Greek-trained laborers (Burford 1961:93). In addition to the temple, an amphitheater located at the summit of Monte Barbaro has garnered an abundance of attention because of its visibility (De Bernardi 2000:369; Lo Faso Pietrasanta 1834b:110). Systematic archaeological investigations at Segesta commenced in the late 1970s and have since explored the growth of Segesta during numerous phases. Excavations have uncovered evidence of domestic residences dating from the seventh to fourth centuries (De La Genière 1988:314), scattered human remains from the fourth to third centuries (Fabbri 2008:93), a Hellenistic necropolis (Bechtold 2000:79), two Roman kilns (Evans and Mareschal 1989:65; Màrton, et al. 1992:123), an Islamic mosque (Molinari 1997:95), and a medieval fortification (Molinari 1997:45), contributing to a more comprehensive understanding of both social and landscape change at Segesta. The excavations at Segesta have uncovered material culture suggesting continual contact with the Greek world, especially with Selinus (De La Genière 1988:315). The many excavations at Segesta have uncovered numerous Greek and anHellenic onomastic inscriptions (Agostiniani 1977:3; Biondi 2000:135; Tusa 1975:214), attesting to social transformations occurring at Segesta during the fifth century BC.

**Indigenous Halicyae (Salemi)**

The ancient population center Thucydides called Halicyae (6.3.2) has not yet been positively identified, but archaeological evidence, and local traditions, posit its location at modern Salemi. Exploration of the ancient center beneath Salemi is restricted by the modern urban city, which has limited excavation to small test pits confined by streets and courtyards. Despite sporadic discoveries of archaic pottery, no systematic research explorations of Salemi or its territory had been conducted until recently (Cognata 1960:9). Systematic archaeological survey in the territory surrounding Salemi commenced in 1998, identifying sites from the Neolithic through medieval periods, including Iron Age Elymian hilltop and valley sites (Kolb 2007:178; Kolb, Osborn, et al. 2007:188). Excavations at Salemi first began with explorations by Salinas in the 1890s, uncovering evidence of Hellenistic, Roman and Byzantine occupations (Salinas 1893a:340; 1893b:528; 1895:357). Recent systematic research excavations in Salemi have recovered evidence of habitation dating from the sixth through third centuries BC, including at least one domestic structure (Balco and Kolb 2009:178; Kolb, et al. 2003:119; Kolb, Vecchio, et al. 2007:197).

**Indigenous Entella**

First discussed as a topic of historical/archaeological interest in 1568 by Thomas Fazellus' *De Rebus Siculis* (Moreschini 1993:9), Entella remains one of the most important of the Iron Age and Archaic period western Sicilian population centers, located atop *la Rocca di Entella* (literally the rock of Entella), a northwestern branch of Monti Sicani (Gennusa 1993:125). Sicilian nobility began to explore Entella at the beginning of the nineteenth century, recording their treks in letters and sketches (Nenci 1993:103). Systematic survey and excavation of Entella and its environs has proceeded since the 1940s through a number of research projects. Archaeological survey of the territory around Entella has revealed a temporally varied landscape with evidence of habitation from the Neolithic to the modern period. Excavation of the Archaic acropolis, necropolis and fortifications at Entella indicate habitation from the seventh through third centuries BC (Michelini and Parra 2001:158).

Two Archaic period kilns have been excavated within the limits of the later Islamic medieval necropolis at Entella, providing an excellent source of comparative material for this study. Guglielmino classified these structures as updraft kilns partially cut into the bedrock (2000:701-702). Excavated material suggests that the Entellinoi manufactured and used indigenous incised and painted pottery as well as imitation Ionic cups during the sixth and fifth centuries BC (Michelini 1995:42).

In addition to the professional surveys and excavations, nine bronze tablets dating from the end of the fourth century BC were recovered by *clandestini* from an unknown location, preserving inscriptions which refer to Entella by name (Loomis 1994:129; Nenci 1989:14; Spatafora 2001:1; Wilson 1981-1982:104). These inscriptions, dubbed the *Entella tablets*, are commonly discussed in relation to the population center despite their unknown provenance.

**Indigenous Monte Polizzo**

Located in central western Sicily, Monte Polizzo reaches a height of approximately 714 meters asl (Mühlenbock 2008:3) and commands views of Monte San Giuliano (Eryx), Montagna Grande, Monte Bonifato, Monte Maranfusa, Monte Finestrelle, Monte Rosa (Salemi), and Mozia on clear days. Vineyards and large tracts of reforested land dominate the current slopes of Monte Polizzo. The absence of modern domestic habitation on Monte Polizzo has encouraged archaeological explorations, which began as a response to the reforestation efforts of the *Corpo Forestale* in the 1970s, identifying both local and imported Archaic period pottery within a domestic structure (Tusa 1972b:120). Excavation at Monte Polizzo has since explored the necro*polis* (Mühlenbock 2008:38), acro*polis* (Morris, et al. 2003; Morris, et al. 2001, 2002; Morris and Tusa 2004), domestic quarter (Morris and Tusa 2004:37-38; Mühlenbock 2008), and city gate (Morris and Tusa 2004:38).

**Indigenous Monte Bonifato**

Located south of the Gulf of Castellamare, Monte Bonifato is one of the highest peaks in western Sicily, reaching 826 meters asl (Filangeri 1973:81). Its strategic position on the Gulf of Castellamare and its commanding views of Eryx, Segesta, Halicyae (Salemi), Monte Polizzo, Monte Finestrella, Monte Castellazzo di Poggioreale, and the numerous mountains surrounding Palermo to the east, elevated its importance as an indigenous Elymian population center. Previous archaeological explorations at Monte Bonifato had focused on the medieval castle (Filangeri 1971; Messana 2004:80); however, more recent explorations have focused on the indigenous Iron Age population center.  Iron Age and Archaic period ceramics recovered from select contexts date the occupation phase during the eighth to sixth centuries BC, roughly contemporaneous with habitation at nearby Segesta, Eryx, and Monte Castellazzo di Poggioreale (Filangeri 1973:82; Messana 2003:48).  Excavations have also focused on two Roman kilns discovered nearby, dating from the first century BC to the fourth century AD (Giorgetti, et al. 2004:142; Messana 2004:37).  Although numerous excavations have been conducted on Monte Bonifato, the site remains largely unexplored.

**Indigenous Monte Maranfusa**

Located northwest of Roccamena, Monte Maranfusa dominates the right Belice river valley (Spatafora 1988-1989:712).  Systematic exploration of Monte Maranfusa commenced in the mid 1980s, revealing a sizable Iron Age and Archaic period indigenous habitation center dating from between the seventh and fifth centuries BC (Spatafora 1988-1989:714; Spatafora 1991:7; Spatafora 2003a:15).  Habitation at Monte Maranfusa appears to have undergone three phases, the second of which parallels the urban schemes of the nearby colonies (Spatafora 2002:58), a conclusion supported by the discovery of numerous orthagonal rooms with domestic functions (Spatafora 1991:7).

**Indigenous Monte Finestrella**

Monte Finestrella is located in the south central region of western Sicily.  Testing at Monte Finestrella has revealed evidence of a sizable settlement dating from the ninth to seventh centuries BC (De Cesare and Gargini 1994:372).  Little is known about the settlement at Monte Finestrella because the site has been heavily damaged by modern reforestation efforts.  Material culture recovered from excavations conducted in the 1990s suggests that the people of Monte Finestrella consumed goods from west-central Sicily as well as locales as distant as Egypt (attested by a "Men-Kheper-Ra" steatite scarab) (De Cesare and Gargini 1994:372).

### Other Indigenous Elymian Sites

In addition to the larger indigenous sites located in western Sicily, many smaller concentrations of indigenous pottery have been identified at short distances from larger population centers. Archaeological survey has identified such smaller sites at Badessa I, a sixth to fifth century BC pottery scatter near Entella (Canzanella 1993:228); Poggio Roccione on Montagna Grande, a sixth century BC agricultural outpost located between Monte Polizzo to the south and Segesta to the north (Kolb 2007:179); and Calatubo, a sixth to fifth century BC pottery scatter between Monte Bonifato and the Gulf of Castellamare (Messana 2003:45; 2004:47). Often overlooked, these sites may have served as unfortified outposts or farming hamlets preserving evidence of social change from the fringes of the population centers.

## Greek Colonies in Western Sicily

Indigenous contact with foreign merchants is preserved archaeologically in the form of pottery, metal, and other trade items imported from Aegean cultures as early as the fifteenth to thirteenth centuries BC (Graham 1990:47; Leighton 1999:147; Morris 1996:55; Ridgway 1990:64). Such early contact introduced foreign material culture to the indigenous Sicilian populations, yet does not necessarily indicate a permanent Greek presence on the island. The earliest such permanent Greek outpost in Italy was established at Pithekoussai, on the island of Ischia in the Bay of Naples. Pottery recovered from Pithekoussai testifies to a Greek presence by 770 BC; however, the presence of Euboean pottery at Etruscan Veii suggests an earlier date of 800 BC (Coldstream 1968:335; Tandy 1997:66). The first permanent Greek settlement in Sicily was established in 734 BC at Naxos, a date supported by both historical and archaeological evidence (Graham 1990:47; Serrati 2000:10). Following Naxos, numerous Greek colonies were established across eastern Sicily at Syracusa, Zancle, Leontinoi, Catana, and Megara Hyblaea between 734 and 728 BC (Dunbabin 1948:485). Four Greek colonies were established in proximity to the indigenous Elymi of western Sicily: Akragas, Eraclea Minoa, Himera, and Selinus (Figure 2.17). Following the establishment of these Greek colonies, material culture imported from Greece and manufactured in the colonies infiltrated indigenous exchange networks throughout Sicily

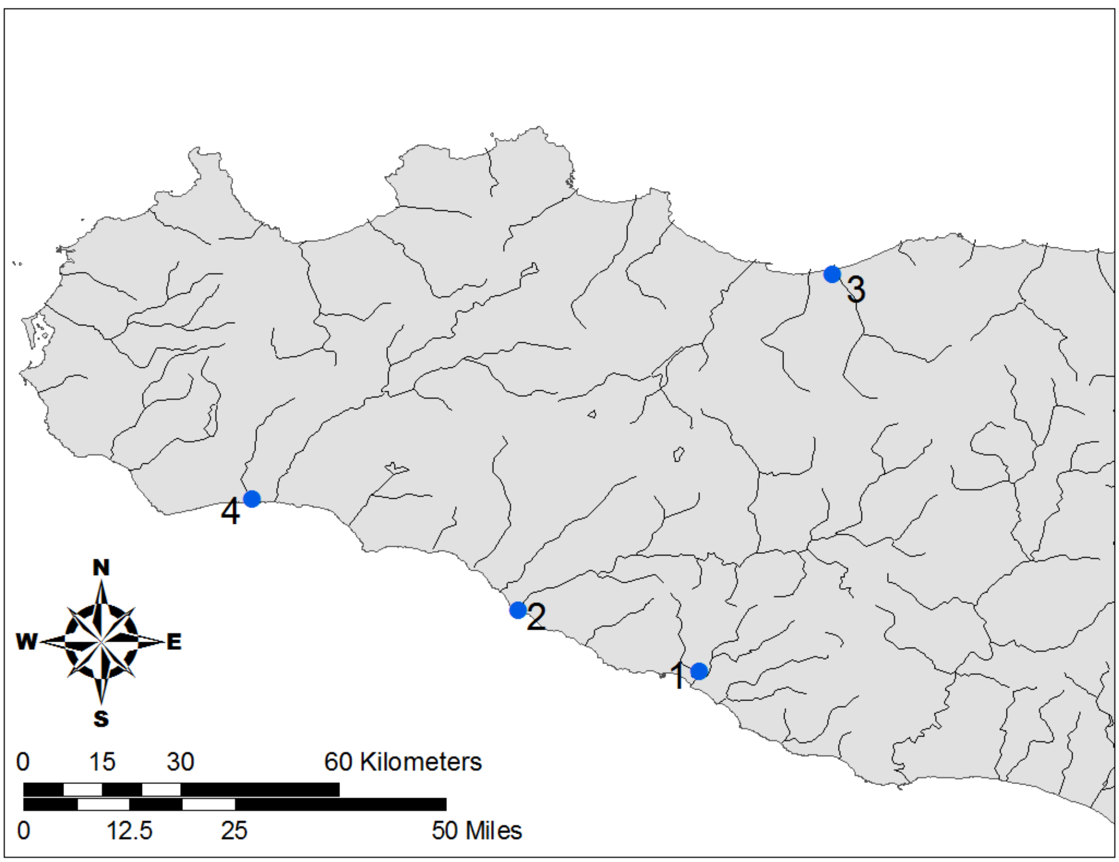



Figure 2.17. Map showing Greek colonies across western Sicily: 1 Akragas; 2 Eraclea Minoa; 3 Himera; 4 Selinus.

(Adamesteanu 1961:2; Graham 1990:47; Leighton 1999:239; Ridgway 1990:64). The Greek colonies of Akragas, Eraclea Minoa, and particularly Himera and Selinus, interacted intensively with the indigenous Iron Age western Sicilian populations.

## Site Histories of Key Western Sicilian Greek Colonies

### Himera

Established in 648 BC (De Angelis 2003:123; Dunbabin 1948:20), Himera was the first permanent Greek colony established in western Sicily. Himera's strategic position as the most westerly Greek colony along Sicily's north coast afforded economic prosperity in trade while also serving to counter the neighboring "barbarian" populations, the indigenes and Phoenicians (Adriani 1970:4). Exploration of Himera's past first began in the 1500s by the Sicilian historian Tommaso Fazello. A number of modern scientific excavations have since explored the fortification system (Vassallo 2003b), necropoli (Fabbri, et al. 2003), domestic quarters (Joly 1970), temples (Allegro 1989:638; Marconi 1931), and the possibility of indigenes living at Himera (Castellana 1980:74; Vassallo 2003a:1351). Two hundred years after its foundation, the population of Himera is estimated to have reached between 3000 and 4000 inhabitants (Martin, et al. 1980:577). A site of such considerable size may have had a significant social, political, and economic impression on neighboring indigenous communities.

### Selinus

Founded in 628 BC by settlers from eastern Sicilian Megara Hyblaea, Selinus is one of the most extensively excavated sites in western Sicily. Investigations at Selinus commenced in the mid-1800s, driven more by a desire to accumulate salable antiquities than by an interest in studying the past. In this manner, the acropolis, including the domestic quarter, was largely excavated by the late 1800s. In addition to the acropolis, additional habitation areas have been identified to the north as well as five large necropoli: Buffa, Galera-Bagliazzo, Gaggera, Pipio, and Manicalunga, located north and west of the acropolis. First excavated in the 1860s, both casually and in secret, these necropoli have been systematically investigated since the late 1950s (Kustermann Graf 2002:17).

Selinus was known in antiquity for its mercantile success and resulting wealth. Eight temples were constructed within and outside the fortified city walls. The ruins of the collapsed temples, long known among locals and bourgeois tourists alike, caught the attention of Douglas Sladen, a wealthy English traveler at the turn of the last century. Conceptualizing a structural resurrection of one of the collapsed temples, Sladen wrote, "It is a vast pity that the idea has not suggested itself to Mr. Andrew Carnegie. By the expenditure of a mere £5,000 he could re-erect, in honour of himself or the American people, a monument as fine as the Pantheon" (Sladen 1903:2-3).

**Akragas**

Founded in 580 BC by Aristonous and Pystilos of Rhodes and Gela (Dunbabin 1948:310), Akragas remains one of the more visible Greek colonies in Sicily. Archaeological investigations at Akragas commenced in the late 1800s and have explored the necropoli, domestic quarter, and the acropolis. More than six temples and sanctuaries were erected along a ridge at Akragas during the sixth century. As a result, modern tourists colloquially referred to the acropolis as the "valley of the temples", reinforcing the impressive nature of this display of wealth and power. The founding of Akragas signals a shift in which land acquisition became the primary motivator for establishing colonies in Sicily (Woodhead 1962:53). Akragas maintained territorial conquests impacting neighboring Sican and Greek populations, eventually leading to the establishment of Eraclea Minoa to restrict Akragas' westward expansion (De Angelis 2003:159).

### Eraclea Minoa

With an ancient foundation legend concerning the Cretan king Minos and his pursuit of Daedalus, Eraclea Minoa's mythical origins outshine its political and economic achievements. Established by settlers from Selinus during the mid-sixth century, Eraclea Minoa served as an outpost affiliated with agricultural populations inhabiting the territory east of Selinus (De Angelis 2003:149). Eraclea Minoa only survived as a Selinuntine colony for a short period before being captured by Akragas at some point between 505 and 488 BC (De Angelis 2003:162). First explored archaeologically by Tommaso Fazello in the early and mid 1500s, scientific excavations at Eraclea Minoa commenced in the 1950s (Mistretta 2004:29-31).

## Phoenician Sites in Western Sicily

Evidence for precolonial Phoenician influence upon indigenous Sicilians may extend back to the Late Bronze Age. Bernabò Brea posited that external elements of Sicilian patrimony may be attributed to Phoenician contacts beginning at that time (Bernabò Brea 1965; Ciasca 1989:76). High population and settlement density (Woolmer 2011:34) along the eastern Mediterranean shores coupled with maritime economic prowess provided the impetus for the Phoenician diaspora, an economic expansion that formally established over a dozen *emporia* across the Mediterranean beginning in the ninth century BC. The remains of three *emporia* in Sicily have been identified: Mozia, Panormus, and Solunto, although Thucydides claimed more existed during the initial Phoenician expansion (Figure 2.18).

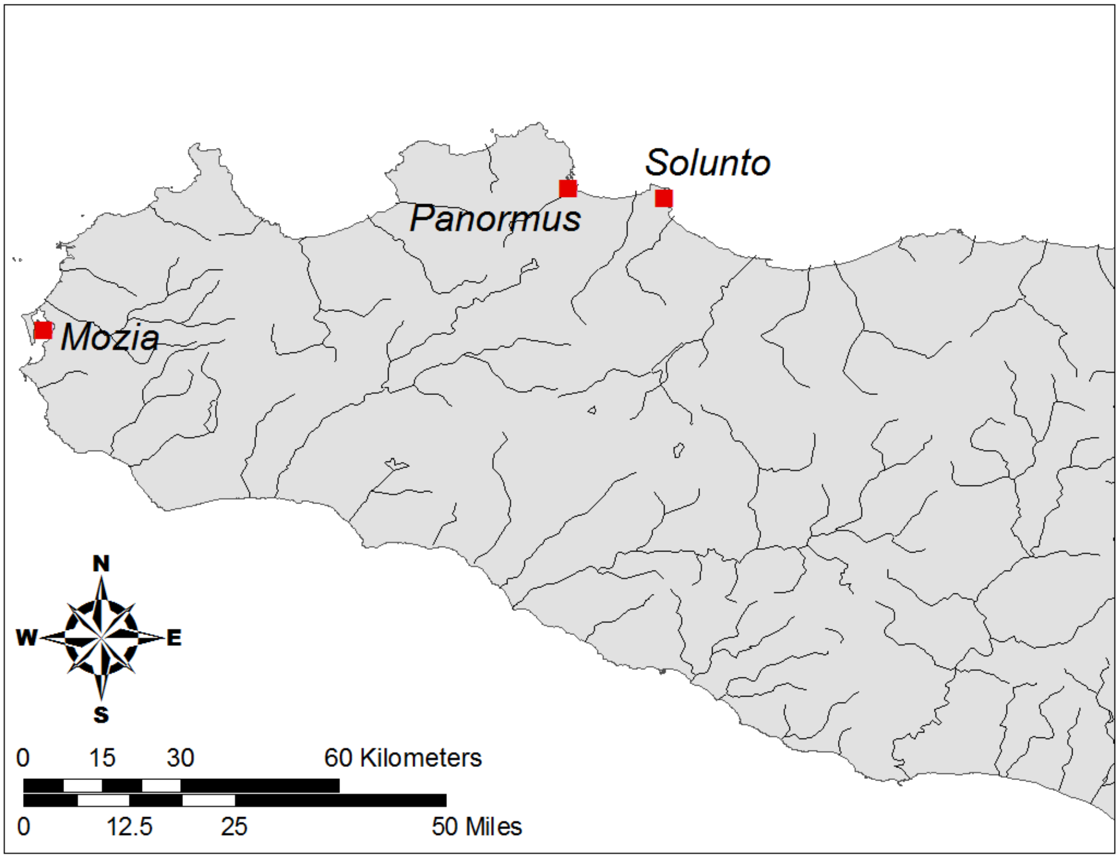



Figure 2.18. Map showing Phoenician *emporia* established in western Sicily.

## Site Histories of Key Phoenician *Emporia* in Western Sicily

### Mozia

The Phoenician settlement at Mozia is located on the island of San Pantaleo in a sheltered lagoon between Trapani and Marsala. The earliest historical research can be traced to the seventeenth century, with Cluverius' attempt to locate Mozia on the island of San Pantaleo in 1619 (Isserlin 1974a:3-4). Archaeological exploration of Mozia commenced in 1779, possibly under the direction of Prince Torremuzza (Isserlin 1974a:14; Whitaker 1921:113-4). Excavations continued under various authorities, including a four-day excursion by H. Schliemann in the 1870s (Isserlin 1974a:14; Niemeyer 1990:476-7). Large scale excavations began in 1906 under the direction of J. Whitaker, supervised by A. Salinas (Isserlin 1974a:14-15; Whitaker 1921:124).

Excavations at Mozia have uncovered evidence of a sophisticated settlement with industrial (Falsone 1981), domestic (Tusa 1969), and mortuary (Falsone 1980-1981:883) areas. The settlement on Mozia was protected by a fortification wall constructed of mud brick atop large cut stones (Isserlin 1974b:89), a construction technique also employed at Greek Mantinée (Fontemoing 1898:143). Historical accounts suggest the wall was a substantial fortification, requiring a number of siege engines to overcome it (Diodorus XIV.51.1). Mozia remains the best documented of the three Phoenician *emporia* on Sicily.

**Panormus**

Unlike many of the sites discussed previously, Phoenician Panormus lies beneath modern Palermo, impeding the investigation of ancient ruins by antiquarians and archaeologists alike. The earliest explorations of Palermo's past, similar to that of Sicily as a whole, were antiquarian pursuits. In a letter to Friedreich Wilhelm Eduard Gerhard, a founding member of the Institut für Archäologische Korrespondenz (later to become the Deutsches Archäologisches Institut), the Duke of Serradifalco described the excavation of seven tombs located immediately southwest of Palermo, comparing them with earlier excavations, some of which had occurred over 100 years earlier (Lo Faso Pietrasanta 1834a:5). Such descriptions communicated news of recent discoveries, preserving scant details while inspiring a jealous envy in future archaeologists.

Early systematic explorations of ancient Palermo commenced in 1868 under the direction of Cavallari, an excavation which lead to the discovery of an Imperial Roman mosaic (Tamburello 1998a:79). Systematic explorations of the ruins beneath Palermo continued and intensified, both in number and scientific nature, over time, eventually leading to an understanding of the ruins beneath modern Palermo. Although only a fraction of ancient Panormus has been identified, and still less has been excavated, the Archaic period fortifications (Di Stefano 1998c), necropolis (Di Stefano 2003; Tamburello 1974:152; 1978:30; 1998b), and domestic contexts (Di Stefano 1998b) have been explored, attesting to the mercantile importance of ancient Panormus.

**Solunto**

Antiquarian exploration of ancient Solunto first began under Tommasso Fazello in the mid sixteenth century, later followed by Torremuzza among others (Salinas 1884:18-19). Early explorations largely lacked scientific content, aiming instead to collect artifacts and verify the historical record. Ancient Solunto was first excavated by Cavallari in the 1860s (Salinas 1884:9), yet the first systematic exploration of the ancient city did not occur until the late 1800s with the work of Salinas. At that point, Salinas described a settlement located on Monte Catalfano near modern Santa Flavia which consisted of necropoli, ancient streets, and colonnaded (peristyle) houses with mosaic floors (Salinas 1884:8-10).

Research excavations first commenced in the 1920s under the direction of Gabrici, then intensified in the 1950s with excavations conducted by the Soprintendenza alle Antichità della Sicilia Occidentale, exploring three inter-related topics: the Phoenician cultural presence, aspects of urbanization, and the relationship with other peoples of the Mediterranean (Cutroni Tusa, et al. 1994:15-16). Research excavations have suggested (in sum) that Solunto was occupied from at least the third century BC until the second century AD (Cutroni Tusa, et al. 1994:15), was highly urbanized, delineated into both private and commercial zones (Cutroni Tusa, et al. 1994:28), utilized a sacred area possibly dedicated to Neptune (Cutroni Tusa, et al. 1994:39), and had a Phoenician necropolis with tombs cut into bedrock (Cutroni Tusa, et al. 1994:102; Greco 2000:1320; Tusa 1971:33).

## Foreigners in a Distant Past

The foreign Greek and Phoenician settlements established on Sicily served significantly different social and economic purposes. Interpretations of Greek colonial expansion across the western Mediterranean vary greatly, ranging from political and economic to social explanations (Descœudres 2008:294-5; La Torre 2011:24). Because private merchants supplied Greek cities with grain, ores, and other requisite resources (Dietler 2010:140), the western colonies ensured perennial access to distant resources, entangling diverse populations within extensive trade networks far from Greece. Unlike the Greek colonies, the Phoenician trade outposts on Sicily were established to facilitate trade, not settle people (Woolmer 2011:50). Settlements of this type have been termed *emporia*, "marts…in the midst of the host culture" (Johnston 1994:156). The term *emporia* has also been taken to designate loci of commercial transactions, not simply the places where trade occurred (Casevitz 1993:20). Hansen (2006:1) maintains that two types of *emporia* existed: communities that maintained *emporia* and communities that were *emporia*.

It remains possible however, that the Greek colonies of Selinus and Himera were in fact *emporia* rather than colonies (Maddoli 1982:251). Despite this remote possibility, Hansen (2006:8) notes that both Selinus and Himera were attested as *poleis* by the ancient authors and therefore cannot be considered *emporia*, an important issue which is nevertheless outside the scope of this dissertation. For the purposes of this study, Selinus and Himera are considered *poleis*, not *emporia*, because they were labeled as such by the ancient sources and they largely appear to be population centers with commercial quarters. However, the Phoenician settlements at Mozia, Solunto, and Panormus are, once again for the purposes of this study, considered to be *emporia* for two reasons. First, they are not labeled as *poleis* by the ancient sources, and second, they appear to be commercial centers with population quarters, not population centers with commercial quarters.

### Iron Age Sicilian Pottery Production

Little is known about Iron Age and Archaic period pottery production across Sicily. Although numerous production centers have been posited, few pottery workshops have been physically located and fewer still have been studied in detail. The majority of past excavations have focused on colonial Sicily, so most of the known kilns dating from the archaic period are located at Greek and Phoenician centers. As an unfortunate result, only one archaic kiln has been positively identified at an indigenous site in western Sicily.

### Indigenous Elymian Pottery Production

Entella is the only location where archaeological remains of Elymian pottery production facilities have been positively identified. Much of what is known about Iron Age and Archaic period indigenous pottery production has been drawn from studies of material recovered from excavations at Entella, Segesta, and Monte Maranfusa. Indigenous Elymian pottery is believed to have been constructed by hand prior to the arrival of the Greeks in the interior of western Sicily (Di Noto 1995:84). Ceramic technology became increasingly sophisticated as a result of contact with traders from Greece and Phoenicia. One of the more important innovations, the potter's wheel, was first introduced to Sicily at the start of the Bronze Age, possibly by Aegean merchants (Di Noto 1995:84). Several locations in Sicily and the surrounding islands preserve evidence of local production utilizing a potter's wheel during the Bronze Age, specifically at Lipari (Bernabò Brea and Cavalier 1980:565-566; Di Noto 1995:105) and Sant'Angelo Muxaro (Di Noto 1995:105; Fatta 1983:74-75). The first wide-spread use of the potter's wheel by indigenous Sicilian cultures occurred during the seventh century BC; however, it appears that both hand and wheel production techniques were employed contemporaneously for a period of time (Di Noto 1995:84).

Indigenous pottery production at Iron Age and Archaic period Entella is attested by the presence of two updraft kilns identified through archaeological excavation. These kilns were partially embedded within the local bedrock and were lined with clay mortar applied by hand, containing ceramic fragments, *chamotte*, and frequent vegetal inclusions (Guglielmino 2000:703). These kilns were instrumental components of the local indigenous economy, producing pottery for both local use and trade.

Indigenous pottery decoration is generally incised/impressed or painted, rarely a combination of both. The geographic distribution of incised/impressed pottery with similar geometric designs spans both Elymian and Sican territories, clouding any attempts at specific cultural associations (Hodos 2006:136; Spatafora 1996a:156). Incised/impressed pottery appears before painted decoration; however, constructing a chronology of pottery styles remains problematic (Di Noto 1995:85).

## Colonial Greek Pottery Production

Potters were certainly living and working within the industrial areas at the colonies of Selinus and Himera. Two kilns have been identified within the city walls at Selinus. Unfortunately, no excavation notes, contexts, or materials are known from the excavation of these two kilns (Abdeldayem, et al. 1992:131). In addition to the two aforementioned kilns, a massive kiln has recently been identified at Selinus. This kiln, although excavated, has yet to be published and will certainly provide an important proxy for future Selinuntine pottery production studies.

## Phoenician Pottery Production

The production of Phoenician pottery on Mozia is better understood than that of the Greek colonies in western Sicily because kilns have been identified and explored at two of the three *emporia*. The best preserved of these kiln complexes is located at Mozia, where four kilns were identified and excavated during the 1970s. These four kilns at Mozia represent a major contribution to the understanding of Phoenician pottery production in the western Mediterranean. They are distinctly Phoenician in origin based on their omega shape and bilobate structured combustion chambers (Falsone 1981:2-3). Additionally, a funerary inscription discovered at Mozia in 1779 referred in Punic script to the “Tomb of [Mater], the potter,” confirming the presence of Phoenician potters’ tombs on the island of San Pantaleo (Guzzo Amadasi 1967:56). In addition to the Mozia kilns, one additional Phoenician kiln has been discovered and partially excavated at Solunto. Located at Contrada San Cristoforo in nearby Santa Flavia, the kiln is a Phoenician type similar to Kiln 4 at Mozia and can be dated from the end of the seventh to the early sixth century BC (Di Stefano 1999:224; Greco 1993-94:1167).

## Defining Indigenous Sicilians

As this chapter has demonstrated, Sicily was the location of repeated intensive social contact and interaction among diverse populations in prehistory. As different population centers were established or abandoned with the ebb and flow of local political events, the opportunities to interact with diverse populations fluctuated as well. Figure 2.19 presents a general chronology of the western Sicilian polities discussed in this study.

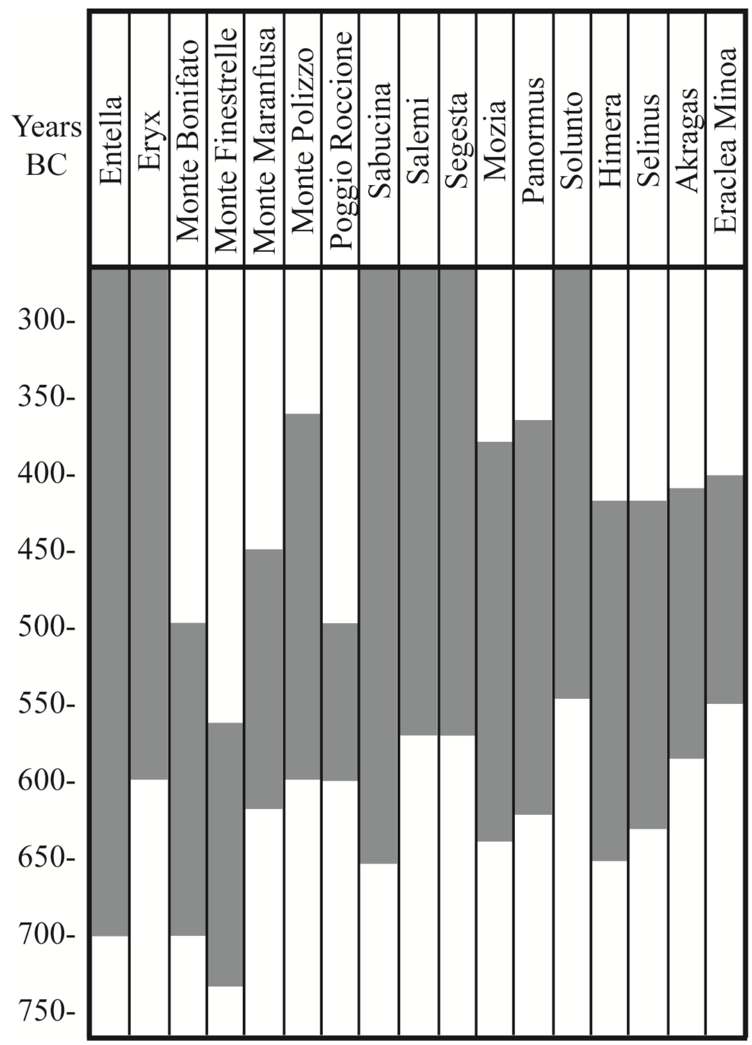



Figure 2.19. General chronology of Sicilian sites discussed in this study.

Just as many of the Phoenician *emporia* collapsed due to conflict with Greeks, the Greek colonies collapsed due to Carthaginian military campaigns under the command of Hannibal in the late fifth century BC.  The resulting regional destabilization empowered the eastern Sicilian tyrants, once again transforming Sicilian culture.

# CHAPTER III: THEORETICAL MODELS

There she lies, the great Melting-Pot – Listen! Can't you hear the roaring and the bubbling? There gapes her mouth – the harbor where a thousand mammoth feeders come from the ends of the world to pour in their human freight. Ah, what a stirring and a seething! Celt and Latin, Slav and Teuton, Greek and Syrian, black and yellow – (Zangwill 1909:198-99).

## Culture Contact and Interaction

Contact and interaction between cultures are inevitable. As diverse people interact and intertwine, they often entangle their various languages and social customs, adding cultural ingots to the melting-pot of social transformative processes. Understanding the different stages and components of social change remains a challenge which has perplexed humans for millennia. As a result, diverse theories attempting to explain social transformation have been developed. Archaeology is unlike other science-based academic disciplines in that there are no purely archaeological theories; every theoretical model applied to archaeological interpretation has been borrowed from other fields. This study employs theories from economic and cultural anthropology in order to understand the economy of interaction as well as the interaction of economy with other social loci. Theories applied to archaeological culture contact scenarios derive from a multitude of diverse backgrounds in part because of the complexity of human cultural interactions.

Social contact initiates changes to local lifeways, material culture, and language, sometimes mixing various elements of local and foreign cultures, potentially transforming general social traditions as well as the objects of everyday and ritual functions. From its antiquarian origins, archaeology has always attempted to account for change observed in past societies. These explanations have become increasingly more sophisticated over time, going so far as to explore the social, political, ethical, and contemporary academic biases influencing present interpretations of the past.

Contact and change have long been popular topics of archaeological inquiry in central and southern Europe. Past explorations of ancient interaction and transformation have employed different theoretical strategies to comprehend archaeologically visible evidence of social transformation. For example, early studies by Frankenstein and Rowlands (1978; Rowlands and Frankenstein 1998) and Wells (1980a, 1980b) considered the roles of exotic material culture in sophisticated contact and interaction between west-central European and Mediterranean populations, with a focus on the circulation of Greek sympotic ceramic vessels in Iron Age communities.

Frankenstein and Rowlands (1978; Rowlands and Frankenstein 1998) explored the organization and social significance of trade and production at late Hallstatt population centers. Other studies had employed modern economic principles to account for late Hallstatt craft production (Driehaus 1972), yet these studies tended to oversimplify the social mechanisms that powered the observed transformations (Frankenstein and Rowlands 1978:75; Rowlands and Frankenstein 1998:336). In order to demonstrate that the changes were related to the circulation of prestige goods, Frankenstein and Rowlands examined mortuary assemblages from over 40 graves and tumuli in the Heuneburg area and beyond (1978; Rowlands and Frankenstein 1998). They concluded that Hallstatt social development in the Heuneburg region was a direct consequence of the economic relationship with Mediterranean populations; mercantile interaction with foreigners facilitated the incorporation of prestige-goods manufactured by foreign cultures in exchange for raw materials and/or slaves (Frankenstein and

Rowlands 1978:109; Rowlands and Frankenstein 1998:371). This attempt to identify the social mechanisms responsible for the presence of prestige goods related to feasting emphasized that Europe and the Mediterranean were two components of a larger system which had to be examined locally and regionally (Frankenstein and Rowlands 1978:73; Rowlands and Frankenstein 1998).

Contrasting the long-distance terrestrial relationships between Hallstatt and Mediterranean populations suggested by Frankenstein and Rowlands (1978; Rowlands and Frankenstein 1998) and Wells (1980a, 1980b) explored the presence of Etruscan bronze vessels and other exotica in late Hallstatt mortuary contexts during the sixth and fifth centuries BC. During that period, such bronzes were exotic vessels, luxury imports possessed only by wealthy and powerful chiefs (Wells 1980b:136); however, the presence of these vessels in late Hallstatt graves could not be accounted for using purely economic models. As a result, Wells hypothesized that Celtic mercenaries, having received these vessels as partial payment for services, brought these exotics back to central Europe after serving in that role (1980b:136). Unlike Etruscan bronzes, Wells (1980b) argued that Greek bronzes such as the Vix *krater*, the Grächwil *hydria*, the Grafenbühl tripod, and the La Garenne tripod and cauldron were exotics manufactured for special purposes, possibly as gifts (1980b:77). Bridging economic and social theories, Wells was able to posit interaction and economy as the catalysts that resulted in archaeologically visible transformation.

A third approach to the subject of social transformation due to colonial interaction is represented by Dietler (2010). Social interaction, according to his model, is heavily influenced by food and drink; consumables which are culturally defined within rubrics of “proper consumption” (Dietler 2010:185). As colonial interaction introduced exotic foods – and more especially beverages, local populations “indigenized” these over time, eventually reconfiguring them as components of local cuisine (Dietler 2010:186). Dietler makes a case for the indigenization of consumables from the Mediterranean in Iron Age southern France; prior to colonial contact with Greeks, local Gauls consumed beer and animal fats, yet transitioned to wine and olive oil following contact and intense interaction with their colonial neighbors (Dietler 2005:174-175; 2010:193). Local Iron Age populations in the Rhône basin then incorporated Attic drinking vessels alongside their own Cream-ware ones, suggesting that indigenous wine consumption “was the result of choices made by consumers to which traders responded” (Dietler 2010:195). Dietler (2010) largely follows Arnold (1999) on the mechanism but not the scale of interaction in Gaul. Arnold (1999) suggested that “the change in drinking equipment corresponds to a change in what was being consumed by the aristocracy as a status beverage” during the La Tène period (1999:75). Thus, the introduction of behaviors associated with particular consumable beverages, in this case wine, significantly affected the socio-economic development and transformation of indigenous European populations.

Several potential modes of interaction may have facilitated social transformation in southern Europe; the specific process/processes of social change remain contested. Whether communicated by direct mercantile interaction, itinerant soldiers, or via a cup of the local brew, social norms and behaviors introduced from one group to another culminated in socially and materially expressed transformation. Various models have been posited to account for the processes of social change in spatially and temporally diverse contexts. In several respects the tri-nodal Sicilian entanglement and that of the early Iron Age west-central European regions are analgous and will be referenced again later.

## Previous Social Transformation Theories

Ancient culture contact and interaction have perplexed antiquarians and archaeologists for well over a century, spawning a number of complex and nuanced theories. Drawing on the nineteenth century culture concept, employing the French term "*culture*" to describe human progress and innovation (Trigger 1989:162), early culture contact theories attempted to account for the presence of foreign objects in local contexts.

The study of culture contact is tightly interwoven with the study of social interaction and immigration, therefore numerous models were developed over time to explain archaeologically visible changes to society, using terms such as acculturation, assimilation, Hellenization, and Romanization to describe this process. These various theoretical frameworks were employed to pursue different interpretive goals, often favoring one culture over others. For instance, Hellenization models favored Greek contributions to contact and interaction, often neglecting to consider the role of the indigene as an agent of social change. Early culture contact theories uncritically, or at best ephemerally, evaluated the effects of past social entanglements, frequently reflecting empiricist approaches to social stratification popular in the contemporary socio-political climate. Despite many problems, these early theories remain important components of modern approaches to social transformation in the past.

## Acculturation

One of the earliest processes invoked to account for social change was acculturation, a "force" which "under the overwhelming presence of millions of civilized people has wrought great changes" (Powell 1880:46). Historically, the term acculturation has been defined in various ways to express significant social change in one culture resulting from prolonged contact with another (Angelo 1997:8; Gordon 1964:61; Herskovits 1958:10; Linton 1940:463-65; Redfield, et al. 1936:149; Watson 1952:12), often due to the forced adoption of values by the colonized. According to Herskovits (1958:3), the earliest use of the term dates to the 1880s when it was employed by American ethnologists to account for social change in Native American societies interacting with European groups and displaced native populations (Trigger 1989:275). Acculturation theories employed to account for changes in Native American societies as a result of contact with Westerners tended to ignore even the possibility of indigenous social developments in favor of Western-derived social ingenuity (Barnouw 1950:10).

Acculturation was viewed as a process that operates through "diffusion and borrowing of culture traits" (Watson 1952:12) which alter a culture over time (Keur 1941:1). Acculturation is often used to account for indigenous social change resulting from participation in colonial entanglements. According to Lamberg-Karlovsky (1985:58), acculturation "offered the indigenous culture a pattern, or model, of social, political, and economic organization hitherto not present" in affected areas. Such intense social contact also introduced new objects or provided the impetus to modify existing ones, often manifested as changes in form, material, use, or technology (Quimby and Spoehr 1951:107). Newly introduced objects varied widely, from carved wooden chess figures created by Pacific Northwest Kwakiutl Native Americans (Quimby and Spoehr 1951:116) to glass bottles traded to Native Hawaiians in the early 1800s (Kashay 2007:282). Objects obtained through contact with foreigners were also physically modified by indigenes, repurposed from their original form or function. For example, English colonists occupying Victoria, a mid-nineteenth century English colony in northern Australia, discarded empty wine and brandy bottles which were then flaked by Aborigines into a variety of tools similar to traditional chipped stone forms (Allen 2008:79; Meehan 1990:201).

Acculturation theory was frequently applied to studies of Native Americans because it preserved the social dichotomy preached by many early American ethnologists, according to which Indians readily abandoned their traditional ways, thereby becoming westernized. Barnouw's (1950:11) study of Wisconsin Chippewa reactions to United States government policy and practice selected acculturation as the primary social mechanism through which "…Indian society responded in terms of already existent values and traditions". In this way, acculturation served to both dominate and indoctrinate; to replace established indigenous social norms with western ones. Acculturation was not limited in scope to abstract social norms; the French supplied the Chippewa with firearms and other goods, creating a physical dependence upon European material culture in order to survive (James 1830:10). According to this model, because the indigenes came to rely on foreign goods, a mutual symbiosis between French and Chippewa populations developed; the French relied on furs, the Chippewa on European goods (Barnouw 1950:42).

Acculturation theory was also employed to account for significant changes in subsistence strategies following contact between indigenous and foreign cultures. The semi-sedentary Cayuá, an indigenous society inhabiting the tropical forests of central Brazil, underwent significant social changes following sustained contact with Europeans. After a period of intensified contact and interaction, the Cayuá were physically relocated and became socially acculturated. After being relocated onto small reservations, the acculturated Cayuá became fully sedentary, intensifying their agricultural activities as a result of political alliances guaranteeing protection from attack, the introduction of metal agricultural implements, and the territorial restriction of small reservations (Watson 1952:98). This shift in subsistence strategy was attributed to acculturation; the transition from foraging to food production was considered a direct result of contact and interaction with foreigners.

Acculturation has been employed in a variety of studies to account for changes to indigenous populations throughout the Mediterranean, including prehistoric Sicilian cultures, as well as with cultures in west-central Europe in the Hallstatt period, as mentioned previously. The eastern Sicilian Bronze Age cultures were the focus of one such study in which the appearance of imported Greek, Cretan, and Cypriot vessels accompanied changes in domestic architecture and mortuary practices and were described as signaling a social shift in which Sicilian indigenes began to incorporate and imitate foreign lifestyles (D'Agata 1997:452-456).

### Assimilation

A second theoretical concept used to account for the social changes resulting from contact and interaction is assimilation, defined as a “process of interpenetration and fusion in which persons and groups acquire[d] the memories, sentiments, and attitudes of other persons and groups" thereby instilling a "common cultural life" (Park and Burgess 1921:735). First appearing in the early 1800s, the concept of assimilation was framed as a process of social change initiated by the individual. For example, many Irish intentionally Anglicized their surnames in the 1830s and 40s in an attempt to disguise Irish ancestry and therefore *appear* to be English (O'Donovan 1841:383). Assimilation theory gained further popularity in the mid 1800s as one possible solution to "the 'despotic' and 'corrupt' reservation system" established to control Native Americans in the United States (Hoxie 1984:10-11). Simply put, assimilation was a social mechanism instituted to "civilize" Native Americans (Hoxie 1984:11) and thus relieve America of one obstacle in the way of manifest destiny.

The process of assimilation served as a powerful mechanism for social change; the product of primary culture contact (Park and Burgess 1921:736), characterized as first-hand encounters between social agents. Such primary encounters could include the interactive relationships between slave and master, soldier and commander, husband and wife. Other forms of contact, such as the social relationships between merchant and consumer, or between different merchants, were considered secondary contacts; social encounters in which actors accommodated the "other" but failed to fully assimilate (Park and Burgess 1921:736-37). The relationships between local and foreign actors, when intensified through primary contact, could thus expedite the adoption of foreign social norms and lifeways.

The end results of both assimilation and acculturation were very similar, changing indigenous cultures by realigning them with westernized social orders. As a result, assimilation was often employed as a component of acculturation (Linton 1940:464), a process which provided the path of least resistance for social change. The various culture contact theories developed and employed in the past (some of which persist in the present) share one common attribute: they all involve the exchange of goods and ideas between populations. One almost certain result of contact between different populations was communication between different agents, facilitating the exchange of ideas at the very least. After such communication, recipient cultures might employ foreign ideas, developing new social trajectories directly or indirectly associated with material exchange (Lamberg-Karlovsky 1985:58; Trigger 1989:334).

As imperial governments were expanding their territories in the nineteenth and early twentieth centuries, encountering diverse populations and considering how to deal with them, antiquarians and archaeologists were beginning to explore antiquity ever more critically by asking questions, not just collecting objects. In the process, antiquarians borrowed concepts from social theory in order to account for the evidence of social change they observed in the archaeological record. It is no surprise that acculturation and assimilation, social processes visible in contemporary contact situations worldwide at the same time, were employed by antiquarians and archaeologists to account for culture contact and interaction in antiquity.

The concept of assimilation was employed to account for the process of social change in ancient populations as early as 1856. At that point in time, the social transformation of Scotland was attributed to "two great periods of assimilation" which occurred in the ninth century AD (Hume 1856:156). As the cultural assimilation concept took hold in Britain, it was extensively employed to account for contact in the past. In

1857, the Roman temple of Apollo located along the Thames (currently beneath Westminster Abbey), was "appropriated to the Sun-God" through Roman assimilation (Unknown 1857:91). The acculturation concept as a mechanism of social change in antiquity appeared later than assimilation. One of the earlier archaeological applications of acculturation theory attempted to account for social change in Asian populations as a result of "autogenous [processes] rather than by acculturation" (Powell 1888:112).

## Culture-Specific Theories of Change

Theories accounting for culture-specific social change evolved from acculturation and assimilation, giving rise to terms such as Hellenization, Romanization, and Americanization. The concept of Hellenization appears in a fragment by the Roman historian Justinus (Justin): "from the Greeks the Gauls learned a more civilized way of life and abandoned their barbarous ways" (Jus. 43.41-2 [after Dietler 2010:1]). Although Justinus wrote well before the term Hellenization was coined, he aptly described this social process. The term Hellenization was first used to interpret linguistic transformations in which Greek script was employed on ancient inscriptions and graffiti. In the late nineteenth century, Hellenization was redefined to account for social change in which a culture became more Greek-like, a perceived advance from a barbarian to a more civilized way of life. For example, archaeological explorations in Asia Minor suggested that local populations there adopted Greek social institutions (Sterrett 1883:376), constituting a "gradual Hellenization" in which they "retained their own language and customs until the spread of Christianity" (Fowler 1900:249).

Another culture-specific term employed to characterize the processes of social change was Romanization, which first appeared in the late nineteenth century. Almost identical to the definition of Hellenization, the term Romanization was used to convey a shift from indigene to Roman, once again involving a transformation from barbarian to civilized citizen. This process was seen as an indigenous response developed to maintain social status in the face of change introduced by foreign actors (Millett 1990:212). Early proponents of Romanization argued that this process had been initiated by the social elite in order to secure and maintain power. Such initial interpretations considered Romanization an unchallenged process which swept through sixth century AD Gothic populations in Spain: "If ever any champion of the old Gothic feelings and ideas filled the throne, he was sure to be succeeded by some Romanizing son…" (Hodgkin 1887:219).

Following the successful and popular application of Hellenization and Romanization models, additional transformative theories were developed to account for both past and then-present interactions and social change. One such theoretical process was Americanization, defined as the adoption of American government, political and social freedoms, education, language, habits, and customs (Talbot 1920:73). Such models were derived from various ethnonyms, persisting today to imply varying degrees of social change and interdependence. Terms such as Asianisation (Ang 2000:126; Jayasuriya and Pookong 1999:2), Mexicanization (Beals 1932:29; Fox 1980:43), and Africanization (Stoller 2002) have been variously employed, typically implying a disproportionate exchange of social concepts from one group to another. The development of such terms permeates Sicilian archaeology as well, where the term *Eliminizzazione* (Tusa 1999a:659) has been used to account for eighth century BC indigenous social change and interaction between the Elymi and Sicans in the area surrounding Monte Finestrelle.

Critical evaluations of interaction and social change have recently facilitated a more nuanced understanding of the process of social change. Contemporary immigrant lifeways provide a means to study firsthand the mechanisms powering the processes of social transformation. One such study has evaluated Sikh immigrant communities in upstate New York, revealing that complex variables, including sex, age, date of entry into the United States, urban-rural origins, degree of religious orthodoxy, and education level, affect social transformation processes and the concomitant degree to which an agent has become acculturated (Angelo 1997:216). Such variables have differentially affected Sikh acculturation in the United States, demonstrating that the process of social change was much more complex than previously considered; social transformation was not a simple adoption of new lifestyles, but a selective and contingent incorporation of particular elements instead.

Assimilation theory has faced similar re-evaluation because populations are now thought to be assimilated only by consciously accepting social change; if change is forced upon a population, then assimilation has not occurred (Stewart 1997:xv). Sikh immigrant communities in the United States demonstrate this distinction by selectively endorsing or resisting assimilation. Immigrant families prepare their children to compete in mainstream American society while preserving their familial values, a strategy applied to actively accommodate American social norms while resisting assimilation (Gibson 1988:128). This suggests that assimilation and acculturation are not necessarily mutually exclusive processes but, because of the nuances of each process, often operate independently of each other. As a result, employing acculturation or assimilation theories to categorize archaeological culture contact, interaction, and eventual entanglement is difficult at best.

Acculturation, assimilation, Hellenization and Romanization are different theoretical constructs accounting for similar archaeological phenomena resulting from social adoptions of foreign objects and/or lifeways. For a long time, acculturation and assimilation remained largely free of critical evaluation; characterizations of social change as a unidirectional exchange process from the cultured to the barbarous were the norm. Other, less popular theories also developed, accounting for past social transformations in much the same way as acculturation and assimilation. Theories such as social acclimatization (Susser 1970:65) and social amalgamation (Goring-Morris and Belfer-Cohen 2011:S200) were employed for brief periods, elucidating different responses to a plethora of social variables collectively expressed in unique ways by different populations. Social change clearly involved paradigm shifts among historically documented populations; theoretical re-considerations of the social mechanisms accounting for such change initiated similar paradigm shifts among archaeologists studying ancient culture contact.

## The Postcolonial Critique

During the twentieth century, new perspectives appeared, recognizing that archaeological interpretation had inadvertently tended to marginalize certain social groups. Following the end of World War II, harsh criticism of colonial endeavors emphasized the previously ignored or overlooked role of marginalized social categories and peoples, particularly those subjected to colonial rule. Gramsci (2006) defined these groups as under- or un-represented. His use of the term "subaltern classes" described marginalized social groups for which "there are no traces of their history in the historical documents of the past" (Forgacs and Nowell-Smith 1985:294). By this definition, the majority of cultures studied by archaeologists could be considered subaltern; the lack of historical documents is a deficiency resulting from either anthropogenic biases or the absence of writing. The study of past cultures with little or no historical documentation progressed uncritically, employing colonial rubrics to account for archaeologically visible interaction and change. For centuries, subaltern cultures of the past have been studied through the often unavoidable etic lens, drawing from colonial western perspectives in order to characterize the material residue and historical texts which have survived to modernity. Employing an etic perspective remains unavoidable for the archaeologist; cultural differences distance the intellectual from the subject culture, a gap further amplified by time and space.

During the 1970s and 1980s, critical evaluation of the role of etic perspectives of subaltern cultures led to new approaches to the study of the past. Many of these new approaches were the result of changing relationships between archaeologists and sociocultural anthropologists (Beauregard 1994:22; Trigger 1989:18). One of these new approaches, postcolonial criticism, synthesized "a radical rethinking of knowledge and social identities authored and authorized by colonialism and Western domination" (Prakash 1994:1475). Intellectual discussion began to focus on the role of the subaltern in social change, empowering those cultures and people who had been marginalized by earlier studies. The postcolonial approach critiqued the perspectives of the "colonized intelligentsia," choosing instead to defend the role of native intellectuals (Fanon 1963).

Postcolonial scholarship attempted to provide a voice for the subaltern, resurrecting indigenous perspectives through decolonized interpretive frameworks. Commonly applied to modern issues of identity following the fall of colonial regimes across the globe, these approaches have played an important role in interpretations of the past. In more recent studies, the postcolonial critique provides one way to re-evaluate archaeological cultures free from the historic and intellectual biases inherent in previous interpretations.

Applicable to both modern and past social entanglements, postcolonial theory provides an approach that considers the intersection of the numerous and varied cultural perspectives expressed in colonial situations. It draws attention to previously unacknowledged biases stemming from colonial origins in archaeological, historical, literary, and sociological interpretations. Understanding the past through a colonial lens often neglects local innovation, attributing social transformative mechanisms primarily to foreign origin and influence. With the rise of postcolonial perspectives, archaeologists became more sensitive to the Western biases inherent within their research, fostering a major re-evaluation of pre- and proto-historic interpretations (Hodder 1986:167; Layton 1994:2; Preucel and Cipolla 2008:130). Western perspectives employed in attempts to understand archaeologically visible cultural identities were “themselves a historical construction” (Croucher 2010:355; Hill 1998:162; Shanks and Tilley 1987b:29), devaluing indigenous culture through neglect, often subordinating it to studies of the colonizer.

Postcolonial considerations attempt to “decolonize the mind” (Prasad 2003:7), freeing the individual from colonial or neo-colonial influences. Our own colonial and neo-colonial perspectives affect our interpretations of the modern socio-political-economic environment (Thiong'o 1986:88). Attempts to interpret the past are further complicated by the fact that our understanding of past social environments can easily reflect modern perspectives, important to the archaeologist, but possibly irrelevant to past cultures. Therefore, interpretations of the past must attempt to avoid colonial and neo-colonial influence if they are to allow indigenous cultures to be understood objectively.

Indigenous archaeology is one of many responses to the postcolonial critique. This approach emphasizes the socio-political interests of indigenous communities through archaeological interpretation. Indigenous archaeology does not incorporate indigenous archaeologists within research; rather, it is conducted by indigenous people for indigenous interests (Nicholas and Andrews 1997::3; Preucel and Cipolla 2008:131; Wobst 2005:17). Indigenous archaeology is challenging in western Sicily because modern Sicilians have very ethnically mixed origins resulting from past Greek, Phoenician, Italian, North African, Norman, and Spanish occupations. With highly varied ethnic origins, modern Sicilians are situated within a continuous identity flux (Verdicchio 1997:191) that affords them numerous shifting ethnic associations. When decontextualizing ancient subaltern Sicilian cultures, modern Sicilians understand their past as a heterogeneous context (Dombroski 1998:261) forged from centuries of foreign occupation punctuated by military and political conquests. Early interpretations of Sicily’s past were developed through the recreational excursions of wealthy foreign elites, antiquarians who cared more for stocking their private collections than deciphering Sicily’s rich cultural heritage. With the establishment of cultural *Soprintendenze* (Superintendents) in the mid-twentieth century, modern Sicilians began to manage the interpretation of their past directly through sponsored projects as well as indirectly through sanctioned international collaborative projects. In this way, modern Sicilians manage their own cultural patrimony.

In text-aided archaeology, the postcolonial perspective critically questions historical sources and traditional interpretations of past cultures. This serves to limit ethnohistoric biases, de-territorializing our discourse (Hallward 2001:22) in order to examine ancient cultures as free from adverse influences as possible. Prior to the adoption of the postcolonial critique, Greek and Roman historical texts were uncritically accepted, perpetuating the pro-Greek prejudice of most ancient authors (Whitehouse and Wilkins 1989:102). Re-evaluation of these texts illuminates Greek and Roman etic perspectives of indigenous Sicilian population centers, people, and cultural practices, biases difficult to ascertain from the archaeological record. As a result, postcolonial discourse empowers the "other" by evaluating a culture as an independent unit, rather than as subordinate to a colonizing power.

The postcolonial critique is particularly well suited to studying the development and expression of social entanglements following the ancient establishment of permanent Greek and Phoenician settlements on Sicily. Profound changes to indigenous Sicilian societies occurred after the founding of foreign settlements during the seventh and sixth centuries BC. These cultural and technical changes have often been attributed to foreign influence, explicitly framed as colonial; however, postcolonial approaches consider the possibility of local, indigenous innovations leading to such changes.

Postcolonial perspectives have been applied to social entanglements across spatially, temporally, and culturally diverse contexts. For example, Kusimba (2009:59) has re-evaluated east African metallurgy, challenging previous suggestions that crucible steel and shipbuilding were not African innovations. Contrary to previous colonial interpretations, his data suggest that East Africans manufactured crucible steel nails at several coastal sites in order to facilitate shipbuilding. Postcolonial evaluations challenge theories that suggest foreign influence has guided technological and social change, considering instead the role of local, indigenous people as agents as well as recipients of change (Kusimba 2009:60).

## The Theory of Cultural Hybridity

Postcolonial studies have contributed fresh perspectives on social entanglement, synthesizing novel approaches to account for complex contact and interaction in the past. These include the theory of cultural hybridity, a nuanced theory forged from postcolonial perspectives, accounting for the creation of an archaeologically visible "other" during complex social entanglements. Hybrid cultural theory is a response to the recognition of the "multiplicity of cultural borders" (Chambers 1996:50), a phenomenological attempt to comprehend the social development of distant and enigmatic cultures.

During interaction between cultures, social lifeways and boundaries overlap, blending in such a way that the participants can no longer be readily associated exclusively with either of the original cultures. Language, values, material culture styles, and architecture become altered, incorporating foreign and local elements, synthesizing socially-mixed responses that attest the degree to which individuals have accepted social change. Earlier social transformation theories such as acculturation and assimilation tended to invoke a polarized, unicultural perspective. In the late 1980s, social theorists realized that such uniculturalism "is most often used to assert cultural or political supremacy and seeks to obliterate the relations of difference that constitute the languages of history and culture" (Bhabha 1989:39). The resulting paradigm shift introduced cultural hybridity as a theory accounting for the "other", often characterizing it as a "third space" or "middle ground," which breaks from the typical binary opposition often considered in contact scenarios.

As indigenes and colonial agents interacted, they developed complex cultural relationships, strategies meant to deal with "the dynamic process of the articulation of cultural difference" (Bhabha 1990:209). Bhabha suggests that third space, a theoretical position which is neither indigenous nor foreign, but an in-between-ness which "enables other positions to emerge" (Bhabha 1990:211), mitigates social differences and overcomes polarized social extremes. The concept of third space accounts for foreign goods and ideas that are socially incorporated via transformative mechanisms such as cultural translation or mimesis. In this way, social change is a process which employs these mechanisms within third space. The utility of third space is limitless; cultures have and always will interact with each other, exchanging ideas alongside technologies and goods and therefore facilitating social transformation.

Third space is not the only term to describe the conceptual location between cultures; the concept of the social middle ground is almost identical. The social middle ground concept has been applied to a wide variety of spatially, temporally, and socially entrenched encounters. Similar to the concept of third space, the middle ground idea breaks from the established rule in order to accommodate the "other" by invoking porous social boundaries and changing identities. As with third space, middle grounds facilitate social change in which cultural boundaries are "melted at the edges and merged" (White

1991:50), creating a cultural amalgam of both identities. All participants within a middle ground maintain agency (Gosden 2004:82), therefore the material expressions manifested within the middle ground reflect diverse responses to social change.

For example, interaction between French traders and North American Algonquians resulted in the creation of a cultural middle ground incorporating elements of both cultures in order to maintain trade relations. As each culture became further entangled, social values changed to accommodate the ebb-and-flow of trade and culture contact, synthesizing new values appreciated by both cultures. "In trying to maintain the conventional order of its world, each group applied rules that gradually shifted to meet the exigencies of particular situations" (White 1991:52). Instead of maintaining the social distances prevalent prior to entanglement, French and Algonquian cultures began to grow closer, developing a collective cultural identity by bridging social boundaries.

At times, however, the middle ground was considered a threat by the colonial French, spawning fears that social magnetism was transforming the *coureurs de bois*, illegal traders, into *sauvages*, "men beyond the control of legitimate authority" (White 1991:58). For ordinary French people living and trading on the Great Lakes frontier, the middle ground was originally seen as an avenue to escape the prevailing social order through individual agency. Such agency, White contends, was exemplified by La Salle's men in Illinois who in 1680 deserted, destroying the fort, stealing provisions, and leaving the epithet "We are all savages" (1991:58). Within this colonial context, the middle ground allowed the individual to transform his/her self identity, to break from the established social orders and forge a new social frontier.

The middle ground could empower individuals to self-identify, but could also be employed to constrict individuals in stratified castes. In this case, the individual represented a physical manifestation of the middle ground; the formally classified offspring of colonial contact, representing a part-European, part-indigene social status. Evidence for the development of institutionalized middle grounds remains historically preserved among accounts of European colonial forays into the Americas.

French colonial contact in North America resulted in the development of cultural middle grounds which institutionally characterized the offspring of French fur traders and Native American women. Sustained contact between the French and Native Americans fostered the process of *métissages*, a social mixing initiated by the various participants that resulted in the development of a colonial middle ground (Moussette 2003:30; Zemon Davis 1995:1; 2001:26). *Métissages* persisted through prolonged contact and interaction, frequently leading to the birth of offspring with mixed social backgrounds. The North West Company, a major rival of the Hudson Bay Company's operations in northwest Canada, characterized the offspring of French traders and native women in the Red River area as "halfbreeds," a term which later became *métis* or *brulé* (Brown 1980:172).

Such terms intentionally characterized the offspring of French traders and natives as neither French nor native; individuals born into a social middle ground who were able to assert a degree of social and political independence from the North West Company. In this way, the middle ground empowered certain individuals to express their agency in the form of independence from the operational management of the North West Company and traditional local Native American lifestyles. The middle ground thus was friend to some, and foe to others. For example, fur traders from both the North West Company and the Hudson Bay Company preferred female *métis* over Native Americans when selecting wives during the nineteenth century (Van Kirk 1990:171). Such selection afforded *métis* women a social advantage their brothers could not attain, an opportunity for vertical social mobility within stratified French colonial society.

The middle ground which developed between the French and Native Americans in the Canadian territory produced different results for different people. Some individuals, such as La Salle's men, understood the middle ground as an avenue to empowerment, providing them with the means to exercise their agency in the established French social order. For others, the middle ground became a means to selectively create a social identity, the freedom to associate with paternal or maternal heritages (Brown 1980:173).

The socio-political construction and maintenance of the middle ground shared by the French and Native Americans in Canada differed significantly from the attitudes and approaches exhibited by the Spanish. Upon arriving in the Americas, Spaniards were able to manipulate social boundaries, claiming noble descent in order to provide themselves with an advantageous position within the social hierarchy they themselves established. Such a noble status afforded no legal privileges (Newson 1976:111); however, it remained a self-defined status expressing individual agency. The middle ground in colonial Spanish America was a social construct meant to emphasize the differences between Spaniard and native.

Often drawing on the concept of "blood quantum" (Clifton 1989:10; Strong and Winkle 1996:552; Wilson 1992:109), indigenous persons were classified within a series of subordinate identities denied certain rights. In colonial New Spain, terms such as *mestizo*, *mulatto*, and *zambo* were employed to represent those individuals who were pigeonholed within the confines of the middle ground. Such racial classifications were defined by interbreeding. For example, miscegenation blurred social distinctions between populations in eighteenth century colonial Trinidad, leading to the creation of new terminology reflecting a more simplified stratification based on legal status as free or slave (Newson 1976:126). In this way, the middle ground was not only a social construct, but it was a malleable component of the social melting pot, defining the shifting ground between native and foreign.

Despite increasing use, the theory of cultural hybridity remains problematic in several ways. First, hybridization continues to be generally perceived and represented in biological terms, neglecting the nuances of social interaction and entanglements involving lifeways and material culture. Second, different types of hybridity must be defined, distinguishing material hybrids from social hybrids. While the theory of cultural hybridity accounts well for social hybridity, it remains vague when applied to artifacts. In order to understand material hybrids and the social mechanisms responsible for material transformation, theories of materiality and definitions of style must first be discussed.

## Materiality

Broken pieces of pottery are more than just artifacts from the past separated from the present by time, language, and culture; they are the material residue of culture imbued with nuanced meaning and symbolism. Material culture is understood to be an active product of social reality (Boivin 2008:10; Hodder 1982:27; 1986:64; 1992:15; Miller

2005:8; Shanks and Tilley 1987a:251), constructed from the intersection of utility and sociality. As such, material is best studied both contextually, "understanding the meanings of an object by placing it…into its various contexts" (Hodder 1992:15), and scientifically, employing scientific approaches to explore social questions. Material culture and human behavior are intrinsically associated, facilitating archaeological interpretation of past societies. Even abstract behavior, including emotions such as desire, assertion, or denial, are related to material objects (Husserl 1970). Material culture is metaphorically plastic; the object can physically change yet still retain the same purposes, a material transformation independent of social change (McGill 1968:231).

Material is imbued with meaning, conveying silent messages to the consumer for a variety of reasons. The expression of these messages can be associated with particular behaviors. For example, intricate designs painted in the tondo of Greek *kylikes* conveyed simple messages visible only after consuming the wine which masked the scene; a message conveyed to a particular audience and associated with a specific behavior, in this case, feasting (Figure 3.1) The messages preserved in material culture are not always explicit or widely understood. Style can be an implicit language conveying nuanced social information, providing material culture with a secondary function of communicating unspoken emic messages insignificant to etic populations. As a result, style is an important component of the study of materiality.

Figure 3.1. Detail of a *kylix* tondo (Kelsey Museum KM 1970.1.1, Photo W. Balco).

## Theories of Style

Stylistic variation in material culture can reflect transformations in individual or group identity because it serves as a system of non-verbal communication that includes assertive and/or emblemic signaling (Wiessner 1983:257-259; 1990:106). If, as Wiessner and others assert, style reflects conscious choices understood by either an individual (assertive style) or a group (emblemic style), then changes in emblemic style may represent the material expression of social change. However, the interplay of style and function in any material culture assemblage (Sackett 1977:371) complicates such analyses; separating style from function may sacrifice its social meaning (Dietler and Herbich 1998:238). As a result, style must be subdivided further into "style of action" (how things are done or made) and "material style" (the physical attributes of an object), particularly in potentially hybridized colonial entanglements. No single definition of style can adequately cope with the range of stylistic transformations in material culture resulting from social entanglements.

Pottery is an excellent medium through which to study material transformations because of its ubiquity and tendency to reflect social categories in human societies (Rice 1987:24-25). Changes in pottery styles may reflect culture change, yet the social significance of that change often remains unexplained. Numerous theories borrowed from other disciplines address changes to material culture through modification and imitation. Elements of these various theories must be incorporated in any discussion of culture change. Accounting for the development of mixed-style pottery involves two related issues: 1) the social significance of creating a mixed-style vessel; and 2) whether the social function of the vessel was a major consideration in its creation as a mixed-style signifier.

In order to explore these questions, components of different theories must be woven together, including concepts such as cultural translation and mimesis. Applying such theories to the archaeological record is challenging; time, space, and culture separate the people who manufactured items from the people who used the artifacts. Regardless, "the making and existence of the artifact that portrays something gives one power over that which is portrayed" (Taussig 1993:13). Mixing elements from several emblemic styles may have empowered the potter, the consumer, or both with the ability to express their own agency, a quality absent absent from traditional pottery vessels.

## Bridging Theory and Artifacts

In the country, people try to imitate urban speech; the subaltern classes try to speak like the dominant classes and the intellectuals, etc. Gramsci Q29 § 2 (Forgacs and Nowell-Smith 1985:181).

Third space and the middle ground are concepts which allow for the selective incorporation of foreign lifeways, breaking from polarized unicultural classifications that previously characterized the study of ancient social transformations. These concepts are essential components of the theory of cultural hybridity.

It is important to state here that both societies and material culture can become hybridized. Social hybrids can be the result of intense social contact; a transformation due to complex social entanglement between different groups of agents. Hybridized, or mixed-style, material culture may be the product of one or several agents, a reflection of choices combining stylistic elements from a number of emblemic “vocabularies”. Pottery is one of the more visible media through which mixed-styles can be expressed because it is an inexpensive, easily manipulated and common social communicator.

Various explanations of social/material hybridization have been proposed, accounting for social and material change by considering different aspects of social transformation. Artifacts and architecture reflect culture change in Iron Age Sicily, surviving as tangible evidence of social entanglement. The creation of mixed-style pottery often appears in tandem with hybridized cultures and social middle grounds, and it appears to have done so in Sicily also. Mimesis as a form of material emulation driven by economic availability is one strategy considered in this thesis to account for material changes intrinsically tied to social transformation.

A similar theoretical approach has been applied in eastern Sicily; imitations of Greek and Phoenician vessels found at Villasmundo suggest that contact and trade influenced local potters and led them to manufacture local imitations (Albanese Procelli 2003:135; Hodos 2000b:51; 2006:132). Hodos (2000:51) suggests that these vessels, imitation or otherwise, were components of “a social custom which required special wares.” Imitation vessels could be material emulations, manifestations of the social middle ground developing between Sikels, Greeks, and Phoenicians, only if they were mixed-style, incorporating multiple emblemic styles.

### Cultural Translation

Translation can account for how interacting cultures understand or imitate each other. Translation is a social mechanism involving the imitation of the "other" "in a mischevous [sic], displacing sense" (Bhabha 1990:210). In this way, translation can transform the object/expression so long as "a specific significance inherent in the original manifests itself in its translatability" (Benjamin 1969:71). Translation remains the "performative nature of cultural communication" (Bhabha 2000:305), capable of linguistic, material, and architectural expression; "*how* culture signifies" (Bhabha 1992:47). In this way, cultures are capable of imitating and altering foreign lifestyles and material culture, forging a new lifestyle combining indigenous and foreign elements, but no longer solely indigenous or foreign. Translation is never transparent, never immune to individual or institutional biases; therefore, it can at times become "a travesty, a betrayal, of any 'original' or 'authentic' intention" (Chambers 1996:49).

The notion of cultural translation has been employed by some scholars to account for social transformations resulting from Iron Age Sicilian colonial communication and interaction. Fitzjohn (2007:222) proposes that indigenous construction techniques employed in domestic residences at the Greek colony of Leontinoi expressed cultural translation, "an accommodation of different groups of people." As a result, construction techniques practiced by indigenous Sikel communities were readily translated by the Greek settlers, forming a domestic space which was a literal middle ground bridging indigenous and Greek residences (Fitzjohn 2007:222).

## Mimesis

Another transformative mechanism which might account for the manufacture of mixed- and foreign-style vessels is mimesis. Defined literally as imitation or simulation (Bogue 1991:1; Gray 1987:467), mimesis is a term first mentioned in the third century BC by Duris of Samos, who regarded imitation as an important goal for the historian (Walbank 1972:35). The cognitive ability to reproduce similarities, according to Benjamin and Tarnowski (1979:65-6), is the mimetic faculty; the natural possibility of human imitation. Mimesis is a force initiated by humans that is expressed through objects; therefore it is ideally suited to account for material transformation. In the context of social contact, Taussig (1993:78) has observed that mimesis is "a space between, a space permeated by the colonial tension between mimesis and alterity, in which it is far from easy to say who is the imitator and who is the imitated, which is copy and which is original". In this way, mimesis may be considered an iteration of third space or the middle ground, but only if there is some degree of material modification.

As people interacted with their neighbors, they observed foreign actions and objects; these daily or intermittent rituals were then mimicked and/or modified slightly, transformed both socially and materially within the middle ground. Mimesis is a mechanism through which agency can be expressed. The transformation of objects resulted from both mimicking the object and altering it to express emblemic styles. Mimesis was a transformative mechanism empowering potters with the agency to materially construct their own perceptions of social transformation; finished pots not only imitated foreign vessels/styles in Iron Age Sicily, but also entangled assertive and emblemic stylistic expressions.

## Transforming Pots: The Meaning of Mixed-Style Pottery

The emic reasons for the development of hybridized cultures resulting from complex social entanglements may never be fully appreciated. However, the reasons for social change can be perceived as "*patterns* of material use at the etic level" (Rye 1976:108). To the archaeologist, pottery is a medium through which social change was expressed; a physical manifestation of the development and spread of hybridization. As material culture was transformed, it became hybridized in one of two ways: either physically in terms of form and decoration, or functionally in terms of its intended use. Pottery forms could be emulations, especially in the case of vessels imitating fashionable but costlier metal vessels (Shanks 1996:129; Vickers 1985:128). Because some pottery vessels imitated forms first produced in metal, either gold or bronze, more rarely silver, the imitation of fired clay vessels is not unexpected in entangled societies.

Theories accounting for material culture transformation must be multidisciplinary, drawing from diverse and ideally independent sources in order to best engage the nuances of socially entangled agency. Elements of linguistic theory are also applicable to studies of entangled material transformations, exploring the agency accounting for such transformations. When considering grammar, Gramsci stated:

> Written "normative grammars" tend to embrace the entire territory of a nation…This, moreover, places expressive "individualism" at a higher level because it creates a more robust and homogeneous skeleton for the national linguistic body, of which every individual is the reflection and interpreter" (translated by Forgacs and Nowell-Smith 1985:181).

Material culture may be a manifestation of grammar, as emblemic artifact styles are normative grammars representing cultural affiliation. For example, a potter can diverge from the normative style, producing mixed-style vessels to sell in local and regional markets. The potter exercises his/her agency by altering the "normative grammar" of ceramic products and representing his/her individual (assertive) expression of transformed emblemic style. Because pottery is capable of expressing both assertive and emblemic style, it can reflect both the potter and the population at large, an important theoretical consideration.

In archaic Sicily, Greek or Phoenician goods may have served new purposes after being re-interpreted by indigenous or mixed-culture groups (Hodos 2006:105). Sicilian communities repurposed foreign material culture within local social practices as a means to "produce a hybrid community that unites elements of former habits and customs of all populations involved" (Hodos 2006:105). Other western Mediterranean sites have preserved evidence of the repurposing or social incorporation of foreign material culture. Excavated Nuragic Iron Age shrines, for example, record a transition from local coarse lamps to foreign black glaze and red slip lamps at several Sardinian sites (van Dommelen 2006:142). As local traditions persisted, new foreign lamps were incorporated alongside traditional forms, preserving the exercise but changing the material. Such evidence demonstrates the important role of trade/exchange and the incorporation of foreign goods within local lifeways.

In Roman period Corduba, Spain, for instance, mimesis was a significant social strategy local populations employed to equate themselves with the Roman elite. A re-creation of the Forum of Augustus was constructed in the center of town along with monumental burial mounds (Jiménez 2010:54-55). Such evidence might suggest the population of Corduba had become Romanized; however, local cremation burials employed vessels modeled on older, Iron Age vessels, interpreted as an imitation of the past but employed during the Roman period (Jiménez 2010:55).

### Economic Theory

Social contact and interaction between indigenous Sicilians, Greek traders, and Phoenician merchants is well attested archaeologically by the frequency of imported and colonial goods present at indigenous sites (Bechtold 2008c:77; Denaro 2003). The Athenians, and Greek merchants in general, felt that economics must be "articulated to the development of money and markets" (Sahlins 2004:38). As a result, both luxury and utilitarian manufactured goods were widely traded across the Mediterranean and beyond (Finley 1999:33; Rostovtzeff 1957:69).

Indigenous Sicilian populations were consumers of Greek and Phoenician material culture. As Dietler has stated, the exchange of *amphorae* "flowed in one direction only" (2010:132); foreign merchants would have had little interest in purchasing foreign material culture from indigenous populations. Instead, merchants from Athens, Corinth, and other *poleis* in Greece returned from Sicily and other colonies carrying olives, grapes, wheat and, in lesser quantities, timber, wool, hides, honey, cheese, and slaves (Arnold 1988; Finley 1979:35). These merchants played an important role in the developing social entanglement; they were the "principal agents of contact," exchanging both goods and behaviors with indigenous populations (Dietler 2010:138). As a result, exchange must be considered as a possible catalyst for social transformation, communicating Greek feasting behaviors to indigenous Sicilian populations.

Commerce between indigenous Sicilians, Greeks, and Phoenicians may have initially been characterized by a barter system later complemented by the exchange of coins made of bronze, silver, and gold. The Greek colonies in Sicily, like the *poleis* they were founded from in Greece, began minting coins in the Archaic period. Six Greek colonies in Sicily (Akragas, Himera, Naxos, Selinus, Zankle, and Syracusa) were minting coins by 500 BC (Rutter 2000), suggesting the development of a sophisticated economic system. The Greeks were not alone in minting coins in Sicily; Phoenicians minted coins using the Greek standard (Prag 2008) and Greek coin standards were imitated by "non-Greek communities in the Sicilian hinterland" (Rutter 2000:74). For instance, silver coins minted at indigenous Segesta and Eryx suggest that commerce between indigenous communities and Greek and Phoenician polities was significant enough to warrant such an economic shift and investment in a monetary system.

## Social Transformation from Mechanism to Process

Past studies attempting to account for social change have often focused on identifying the processes of transformation while largely ignoring the underlying mechanisms powering such change. This study breaks from that tradition by exploring the processes and social mechanisms in tandem, utilizing pottery transformation as a proxy for larger social changes among the Iron Age Elymi. I propose that mixed-style pottery was the result of a series of intentional stylistic choices made by indigenous potters capitalizing on an economic trend in which Greek feasting vessels came into vogue. As a result, social transformation was expressed via cultural translation and/or mimesis, mechanisms empowering the individual potter with the ability to express his/her agency and contributing to the material middle ground by producing mixed-style pottery. Such products transgress emblemic styles and cultural boundaries, reflecting larger processes of social transformation.

This study employs stylistic and compositional analyses to explore the economic and social roles of mixed-style pottery. The theory of cultural hybridity will be used to parse the mechanisms of social and material transformation. Dietler's (2005) study of sympotic vessels in the Rhône basin partially served as a model for this study. Like this study, the indigenous adoption of Greek sympotic behavior and material culture was tri-nodal, yet located in southern France and incorporating local Gauls, Greek colonists from Massalia, and Etruscans. A similar case can be argued for western Sicily: indigenous Sicilian populations came into contact and interacted with Greek colonists and Phoenician traders, becoming socially entangled in what Morris (2003) has termed "Mediterranization."

# CHAPTER IV: RESEARCH METHODS

## Data Collection: Strategy and Execution

Sample identification and data collection were conducted during the summers of 2010, 2011, and 2012 utilizing Salemi, Sicily as a base of operations. Collaboration with the Soprintendenze of the Agrigento, Caltanissetta, Palermo, and Trapani provinces provided access to ceramic materials from 12 seventh to fourth century BC western and central Sicilian sites. Due to time constraints, vessels from Segesta, Monte Maranfusa, and Monte Adranone were not examined despite official permission having been obtained to do so. This study would not have been possible without the willing and often enthusiastic cooperation of Italian, Swedish, and American research teams and officials who made it possible for pottery and clay samples to be identified and collected from their projects or repositories for stylistic and compositional analysis.

## Data Collection: Pottery Samples

All pottery samples included in this dissertation were taken from collections located in various storage facilities across western and central Sicily, including *antiquaria*, site-specific museums, civic museums, and regional museums (Table 4.1). Numerous visits to these many storage facilities were required in order to study, first-hand, the 214 fired-clay vessels that make up the analyzed sample.

All stylistic analysis was completed on site at storage facilities in Sicily. Once appropriate pottery samples were identified, three sampling strategies were employed. Non-destructive, non-intrusive analysis in Sicily was the optimal goal; however, in instances where this was not possible, two strategies were employed to collect and transport small samples for off-site analysis. The first of these involved collecting small

Table 4.1. Storage facilities visited from 2010 to 2012.

| Ancient Site Sampled | Storage Facility | Location |
|---|---|---|
| Entella | L'Antiquarium di Entella "Giuseppe Nenci" | Contessa Entellina |
| Montagna Grande | Palazzo dei Musei | Salemi |
| Monte Bonifato | Museo Archeologico Baglio Anselmi | Marsala |
| Monte Finestrelle | Palazzo dei Musei | Salemi |
| Monte Polizzo | Palazzo dei Musei | Salemi |
| Mozia | Museo Giuseppe Whitaker | Mozia |
| Sabucina | Museo Archeologico Regionale di Caltanissetta | Caltanissetta |
| Salemi | Palazzo dei Musei | Salemi |

corner fragments snapped from rim sherds. These small snapped corner fragments were then transported to the University of Wisconsin-Milwaukee Archaeological Research Laboratory (UWM-ARL) for XRF analysis. Snapping tiny corner fragments from potsherds is a common practice in western Sicily to visually identify clay pastes and was permitted by local and provincial authorities. When small corner fragments were not suitable for XRD or petrographic analyses, small body sherds were collected and transported to the UWM-ARL for processing.

Fired-clay vessels were examined from domestic, mortuary, industrial, fill, and surface contexts. Each context type directly relates to the archaeological feature or complex from which the artifact was recovered. For instance, industrial contexts include kilns and pottery workshops. Domestic, mortuary, fill, and surface contexts are self-explanatory. Table 4.2 presents the number of vessels from each context type studied from each site. The majority of vessels (38%) analyzed were studied from domestic

Table 4.2. Number of vessels from each context type by site.

| Site | Domestic | Mortuary | Industrial | Fill | Surface | Total |
|---|---|---|---|---|---|---|
| Entella | 0 | 0 | 15 | 0 | 0 | 15 |
| Montagna Grande | 0 | 0 | 0 | 1 | 2 | 3 |
| Monte Bonifato | 0 | 0 | 0 | 8 | 0 | 8 |
| Monte Finestrelle | 0 | 0 | 0 | 46 | 0 | 46 |
| Monte Polizzo | 44 | 3 | 0 | 0 | 1 | 48 |
| Mozia | 4 | 25 | 15 | 0 | 0 | 44 |
| Sabucina | 0 | 11 | 0 | 0 | 0 | 11 |
| Salemi | 33 | 0 | 0 | 6 | 0 | 39 |
| Total | 81 (38%) | 39 (18%) | 30 (14%) | 61 (26%) | 3 (2%) | 214 |

contexts. Vessels were also recovered from mortuary (18%), industrial (14%), fill (26%), and surface (2%) contexts. The context type of each vessel included in this study is presented in Appendix A.

## Data Collection: Clay Samples

The collection of clay samples was required in order to establish a baseline for the elemental and mineralogical diversity of raw Sicilian clays, which had not been done before. All clay samples were collected from deposits either uncovered archaeologically or exposed during road or house construction. Clay samples were placed in individually labeled polyethylene bags for transport to the UWM-ARL. Prior to departing from Sicily, each clay sample was halved in order to preserve additional samples for future research. These curated samples are stored in individually labeled polyethylene bags in the Northern Illinois University excavation collections located at the excavation dig house (Sant'Antoniccio) in Salemi, Sicily.

## Data Collection and Coding

Specific ceramic attributes were recorded to standardize vessel characterization and easily study pottery assemblages both qualitatively and quantitatively. Morphology, metrics, and style were coded and recorded for each vessel in a Microsoft Excel database. This scheme is a modified version of a data coding plan developed by Arnold (1991) and subsequently employed by Schneider (2003), Watson (2005), and Hamlin (2007). All samples examined were first assigned unique values with the prefix "BD" for "Balco Dissertation," commencing with "BD001". Second, the vessel provenience was recorded, including the name of the population center where the vessel was recovered. Next, vessel attributes, including diagnostic component, vessel form, rim form, construction technique, clay fabric identification, clay fabric Munsell color description, temper type, and exterior/interior surface treatments and decoration were recorded using values defined on a project-specific code list (Appendix B).

It is impossible to absolutely typify pottery styles from one period to the next in Bronze and Iron Age Sicily; although a sufficient amount of provenienced material has been recovered from sites across western Sicily, little of this has been formally analyzed and published in association with chronometric dates. Despite this obstacle, simplified variables including clay fabric, vessel form, and decoration do assert emblemic style, representing non-verbal forms of communication linking each vessel with broad temporal and cultural associations. In order to explore changing vessel morphologies, such variables must first be described, defining and highlighting the differences between Iron Age Elymian, Greek, and Phoenician pottery.

### Diagnostic Component Terms

Identifying diagnostic components is an important aspect of any study of fired-clay vessels. First described by Hambidge (1920), Caskey (1922), and others, the diagnostic components of a vessel have been characterized using a plethora of different conventions. This study draws from Birkhoff's (1933) description of characteristic points and tangents. Birkhoff stated that there are points along the contour of the vessel which attract attention because they shift the line of the contour itself (Birkhoff 1933:69-70). Since Birkhoff, these characteristic points along the vessel contour have been classified using various terms, many of which describe the same point or component in more or less detail. For example, the point on a coffee mug from which coffee is consumed could be termed the rim or the lip; two different terms which characterize the same point on the mug itself, depending on the amount of detail collected.

Many definitions of vessel anatomy have been established (Rotroff 1997:16-17; Sparkes and Talcott 1970:9-12), particularly for Mediterranean pottery; this study has opted to employ general terms used in other studies of Mediterranean pottery. Fired-clay vessels are typically composed of four diagnostic components: rim, handle, body, and base (Figure 4.1). This study employed seven terms to classify the diagnostic component(s) present in the sample analyzed here (Table 4.3). Combining diagnostic terms was

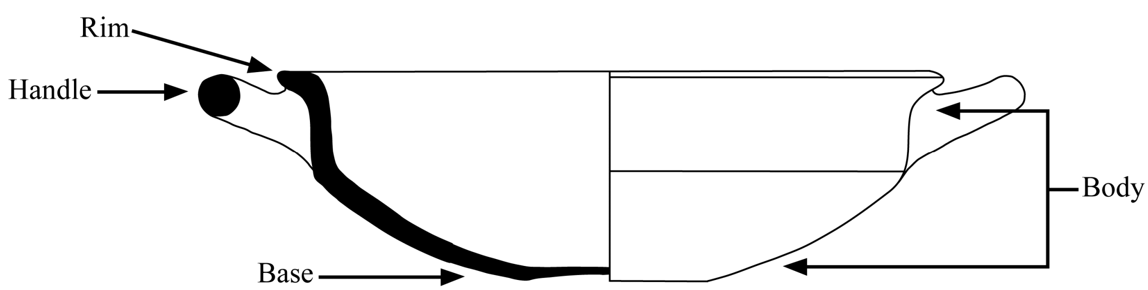



Figure 4.1. Diagnostic component terms employed in this study.

necessary because multiple components were often preserved on the same vessel fragment(s). In the event that a diagnostic component could not be positively identified, such as in the case of melted kiln wasters and eroded leather hard vessel fragments, the sample was classified as "indeterminate."

Table 4.3. Diagnostic terms employed to characterize preserved vessel components.

| Diagnostic Component | |
|---|---|
| 1 | Rim |
| 2 | Body |
| 3 | Base |
| 4 | Handle |
| 5 | Rim with Handle |
| 6 | Rim to Base |
| 7 | Indeterminate |

## Rim Form Classification

Rim forms provide the basis for detailed classifications of vessel form because they, as a component of the orifice, are the most important diagnostic component of fired-clay vessels (Rice 1987:214; Shepard 1956:245). Often related to the function of the vessel, variations in rim forms are a direct result of the manufacturing process; different rims indicate different stylistic choices made by the potter (Richards 1992:223). Considering rims in this way made a stylistic examination more appropriate for this study than a functional one.

Rim profiles are essential components of any archaeological study of pottery because they demonstrate variations which may not be visible in perspective between one vessel and another (Shepard 1956:247). The rim is a very important component of the vessel, functioning as the superior terminus confining the contents of the vessel. Composed of two interchangeable component terms, the rim and the lip, rims may be direct or indirect depending on the angle from which they articulate with the body of the vessel (Rice 1987:214). The distinction between rim and lip is not always clear (Rice 1987:214); however, this study considers the rim to be the segment of the vessel extending from a break in the contour of the vessel wall profile, when such a break exists

(Figure 4.2). Likewise, the lip is a component of the rim, generally the superior terminus of the vessel (Figure 4.2).

This study combines conventions commonly used to describe pottery in order to classify both rim and lip forms. This distinction is most often made between direct and indirect forms; however, this study classifies each form individually, relying on the direction and angle of rim deviation to classify forms. These two variables have frequently been employed in other studies to classify fired-clay rim assemblages from diverse ranges of sites (Shepard 1956:246).

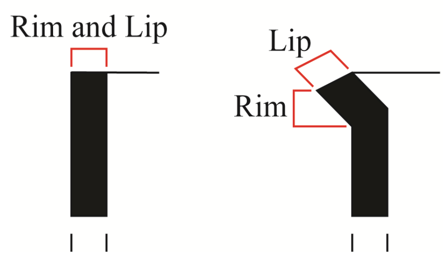



Figure 4.2. Distinction between rim and lip segments.

A total of five distinct rim forms were identified: flared, everted, simple, inverted, and offset (Figure 4.3). These five rim forms are distinguished from each other by the direction and degree to which they angle away from the wall of the vessel.

Simple rim forms, also termed direct rim forms (Rice 1987:214; Richards 1992:224; Shepard 1956:245), do not deviate from the body of the vessel when seen in profile. As a result, simple rim profiles appear as a continuous line from the body to the lip, forming an uninterrupted contour. Four types of rims deviate from the continuous contour of the vessel wall and are readily distinguished by measuring the angle of deviation. Flared rims deviate away from the center of the vessel at an angle less than or equal to 90° from the vessel contour. Everted rims, similar to flared rims, deviate away

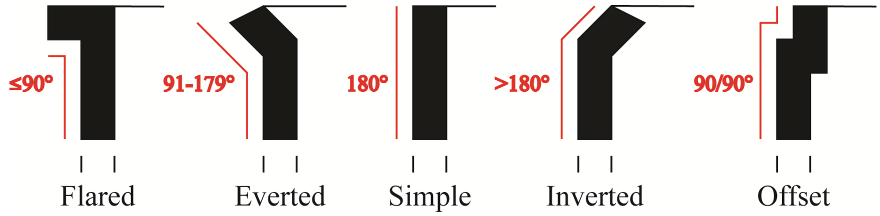



Figure 4.3. Distinct rim forms identified in this study.

from the center of the vessel at an angle between 91° and 179°. Inverted rims deviate toward the center of the vessel, constricting the vessel orifice with an angle greater than 180°. Offset rims are the most complex of the rim forms discussed here. These rims are set off from the body of the vessel, breaking from the vessel's continuous curve. This distinct rim form is geographically, culturally, and temporally widespread. Other, older terms for this rim form include cambered (O'Brien 1969:412) and recurved (Kidder 1920:325).

In addition to coding the rim forms, four rim treatments were coded: thickened outer rim, thickened inner rim, outer ridge, and inner ledge (Figure 4.4). Thickened outer rims included those rims that thicken toward the exterior surface of the vessel. Likewise, thickened inner rims are those which are thickened toward the interior surface of the vessel. Rims with an outer ridge are those that have a raised, ridged structure on the exterior surface of the rim. Outer ridges have been termed "molded rims" in other studies

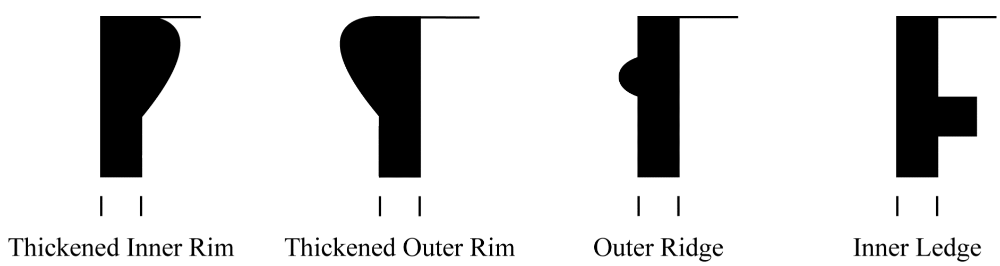



Figure 4.4. Rim treatments defined in this study.

because of their complex profiles (Rotroff 1997:17). Finally, rims which fork and protrude toward the center of the vessel, creating a ledge which could support a lid or other device, were termed rims with an inner ledge.

A diverse range of techniques were employed by Iron Age potters in the western Mediterranean to create these rim forms. Clay was either added to the vessel wall or bent from the continuous curve while on the tournette or wheel. Because both hand and wheel construction techniques were employed by Iron Age and Archaic period potters in the western Mediterranean, both techniques could be present at the same time.

## Lip Form Classification

Three distinct lip forms were identified on the pottery examined in this study: rounded, flat, and tapered lip forms serving as the terminus of the rim (Figure 4.5). These lip forms were created using various techniques, including smoothing, trimming, pinching, and adding material to the rim. Rounded lip forms were manufactured by smoothing the superior terminus of the vessel in such a way that it becomes rounded. Although created in much the same way as rounded lip forms, flat forms were smoothed and/or trimmed on the superior terminus in order to create a flat surface roughly perpendicular to the primary angle of the rim. Tapered lips were produced by thinning the rim until it terminated at a narrow point. These lip forms were created by a

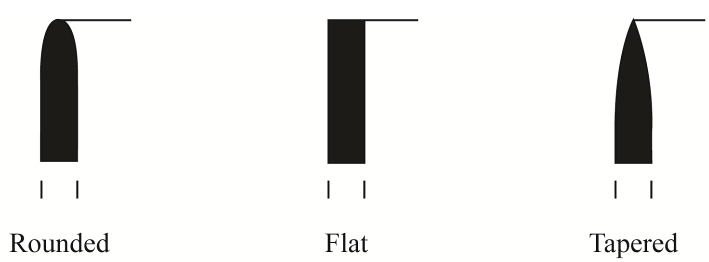



Figure 4.5. Distinct lip forms identified in this study.

combination of trimming, pinching, and smoothing, leading to a lip that tapers from thick to thin toward the superior terminus of the vessel.

## Clay Fabric Identification

Clay fabric identification is an important component of this study because clay pastes vary due to different clay preparation and firing techniques. Such techniques result in emblemic production styles that vary from culture to culture. Associating clay fabrics with temporal, spatial, or social classifications is particularly complex in Sicily because few Archaic period kilns have been identified. As a result, clay fabric identification of Sicilian pottery relies heavily on material from domestic and mortuary contexts rather than excavated kilns. This poses a key problem: Archaic kilns have only been identified at Entella, Mozia, Solunto and Selinus, restricting the corpus of material from pottery production contexts available for study. Consequently, little is known about contact period western Sicilian potters or pottery manufacturing techniques. Despite the general absence of data for Archaic Sicilian pottery production, clay fabrics can be used to distinguish between indigenous Elymian and foreign Greek and Phoenician products.

Elymian potters produced a variety of vessels manufactured from distinct fine, medium, and coarseware clay fabrics. Although all three types of clay fabrics are commonly identified in Elymian pottery assemblages, feasting vessels were only made of fine and mediumware fabrics, so Elymian coarseware fabrics will not be discussed here. Over the past twenty years, studies have superficially explored Elymian pottery to varying degrees, often focusing on paste colors to define paste reference units (Biagini 2008:144; Gargini 1995:112-113; Spatafora 2003b:110-111; Tigano 1985-86:56-57).

Elymian potters were capable of manufacturing fineware clay pastes known archaeologically as grayware. Grayware fabrics are typically classified by a gray core profile and a gray surface of the vessel (Cooper 2007:77). Elymian grayware fabrics are made of well sorted fineware pastes that are divided into paste reference units by Spatafora (2003b:110-111) in one of the few informal typologies of Elymian pottery (Table 4.4). The consistent production of Elymian grayware suggests that local potters specifically controlled the firing environment inside the kiln when firing grayware vessels. Grayware pastes apparently required a low temperature, reduced firing environment in order to be properly fired. Such an oxygen-reduced firing environment deposits carbon from the fuel source onto the surface of the vessel (Rice 1987:333; Sinopoli 1991:30), resulting in the distinctive gray surface color. This grayware suggests that Elymian potters were highly skilled craftsmen capable of regulating the sophisticated firing environment required for the consistent manufacture of this pottery.

Table 4.4. Elymian Grayware paste references from Monte Maranfusa (after Spatafora 2003:110-111).

| Paste Type | Variety | Core Color | Paste | Inclusions |
|---|---|---|---|---|
| **1** | **A** | Dark or Reddish Gray | Coarse and Porous | White and Gray Limestone Granules |
| | **B** | Gray | Compact | White and Gray Limestone Granules |
| | **C** | Dark Gray | Fine | White and Gray Limestone Granules, sometimes with Mica |
| | | | | |
| **2** | **A** | Reddish Gray | Fine | Mica, sometimes with White Limestone |
| | **B** | Reddish Gray | Coarse and Porous | White Limestone, some Mica, and *chamotte* |
| | | | | |
| **3** | | Whitish | Fine and Porous | White Limestone and Pores suggesting Combusted Organics |

Mediumware Elymian fabrics are colloquially referred to as sandwichware because of their typically light exterior and dark brown or red core when viewed in profile. Color is a key attribute used to identify Elymian sandwichware pastes. For example, Gargini (1995:112-113) developed a paste reference classification of geometric painted pottery from Entella solely based on color differences of paste profiles (Table 4.5). Additional research has added multiple variables, including the color and size of inclusions as well as the degree to which the clay paste was sorted. One such study by Biagini (2008:144) provides a description of Elymian sandwichware fabrics, describing eleven types classified by five variables visible to the naked eye (Table 4.6). Such attempts to qualify Elymian pottery provide a baseline for comparisons positing the exchange of pottery vessels and their role in the ancient regional economy. The presence of alternating colors visible in Elymian sandwichware clay fabric profiles suggest they were manufactured in kilns with low firing temperatures and oxidized environments (Rice 1987:333; Sinopoli 1991:30).

Similar to indigenous Iron Age pottery, colonial Greek (Siceliot) pottery production has garnered little attention. Greek, colonial Greek, and Phoenicio-Punic feasting vessels were typically constructed of fineware pastes derived from well sorted clays. These finewares differ visually from Elymian graywares not only in color, but in thickness and sorting; Greek and Phoenico-Punic finewares are typically thinner and better sorted than indigenous graywares when viewed by the naked eye or under a hand lens. Western Sicilian colonial Greek clay fabric colors tend to reflect both firing conditions and, to a lesser degree, the compositions of local clay deposits. Illite-rich clays, common along the shores of southwest Sicily, were utilized by potters at Greek

Table 4.5. Paste reference classification of Elymian Sandwichware pottery from Entella (derived from Gargini 1995:112-113).

| Paste Type | Variety | Surface Color | Core Color |
|---|---|---|---|
| 1 | A | Orange | Gray |
| | B | Red Orange | Gray |
| | C | Beige Orange | Light Gray |
| | D | Rosy Ivory | Gray |
| | E | Tan (Dark or Burnt) | Dark Gray |
| | F | Almond | Gray |
| | G | Beige Yellow | Gray |
| | H | Burnt Tan to Orange | Gray |
| | I | Orange to Almond | Gray |
| | L | Tan to Red Orange | Gray |
| | M | Dark Gray to Tan | Dark Gray |
| 2 | A | Orange | Tan |
| | B | Black | Tan |
| | C | Burnt Tan | Tan |
| | D | Grayish Tan | Tan |
| | E | Orange | Almond |
| | F | Burnt Tan | Almond |
| | G | Almond to Black | Almond |
| | H | Tan to Orange-Tan | Tan |
| 3 | A | Beige | Red-Orange |
| | B | Dark Almond | Red-Orange |
| | C | Dark Tan | Red-Orange |
| 4 | A | Dark Orange (Uniform) | |
| | B | Light Orange (Uniform) | |
| | C | Reddish Orange (Uniform) | |
| | D | Rosy Orange (Uniform) | |
| 5 | A | Tan (Uniform) | |
| | B | Burnt Tan (Uniform) | |
| | C | Light Almond Tan (Uniform) | |
| | D | Beige-Yellow (Uniform) | |
| | E | Grayish Tan (Uniform) | |
| 6 | | Orange (Thin) | Dark Almond |
| 7 | A | Gray (Thin) | Gray |
| | B | Orange (Thin) | Orange |

Table 4.6. Elymian Sandwichware reference units from Segesta (derived from Biagini 2008:144).

| Paste Type | Surface Color | Core Color | Inclusion Color | Inclusion Sizes | Sorting |
|---|---|---|---|---|---|
| **1** | Very Pale Brown | Pink or Reddish Yellow | Tan and Reddish | Small and Medium | Tight |
| **2** | Pink or Reddish Yellow | Gray | Gray and White | Medium | Tight |
| **3** | Reddish Yellow | Gray | White | Small | |
| **4** | Light Red | Brown | White and Tan | Small and Medium | Tight |
| **5** | Reddish Gray | Gray | Black, Tan, and White | Large | Tight |
| **6** | Reddish Yellow | Reddish Yellow | Black, Pink, White | Small | Tight |
| **7** | Reddish Yellow | Reddish Yellow | Black and White | Small | Tight |
| **8** | Pink | Pink | White and Reddish | | Tight |
| **9** | Pale Red | Pale Red | White and Tan | Small | Tight |
| **10** | Reddish Yellow | Reddish Yellow | White and Tan | Small | Tight |
| **11** | Reddish Yellow | Reddish Yellow | White and Tan | Small and Medium | Tight |

Selinus. As a result, clay pastes from Selinus are typically light yellowish-green in color, indicating that kiln atmospheres remained oxidized at low firing temperatures. Likewise, iron-rich clays present along the north and west coasts were employed by potters at Greek Himera and Phoenicio-Punic Mozia, resulting in a clay paste which is typically reddish-orange in color, once again indicating oxidized kiln atmospheres and low temperature firing temperatures.

## Paste Reference Variables

Manufacturing techniques employed to create fired-clay vessels are a frequent focus of archaeological analysis, mixing technological and social issues in a diverse array of hypotheses. Sicilian pottery is no exception; a number of projects have been devoted to the study of manufacturing technologies and innovations, demonstrating the diverse nature of Iron Age and Archaic period pottery production (Biagini 2008; Campisi 2003; Falsone 1981; Gargini 1995; Trombi 1999; Vassallo 1999; Villa 1983). This study employs an approach to classifying Iron Age and Archaic Sicilian pottery that favors generalized characteristics because they better represent the potter's attempt to mitigate broad socio-political transformation. A two-tiered paste reference classification system was developed, distinguished first by particle size then by other paste sorting, construction method, macroscopic inclusion type, and paste color(s) (ware-class attributes). Such variables were recorded for all fired-clay samples in order to identify changes in Elymian pottery manufacturing techniques over time. This two-tiered system organizes pottery by ware type and class, facilitating a generalized classification based on technological choices. Such a reference system draws on well-established ware classifications, yet provides additional details about technological types.

Ware types were identified by particle size, following standard geological conventions of coarse, medium, and fine as identified macroscopically. In order to identify particle sizes, profiles of all fired-clay samples were visually compared to a commercially available pocket guide prepared by Kent State University (available at www.forestry-suppliers.com). Table 4.7 lists the particle size classification of coarse, medium, and fine ware types.

Table 4.7. Ware types identified by particle size.

| Ware Type | Particle Size Diameter |
|---|---|
| Coarse | >2.0 mm |
| Medium | .0625; 2.0 mm |
| Fine | <.0625 mm |

Following ware-type identification, ware-classes were then identified based on paste sorting, construction method, macroscopic inclusions, and color range. These variables were selected because they are both objective and subjective, bridging or combining conventions to best classify the samples. Each of these variables reflects a choice, intentional or otherwise, on the part of the potter during the manufacturing process. Alterations to any of these variables may reflect a technological or economic change in the manufacturing process.

The concept of paste sorting is derived from geosciences and sedimentology. In a geological context, sorting refers to the "selection, during transport, of particles according to their sizes, specific gravities, and shapes" (Friedman, et al. 1992:27). For this study, paste sorting refers to the homogeneity of particle sizes visible macroscopically, or with the aid of a 15X hand lens, and is classified on a qualitative scale from very poorly to very well sorted. Table 4.8 defines the qualitative criteria defining each paste sorting term.

The Iron Age and Archaic Period inhabitants of Sicily constructed fired-clay pottery using a number of diverse hand-building and wheel-thrown techniques. Distinguishing the manufacturing technique(s) employed to produce a vessel requires an examination of the core and interior/exterior surfaces. Pots manufactured using hand-building techniques may have been constructed by pinching, slab building, coiling, or with the aid of a ceramic mold. Pinching, or modeling, is the process of forming the

Table 4.8. Qualitative paste sorting values defined.

| Sorting Value | Description |
|---|---|
| Very Poor | Particle size is heterogenous |
| Poor | Particle size is largely heterogenous |
| Well | Particle size is largely homogenous |
| Very Well | Particle size is homogenous |

vessel from a ball of clay held in one hand while the other hand shapes the clay into a vessel (Rice 1987:125; Shepard 1956:55-57; Sinopoli 1991:17; Triplett 1997:32). Evidence suggesting pinching or modeling is difficult to ascertain; a lack of evidence for the use of other methods is often employed as a proxy for these production methods. Slab building, pressing flat slabs of clay together to form the vessel walls (Rice 1987:125; Sinopoli 1991:17; Triplett 1997:34-36), is another hand-building method. Evidence of slab-building consists of identifying the seams joining the slabs, yet these are easily obscured by subsequent surface treatments, therefore many slab-constructed vessels may be mis-identified as pinched vessels. This does not represent a significant problem for this study as slabbed, pinched, or coiled techniques are still considered hand-building, as opposed to wheel-thrown, techniques.

Coiled vessels are manufactured by rolling coils of clay, then stacking the coils to form the vessel wall (Blandino 2003:44; Rice 1987:127; Shepard 1956:57-59; Sinopoli 1991:17; Triplett 1997:33-34). Evidence of coiling may remain visible as low ridges or seams on the exterior or interior of a vessel; however, like slab-building, these can become easily obscured by subsequent surface treatments (Figure 4.6). Again, this does not represent a significant problem for this study as coiling is considered a hand modeling technique. As a result, coiling was included as an identifiable manufacturing variable in

Figure 4.6. Evidence of coil construction inside an indigenous *krater* from Sabucina (West Necro*polis*, Tomb 45, N. INV. 1895-1898).

this study. Vessels manufactured from molds or forms are termed molded. Still a hand-construction technique, molded vessels are manufactured by pressing slabs of clay into a mold or form (Rice 1987:125-126; Shepard 1956:63-64; Sinopoli 1991:17-19; Triplett 1997:41-42).

Wheel-thrown vessels are identified using two attributes: rilling and particle size. Rilling, parallel sets of grooves and ridges present on the surface of the vessel with a more-or-less horizontal orientation (Rice 1987:129), is the result of contact with tools or hands while spinning on the potter's wheel. Particle size also assists in identification of wheel thrown pottery; coarse particle sizes were typically avoided because they can easily abrade the potter's hands while throwing a vessel on a wheel and because a softer clay body better facilitates the lifting action employed to construct the walls (Rice 1987:128-9; Sinopoli 1991:21). Despite evident differences between manufacturing pottery on a potter's wheel and a tournette, this study does not attempt to distinguish between the two techniques, choosing instead to classify them both as wheel-made.

Table 4.9 lists several attributes used to distinguish between different pottery production methods. In the event that evidence of slabbed, coiled, hand-built, or wheel-thrown techniques is absent, construction by pinching is assumed. This could artificially inflate the number of pinched vessels, given that surface treatments can obscure evidence of manufacturing technique. Because this study emphasizes the differences between hand and wheel techniques, this was not an issue for this study. Ancient potters may have employed several production methods while manufacturing a single vessel; however, this study only classifies the predominant method observed either macroscopically or with the aid of a 15X loupe (hand lens).

Table 4.9. Visible attributes resulting from different vessel construction methods.

| Construction Method | Ware Type | Slab Segments | Coil Ridges | Form Seam | Rilling |
|---|---|---|---|---|---|
| Hand – Pinched | Fine, Medium, Coarse | — | — | — | — |
| Hand – Slabbed | Fine, Medium, Coarse | ✓ | — | — | — |
| Hand – Coiled | Fine, Medium, Coarse | — | ✓ | — | — |
| Hand – Molded | Fine, Medium, Coarse | — | — | ✓ | — |
| Wheel –Thrown | Fine, Medium, Coarse | — | — | — | ✓ |

Non-plastic inclusions were qualified in order to observe whether a change in inclusive material occurred. All non-plastic inclusions, including naturally occurring and added temper, were considered because it is impossible to determine, macroscopically, whether inclusive material is natural or anthropic. Variations in inclusive material within a pottery assemblage has often been used to suggest trade (Shepard 1956:165); however, such variations also may represent a transformation in the style of manufacture associated with social change. This study characterizes inclusive material as mineral, vegetal, shell, grog, or unidentified based on examples in Rice (1987:407), Shepard (1956:156), and Sinopoli (1991:12). Table 4.10 lists the material categories identified in this study sample; however, combinations are possible if a vessel contains more than one inclusive category. Inclusive material in pottery where the fabric is not readily visible, such as is the case with intact or reconstructed vessels, was classified as Unidentified. Aplastic constituents can include natural inclusions as well as anthropic ones (temper). Distinguishing between natural aplastics and temper can be difficult because the compositions of bedrock and surface soils in western Sicily are very diverse, containing a wide range of aplastic materials. These aplastics, present in the clay fabric of the vessels examined, hinder attempts to segregate natural from anthropic inclusions. As a result, no distinction between the two was attempted.

Table 4.10. Inclusive material categories.

| Material Type | Example |
|---|---|
| Mineral | Crushed rock, sand |
| Vegetal | Organic material |
| Shell | Shell fragments |
| Grog | Crushed pottery |
| Unidentified | Not visible |

Where possible, fabric color was recorded from the profiles of all sampled vessels using a Munsell Soil Color Chart. Sheets Gley 1, Gley 2, 10R, 2.5YR, 5YR, 7.5YR, 10YR, 2.5Y, and 5Y were referenced in recording the hue and chroma for each fabric color.

Paste sorting, construction method, macroscopic inclusions, and fabric color are important components which aid in the definition of ware-classes. The development of ware-classes was necessary to demonstrate the transformation of manufacturing techniques following mercantile contact and social transformation. Eight generalized ware-classes were classified (Table 4.11), making it possible to distinguish between general variations due to differing manufacturing techniques and those due to social transformation.

Table 4.11. Ware classes identified in this study.

| Ware Type | Ware Class | Paste Sorting | Construction Method | Macroscopic Inclusions | Color Range |
|---|---|---|---|---|---|
| Coarse | General | Very Poor to Very Well | Pinched, Slabbed, Coiled, Molded, Wheel | Mineral, Vegetal, Shell, Grog | Any |
| Medium | Sandwichware | Poor to Well | Pinched, Slabbed, Coiled, Molded, Wheel | Mineral, Shell, Grog | Brownish Surfaces, Orange or Reddish Core |
| Fine | General | Well to Very Well | Pinched, Wheel | Mineral | Any |
| Fine | Sandwichware | Well to Very Well | Pinched, Wheel | Mineral, Shell, Grog | Brownish Surfaces, Orange or Reddish Core |
| Fine | Grayware | Well | Wheel | Mineral | Gray |
| Fine | Elymian | Well | Pinched, Wheel | Mineral, Grog | Pale Brown to Brownish |
| Fine | Attic | Very Well | Wheel | Mineral | Orange or Reddish |
| Fine | Colonial | Well to Very Well | Wheel | Mineral | Orange or Reddish |
| Fine | Corinthian | Very Well | Wheel | Mineral | Pink to Very Pale Brownish |
| Fine | Punic | Well to Very Well | Wheel | Mineral, Shell | Red to Dark Reddish Brown |

Ware classes, the end result of technological choices made by the potter, can be considered styles which communicate emblemic associations. Pottery assemblages may reflect the social group that manufactured, used, and discarded the vessels preserved in the archaeological record. For instance, locally manufactured pottery is emblemically associated with those individuals who occupied the site from which the assemblage was excavated. Other pottery, manufactured using different techniques common to a distant population, is emblemically associated with the other, distant population. In this way, different ware classes are emblemically associated with different populations, facilitating reconstructions of economic and production transformations. This study associates pottery emblemically with either indigenous Sicilian, Greek, or Phoenician cultures. Table 4.12 presents emblemic associations for each ware class identified in this study.

Table 4.12. Emblemic associations of ware types and classes identified in this study.

| Indigenous | | Greek | | Phoenician | |
|---|---|---|---|---|---|
| Fine | Elymian | Fine | Attic | Fine | Punic |
| Fine | Grayware | Fine | Corinthian | Coarse | General |
| Fine | Sandwichware | Fine | Colonial | | |
| Medium | Sandwichware | Fine | General | | |

## Vessel Form Terms

Qualifying vessel forms within a categorical framework is a complex process fraught with challenges because Iron Age and colonial pottery assemblages included such a wide variety of vessel forms. Further complicating vessel form classification, diverse mercantile forays transported vessels long distances from across the western Mediterranean and beyond, introducing foreign forms to distant populations. These consumers of foreign pottery then employed those vessels alongside locally manufactured ones, incorporating them into domestic, cultic, and mortuary contexts. The indigenous

Elymi were no exception, utilizing fired clay vessels manufactured by Sican, Greek, Phoenician, and Etruscan potters as well as those from Elymian potters from other population centers. The diverse array of pottery recovered archaeologically from Elymian sites represents the degree to which they interacted with both neighboring and distant populations.

Researcher bias also complicates vessel form identification. Classifying archaeological vessels with reference to well-established forms can involve subjective biases, skewing the content and conclusions of the study. Pigeon-holing vessel forms into a rigid classification scheme also encourages the study of the material as a population of vessels that somehow manufactured, used, and discarded themselves. This, however, ignores the social significance of the assemblage as a means to examine responses to a dynamic socio-political climate. Nevertheless, well-established vessel classifications cannot be ignored and remain an archaeological double-edged sword.

In order to mitigate this issue, the current study first identified each vessel as an open- or closed-form, then classified each vessel following terminology employed in a number of other studies of prehistoric Mediterranean pottery (Campisi 1997, 2003; Clark, et al. 2002; Gargini 1995; Sparkes 1991; Sparkes and Talcott 1970; Trombi 1999; Vecchio 2002). This traditional classification approach was selected because it is widely used across the Mediterranean, facilitating comparison with other pottery analyses. Traditional classification systems attempting to name each vessel form remain somewhat problematic; many vessel names are now known to be wrong and many of the names apply to more than one vessel form (Boardman 2006:245). In spite of these problems, the traditional approach was employed to facilitate comparison with previously published studies of Mediterranean pottery.

Indigenous Sicilian, Greek, and Phoenician vessel forms survive as archaeological testimony of the ancient economy. As a result, these vessels have been the subject of many analytical approaches and interpretations. The best studied of these vessels during the Archaic period are Greek forms; however, recent studies have made significant contributions to understanding Phoenician and Elymian pottery as well. Many Greek vessel forms changed little over the course of several centuries; apparently potters were allowed only a narrow range of variation due to the prescribed functions of these vessels (Lane 1963:9). Because many vessel forms in the Mediterranean persisted for long periods, they have facilitated formal classifications rendered by modern archaeologists seeking to identify ancient pottery in the same way they now identify with mass-produced pottery found in any local box-store. Despite variability between vessels classified using the same name, formal terminology persists in large part because of epigraphic and historical evidence. The names of many of these specific Greek vessel forms are ancient, derived from inscriptions on vessels and textual references which provide the names of a number of different vessel forms (Boardman 2006:244). This is especially true of the vessels used in the symposium, or wine-drinking feast (Boardman 2006:244), similar to many of those included in this study.

Associating sherds with general or specific vessel forms requires the presence of a rim fragment. Rims facilitate vessel form identification because they tend to be the most diagnostic component of the vessel. A two-level process was developed to employ rim sherds to identify general and specific vessel forms. Rim fragments first were used to determine if the vessel was an open or closed form (also termed unrestricted/restricted form). This was done by measuring two of the four "characteristic points" defined by Birkoff (1933:69; Shepard 1956:226). A vessel with an orifice diameter wider than the diameter at the point of vertical tangency was considered an open (unrestricted) form. Vessels with an orifice diameter significantly narrower than the diameter at the point of vertical tangency were considered closed (restricted) forms (Figure 4.7). Initial identification as an open/closed form was a general, yet essential, component of this study followed by form identification. In the event that a sample could not be positively identified as either open or closed (as in the case of a body sherd) the sample was classified as indeterminate. The distinction between open and closed form vessels is functionally important; open forms were frequently used to prepare and consume food and drink whereas closed forms were typically used to prepare or store food, drink, or other goods.

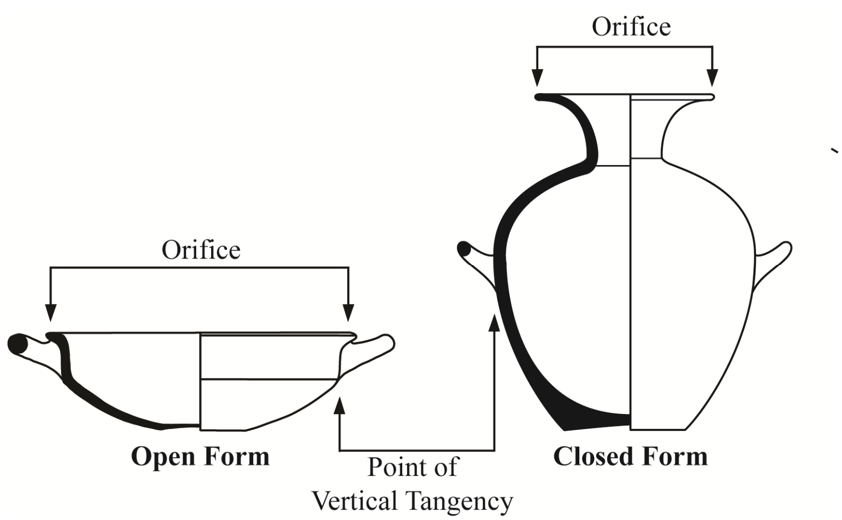



Figure 4.7. Distinguishing criteria for general open and closed form vessels.

General open and closed forms were then divided into 25 vessel classifications. This approach was preferred since it pairs well with a generalized study of vessel attributes and material transformation. Associating vessels with established classes is complicated in Iron Age Sicily by imitations of foreign vessel forms which vary from the originals. For such vessels, an intuitive approach to classification was employed, seeking to identify a general, functionally similar vessel form to be used as a proxy for classification. For instance, indigenous potters imitated the Ionic B2 cup, yet these imitations deviate morphologically from the original Greek form. Intuition suggests that such an imitation is a lip-cup in the same general sense that an Ionic B2 cup is a lip-cup. This approach relies on human etic perceptions of vessel shapes to detect patterns and classify vessels with similar forms (Sinopoli 1991:50).

Formally established vessel forms were coded using a mix of scholarly conventions related to the appropriate vessel class. Pottery assemblages recovered in Sicily have been categorically parsed into a number of variously established forms discussed in detail in regional and site-specific studies (Campisi 1997, 2003; Clark, et al. 2002; Gargini 1995; Sparkes 1991; Sparkes and Talcott 1970; Trombi 1999; Vecchio 2002). Despite the quantity and quality of previous research, no overall compendium of Sicilian pottery has been produced to date. As a result, a detailed explanation of each feasting vessel form encountered within this study was required which explicitly describes the various forms produced and used by the different Archaic Sicilian populations.

Formal vessel form classifications are well established and widely accepted partly because many of these forms may have first been executed in metals such as bronze, silver, or gold prior to being manufactured from fired-clay. Skeuomorphism, manufacturing in a different medium (Boardman 2006:244), may have provided a low cost alternative to vessels produced from precious metals. It is very possible that such ceramic versions of metallic vessels were deposited in mortuary contexts as surrogates to deter looting (Vickers 1999:4-5), an appealing economic alternative. Metal was not the only medium mimicked in clay; Attic white ground *lekythoi* might have served as a surrogate for more expensive ivory inlays on vessels (Vickers 1985:111).

The classification of vessel forms that follows is not intended to be comprehensive; Iron Age Sicilian pottery assemblages included a number of vessels employed for storage, transport, and food production that are not discussed here. Rather, this section restricts itself to fired-clay feasting vessels: cups, bowls, jugs, and vessels for storing and serving foods and liquids. Many different terms are employed to account for the numerous vessel forms frequently encountered at Late Iron Age indigenous, Greek, and Phoenician sites in Sicily. The classificatory terms employed here are in no way meant to replace universal naming conventions. Instead, they are used to alleviate confusion resulting from the use of different terms for the same vessel, or employed by speakers of different languages. Terminology characterizing different vessel forms was standardized within the limits of this project.

## Open Forms

Open form vessels were characterized using twenty general categories. Figure 4.8 illustrates all twenty of these vessel forms. These vessels served as key components in feasting and reflect both continuity and change in the archaeological record. Open form vessels included local and imported products used by diverse populations for similar functions across Sicily and the western Mediterranean, suggesting the popularity and adaptability of these vessels.

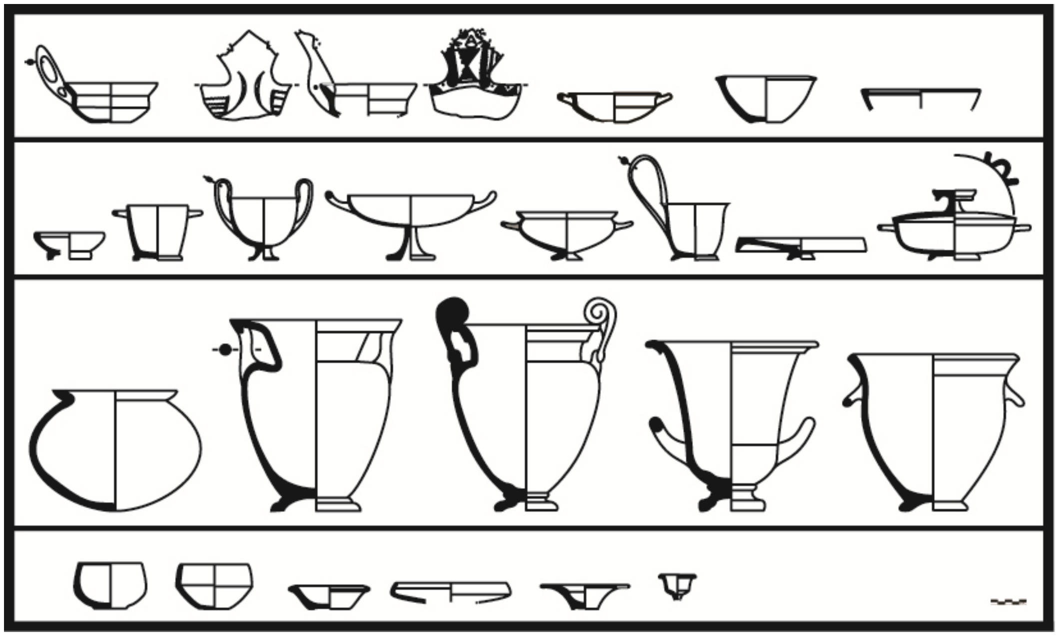


Figure 4.8. Schematic illustration of all open form vessels classified in this study.

Cups and bowls remain the two most frequent types of open form vessels. Distinguishing between them warrants discussion; metric or qualitative approaches have been employed successfully to classify their differences. Metric approaches posit the vessel's inferred use by measuring and comparing the vessel's height and width (Rice 1987:215-216). In this manner, cups and bowls are restricted to metrically confined classes which may or may not accurately reflect the actual function(s) of the vessel. Alternatively, a qualitative approach employs etic intuition to deduce function which still may or may not represent the actual function(s).

This study employs a quantitative template, complemented by a qualitative and intuitive classification scheme, because historical texts and scenes on frescoes and other vessels themselves elicit one or more uses for these vessel forms. Generally speaking, if the height of the container is greater than or equal to the width of the container, then it is a cup. Likewise, if the height of the container is less than or equal to the width of the container, then it is a bowl. These guidelines are not meant to be hard and fast; cup forms whose width far exceeds their height do exist (*kylikes* and lip-cups for instance).

The twenty open vessel forms classified were emblemically associated with indigenous Sicilian, Greek, or Phoenician cultures. General trends in the historical and archaeological contexts of these vessel forms facilitate such an identification. Indigenous Sicilian open forms will be discussed first, followed by Greek forms, and finally by Phoenician ones.

**Indigenous Open Form Vessels**

Three indigenous open forms are commonly found in Archaic and, to a lesser degree, Classical contexts in western Sicily. These include the *attingitoio* (pl. *attingitoi*), the *capeduncola* (pl. *capeduncole*), and the *scodella* (pl. *scodelle*). These three indigenous Sicilian vessels are similar in form and function. *Attingitoi* are characterized by an inverted tronco-conical, carinated body terminating in a simple or everted rim with one vertical handle extending from the carination to a point above the lip (Figure 4.9). Typically manufactured from Elymian fineware or grayware, techniques employed to produce *attingitoi* include hand-building, tournette, and more rarely on the wheel (Spatafora 2003b:115). This cup form has its origins in the Copper Age, as attested by an example recovered from an Early Copper Age (late fourth to early third millennium BC) tomb at Lannari, a site near Sabucina (Guzzone 2008:228).

Also labeled a *tazza* or *tazza-attingitoio*, *attingitoi* were cup forms commonly used in many indigenous Iron Age Sicilian and South Italian population centers (Fiorentini 1985-1986:49; Mühlenbock 2008:113; Trombi 1999:281). A frequent

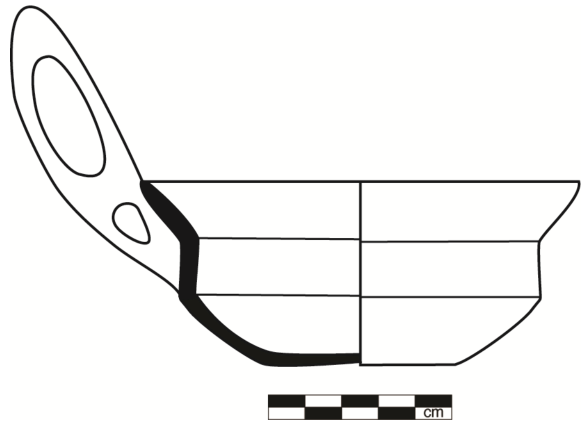



Figure 4.9. Indigenous Sicilian *attingitoio*.

component of indigenous Sicilian sites, *attingitoi* have been recovered from Entella (Di Noto 1995:77), Monte Maranfusa (Spatafora 2003b:113-118), Monte Polizzo (Cooper 2007:80; Mühlenbock 2008:113), Morgantina (Lyons 1996:89), and Segesta (Biagini 2008:150-151) among others. The function of the *attingitoio* remains contested; Belelli Marchesini argues that the high handle did not facilitate holding or raising the vessel when full (di Gennaro and Belelli Marchesini 2010:19), precluding its function as a cup and preferring instead to classify it as a bowl. Other authors, however, classify the *attingitoio* as a cup (Di Noto 1995:77; Leighton 1993:53; Mühlenbock 2008:114), or multifunctional vessel used as both a cup and a dipper (Fiorentini 1985-1986:49).

*Capeduncole*, the other indigenous cup form, are recovered much less frequently than *attingitoi*. This vessel name is the Italian term for “anthropomorphic drinking cup,” a term derived from the physical properties of this vessel. *Capeduncole* are highly stylized versions of the *attingitoio*. Instead of the strap or loop handle typical of *attingitoi*, a stylized anthropomorphic handle is present (Figure 4.10). Similar to the *attingitoio*, *capeduncole* were manufactured using a variety of techniques including hand-building and possibly tournette. The stylized handle, of course, was shaped by hand.

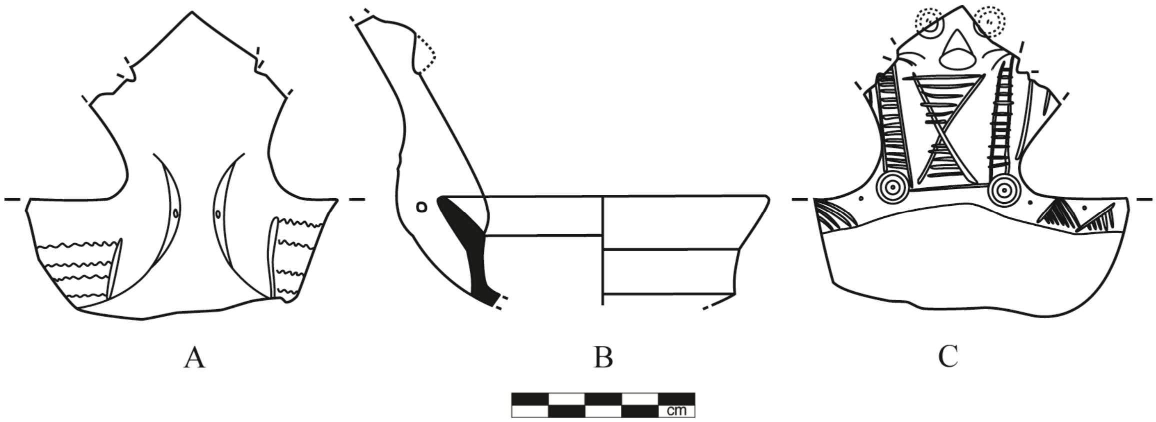



Figure 4.10. Indigenous Sicilian *capeduncola* from the Cordici Museum, Erice (no provenience). A. Exterior; B. Vessel Profile; C. Interior.

A rare component of ceramic assemblages, *capeduncole* continue to confound archaeological interpretation. The earliest form may have been derived from zoomorphic vessels of the Middle to Late Bronze Age (1400-900 BC) Ausonian II culture in Eastern Sicily (Mühlenbock 2008:111; Spatafora 1996b:101). Very similar vessel forms distinguished by the anthropo-zoomorphic handle also include South Italian ProtoDaunian and Daunian pottery dating from the ninth to sixth centuries BC (Tusa 1999a:651). Although rare, anthropomorphic *capeduncole* have been recovered at a number of sites across western Sicily, including Monte Castellazzo di Poggioreale (Fatta 1980:960), Monte Polizzo (Morris, et al. 2003:291; Mühlenbock 2008:110-113), and Segesta (Tusa 1999a:651).

The third indigenous Sicilian open form classified is the *scodella*, a type of bowl. A number of bowl forms were manufactured and used by indigenous Iron Age Sicilian populations. Although relatively similar to each other, different forms have been classified as different types. Italian terms for these vessels were used for the majority of these vessels in order to facilitate comparison with other studies. The most ubiquitous bowl form identified at indigenous western Sicilian sites is the *scodella* (pl. *scodelle*).

This form is a short and wide carinated bowl with an everted, flaring, or inverted rim, a rounded or tapered lip, and two horizontal or oblique handles. Elsewhere, *scodelle* have been classified as Monte Polizzo bowls (Mühlenbock 2008:107-108), a classification created because of their prevalence at Monte Polizzo. The *scodella* is a form derived from Middle to Late Bronze Age forms from Monte Saraceno di Ravanusa, which did not become frequent components of indigenous ceramic assemblages until the end of the eighth century BC (Trombi 1999:280).

This study follows Monte Maranfusa *scodelle* conventions established by Spatafora (2003b:119-123) and Campisi (2003:158-183). Eight main types of *scodelle* have been identified at Monte Maranfusa; however, only three types are distinguished here: *Scodella* 1, which has an everted or flared rim with a rounded or tapered lip; *Scodella* 2, which has an inverted rim with a rounded or tapered lip; and *Scodella* 3, which has an everted thickened inner rim with a rounded lip (Figure 4.11) (classifications derived from Spatafora [2003:119] and Campisi [2003:158-183]). Type 2 *scodelle* are also known as the one-handler, a shallow bowl with one horizontal lug handle set adjacent to, or just beneath, the rim (Sparkes 1991:84).

**Greek Open Form Vessels**

Open form vessels emblemically associated with Greek culture include cups and bowls. The large number of extant Greek cup forms complicates attempts to classify them using a single typological category. The goal of this study is not to attempt to resolve this issue; instead, simplified terms are employed to characterize the Greek cup forms identified here. This study coded for six Greek or Greek-inspired cup forms,

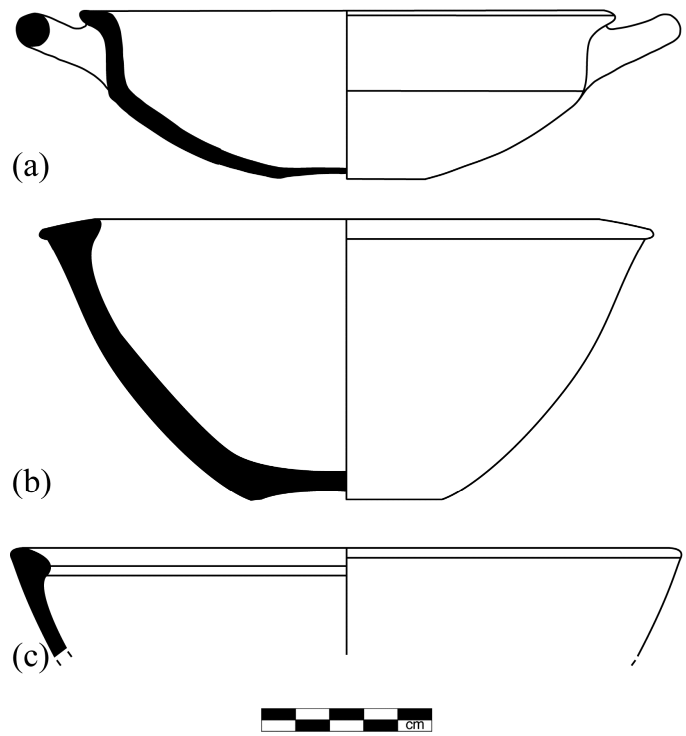



Figure 4.11. Indigenous Sicilian *scodelle* forms: a) Type 1; b) Type 2; c) Type 3.

collapsing existing typologies based on the forms examined. In addition to these six Greek cup forms, forms exist which are not discussed here. Only forms found in the sample analyzed are considered.

One of the most simple fired-clay cup forms present in Archaic and Classical western Sicilian archaeological contexts is the thickened rim cup. Classified as a *coppa* in Italian, *coppe* (pl.) are relatively small and squat vessels manufactured by hand, using a mold, or on the potter's wheel. *Coppe* are typically simple and shallow with thickened inner or outer rims (Figure 4.12). Often manufactured without handles, these cups commonly have a ring foot and were used frequently during the fourth century (Cook 1997:227).

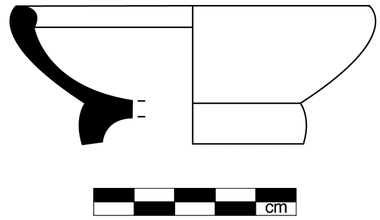



Figure 4.12. Schematic illustration of a *coppa* with thickened inner rim.

Classified as cups by some (Vecchio 2002:240-243), and bowls by others (Sparkes and Talcott 1970:132-135), *coppe* share properties of both, yet their relatively small volume may have been better suited for serving liquids. Their ubiquity across Sicily and the ancient Mediterranean is demonstrated by their presence in Greek Athens (Sparkes and Talcott 1970:132-135), Greek Thasos (Ghali-Kahil 1960:126), colonial-Greek Selinus (Kustermann Graf 2002:32), and Phoenician Mozia (Vecchio 2002:240-243), among other locales.

Many Greek cup forms were manufactured specifically for the consumption of wine, including the *skyphos*, *kylix*, and *kantharos*. Many of these shapes are skeuomorphs of eastern forms but with stemmed bases and handles added by the Greeks (Boardman 2006:246). Figural paintings and historical texts suggest their use as vessels from which to consume wine.

The *skyphos* (pl. *skyphoi*) was one such wine cup. Typically manufactured on a potter's wheel with an added ring or modified ring foot, *skyphoi* are taller than they are wide, with relatively vertical sides and a simple rim (Figure 4.13) (Clark, et al. 2002:145). *Skyphoi* were manufactured in both Athens and Corinth, each with its own style; Corinthian *skyphoi* were very thin walled with a ring foot while Attic *skyphoi* were typically thicker walled with a torus (tire-shaped) foot (Clark, et al. 2002:145).

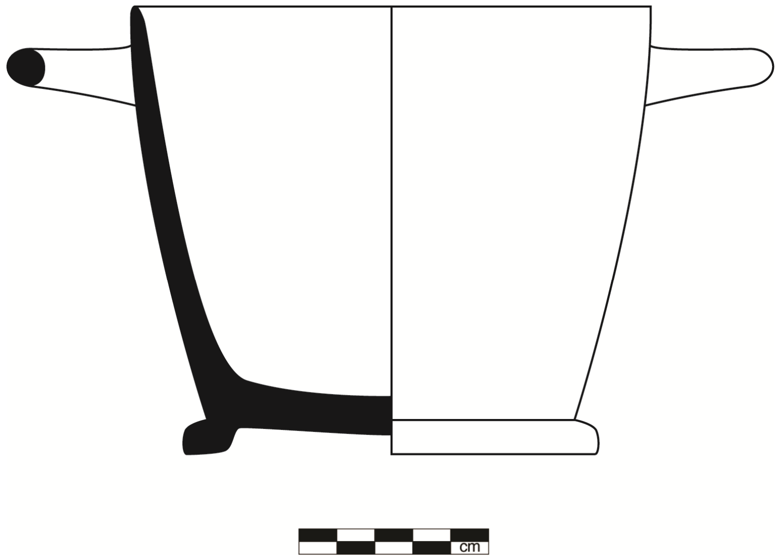



Figure 4.13. Schematic illustration of a *skyphos*.

Other terms for the *skyphos* are *kotyle* (pl. *kotylai*) (Clark, et al. 2002:145; Cook 1997:225; Sparkes 1991:84) and *kotylos* (pl. *kotyloi*) (Clark, et al. 2002:145). This vessel form originated in the Geometric period, developing later into a distinct, widely produced vessel which became the most common form for consuming liquids (Sparkes and Talcott 1970:81). *Skyphoi* are common components of Archaic and Classical archaeological assemblages at western Sicilian sites such as Monte Maranfusa (Denaro 2003:291-294), Monte Polizzo (Morris, et al. 2002:165), Salemi (Bratton and Kolb 2011), Segesta (De La Genière and Tusa 1978:13), Mozia (Michelini 2002:184-190), and Palermo (Di Stefano 1998a:281).

The *kantharos* (pl. *kantharoi*) is a stemmed cup form for consuming wine. *Kantharoi* are characterized by a deep bowl with two high vertical handles which articulate with the bowl at the lip and low on the exterior (Figure 4.14) (Clark, et al. 2002:101; Sparkes and Talcott 1970:113). Several varieties of *kantharoi* are documented; all were manufactured on a wheel and appear to have been associated with Dionysos, the god of wine (Clark, et al. 2002:101). The earliest *kantharoi* date from the sixth century and the form persisted through the fourth century (Sparkes and Talcott 1970:113). *Kantharoi* have been recovered from few western Sicilian sites, including Segesta (Bechtold 2008b:240).

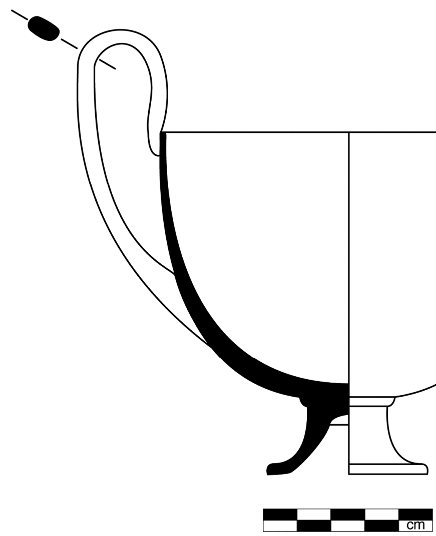



Figure 4.14. Schematic illustration of a *kantharos*.

The *kylix* (pl. *kylikes*), another Greek cup form, was an often ornately decorated cup with a shallow bowl, high stemmed foot, and two horizontal handles (Figure 4.15) (Sparkes 1991:83). *Kylikes* are one of the most common cup forms manufactured by Attic potters (Sparkes and Talcott 1970:88). A wide variety of *kylikes* were manufactured with diverse decorative motifs, many of which have been assigned individual classes. However, for the purposes of this study, the form, not the figural decoration, is emphasized, precluding the need to adhere to such class distinctions. *Kylikes* have been found in western Sicily at Monte Polizzo (Morris, et al. 2002:157), Mozia (Michelini 2002:165-166), Palermo (Villa 1998:274-275), and Sabucina (Sedita Migliore 1981:81).

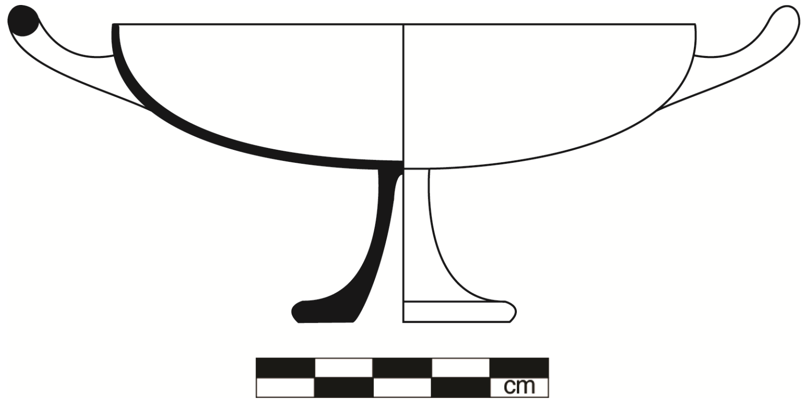



Figure 4.15. Schematic illustration of a *kylix*.

Stemless versions, termed stemless cups (Sparkes 1991:86) or lip cups (Clark, et al. 2002:107), are frequent components of western Sicilian Archaic and Classical contexts. For the purposes of this study, stemless *kylikes* will be termed lip-cups (Italian *coppa con labbro* (De La Genière and Tusa 1978:14)). This cup form has a shallow bowl topped by a rounded, offset rim and two more-or-less horizontal handles (Figure 4.16). Manufactured on a potter's wheel both with and without stems, lip-cups have traditionally been categorically parsed into specific types, the most familiar of which are Ionic cups (Figure 4.17). These vessels have garnered attention due to their widespread distribution, elegant form, and interesting decoration; a typological

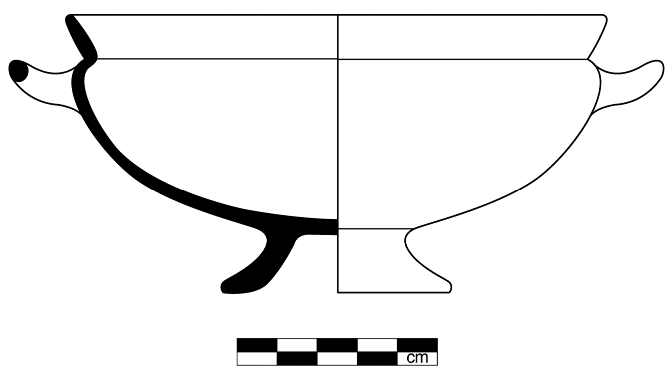



Figure 4.16. Schematic illustration of a lip-cup.

concordance was created to organize these variants (Catling and Shipley 1989:199). Lip-cups are common components of Archaic and Classical period assemblages across western Sicily, including Monte Maranfusa (Denaro 2003:282-291), Palermo (Di Stefano 1998a:290), and Segesta (De La Genière and Tusa 1978:14).

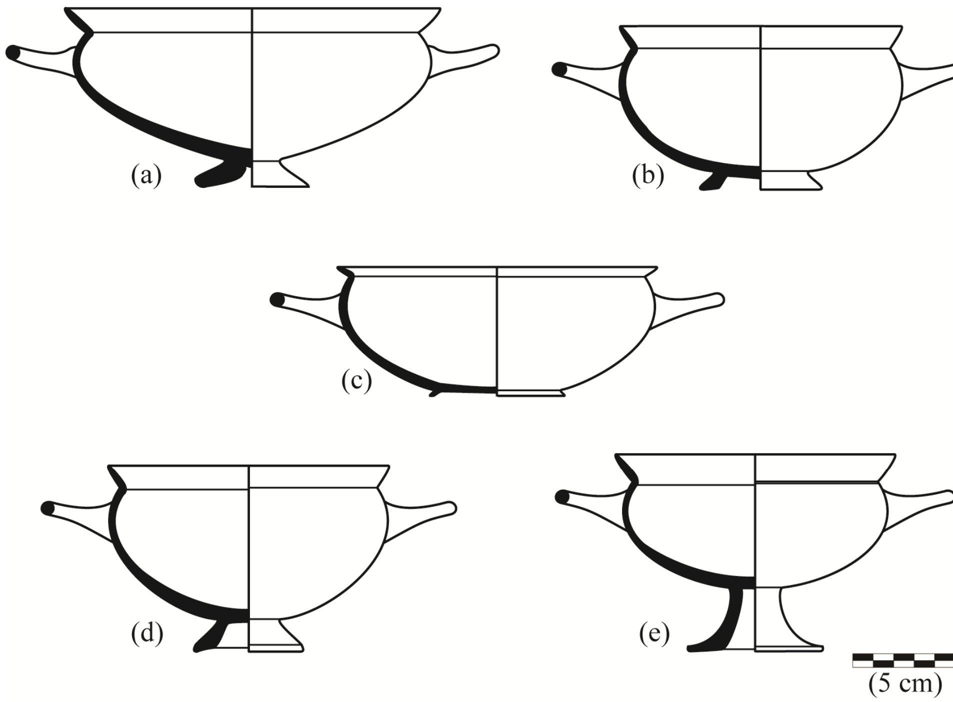



Figure 4.17. Ionic cup types after Cook and Dupont 1998:130: a – Type A1; b – Type A2; c – Type B1; d – Type B2; e – Type B3.

Although very rare, Attic potters produced imitations of certain indigenous Sicilian and Italiot vessel forms. One such imitation manufactured for an export market is the *kyathos* (pl. *kyathoi*) (Folsom 1967:106; Gill 1994:101; Sparkes 1991:83), an Attic copy of indigenous Sicilian and South Italian *attingitoi* (Figure 4.18). The *kyathos* was added to the repertoire of vessels manufactured by Greek potters only after intense mercantile interaction with Italian populations. Attic *kyathoi* directly modeled after Etruscan *kyathoi* suggest that Attic potters manufactured these vessels specifically for export to the Italian market (Eisman 1972:49-50; Gill 1994:101; Rasmussen 1985:36, 38). In Greece, *kyathoi* were not limited to a fired-clay medium, but were more frequently manufactured from bronze (Folsom 1967:185). The *kyathos* was a form used to ladle wine from a *krater* into other cups, a formal function indicated by the ancient Greek name "*κύᾶθος*" meaning "ladle" (Clark, et al. 2002:106).

The *kyathos* was not the only Attic product imitating foreign pottery; the Nikosthenic *amphora* is another product which appears to have been manufactured specifically for an export market to Italy (Eisman 1972:48; Gill 1994:101), and Red-Figure beakers manufactured in Athens specifically targeted Thracian markets (Oakley 2009:72). This demonstrates the adaptability of Attic potters when emulating foreign feasting forms in order to gain a stake in foreign economies.

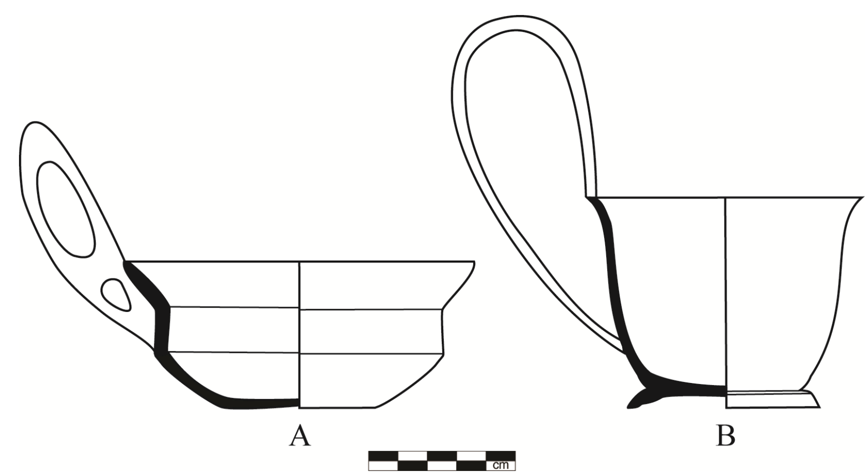



Figure 4.18. Indigenous Sicilian *attingitoio* (A) and Greek *kyathos* (B).

Greek bowl forms are more numerous and diverse than indigenous Sicilian ones. Forms frequently recovered in the western Mediterranean include the simple bowl, one-handler, large bowl, spouted bowl, *kalathos*, *lekanis*, and *krater*, for example. This study focuses on the *lekanis* and *krater* forms because they were frequent components of feasting activity.

The *lekanis* (pl. *lekanides*) was a shallow dish with a simple, rounded rim, a ring foot, two horizontal handles, and was typically covered with a lid (Figure 4.19) (Clark, et al. 2002:112; Sparkes and Talcott 1970:164).

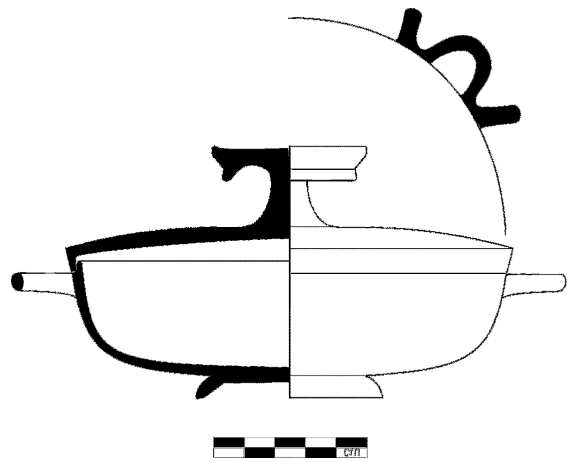


Figure 4.19. Schematic illustration of a Greek *lekanis* with lid.

The *krater* (pl. *krateres*) is a large open-form vessel with a wide orifice atop a deep, footed bowl. An emblemically Greek vessel form, the *krater* was introduced to western Sicily after the establishment of Greek Selinus and Himera. This vessel form was an important component of the feast used to mix wine with water prior to consumption (Cook 1997:217; Dugas 1926:3; Folsom 1967:169; Sparkes 1991:82), a vessel akin to the modern punch-bowl. Originally a Subminoan (1050-970 BC) vessel type, *krateres* were frequently imitated after the Middle Proto-Geometric period beginning in 920 BC (Coldstream 2001:47). These imitation vessels morphed over time, developing various forms with ring feet after the Late Geometric period (745-700 BC) (Coldstream 2001:47).

The earliest *krateres* recovered in Sicily are Mycenaean, dating from Middle Bronze Age contexts at Milena (Leighton 1999:172). First mass produced in Athens during the Late Geometric period (800-720 BC) (Clark, et al. 2002:104), the *krater* developed into several distinct forms in subsequent centuries. The most common of these forms included the column-*krater*, volute-*krater*, calyx-*krater*, and bell-*krater* (Figure 4.20). Different *krater* forms appeared at different periods, demonstrating the evolution of the form over time (Table 4.13).

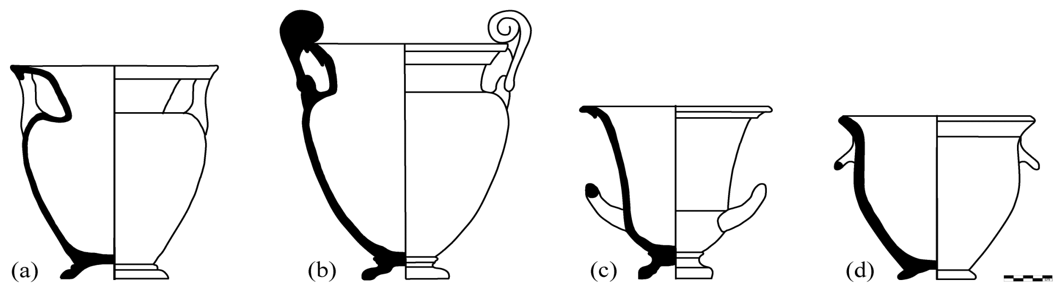



Figure 4.20. Common *krater* forms frequently recovered in Sicily: a) column-*krater*; b) volute-*krater*; c) calyx-*krater*; d) bell-*krater*.

Table 4.13. Chronology of *krater* forms (after Folsom 1967:169).

| | |
|---|---|
| Column-*krater* | 625-425 BC |
| Volute-*krater* | 600-323 BC |
| Calyx-*krater* | 550-323 BC |
| Bell-*krater* | 425-323 BC |

The column-*krater*, the earliest *krater* form, may be the most frequent type recovered from Archaic period Sicilian contexts. Manufactured with vertical handles resembling columns, column-*krateres* from Athens were frequently decorated with Black-Figure motifs (Clark, et al. 2002:104-105). One striking feature common to all column-*krateres* is a wide, flattened rim supported by the handles (Figure 4.21). The column-*krater* was first popular in Corinth during the last quarter of the seventh century BC, later gaining popularity in Athens during the first half of the sixth century (Folsom 1967:171). As a result, the column-*krater* was referred to as the “Corinthian” *krater* in antiquity (Cook 1997:218; Sparkes 1991:82). The popularity of the column-*krater* reached a pinnacle during the first half of the fifth century (Cook 1997:218). These vessels have also been classified as *kelebe* or pillared-*krateres* (Dugas 1926:3), terms which persisted until the 1920s.

Volute-*krateres* are named after the large scroll present atop the handles (Clark, et al. 2002:105; Folsom 1967:171). Developed from the column-*krater* (Cook 1997:219), volute-*krateres* were first manufactured at Corinth in the early sixth century before being adopted by Attic potters in the mid sixth century (Folsom 1967:171). Known as the "Laconian" *krater* in antiquity (Cook 1997:219; Sparkes 1991:82), volute-*krateres* never reached the same level of popularity as their forerunner, the column-*krater*.

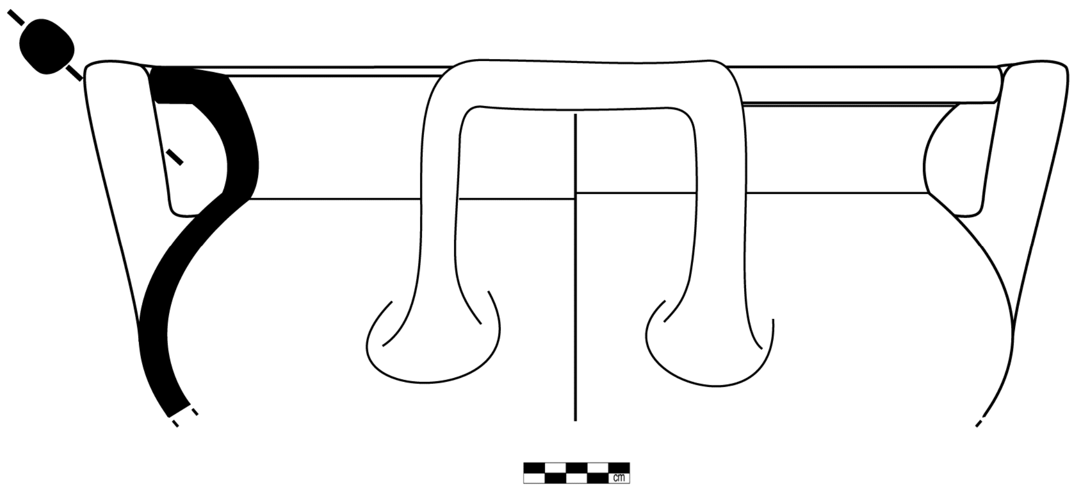



Figure 4.21. Detail of a typical rim profile on a column-*krater*.

Calyx-*krateres* have very wide orifices, a convex lower half, and concave upper half which could readily accommodate a *psykter*, a closed form vessel also associated with the feast (Clark, et al. 2002:105; Folsom 1967:172). The earliest calyx-*krateres* date from the middle of the sixth century BC (Folsom 1967:172) and were possibly first manufactured in Athens by Exekias, an Attic potter who lived in the third quarter of the sixth century BC (Clark, et al. 2002:105; Sparkes 1991:83). Attic calyx-*krateres* were very frequently manufactured with Red-Figure motifs (Folsom 1967:172). Various origins for the name of the calyx-*krater* exist; Dugas (1926:3) states they were named after a chalice, however other sources state the form was named after the calyx of a flower (Clark, et al. 2002:105; Folsom 1967:172).

Bell-*krateres* were inverted bell-shaped vessels, with Red-Figure decorations in many cases (Clark, et al. 2002:105; Folsom 1967:173). The earliest bell-*krateres* date from the early fifth century BC, but the form continued to be produced for centuries (Folsom 1967:173). Early descriptions of bell-*krateres* named them *oxybaphon* (Dugas 1926:3), a name which was used through the early twentieth century by classical archaeologists.

In addition to full-sized column, volute, calyx, and bell-*krateres*, miniatures, termed *krateriskos* (pl. *krateriskoi*) were widely produced. These miniature vessels became common components of Sicilian mortuary assemblages beginning in the fifth century BC, scaled-down versions of the originals. Their purpose remains unclear.

Another open-form vessel similar to the *krater* was the *dinos* (pl. *dinoi*). These vessels were large, rounded, handle-less vessels with a wide orifice extending to an everted rim terminating at a tapered lip (Figure 4.22). Used for mixing wine and water,

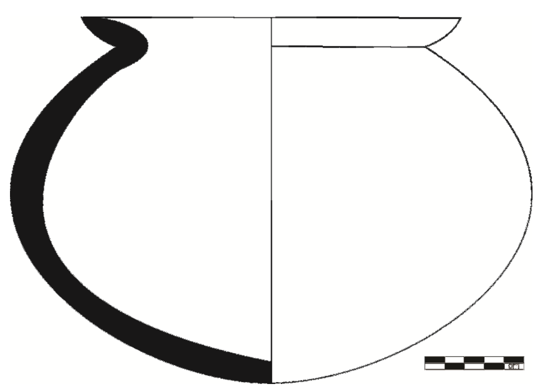


Figure 4.22. Schematic illustration of a Greek *dinos*.

the *dinos* was a vessel more frequently manufactured in bronze than fired-clay (Clark, et al. 2002:87). *Dinoi* were infrequent components of feasting assemblages in ancient Sicily.

The last Greek open form feasting vessel classified here is the fish plate. The Greek fish plate was relatively flat with a central navel presumably used to contain sauces (Figure 4.23) (Clark, et al. 2002:93; Sparkes and Talcott 1970:147). Greek fish plates were not produced prior to the early fourth century (Clark, et al. 2002:93), yet it did not take long for this vessel form to appear in Sicily; one example from Phoenician Mozia dates from the early fourth century BC (Isserlin 1963:425).

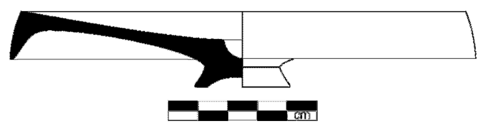



Figure 4.23. Schematic illustration of a Greek fish plate.

**Phoenician Open Form Vessels**

Phoenician open form vessels are not as diverse as those manufactured by their Greek trading counterparts; the western Mediterranean *emporia* typically manufactured four forms, yet elaborated on these forms in numerous ways. This study classifies four types of Phoenician cup forms. Other studies have classified as many as six types of Oriental-style cups (Vecchio 2002:240-242), however some of these forms are very similar, emphasizing differences which are not the focus of, and thus do not warrant segregation in, this study.

Calotte cups are relatively small cups with a simple rim, a rounded or tapered lip, and an orifice diameter typically less than 14 cm (Figure 4.24). Named for their hemispherical shape, calotte cups were typically manufactured on a potter's wheel and date from the eighth through fifth centuries BC (Vecchio 2002:241-243). This form has also been classified as a bowl (Bikai 1978:28), demonstrating the diverse etic perceptions of its use. Calotte cups are frequently recovered from Phoenician *emporia* located across the Mediterranean. At Mozia, this form corresponds with Types 97, 98 and 99 (Vecchio 2002:241-243), Form 4 (Balzano 1999:43-55), "deep bowls" (Isserlin, et al. 1964:123), or "*a calotta*" cups (Peserico 1994:136) at Monte Sirai, and are classified as "hemispherical bowls" at al Mina (du Plat Taylor 1959:82).

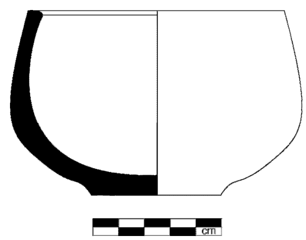



Figure 4.24. Schematic illustration of a Phoenician calotte cup.

Carinated calotte cups are a similar form. These relatively small carinated vessels have a simple rim, rounded lip, and an orifice diameter usually less than 12-13 cm (Figure 4.25). This form is wheel-made and dates from the second half of the seventh century BC (Vecchio 2002:241). Another frequent component of Phoenician ceramic assemblages, this form has been recovered at several *emporia* across the western Mediterranean. At Mozia, this cup form corresponds with Type 95 vessels (Vecchio 2002:241) and Form 4 at Monte Sirai (Balzano 1999:43-55).

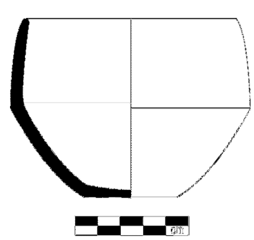



Figure 4.25. Schematic illustration of a Phoenician carinated calotte cup.

Squat cups are short tronco-conical vessels with a flared rim and tapering or rounded lip (Figure 4.26). This type of cup was produced on a potter's wheel and dates from the Archaic period through the end of the sixth century BC (Vecchio 2002:241). These cups are very frequently recovered from western Mediterranean sites such as Sicilian Mozia and Sardinian Monte Sirai. Phoenician squat cups correspond with Type 94 vessels at Mozia (Vecchio 2002:241) and Form 7 from Monte Sirai (Balzano 1999:62-67).

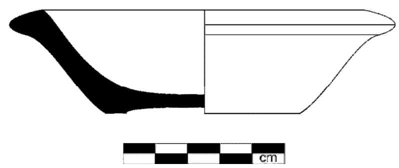



Figure 4.26. Schematic illustration of a Phoenician squat cup.

Phoenician broad cups are unlike the previous types. These vessels have a wide but shallow bowl terminating in an inverted flaring rim with a rounded lip (Figure 4.27) (Vecchio 2002:241). Manufactured on a potter's wheel, these vessels date from the seventh century BC and are less common components of Phoenician sites across the western Mediterranean. Also classified as a large platter (Bikai 1978:69), this form first appeared in the Early Bronze Age in Anatolia (Wright 1937:69). This form corresponds with Mozia Type 96 vessels (Vecchio 2002:241), "keeled bowls" (Isserlin, et al. 1964), and Form 8 vessels at Monte Sirai (Balzano 1999:67-75).

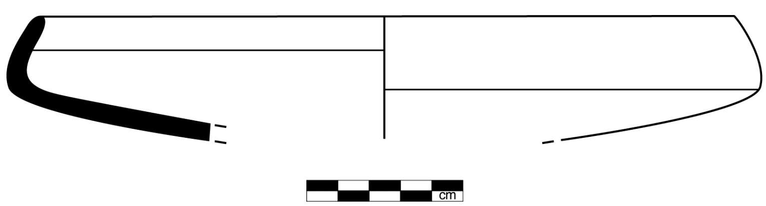



Figure 4.27. Schematic illustration of a Phoenician broad cup (after Vecchio 2002:241, Figure 29, No. 3).

The Phoenicians also manufactured numerous plate forms, all of which preserve a shallow bowl shape terminating in a rounded lip on a heavily flared rim with an inner ridge (Figure 4.28). Recovered at Mozia, these vessels have been classified as saucers (Isserlin, et al. 1964:123) or umbilical plates (Vecchio 2002).

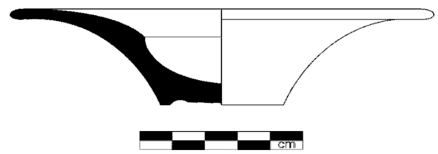



Figure 4.28. Schematic illustration of a Phoenician plate form.

One final open form vessel manufactured by Phoenicians is the incense burner. This special-use vessel has oriental origins tied to cult use (Vecchio 2002:258) and is characterized by a deep bowl shape, flaring rim, and rounded lip, set above a stemmed foot (Figure 4.29). These vessels are typically decorated with a red slip and are dated from the middle of the sixth to the end of the fifth century BC (Vecchio 2002:258). Phoenician incense burners, termed *bruciaprofumi* in Italian, have been recovered from Mozia (Vecchio 2002:258) and Solunto (Termini 1997:41-42).

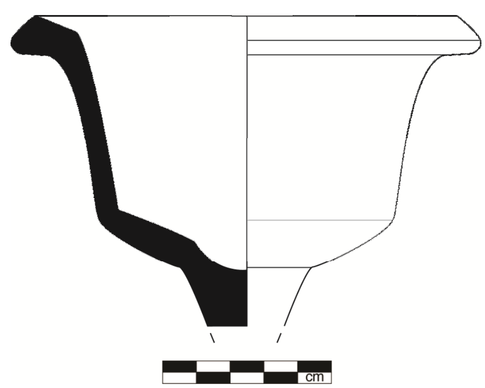



Figure 4.29. Schematic illustration of a Phoenician incense burner (after Vecchio 2002:259).

### Closed Forms

Closed form vessels comprise an important yet seldom visible component of feasting assemblages in indigenous Sicilian, Greek, and Phoenician sites. Although components of the feast, these vessels are more frequently encountered among Late Iron Age and Archaic period mortuary contexts; corpses were often placed inside these vessels as *enchytrismos* burials. During the feast, however, closed form vessels were employed as jars to contain and pitchers to serve water, wine, and other liquid beverages. Figure 4.30 graphically presents the ten closed form indigenous vessel types classified as components of the feast.

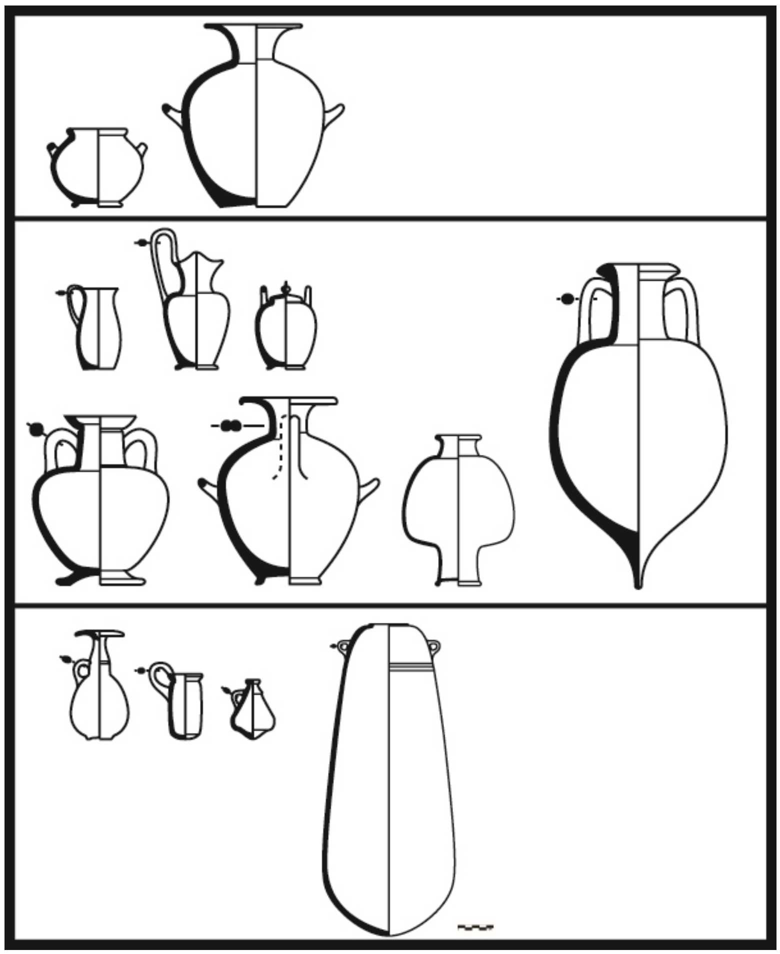


Figure 4.30. Schematic illustration of all closed form vessels classified in this study.

**Indigenous Closed Form Vessels**

The *olla* (pl. *olle*) is a globular vessel which typically has two handles and an everted rim terminating in a rounded or flat lip (Figure 4.31). *Olle* were frequent components of indigenous Sicilian domestic assemblages during the Bronze and Iron Ages (Bechtold 2008a:156; Mannino and Spatafora 1995:78). These storage jars have been recovered from Iron Age domestic contexts at Entella (Gargini 1995:138-139), Monte Maranfusa (Campisi 2003:199-203), and Segesta (Bechtold 2008a:156) in western Sicily.

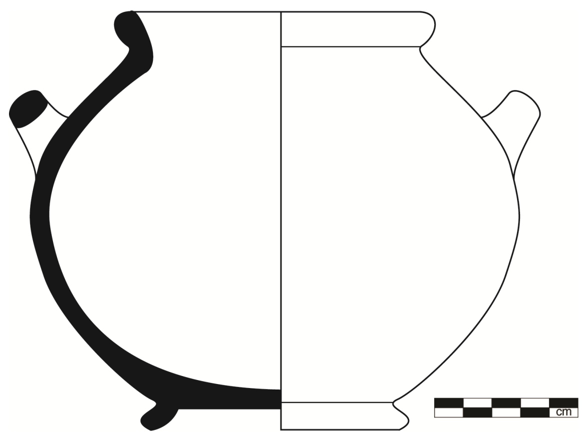



Figure 4.31. Schematic illustration of an indigenous *olla* (after Campisi 2003:202).

The *amphora* (pl. *amphorae*) is a closed-form vessel typically globular in shape with a flaring rim and two handles (Biagini 2008:151; Boardman 2006:15; Campisi 2003:193; Clark, et al. 2002:66; Folsom 1967:152). *Amphorae* were originally a Mycenaean form (Williams 1999:29) used to store liquids, dry goods, or small foods within domestic contexts, and human remains in mortuary contexts (Clark, et al. 2002:66). Indigenous Sicilian *amphorae* typically have an everted or flaring rim with a rounded lip and two horizontal or oblique handles located approximately mid-height on the vessel (Figure 4.32). These vessels have been recovered from indigenous Entella

(Gargini 1995:136-138), Monte Maranfusa (Campisi 2003:193-199), Monte Polizzo (Mühlenbock 2008:89), and Sabucina (Panvini 2008:132).

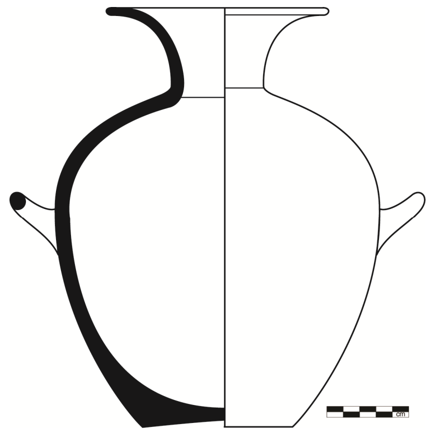


Figure 4.32. Schematic illustration of an indigenous *amphora*.

Indigenous Sicilian *amphorae* strongly resemble Bronze Age *olle*, suggesting they may have developed from earlier forms (Figure 4.33). One example (Mannino and Spatafora 1995:78), recovered from Bronze Age Mokarta, reinforces the temporal continuity of these vessel forms over long periods in western Sicily.

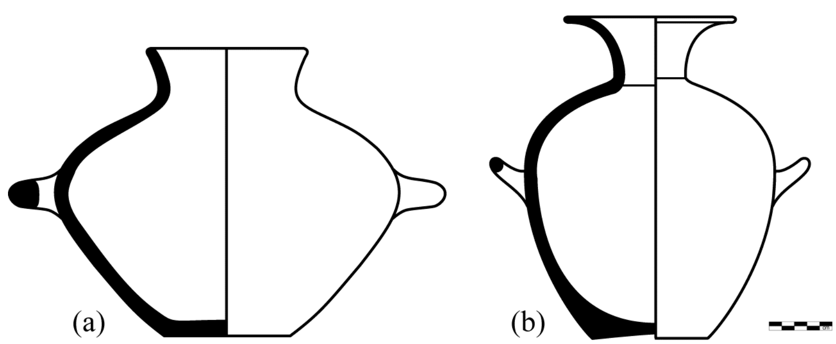



Figure 4.33. a) Late Bronze Age *olla* from Mokarta (after Mannino and Spatafora 1995:78, Figure 20 No. 169); b) typical Iron Age *amphora*.

**Greek Closed Form Vessels**

Seven Greek closed form vessels were classified in this study, including two types of *amphorae*. Greek *amphorae* differed morphologically from Iron Age indigenous ones, yet their functions appear to have been similar as they are found in both domestic and mortuary contexts in association with other cup forms. Greek table *amphorae* have been classified into several similar forms. This study classifies them simply as Greek table *amphorae*. These vessels have an ovoid body, somewhat restricted neck, two vertical handles, and an everted or flared rim terminating in a rounded or tapered lip (Figure 4.34). Greek table *amphorae* were widely used across the Mediterranean, including colonial Greek Selinus (Kustermann Graf 2002:28), indigenous Montagnola di Marineo (Campisi 1997:151), indigenous Sabucina (Panvini 2008:192-193), and Phoenician Palermo (Di Stefano 1998a:280) on Sicily.

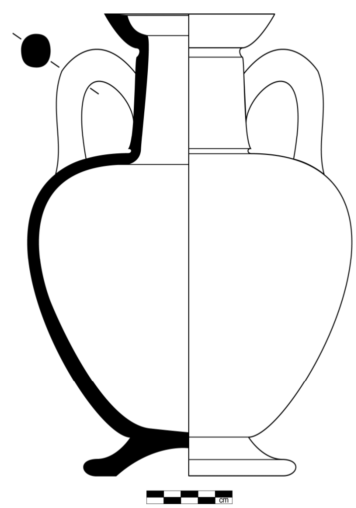


Figure 4.34. Schematic illustration of a Greek table *amphora*.

Greek transport *amphorae* are characterized by an inverted tear-drop shape with two vertical handles and a flared rim terminating in a rounded or tapered lip (Figure 4.35). These containers are frequently identified from Iron Age and Classical sites across the western Mediterranean; ancient shipping containers which transported wine, olive oil, salted fish, and dry goods over sea and land.

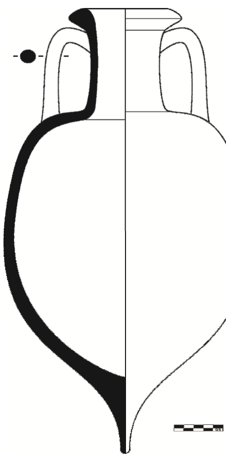


Figure 4.35. Schematic illustration of a Greek transport *amphora*.

The *hydria* (pl. *hydriai*) was an emblemically Greek vessel used to carry and store water.  Water was an important component of the feast because Greek feasting traditions required the mixing of wine with water prior to consumption (Lynch 2011:130).  *Hydriai* have globular bodies restricted by a vertical neck terminating in an everted rim with a rounded or tapered lip and three handles; two handles are horizontal and located midway up the body while the third is vertical and extends from the shoulder to the neck (Figure 4.36) (Clark, et al. 2002:98-99; Sparkes and Talcott 1970:53).  *Hydriai* have been recovered at indigenous Monte Maranfusa (Campisi 2003), Monte Polizzo (Mühlenbock 2008:89), and colonial-Greek Selinus (Kustermann Graf 2002:28).

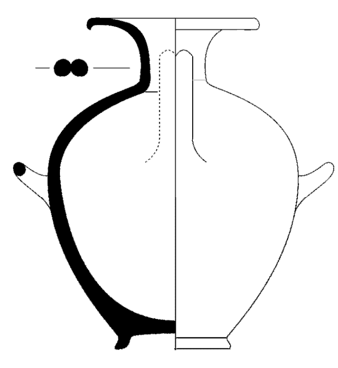


Figure 4.36. Schematic illustration of a Greek *hydria*.

The *psykter* (pl. *psykteres*) is a Greek vessel with a bulbous body constricted both above and below, either with or without lug handles, and an everted or thickened outer rim terminating in a rounded or flat lip (Figure 4.37) (Sparkes and Talcott 1970). Manufactured throughout the sixth and into the mid-fifth centuries BC, *psykteres* were employed as wine coolers in conjunction with a *krater*; the psykter, filled with wine, was placed in a krater to float in cold water, which would chill the wine in the *psykter* (Clark, et al. 2002:134; Sparkes and Talcott 1970:52). *Psykteres* are exceedingly rare in western Sicily.

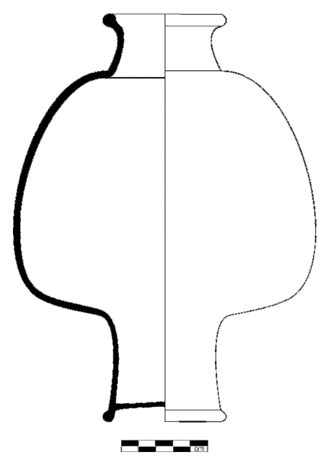


Figure 4.37. Schematic illustration of a *psykter*.

In addition to jar forms, other closed form vessels included a variety of pitchers and jugs necessary to pour beverages during the feast. Two types of pitchers are discussed here: *oinochoai* and *olpai*. The larger of the two pitcher forms, the *oinochoe* (pl. *oinochoai*), literally translated from Greek as “wine-pourer” (Cook 1997:215; Sparkes 1991:84), was a significant element of the feast, as the name suggests. This vessel form is widely diverse, with a trefoil, round, or beaked mouth (Folsom 1967:163; Sparkes 1991:84) atop a globular, ovoid, or angular body (Cook 1997:215) (Figure 4.38). Commonly recovered at indigenous and colonial sites, *oinochoai* were very widely used for a long period at sites such as indigenous Entella (Gargini 1995:136), Monte Maranfusa (Campisi 2003:207-208), Monte Polizzo (Mühlenbock 2008:100-102), Sabucina (Sedita Migliore 1981:103), Phoenician Mozia (Vecchio 2002:251), and Palermo (Ravituso 1998:321).

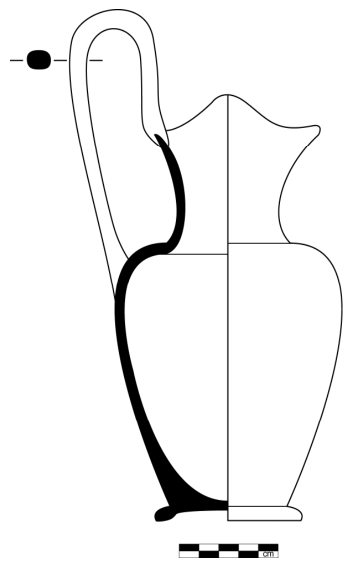



Figure 4.38. Schematic illustration of an *oinochoe*.

Another pitcher form used during the feast is the *olpe* (pl. *olpai*). *Olpai* are classified as relatively slender vessels with an ovoid body and a slightly everted rim terminating in a rounded lip and with one vertical handle extending from midway up the vessel to the lip (Figure 4.39) (Sparkes 1991:84). Derived from the Greek word "*olpe*", this term has been observed inscribed on *aryballoi* (Cook 1997:217), suggesting the use of the term may have changed since antiquity. *Olpai* are commonly recovered from Archaic and Classical period contexts across western Sicily, including indigenous Monte Polizzo (Mühlenbock 2008:102), Phoenician Mozia (Vecchio 2002), Palermo (Ravituso 1998:321), and Greek Selinus (Kustermann Graf 2002:216-217).

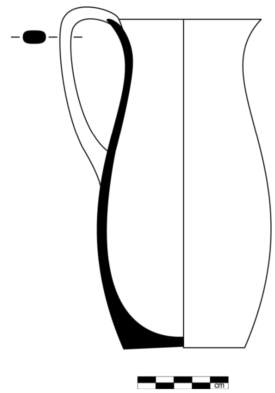


Figure 4.39. Schematic illustration of an *olpe*.

One final Greek vessel form included in this study is the *pyxis* (pl. *pyxides*). *Pyxides* were domestic vessels which typically contained non-liquid items. This vessel form is included in this classification as a proxy for non-feasting vessels. *Pyxides* typically have an elongated shape with either convex or concave walls and are always covered with a lid (Figure 4.40). They have been recovered from numerous sites across western Sicily, suggesting widespread use as a small domestic dry-goods container.

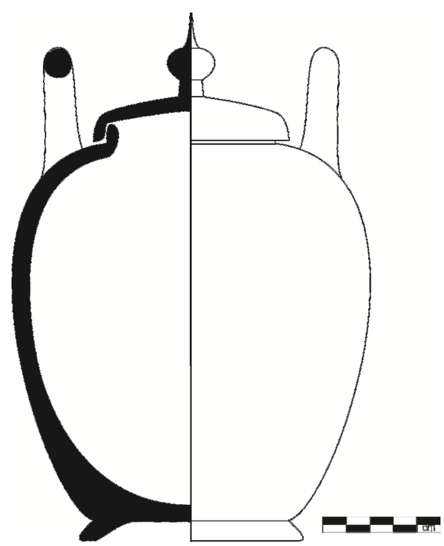


Figure 4.40. Schematic illustration of a Greek *pyxis*.

**Phoenician Closed Form Vessels**

Four closed form Phoenician vessel forms were classified for this analysis: transport *amphorae*, the dipper, the *unguentarium*, and the mushroom jug. Phoenician transport *amphora* are typically elongated and tubular with two squat vertical handles and a thickened outer rim terminating in a rounded lip (Figure 4.41). Phoenician transport *amphora* are frequently recovered from Classical contexts across western Sicily.

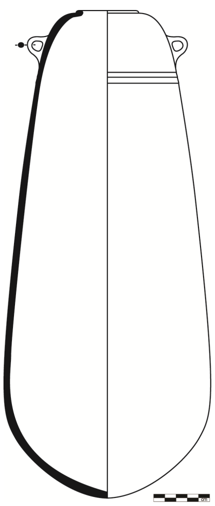


Figure 4.41. Schematic illustration of a Phoenician transport *amphora*.

The dipper is characterized as a single handled vessel with an elongated body and everted rim terminating at a rounded lip (Figure 4.42). Phoenician dippers recovered from Mozia have been dated to the end of the seventh to the beginning of the sixth century BC (Vecchio 2002:250), and have also been recovered from Palermo (De Simone and Falsone 1998:312), Sardinian Tharros (Secci 2006:175), and Spanish La Pancha (:271Martín Córdoba, et al. 2006).

The Phoenician *unguentarium* (pl. *unguentaria*) is a western Phoenician form characterized by a single handled globular or teardrop shaped body extending to a flared rim which terminates at a rounded lip (Figure 4.43). Also termed the *ampolla* (pl.

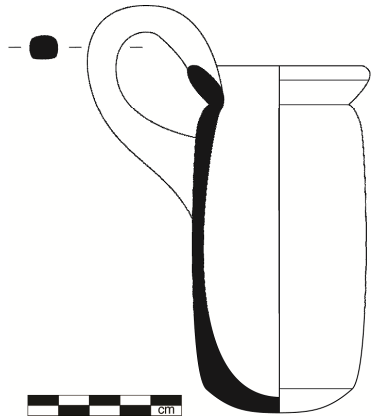



Figure 4.42. Schematic illustration of a Phoenician dipper.

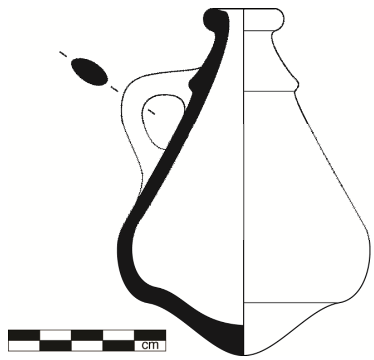



Figure 4.43. Schematic illustration of a Phoenician *unguentarium* (after Vecchio 2002:257).

*ampolle*), Phoenician *unguentaria* date from the middle of the seventh to the sixth century BC and are commonly recovered from Mozia (Vecchio 2002:256), Panormus (De Simone and Falsone 1998:312), and Carthage (Vegas 2000:362).

The Phoenician mushroom jug is a readily identifiable form recovered at Phoenician sites across the western Mediterranean. It is characterized by a single handled globular body which tapers to a narrow neck extending to a flared rim with a very wide rounded lip (Figure 4.44). This wide and flat rim is a distinct feature of the mushroom jug accounting for its name. Mushroom jugs date from the eighth to sixth centuries BC at diverse sites across the western Mediterranean, including Mozia, Panormus (De Simone and Falsone 1998:312), Tharros (Secci 2006:173-174), Trayamar (Schubart and Niemeyer 1976:654), and Cerro de San Cristóbal (Martín Ruiz 1995:105).

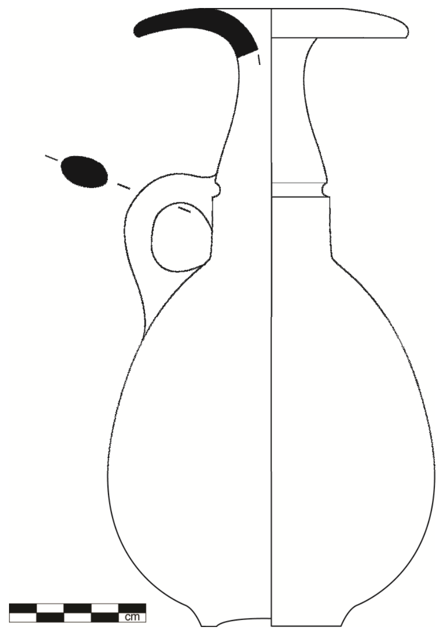



Figure 4.44. Schematic illustration of a Phoenician mushroom jug.

In the event that a vessel form included elements from multiple emblemic forms, the vessel was characterized as "mixed-form". For example, a vessel with a rim typical of both an indigenous *attingitoio* and a Greek *kylix* would be classified as "mixed-form" because it bridges emblemic associations and cannot be readily associated with any particular emblemic form. All open and closed vessel forms were emblemically classified as indigenous, Greek, Phoenician, or "mixed-form", based on shape, manufacturing technique, and decoration to explore the material correlates of social transformation. Table 4.14 presents the emblemic classification of each vessel form identified in this study. The large number of Greek feasting vessel forms included in this study reflect the great number of diverse forms associated with sympotic behavior.

Table 4.14. Emblemic classification of each vessel form identified in this study.

| | Vessel Form | Emblemic Association | | |
|---|---|---|---|---|
| | | Indigenous Sicilian | Greek | Phoenician |
| Closed Forms | *Amphora*, Table | X | X | |
| | *Amphora*, Transport | | X | X |
| | *Dinos* | | X | |
| | Dipper | | | X |
| | Mushroom Jug | | | X |
| | *Oinochoe* | X | X | |
| | *Olla* | X | | |
| | *Pyxis* | | X | |
| | *Unguentario* | | X | X |
| Open Forms | *Attingitoio* | X | | |
| | Calotte Cup | | | X |
| | Carenated Calotte Cup | | | X |
| | *Coppa* | | X | |
| | Incense Burner | | X | X |
| | *Kantharos* | | X | |
| | *Krater*-Column | | X | |
| | *Krater*-General | | X | |
| | *Lekanis* | | X | |
| | Lip-Cup | | X | |
| | Phoenician Plate | | | X |
| | *Scodella* | X | | |
| | *Skyphos* | | X | |
| | Squat Cup | | | X |
| | Total | 5 | 14 | 9 |

## Surface Treatment and Decoration

In studies of western Sicilian pottery, surface treatments, including decoration, are typically classified as incised/impressed or painted. This study classifies slips and burnished surfaces, rather than just decoration, as surface treatments. All slips, burnished surfaces, incised/impressed decoration, and painted decoration are therefore classified as surface treatments.

Incised/impressed surface treatments preceded painted ones in Sicily, yet evidence from Monte Maranfusa suggests a period of coeval production of the two types prior to a complete transition to painted motifs (Spatafora 2003b:109). The earliest western Sicilian pottery decorated with incised/impressed or painted decorations dates from the Neolithic. These decorative techniques persisted, transformed and intensified through the subsequent Copper, Bronze and Iron Ages.

**Incised/Impressed Surface Treatments**

Iron Age Sicilian pottery typically combined incised and impressed techniques to produce complex decorative patterns (Figure 4.45). Many studies have examined the range of variation present among incised/impressed designs (Di Noto 1995; Spatafora 1996b, 2003), demonstrating the importance of defining the individual components first, and complex motifs second.

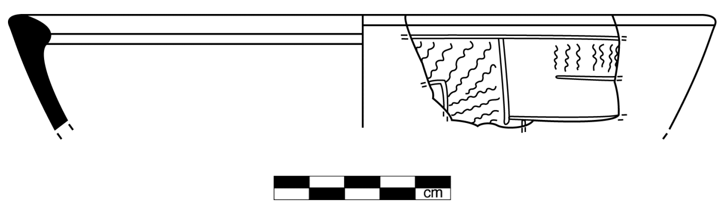



Figure 4.45. Vessel (BD009) decorated with both incised and impressed motifs in tandem.

Incised lines were a very common form of decoration on Iron Age Sicilian pottery. Straight lines could easily be incised horizontally, vertically, or diagonally (Figure 4.46). These most frequently took the form of incised bands of horizontal lines parallel to the rim that encircle the vessel. These bands were created by turning the

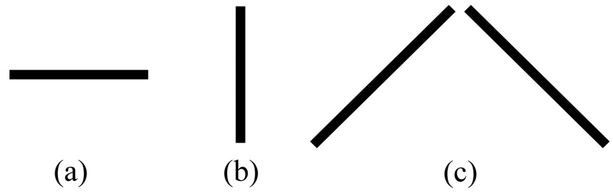



Figure 4.46. Types of incised lines: a) horizontal; b) vertical; c) diagonal.

vessel while applying the decoration. Vertical or diagonal incised lines appear less frequently and are often components of more complex motifs incorporating several incised and impressed designs.

Impressed decoration frequently included meanders, rings, or circle/square shapes (Figure 4.47). Meanders appear as a meandering line which can be oriented horizontally, vertically, or diagonally, but which never encircles a vessel as a band. Rings are circular impressions in which the interior of the ring is not impressed. Rings are typically small (<1 cm) and differ from incised bands in that they do not encircle a vessel. Impressed circle and square shapes are small (<.5 cm) indentations in which the impression makes up the whole of the shape.

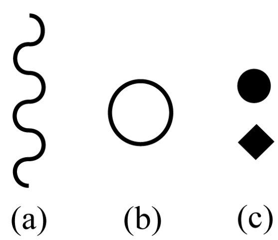



Figure 4.47. Types of impressed shapes frequently found on Iron Age Sicilian pottery: a) meander; b) ring; and c) punctates.

In this study, vessels were coded as incised, impressed, or incised/impressed. Combinations of impressed and incised lines and shapes have been studied in depth by Spatafora (1996b; 2003b) and di Noto (1995). Repeating triangular combinations, also known as *denti di lupo* (“teeth of the wolf”), are one of the most frequent incised/impressed patterns adorning Iron Age western Sicilian pottery. The outlines of these triangles are often defined by incised diagonal lines which articulate and are filled with diagonal impressed meanders. Three types of *denti di lupo* were classified here, depending on the orientation of the meanders (sloping down to the left, down to the right, or splayed from the center) (Figure 4.48). Other combinations of incised/impressed motifs follow Spatafora's (2003b:147) classification of "decorative syntheses" when possible.

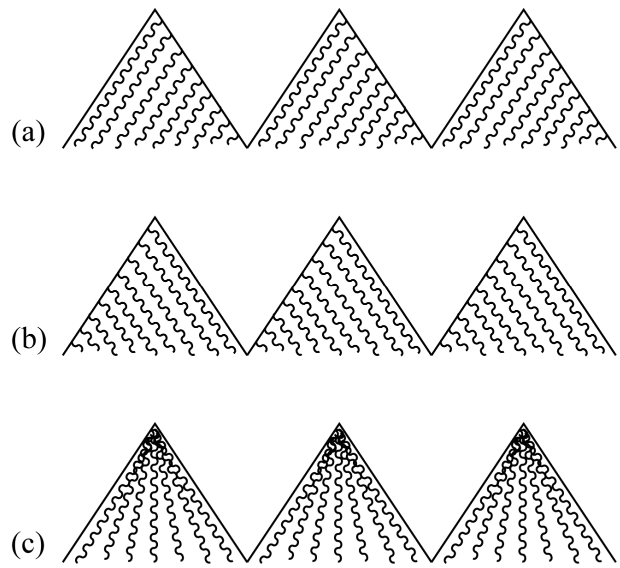


Figure 4.48. Variations of *denti di lupo*: a) Type 1; b) Type 2; c) Type 3.

**Painted Surface Treatments**

Painted pottery did not become a significant component of Iron Age ceramic assemblages until the mid-sixth or early fifth century BC (Campisi 2003:157). Indigenous western Sicilian painted motifs appear to closely resemble imported Euboean-Cycladic ones. Such foreign pottery was imported to Sicily beginning in the seventh century BC, including at Naxos (Lentini 1984-1985:830-831).

Painted designs on indigenous, Greek, and Phoenician pottery can be classified as bands, bars, meanders, fields, and figures (Figure 4.49). Painted bands are similar to incised ones; however, painted bands must be distinguished from fields as both are painted segments that encircle the vessel. A painted band is here defined as a horizontal line less than or equal to two cm in thickness (height) which encircles the vessel. Fields, unlike bands, are defined as painted segments which encircle the vessel, but are more than two cm in thickness (height). Figure 4.50 exhibits the difference between bands and fields.

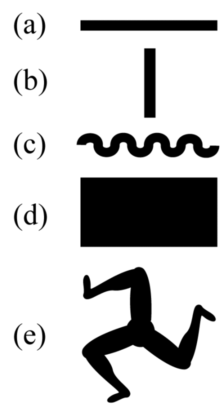



Figure 4.49. Major types of painted decorations: a) band; b) bar; c) meander; d) field; e) figural.

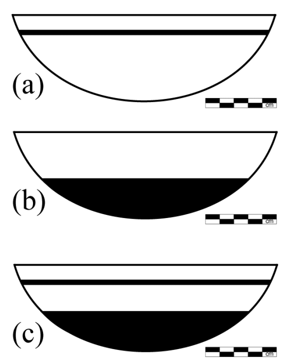



Figure 4.50. Examples of bands and fields: a) band; b) field; c) band and field.

Bars, quite simply, are defined as vertical painted lines on the vessel. These lines may be short or long; however, they must be longer than they are wide. Painted meanders are similar to impressed ones. A number of orientations are possible; thus meanders are classified as horizontal, vertical, or diagonal. When meanders occur in pairs or sets, the number of the set is recorded as well.

Figural designs are typically the most complex and diverse painted decoration. A number of anthropomorphic, zoomorphic, or mythic subjects adorn Greek and, to a lesser extent, indigenous Sicilian fired clay vessels. Figural designs are here defined as anthropomorphic, zoomorphic, anthropo-zoo-morphic, or other in order to simplify classification.

Painted pottery was further classified by the number of colors present (either monochrome or polychrome) and paint color. Paint colors were classified very simply as black, brown, red, or other. This strategy was developed because many dark pigments could easily have been washed out prior to or during application, resulting in varying shades of a pigment on the same painted feature.

Decorative designs visually communicate emblemic styles understood by the manufacturer and the consumer/viewer. As a result, all decorated vessels observed and coded in this study were assigned an indigenous, Greek, Phoenician, or mixed culture designation. Numerous decorative variables, such as decoration type, design, and color, were considered together to posit very general associations with the cultures which produced them. Fired clay vessels dating from the seventh to fifth centuries BC with incised/impressed designs are commonly recovered from indigenous contexts, suggesting these vessels were manufactured by indigenous Iron Age and Archaic potters in western Sicily. As a result, pottery decorated with incised/impressed designs is associated with indigenous potters.

Painted decoration varied significantly between indigenous, Greek, and Phoenician potters. Indigenous painted motifs included bands, bars, and meanders painted in brown, black, or red atop cream or tan slips. Few examples of figural motifs have been observed on indigenous pottery; however, the examples of indigenous figural decoration include animals (La Rosa 1971:50; Panvini 2008:174-175), and pseudo-anthropomorphic silhouettes (Vassallo 1999:211-215) often in conjunction with bands and painted in black pigments.

Greek and colonial-Greek potters manufactured vessels with a plethora of decorative motifs. The most common motifs during the sixth to fourth centuries BC in Sicily include monochrome or polychrome bands and fields slipped (falsely termed glazed) or painted in black, brown, or red. Combinations of bands and meanders are also present, particularly on pottery manufactured at Corinth. Figural decorations, including both Black Figure and Red Figure, are present, although much less frequently, and are readily distinguished from indigenous figural decoration by the superior quality of the slip/paint and the amount of detail present.

Finally, Phoenician potters frequently applied a red slip to their products, above which they applied gray or black bands. Not all fired clay vessels were decorated. For those vessels which remained undecorated, no emblemic association was determined for vessel decoration.

### Compositional Analyses

Compositional studies of pottery and other material culture can facilitate the exploration of manufacturing techniques and product exchange, providing an important contribution to the study of past economies. Three different compositional analyses were used on the pottery and clays in this study in order to explore the exchange of mixed-style vessels relative to the exchange of other pottery vessels between indigenous western Sicilian population centers. Elemental and mineralogical analyses were employed as complementary methods to explore the dynamics of pottery production technology and exchange. Energy dispersive x-ray fluorescence (ED-XRF), x-ray diffraction (XRD) and ceramic petrography were selected as the most suitable analyses for this study of pottery production and exchange.

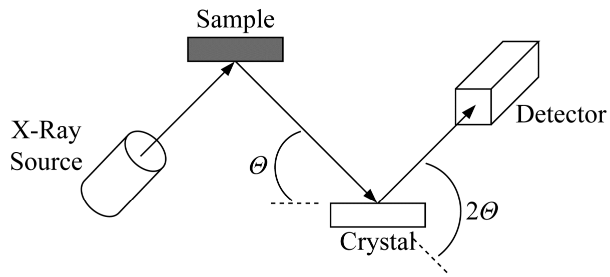
This combined methodological approach was designed to facilitate a more comprehensive analysis of pottery exchange. Because ED-XRF is a bulk analysis, it remains incapable of distinguishing between clay and aplastics, examining the total composition of the object instead of individual constituents. As a result, the types or proportions of aplastics, for instance calcite or feldspar added to the matrix during manufacture, cannot be gauged by bulk elemental analyses (Schubert 1986:177; Shepard 1965:82; 1966:871; Tite 1999:199). Combining two or more compositional analyses is one way to overcome such methodological limitations. Combining elemental and mineralogical data can more accurately identify differences in the clay fabric that cannot be detected by one method alone (Schubert 1986:177). Compositional studies of pottery frequently employ such a combined approach, applying two or more analytical methods to strengthen their conclusions. The history and physics behind each method employed are briefly described here, followed by a detailed description of the specific procedures applied.

### Energy Dispersive X-ray Fluorescence

X-ray fluorescence is an analytical technique that identifies elements by calculating their characteristic wavelengths. The earliest application of X-ray spectrography (a fore-runner to X-ray fluorescence) dates to 1912 when Moseley and Mackower (1912) used a cold cathode tube to analyze a Radium B target. Between 1911 and 1914 Moseley, along with his colleagues, published several important articles on X-ray applications, contributing to the growing scientific interest in X-rays (Moseley 1913a, b, 1914a, b; Moseley and Darwin 1913; Moseley and Fajans 1911; Moseley and Robinson 1914). Moseley collaborated with a number of other British physicists, including C.G. Darwin, a grandson of Charles R. Darwin, to discover a means to map L-shell radiation emitted from a platinum target (Moseley and Darwin 1913; Sarton 1927:102-103). Soon after, Moseley entered service with the Royal Engineers and was killed on August 10th, 1915 during severe fighting at Suvla Bay, Turkey (Rutherford 1915:33-34; Sarton 1927:101); a loss which slowed X-ray fluorescence technological innovation.

The earliest study to use XRF to analyze minerals was conducted in 1922 (Hadding 1922); however, the earliest demonstration of a practical use of XRF dates from 1928 (Glocker and Schreiber 1928). X-ray fluorescence technology stagnated until the 1950s, when the first commercially available instrument was produced (Jenkins 1988:52).

Two types of XRF instruments routinely examine a diverse array of materials today: wavelength dispersive X-ray fluorescence (WD-XRF) and energy dispersive X-ray fluorescence (ED-XRF). In the 1960s, XRF technology incorporated a lithium fluoride diffracting crystal in conjunction with chromium and rhodium targets, facilitating detection of lower energy, longer wavelengths (Jenkins 1988:53). Such wavelength dispersive instruments use a single crystal to parse polychromatic radiation diffracted from the sample (Figure 4.51). Energy dispersive X-ray fluorescence instruments use a silicon-lithium, also known as a Si(Li) (pronounced "silly") detector in place of a diffracting crystal (Figure 4.51). Si(Li) detectors use voltage pulses to distinguish between different elemental spectra and energies (Jenkins 1988:53).



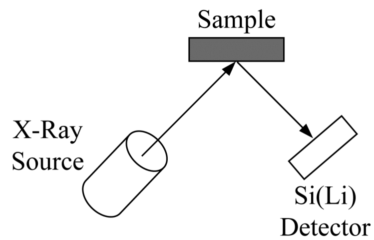




Figure 4.51. Types of XRF instruments (after Jenkins 1988:Figure 4-1): WD-XRF (top); ED-XRF (bottom).

X-ray fluorescence has been previously employed to study a number of materials in Sicily including obsidian (De Francesco, et al. 2008; Iovino, et al. 2008), pottery (Montana, Azzaro, et al. 2006), bronze (Giumlia-Mair, et al. 2010), and coins (Mezzasalma, et al. 2009). For this study, a Bruker Tracer III-V+ portable ED-XRF instrument was selected because it could quickly and non-destructively measure compositional properties of Sicilian pottery, and could be readily transported to various *antiquaria*, museums, and other storage facilities across western and central Sicily. Employing a portable instrument facilitated the study of pottery from a number of sites; once Italian officials saw how easily and quickly the instrument analyzed pottery, they were often eager to offer access to additional assemblages.

X-ray compositional analyses work best when focusing on heavier elements because they have atoms with more electrons, therefore they scatter more efficiently during excitation and can mask the energy radiating from lighter elements (Perkins

2011:256). As a result, an elemental range from Fe (iron) to Mo (molybdenum) was selected in order to optimize compositional detection.

Although several recent research projects have employed portable ED-XRF instruments to explore archaeological questions (Donais, et al. 2010; Donais, et al. 2011; Morgenstein and Redmount 2005), few have explicitly detailed or justified their methods. X-ray analytical methods are media-specific, employing for instance, different instrumental settings for the analysis of bronze, pottery, or lithics.

Standardized instrumental settings and filter configuration were created for use in a strict analysis protocol followed throughout the study, largely developed based on Bruker Elemental's PXRF User Guide version 030.0006.00.11. Variables including filament current, anode current, and pulse length were controlled using Bruker X-Ray Ops software; this instrumental setting is defined in Table 4.15. Additionally, in order to target a specific elemental range, the green filter (a 0.006 in Cu, 0.001 in Ti, and 0.12 in Al filter) was employed throughout this elemental study of western Sicilian pottery. This filter is one of four elemental-range-specific filters manufactured by Bruker Analytic. X-ray fluorescence analysis was conducted using Bruker S1PXRF software version 3.8.30. This software employed the instrument settings defined in Bruker X-Ray Ops as well as the green filter. This specialized filter configuration excites x-rays with energy ranges from 17 keV to 40 keV, exciting elements from iron (Fe) to molybdenum (Mo).

Table 4.15. Custom XRF instrumental settings employed during the analysis phase.

| High Voltage Setting | Filament Current Setting | High Voltage ADC Preset | Anode Current ADC Preset | Pulse Length | Filter |
|---|---|---|---|---|---|
| 227 | 212 | 40 | 50 | 200 | 1 |

In order to minimize elemental contamination from slips, glazes, paints, soil, encrustations, and archaeological/museum labels, a location on each sherd devoid of contaminants was identified prior to ED-XRF analysis. Such locations can be difficult to locate; the most suitable site to mitigate the impact of elemental contaminants is a fresh break where the clay fabric or core is exposed, providing a surface free of contaminants. On artifacts where no such location was available, such as reconstructed vessels, an unpainted, unslipped, or eroded surface was selected.

Initially, ED-XRF analysis was conducted on 277 pottery vessels in Sicily during the summer of 2011 using a Bruker Tracer III-V+ instrument. Unfortunately, the results of this initial analysis were found to be corrupt due to hardware and power supply failures. The absence of a 2.5 mm rubber stopper attached to the filter cap (Figure 4.52) resulted in the improper installation of the removable filter. This problem was discovered months after returning from the field and was the result of a manufacturing defect during instrument assembly. According to the engineers at Bruker Analytic, the absence of this tiny, seemingly inconsequential rubber stopper resulted in uncorrectable error.

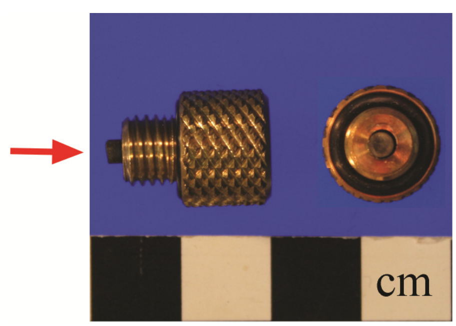



Figure 4.52. Rubber stopper on Bruker Tracer III-V+ filter cover.

The power supply error was the result of voltage fluctuations present in the power available in Sicily. These fluctuations adversely affected the instrument's software, failing to correctly initiate X-rays in some instances, but more often than not randomizing the instrument settings selected in X-Ray Ops. As a result, pre-set instrument settings established in X-Ray Ops were randomly assigned following voltage fluctuation. This problem was observed on two different Bruker Tracer III-V+ instruments, one in 2011 (instrument T3V+1011 owned and operated by the UWM ARL) and one in 2012 (instrument K0740 loaned from Bruker).

Because of the problems encountered in 2011, a second Bruker Tracer III-V+ was transported to Sicily in the summer of 2012 for data collection. In order to prevent randomization due to voltage fluctuations, all pre-set instrument settings were replicated so that randomization would select an identical parameter. In the likely event that the instrument encountered voltage fluctuation, the randomization would result in the automatic selection of another identical pre-set instrumentation setting. In addition to this software remedy, an APC LE1200 Line-R 1200VA Automatic Voltage Regulator was purchased and transported to mitigate voltage fluctuation during XRF analysis. This additional piece of hardware did not remedy the voltage fluctuations. As a result, the instrument often failed to initialize X-rays and required a re-boot. This time consuming procedure was not conducive to efficient data collection.

All artifacts were analyzed for a duration of 180 seconds at one location. Analysis of multiple loci on each sample is optimal (Hulit 2012:38-39), however elemental testing of multiple loci was not possible for this project due to time constraints. This strategy was adopted for two reasons: a reduction in background detection and the ability to analyze a maximum number of samples per day.

Spectral peaks identified from each excitation session were saved as .pdz files, a Bruker proprietary format. Quantitative elemental data were extracted from each spectrum by using Bruker Artax version 7.4.0.0. This software employs deconvolution algorithms to determine quantitative values representative of spectral peaks. Artax uses a custom-developed method to identify quantitative values from the .pdz spectra. This method was specifically designed for this study, employing eight cycles with a range from 0.5 keV to 40.0 keV in order to detect elements ranging from Fe (iron) to Mo (molybdenum) excited by K-shell electron fluorescence. Principal components analysis (PCA), a variable reduction technique often requiring sample sizes larger than 50 (Tabachnick and Fidell 2001:588), is typically employed to statistically examine elemental data. IBM SPSS version 20 was employed for PCA and subsequent hierarchical clustering in order to statistically parse the samples into compositional groups.

**X-ray Diffraction**

X-ray diffraction is an analytical technique employed to identify crystalline substances in rocks, clays, and clay products including pottery. First discovered by Max Theodor Felix von Laue in 1912, X-ray diffraction remained the endeavor of physical and environmental scientists until the 1950s (Moore and Reynolds 1997:10-16). Since then, XRD has been employed by social scientists to explore a wide variety of archaeological materials including coins (Schreiner, et al. 2004:9-10), pipestones (Boszhardt and Gundersen 2003), pottery glazes (Molera, et al. 2001; Pérez-Arantegui, et al. 2001; Ricci, et al. 2005; Tite, et al. 2008), clays (Moore and Reynolds 1997; Shimada, et al. 2003), and pottery (Prinsloo, et al. 2005; Torrisi, et al. 1996; Weymouth 1973:342-343). X-ray diffraction has successfully been employed in previous explorations of Sicilian pottery (Alaimo, et al. 1999a, b; Alaimo, et al. 1998; Casaletto, et al. 2006) and environmental studies (Manta, et al. 2002) demonstrating its utility for this study.

X-ray diffraction is a method which measures the scattering of X-rays following diffraction off crystalline minerals within a heterogeneous solid, in this case pottery. Crystalline minerals are well suited to X-ray analysis because they are composed of atoms arranged in 3-dimensional periodic structures forming atomic planes (Weymouth 1973:339). The spacing between atoms in the crystalline lattice, referred to as “d” spacing, permits X-ray wavelengths to permeate into the crystalline lattice. As the incident beam (from the X-ray tube) intercepts atoms in the lattice, it scatters before being intersected by the X-ray detector and recorded as a quantity (Reynolds Jr. 1989:1) (Fig. 4.53).

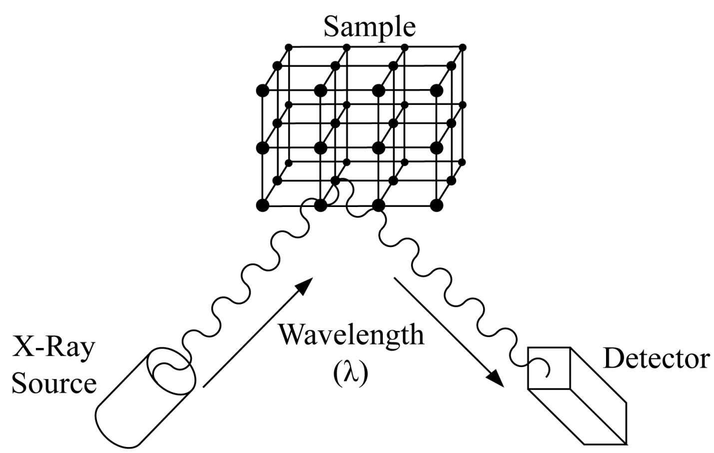



Figure 4.53. Diffraction of X-rays in crystalline lattice.

X-ray diffraction samples were prepared via one of two procedures: 1) preparation for dry powder diffraction; or 2) clay separation for identification of clay minerals. These two methods were selected to better test and complement results from the XRF analysis, as one method focuses on the aplastic inclusions and the other on the <2 µm size fraction, including clay minerals. Dry powder diffraction has proven to be a reliable method to qualitatively and quantitatively identify aplastics within a geologic or anthropic matrix (Moore and Reynolds 1997:205; Velde 1992:13). Powder diffraction preparation methods followed those established by McHenry (2009:543; 2010:629) in which approximately 100 g from each sample was hand crushed in an agate mortar and pestle until the particle sizes were small enough to pass through a 230-mesh dry sieve. Particle sizes $\leq$10 µm were preferred because larger particles can influence the degree of preferred orientation, adversely affecting the diffraction pattern (Bish and Reynolds 1989:78). Random powder mounts were made by placing the dry powder in a 2.5 cm inner diameter circular plastic powder holder. The dry powder was then lightly scraped smooth with a glass slide, carefully avoiding compaction of the dry powder and potential preferred orientation (Figure 4.54).

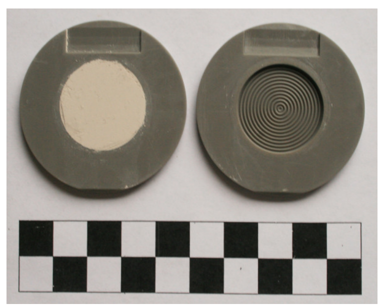


Figure 4.54. Sample holder used for dry powder diffraction (left with sample, right empty).

Clay separation techniques were employed to extract the <2 µm size fraction from unconsolidated materials in order to identify clay minerals both qualitatively and quantitatively. Sample preparation techniques largely followed methods previously employed to examine a diverse range of materials (McHenry 2010:629; Moore and Reynolds 1997:204-220). First, pottery samples were hand crushed in an agate mortar and pestle and soaked overnight in 200 mL of deionized (DI) water. After soaking for approximately 10-12 hours, each sample was disaggregated for 2-3 minutes in a Waring® blender. The fine fraction was then decanted into a 300 mL polyethylene tube and the heavy fraction was discarded. Samples were then centrifuged at 2000 rpm for three minutes. Following centrifugation, samples were chemically dispersed using 20 to 30 mg of $H_2ONa_4O_{17}P_2$ (sodium pyrophosphate decahydrate), agitated by shaking, then allowed to sit for 3 minutes. Samples were then centrifuged at 750 rpm for 3.3 minutes followed by decanting the fine fraction. This $<2$ μm size fraction was then chemically flocculated using 2.2 g of $CaCl_2$ (calcium chlorate). After six hours, samples were concentrated through centrifugation at 2000 rpm for three minutes and decanted until a thick goo remained. The clay separates were then mounted on glass slides and air dried overnight prior to XRD analysis.

All XRD samples, regardless of sample preparation, were then analyzed for a 32 minute period using a Bruker D8 Focus X-Ray Diffractometer. Slit configurations on the instrument included 0.6 mm divergence, 0.6 mm anti-scatter, and 0.1 mm detector. This XRD analysis employed CuKα radiation, 0.8 s per $0.02^{o}2\Theta$, over the range $2\text{-}50°2\Theta$ and a Sol-X energy dispersive detector. After analysis, powder samples were removed from the plastic holders and discarded. Any remaining unanalyzed powder was stored in individually labeled sterile glass vials.

All diffraction patterns were interpreted using EVA pattern matching software to associate spectral peaks with specific minerals, providing the qualitative component of this study. Mineral proportions were calculated for all dry powder diffraction samples. However, quantitative values for clay separates could not be calculated. Non-clay mineral proportions were calculated using the Rietveld method, included within Bruker's TOPAS software. The Rietveld method measures Gaussian peaks, distinguishing between overlapping peaks and determining mineralogical quantities (Rietveld 1969:71). Quantitative phase analysis using the Reitveld method matches sample diffraction patterns with calculated profiles and backgrounds (Rietveld 1969:65; Snyder and Bish 1989:129; Velde 1992:14-17).

**Ceramic Petrography**

Ceramic petrography is a well-established method used to assess the physical characteristics of pottery fabrics and quantitatively define similarities and differences between pottery types (Shepard 1936:407; 1956:141; Stoltman 1989:147; Williams 1983:301). Employed in archaeology as early as the 1890s (Nordenskiöld 1893:78), ceramic petrography identifies similarities and differences in pottery fabrics, facilitating studies of the production technology and exchange of ceramic vessels. Petrology was originally a method employed in geological studies of rock outcrops and strata; however, because pottery can be considered “metamorphosed sedimentary rock” (Stoltman 1991:104; Williams 1983:302), petrologic methods are well suited to study ceramic assemblages.

Ceramic petrography has frequently been employed to study Sicilian pottery assemblages (Amadori and Fabbri 1998a, b; Iliopoulos, et al. 2002; Montana, Azzaro, et al. 2006; Montana, et al. 2009; Montana, et al. 2003), proving to be a useful method to explore the production and exchange of ancient pottery. Many of these studies explore grain size distributions along with the presence/absence of different key minerals to posit compositional groups (Amadori and Fabbri 1998b:88-90; Montana, Caruso, et al. 2006:285).

Pottery sherds and fired clay briquettes were shipped to Hess Petrographic (Madison, WI) and Vancouver GeoTech (Vancouver, B.C., Canada) for thin-section mounting. Raw clay samples required additional processing prior to thin section mounting in order to ensure that each clay sample would mount properly as a thin-section. The resulting procedure was developed for this study. First, palm-sized quantities of clay were separated into 5mil polyethylene bags labeled with the corresponding clay sample numbers. Next, a small measure of water was added to the bag in order to re-hydrate the clay. Clay samples were left for a 24 hour period for re-hydration, after which each sample was kneaded within the bag and left to sit for an additional 24 hours. At that point, the clay samples were hand molded into small briquettes measuring approximately 2x3x3 cm. Each sample was placed on waxed paper in order to mitigate any surface contaminants and facilitate removal once dry. Clay samples were air-dried for seven days, after which each sample was individually marked by incising a unique symbol on two sides.

After the air-dried clay samples were individually marked, they were fired in the UWM Peck School of Arts ceramic studios. Modern gas kilns were heated to 1400$^{o}$ F at a rate of approximately 100$^{o}$ F per hour through 1100$^{o}$ F, after which the temperature was increased to 140$^{o}$ F per hour. All fired-clay briquettes were then allowed to cool for a 12 hour period prior to removal from the kiln.

Selected pottery fragments and fired clay briquettes were mounted as standard thin sections on 27mm x 46mm glass slides, ground to a thickness of 30 $\mu$m and capped with a cover slip. Vacuum epoxy impregnation was required for ceramic sherds that were fired at low temperatures, and for all fired clay samples. Although chemical staining of thin sections can facilitate microscopic identification of geologic components (Elliott, et al. 1999:84; FitzPatrick 1993:21), none of the slides produced for this study were dyed.

All thin sections were examined on an Olympus BH-2 binocular microscope with coaxial coarse and fine adjustment mechanisms, a graduated mechanical stage, and a 10x lens. Customized data collection sheets were developed (Appendix C), based on previously published North American and Sicilian conventions (Stoltman 1998; Stoltman 1991; Amadori and Fabbri 1998a; Amadori and Fabbri 1998b; Amadori and Fabbri 1998c). The data collection strategy developed for this study largely followed methods employed by Stoltman (1989; 1991) in which point counts were recorded along a 1 mm grid established across the entirety of the thin section. This point count recorded the presence of matrix, voids, or inclusions. Inclusions were further defined using size conventions employed in a number of studies of Sicilian pottery (Amadori and Fabbri 1998a, b, c) in which grain sizes were classified as <63 µm, 63-125 µm, 125-250 µm, 250-500 µm, and >500 µm. These measurement conventions were chosen over typical North American ones in order to facilitate subsequent comparisons with other studies of Sicilian pottery.

Following point counting, a visual scan of the thin section recorded the presence/absence of monocrystalline quartz, polycrystalline quartz, feldspar, calcite, opaque minerals, mica, hematite, pyroxene, carbonic rock fragments, metamorphic rock fragments, volcanic rock fragments, and sedimentary rock fragments. These inclusions were also classified according to particle size (<125 µm, 125-250 µm, or >250 µm). This procedure is partly derived from a number of petrographic studies of Sicilian pottery (Amadori and Fabbri 1998a, b, c; Montana, et al. 2009) and was employed to facilitate comparison with previously published datasets. Finally, TriPlot software was employed to plot the proportions of silt, matrix, and sand in each sherd or clay sample on a ternary diagram.

**Integrating Stylistic and Compositional Data**

The qualitative and quantitative results of the stylistic and compositional analyses presented here were used to identify stylistic variations in pottery vessels during a period of intense social and mercantile interaction and transformation. Stylistic variation in vessel manufacturing techniques, form, and decoration can reflect material transformation as a component of broader social or economic transformation. For instance, if indigenous potters manufactured emblemically Greek lip-cups with emblemically Phoenician decoration, the vessel is considered "mixed-style" and could be evidence of a sophisticated socio-economic entanglement and transformation.

Different combinations of mixed emblemic styles reflect different types of socio-economic interaction and material transformation. For example, a vessel combining indigenous, Greek, and Phoenician styles implies significant interaction between indigenous Sicilans and both foreign cultures. Such a mixed-style vessel reflects a more complex social interaction than a vessel combining only indigenous and Greek styles. This is not meant to devalue vessels combining two emblemic styles; rather, it emphasizes the fact that different degrees of interaction were expressed materially, reflecting multi-nodal interaction resulting from social interconnectedness and transformation.

The results of the compositional analyses presented here enable us to draw inferences about the production and exchange of these fired-clay vessels. If mixed-style vessels were manufactured at numerous production centers, then the material transformation of these vessels might best be characterized as an economic response initiated by potters willing to capitalize on a new market niche. However, if few centers produced these mixed-style vessels, then they might represent a material correlate of social transformation affecting only one subset, or one region, of the larger population.

### The Clay Dataset

A total of seven modern, fresh clay samples were collected from Salemi, Poggioreale Nuovo, and Mozia during the summer of 2011 (Table 4.16 and Figure 4.55). These samples were collected on an opportunistic basis in order to determine if unmodified clay in the region varies mineralogically and elementally. Local clay from Mozia and Salemi was also compared to pottery from the two population centers in order to posit its possible use for pottery production at those sites. All five clay samples recovered from Mozia correspond with archaeologically identified strata located on the island of San Pantaleo. One clay sample, BD296, was collected from a stratum associated with the upper section of the fortification wall adjacent to the South Gate. This section of wall contained an upper component constructed of mudbrick, the remains of which had eroded and decomposed, resulting in an accumulated lens of clay. BD297 was from a black clayey sediment atop a sandstone pavement at the east entrance of the Kothon. BD298 was a clay sample collected from a greenish lens associated with the post destruction fill deposited in the area surrounding the Kothon. Clay sample BD299 was recovered from north of the temple adjacent to the Kothon. This mixed silty clay represents a fill lens possibly associated with the same filling expisode BD298 was recovered from. BD300 is the most important of the clay samples collected on the island of San Pantaleo. This sample was collected between kilns 1 and 2 in Zone K, the

Table 4.16. Location and number of clay samples collected.

| Location | Clay Samples |
|---|---|
| Mozia | 5 |
| Poggioreale Nuovo | 1 |
| Salemi | 1 |
| Total | 7 |

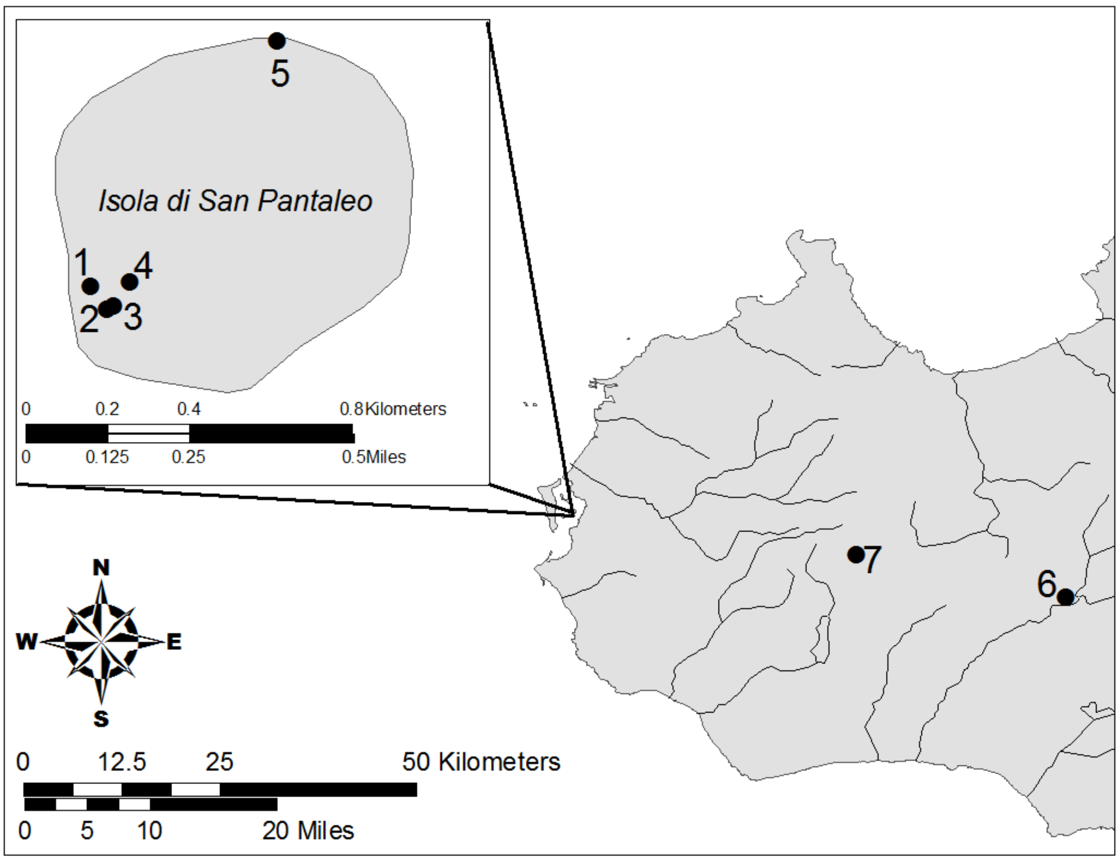



Figure 4.55. Locations of clay samples collected across western Sicily; 1) BD296; 2) BD297; 3) BD298; 4) BD299; 5) BD300 5; 6) BD294; 7) BD295.

industrial quarter, and may have been associated with pottery manufacturing as it was part of a pile of clay located in the immediate vicinity of the potters' kilns.

The clay from Poggioreale Nuovo (sample BD294) was collected in 2011 from a stratum exposed during utility trenching at the intersection of Via Aldo Moro and Via Giovanni Boccacio in Poggioreale Nuovo. This clay stratum appeared to be an aeolian deposit of undetermined thickness underlying anthropogenic sub-pavement fill. Unfortunately, permission to collect clay from the abandoned city of Poggioreale (abandoned after the 1968 Belice Valley earthquake) or from the Archaic mountaintop settlement at Monte Castellazzo di Poggioreale was not granted. The one clay sample from Salemi (BD295) was opportunistically collected from a residential construction site along Via Macello adjacent to Hotel Villa Mokarta. This appears to be a secondary clay deposit measuring approximately 1.5 meters thick and is overlain by a colluvial stratum of indeterminate thickness (Figure 4.56). This clay is blocky and highly compact, with very few inclusions, possibly the result of aeolian deposition. All clay samples were collected in situ and individually placed in polyethylene bags for transport to the UWM-ARL.

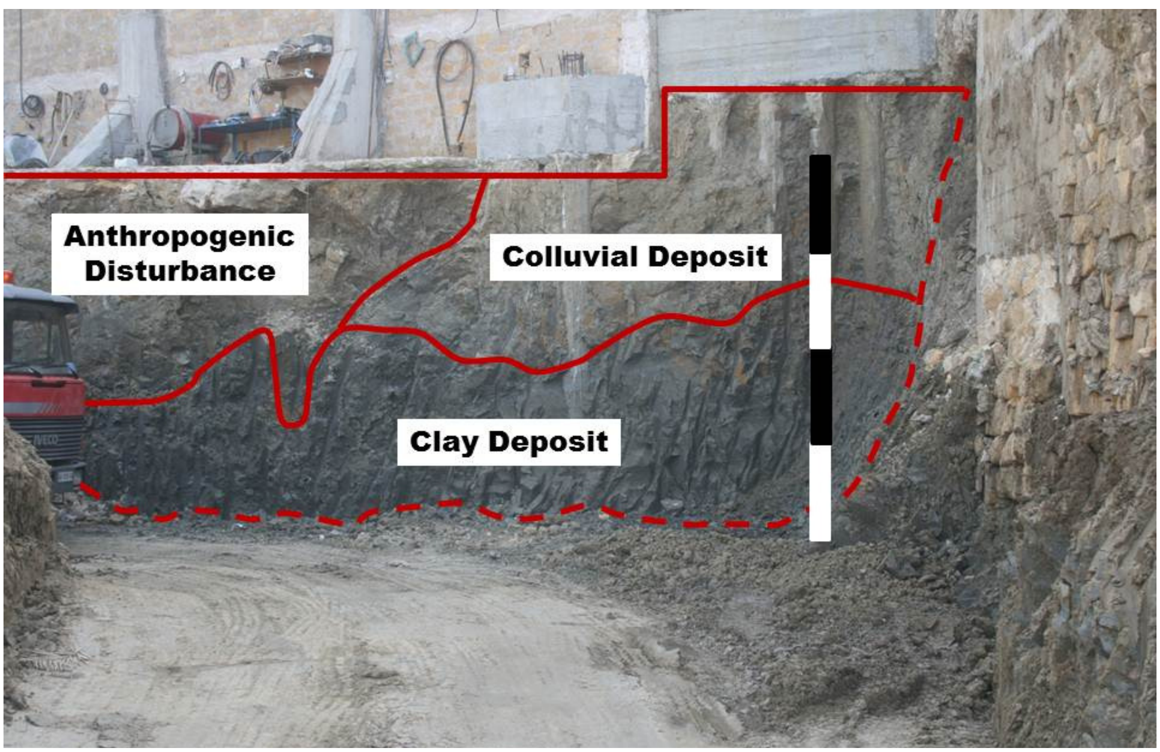



Figure 4.56. Clay deposit exposed by 2011 construction along Via Macella in Salemi, Sicily. Scale is approximately 4 meters in height.

## The Pottery Dataset

In the course of this study, more than 500 fired clay vessels were examined during the summers of 2010, 2011, and 2012. However, due to insufficient context integrity, only 214 pottery vessels from eight ancient population centers could be included in all phases of the analysis (Table 4.17). Fired clay vessels from Entella, Mozia, and Sabucina have been previously published, while the vessels from Monte Bonifato, Monte Finestrelle, Monte Polizzo, Poggio Roccione, and Salemi, also presented here, have only begun to be published. The analysis was also limited in terms of the extent to which it could include unpublished material. As a result, pottery from Monte Bonifato and Monte Finestrelle could only be included in the compositional component of this study.

Rim fragments, the primary diagnostic component necessary for vessel identification, accounted for 89% (n=190) of the total sample studied. The remaining 11 percent of the assemblage was composed of other, less common diagnostic components including isolated base (n=4), body (n=17), and handle (n=3) fragments. Non-rim fragments were included in the compositional component of this study when rim fragments were not

Table 4.17. Number and type of samples from each site.

| Ancient Site | Vessels Sampled |
|---|---|
| Entella | 15 |
| Monte Bonifato | 7 |
| Monte Finestrelle | 46 |
| Monte Polizzo | 48 |
| Mozia | 44 |
| Poggio Roccione | 3 |
| Sabucina | 11 |
| Salemi | 40 |
| Total | 214 |

available for destructive XRD or ceramic petrography. This was done to expand the sample and test whether indigenous fine sandwichware vessels were compositionally similar to or different from indigenous medium sandwichware vessels. Iron Age indigenous fine sandwichware vessels are poorly understood, and cannot easily be classified stylistically.

# CHAPTER V: RESULTS OF THE STUDY

In this chapter, the results of stylistic and compositional analysis of 214 pottery and seven clay samples from eight indigenous and Phoenician sites across western Sicily are presented. More than 82% of the vessels sampled included cups, *kraters*, table-*amphorae*, or jugs, all vessels frequently employed to consume or serve beverages. Other vessels associated directly or indirectly with the feast included bowls and plates for food and *amphorae* for storage. Approximately 96% of all vessels studied were associated with feasting, emphasizing the role of commensality as a venue for social interaction and transformation. Table 5.1 presents the percentages of vessels analyzed which are related to drinking or other feasting functions.

Table 5.1. Percentages of vessels in the sample related to drinking and other functions.

| Function | N | Percentage |
|---|---|---|
| Drinking | 177 | 83 |
| Storage | 19 | 9 |
| Eating | 8 | 4 |
| Unknown | 8 | 4 |
| Special | 2 | 1 |

Unfortunately, the occupational histories of the sites included in this study are not completely contiguous; yet, overlap between many of the sites (Figure 2.13) facilitates study of the social transformation of the indigenous populations of western Sicily through time.

## Stylistic Analysis

The stylistic analysis only included 156 vessels from Entella, Montagna Grande, Monte Polizzo, Mozia, Sabucina, and Salemi. Stylistic analyses consider vessel form, production technology, and decoration as independent variables which communicated emblemic styles, in this case study, styles associated with indigenous Sicilian, Greek, Phoenician, or mixed culture. Technical illustrations of all vessels included in this study are presented in Appendix D. Alterations to these cultural associations, posited from historical and archaeological observations, can serve as a proxy for social transformation. Vessel forms will be addressed first, followed by production technology, and finally decoration.

A total of 25 vessel forms were identified in the sample analyzed. These forms, presented in Table 5.2, include both open and closed feasting vessels commonly recovered from indigenous Sicilian, Greek, Phoenician, or mixed cultural contexts. Fired clay feasting vessels included in this study were categorically parsed into broad social groups.

The majority of vessels examined were readily associated with emblemic categories, as earlier defined in table 4.14. However, five vessels were difficult to associate with an emblemic group because they represented combinations of different vessel forms. These mixed-form vessels were characterized by combining terms from two or more forms that most closely approximate the mixed-form vessel. The first term characterizes the rim form and the subsequent term(s) other characteristic form(s) of the vessel. Mixed-form vessels include the *scodella-skyphos* (n=2), the *attingitoio-krater* (n=1), the *scodella*-lip-cup (n=1), and the *kantharos-psykter* (n=1). The *scodella-skyphos* is a deep vessel, similar to a *skyphos*, but with a rim similar to an indigenous *scodella* (Figure 5.1). Two of these vessels (BD108 and BD110) were recovered during excavation of the necropolis atop Monte Polizzo. They appear to combine two vessel forms, enlarged perhaps for a mortuary, rather than feasting, purpose.

Table 5.2. Number and form of fired clay vessels stylistically examined from each site.

| | **Vessel Form** | **Entella** | **Montagna Grande** | **Monte Polizzo** | **Mozia** | **Sabucina** | **Salemi** | **Total** |
|---|---|---|---|---|---|---|---|---|
| **Closed Forms** | Amphora, Table | 5 | 1 | 1 | 0 | 1 | 1 | 9 |
| | Amphora, Transport | 0 | 0 | 0 | 15 | 0 | 0 | 15 |
| | Dinos | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| | Dipper | 0 | 0 | 0 | 3 | 0 | 0 | 3 |
| | Mushroom Jug | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| | Oinochoe | 0 | 0 | 0 | 0 | 3 | 0 | 3 |
| | Olla | 1 | 0 | 2 | 0 | 0 | 0 | 3 |
| | Pyxis | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| | Unguentario | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| **Open Forms** | Attingitoio | 1 | 0 | 1 | 0 | 0 | 1 | 3 |
| | Calotte Cup | 1 | 0 | 0 | 2 | 0 | 0 | 3 |
| | Carenated Calotte Cup | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Coppa | 0 | 0 | 0 | 0 | 0 | 6 | 6 |
| | Incense Burner | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Kantharos | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| | Krater-Column | 0 | 0 | 0 | 0 | 5 | 1 | 6 |
| | Krater-General | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| | Lekanis | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| | Lip-Cup | 2 | 0 | 20 | 14 | 0 | 10 | 46 |
| | Mixed-Form | 0 | 0 | 2 | 0 | 1 | 1 | 4 |
| | Phoenician Plate | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| | Scodella | 1 | 2 | 15 | 0 | 0 | 13 | 31 |
| | Skyphos | 2 | 0 | 0 | 0 | 0 | 1 | 3 |
| | Squat Cup | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| | Total | 15 | 3 | 46 | 45 | 11 | 36 | 156 |

The *attingitoio-krater* was a vessel combining the rim of an indigenous *attingitoio* atop a miniature Greek *krater* (Figure 5.2). Only one example of this mixed-form vessel was identified during data collection (BD190); it was recovered from Sabucina and is currently displayed at the Museo Regionale di Caltanissetta. The highly angular, everted rim is more similar to an indigenous *attingitoio* than a Greek *krater*, suggesting a blending of the two forms.

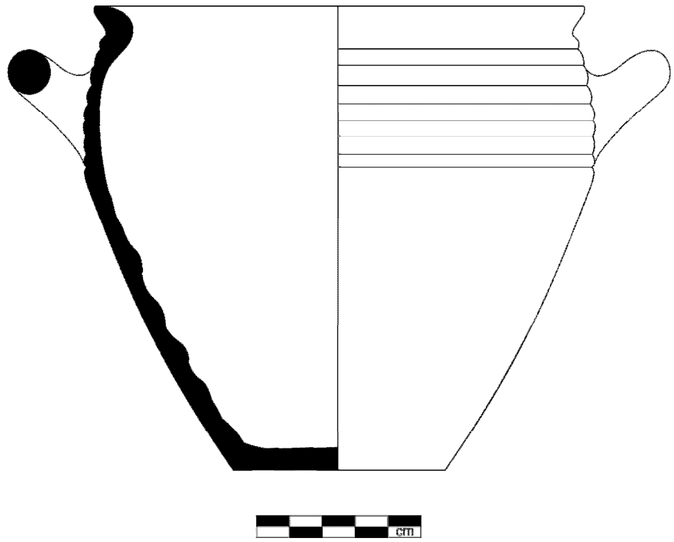


Figure 5.1. The mixed-form *scodella-skyphos* identified during analysis (BD110).

The *scodella*-lip-cup, a vessel combining elements from two socially distinct cup forms, suggests continuity in the function of the vessel despite the mixing of emblemic forms. This vessel has elements of both the offset rim of a Greek lip-cup and the everted rim of an indigenous *scodella* (Figure 5.3). Recovered from Monte Polizzo, the *scodella*-lip-cup represents another combination of indigenous and foreign forms, synthesizing a new, mixed-form vessel.

The last of the four mixed-form vessels is the *kantharos-psykter*, a form combining a rim and body similar to a Greek *kantharos* with the base of a vessel similar to a Greek *psykter* (Figure 5.4). This vessel, recovered from a domestic context in Salemi, is the only mixed-form vessel which combines two emblemically foreign, specifically Greek, forms in order to synthesize a new vessel form.

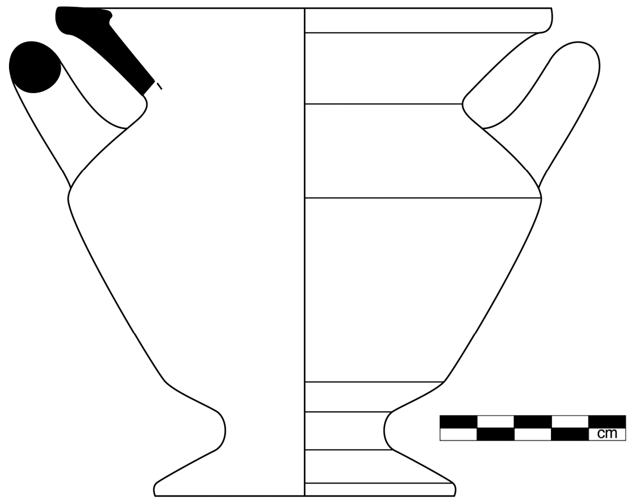



Figure 5.2. The mixed-form *attingitoio-krater* identified during analysis (BD190). Illustration based on Panvini (2008:168). Note: Scale is approximate.

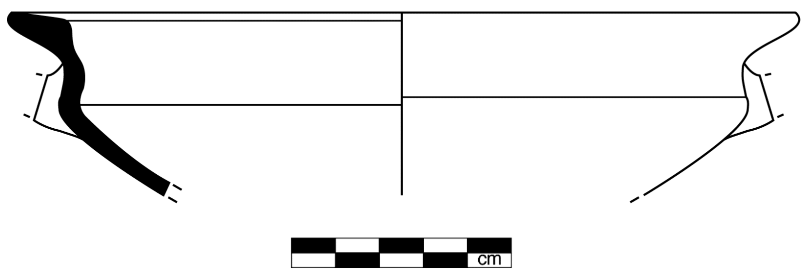



Figure 5.3. The mixed-form *scodella*-lip-cup identified during analysis (BD105).

Manufacturing techniques varied across the analyzed assemblage. Ware types and classes emblemically associated with indigenous, Greek, and Phoenician manufacturing processes were identified (Table 5.3). Despite the number of different ware classes produced between the seventh and fourth centuries BC, no emblemically mixed manufacturing processes were identified in the analyzed assemblage.

Decoration was the most diverse of the variables recorded. Decorative motifs that could be identified as indigenous Sicilian, Greek, or Phoenician were present on 88% of the vessels sampled (n=137). The emblemic decorations on these vessels were classified as indigenous (n=78, 57%), Greek (n=38, 28%), Phoenician (n=15, 11%), or mixed-decor (n=6, 4%). Nineteen (12%) of the vessels were not decorated.

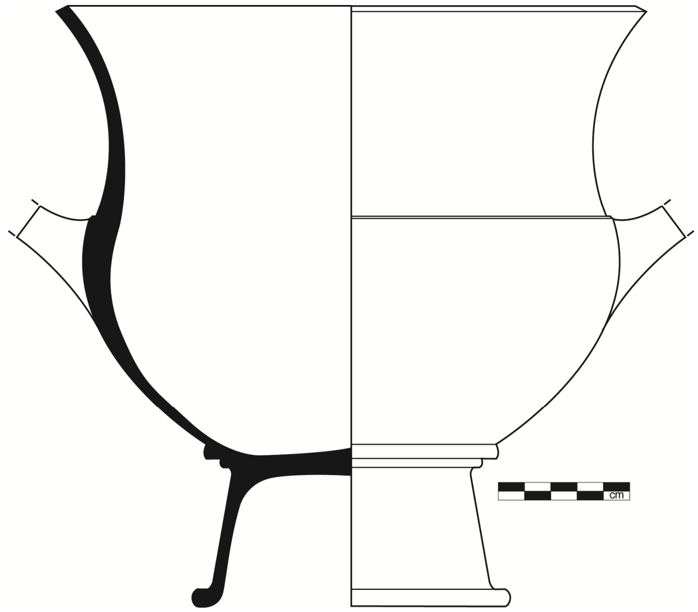



Figure 5.4. Mixed-form *kantharos-psykter* identified from Salemi (BD276).

Table 5.3. Emblemic clay fabric classification derived from ware types and classes observed during study.

| | **Indigenous** | **Greek** | **Phoenician** |
|---|---|---|---|
| Ware Type | Ware Class | | |
| Fine | Grayware<br>Sandwichware<br>Elymian | Colonial<br>Attic<br>General | Punic |
| Medium | Sandwichware | | |
| Coarse | | | General |

Eighteen decorative motifs could be classified as indigenous Sicilian, and are frequently found on indigenous pottery recovered across western Sicily. Table 5.4 presents the 17 indigenous decorative motifs present on feasting vessels included in this study, as well as the number and frequency of each motif.

Approximately 29 percent of decorated indigenous vessels examined in this study featured incised/impressed designs. Incised lines were frequently clean-cut with a raised and smeared margin of displaced clay, suggesting that incising was conducted while the clay was either wet or leather hard because dry incision would have resulted in ragged

Table 5.4. Emblemically indigenous surface treatments identified in the sample.

| Surface Treatment | N | Frequency (%) |
|---|---|---|
| Cream slip with monochrome painted bands | 21 | 27 |
| Plain cream slip | 9 | 12 |
| Simple incised/impressed | 7 | 9 |
| Plain burnished | 6 | 8 |
| Plain gray slip | 5 | 6 |
| Compound incised/impressed | 4 | 5 |
| Tan slip with monochrome painted bands | 3 | 4 |
| Slip with simple incised/impressed | 3 | 4 |
| Slip with compound incised/impressed | 3 | 4 |
| Cream slip with polychrome painted bands | 3 | 4 |
| Burnished compound incised/impressed | 3 | 4 |
| Simple monochrome painted bands | 2 | 3 |
| Plain brown slip | 2 | 3 |
| Cream slip with monochrome painted design | 2 | 3 |
| Burnished simple incised/impressed | 2 | 3 |
| Tan slip with polychrome painted bands | 1 | 1 |
| Plain tan slip | 1 | 1 |
| Gray slip with monochrome painted bands | 1 | 1 |

chipping at the margin of the incision (Rice 1987:146). The tools that created these impressed designs have yet to be identified, but the designs may have been manufactured with the aid of a stamp, perhaps the edge of a shell from a marine bivalve with a corrugated shell structure. A survey of natural and artificial reefs in the Gulf of Castellamare identified *Barbatia scabra*, one suitable bivalve species (Badalamenti, et al. 2002:S129), as a likely candidate. Further analysis of indigenous Sicilian incised/impressed motifs has the potential to contribute significantly to the study of indigenous Iron Age pottery. Approximately eight percent of decorated indigenous pottery included both a slip and incised/impressed motifs. Slip colors encountered in tandem with incised/impressed decor include brown, gray, tan, and white, yet such decoration is simply classified as incorporating both a slip and an incised/impressed motif.

Eight distinct emblemically Greek surface treatments were identified in the decorated feasting vessel sample included in this study. Table 5.5 presents these surface treatments and the frequency of each motif identified as emblemically Greek.

Table 5.5. Emblemically Greek surface treatments identified during this study.

| Surface Treatment | N | Frequency (%) |
|---|---|---|
| Plain black slip | 22 | 58 |
| Tan slip with painted bands | 7 | 18 |
| No slip with painted bands | 3 | 8 |
| Plain reddish-brown slip | 2 | 5 |
| Plain cream slip | 1 | 3 |
| Tan slip with painted design | 1 | 3 |
| Cream slip with painted bands | 1 | 3 |
| No slip with painted design | 1 | 3 |

Seven distinct emblemically Phoenician surface treatments were identified in the decorated feasting vessels included in this study; the number and frequency of these surface treatments are presented in Table 5.6.

Table 5.6. Emblemically Phoenician surface treatments identified during this study.

| Surface Treatment | N | Frequency (%) |
|---|---|---|
| Plain red slip | 4 | 27 |
| Tan slip with monochrome painted bands | 4 | 27 |
| Red slip with monochrome painted bands | 2 | 13 |
| Tan slip with polychrome painted bands | 2 | 13 |
| Simple incised bands | 1 | 7 |
| Plain tan slip | 1 | 7 |
| Burnished with monochrome painted bands | 1 | 7 |

Six vessels were observed with mixed-style decoration. Such vessels featured motifs which incorporated more than one emblemic decorative style. For example, the application of a black slip atop incised/impressed *denti di lupo* designs (present on BD082) combined Greek and indigenous surface treatments, creating a mixed-style decorative surface treatment. Combining Greek and Phoenician surface treatments created a new Greek/Phoenician surface treatment which included black painted bands and meanders atop a red slip (BD202). Four vessels (BD209, BD215, BD217, and BD220) featured elements of indigenous, Greek, and Phoenician decorative motifs and surface treatments combined. These very-mixed decorative styles vary individually, ranging from black painted bands, to black painted bands and meanders, to black and red painted bands and meanders. Such designs were sometimes painted directly atop the clay fabric; at other times they were painted atop a cream or tan slip.

Each vessel's morphology, clay fabric association, and decoration were compared in order to identify possible mixed-style vessels based on these variables. Emblemic characterization of all variables from all samples included in the stylistic analysis is presented in Appendix E. If all three variables are coded identically, then the vessel is not considered to be mixed-style. If one or more variables differ, then the vessel is considered to be mixed-style. As a result of this emblemic characterization of form, clay fabric, and surface treatment/decoration, a total of 65 (42%) mixed-style vessels were identified in the sample of 156 feasting vessels examined stylistically in this thesis.

Mixed-style vessels were further explored in order to identify any potential trends between variable co-occurrences. For instance, indigenous vessel forms were observed to be most often manufactured using indigenous techniques, seldom with Greek techniques, and never with Phoenician ones (Table 5.7). Likewise, Greek vessel forms were most often manufactured using indigenous techniques, occasionally using

Phoenician techniques, and seldom using Greek ones. These frequencies may reflect the identities of the potters manufacturing the vessels, as different manufacturing techniques were employed by different cultures to produce pottery.

Table 5.7. Number and proportions of vessel forms relative to manufacturing techniques as observed on mixed-style vessels.

| **Clay fabrics of mixed-style vessels** | | | |
|---|---|---|---|
| **Form** | **Indigenous** | **Greek** | **Phoenician** |
| Indigenous | 5 (83%) | 1 (17%) | 0 (0%) |
| Greek | 24 (59%) | 4 (10%) | 13 (32%) |
| Phoenician | 2 (15%) | 1 (8%) | 10 (77%) |
| Mixed | 4 (80%) | 0 (0%) | 1 (20%) |

Mixed-style pottery was further explored by comparing vessel forms to decorative motifs observed on these trans-cultural vessels. Table 5.8 presents the number and frequency of form and decoration observed on mixed-style vessels. Indigenous forms were most often observed decorated with Greek-style motifs while Greek forms were most often decorated with indigenous motifs.

Finally, manufacturing styles were compared to decorative motifs and surface treatments in order to elucidate possible relationships between the two. Table 5.9 presents the number and frequency of vessels manufactured using indigenous, Greek, or Phoenician techniques relative to decorative style(s). In this way, mixed-style vessels manufactured using indigenous techniques were most often decorated with indigenous motifs. Likewise, vessels manufactured using Greek and Phoenician techniques were also most frequently decorated with indigenous Sicilian motifs.

Table 5.8. Number and frequency of vessel forms relative to surface treatments as observed on mixed-style vessels.

| Surface treatments on mixed-style vessels | | | | | |
|---|---|---|---|---|---|
| **Form** | **Indigenous** | **Greek** | **Phoenician** | **Mixed** | **None** |
| Indigenous | 1 (17%) | 4 (67%) | 0 (0%) | 1 (17%) | 0 (0%) |
| Greek | 24 (59%) | 4 (10%) | 5 (12%) | 5 (12%) | 3 (7%) |
| Phoenician | 12 (92%) | 1 (8%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Mixed | 3 (60%) | 0 (0%) | 1 (20%) | 0 (0%) | 1 (20%) |

Table 5.9. Number and frequency of mixed-style vessels manufactured using indigenous, Greek, or Phoenician styles compared to surface treatments.

| Surface treatments on mixed-style pottery | | | | | |
|---|---|---|---|---|---|
| **Clay Fabric** | **Indigenous** | **Greek** | **Phoenician** | **Mixed** | **None** |
| Indigenous | 21 (60%) | 8 (23%) | 0 (0%) | 2 (6%) | 4 (11%) |
| Greek | 5 (83%) | 1 (17%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Phoenician | 14 (58%) | 0 (0%) | 6 (25%) | 4 (17%) | 0 (0%) |

## X-Ray Fluorescence

Elemental data from 29 pottery and seven clay samples were recorded using the Bruker Tracer III-V+ instrument. Pottery samples from Salemi (n=25), Monte Bonifato (n=3), and Montagna Grande (n=1) as well as clay samples from Mozia (n=5) and Salemi (n=1) were examined by XRF. Peak intensities were detected for the $K\alpha 2$ peaks for 20 elements from calcium (Ca) to tin (Sn); however, only 13 elements (As, Br, Cu, Mo, Nb, Sr, Ni, Rb, Rh, Ru, Y, Zn, and Zr) were selected as representative of the pottery or clay sample. Other elements detected, including Ca, Ti, Mn, Fe, Co, Pd, and Sn, remained outside the threshold of the green filter employed in this analysis and were therefore not considered reliable for quantification. Elemental peak intensities from all pottery and clay samples were quantified using Bruker Artax software and are presented in Appendix F.

Elemental proportions of the 29 pottery and six clay samples were not examined by principal components analysis (PCA) because the sample size was too small. Instead, intensities of select elements were plotted in order to identify compositional groups. Intensities of rubidium and strontium demonstrate that pottery and clay from Monte Bonifato, Montagna Grande, and Mozia generally segregate from the pottery and clay from Salemi (Figure 5.5). A biplot of rubidium and zirconium also demonstrated this elemental segregation of pottery and clay (Figure 5.6). These biplots illustrate the elemental diversities of Sicilian clays and the ability of portable XRF units to detect such diversities.

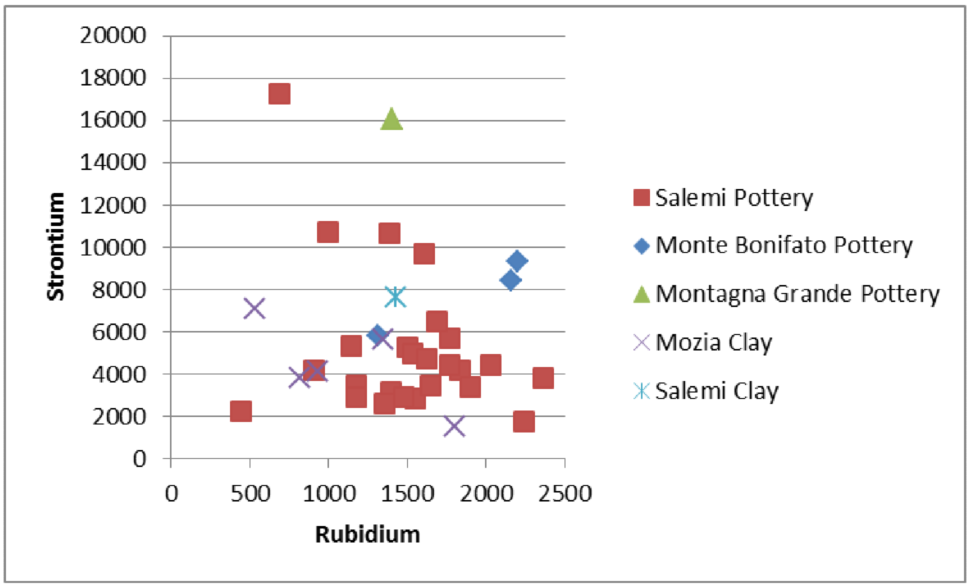



Figure 5.5. Biplot of rubidium and strontium elemental intensities.

Such biplots also suggest that pottery at Salemi is elementally diverse, possibly the result of ancient exchange. Mixed-style vessels, such as BD001 and BD002, appear to have diverse elemental compositions, suggesting mixed-style vessels were manufactured at diverse locations prior to exchange between Sicilian centers.

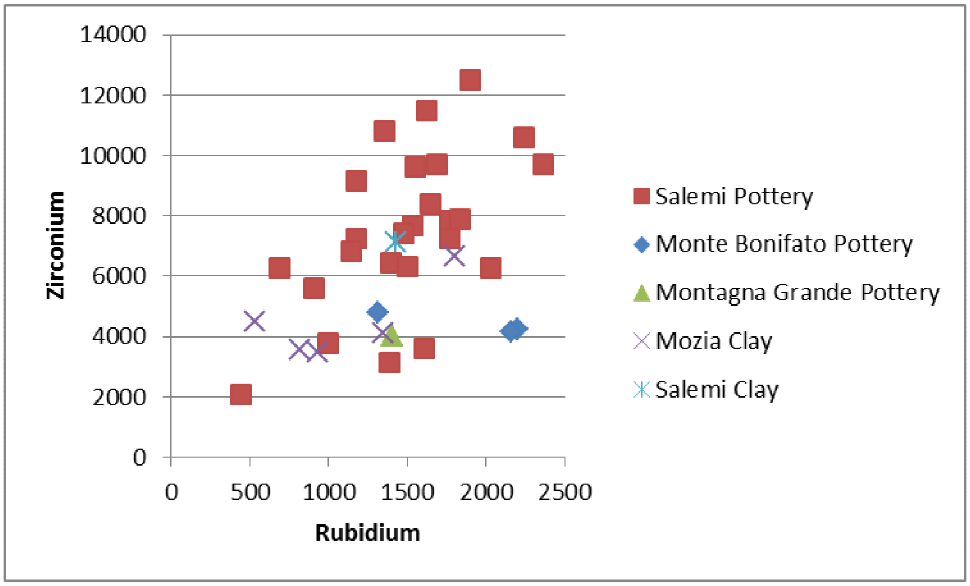



Figure 5.6. Biplot of rubidium and zirconium elemental intensities.

## X-Ray Diffraction

A total of seven clay and 41 pottery samples were examined using XRD analysis. Results of dry powder diffraction of clay and pottery samples will be discussed first, followed by the results from clay separate diffraction of clay and pottery samples. Both unfired and fired clay samples were analyzed via dry powder diffraction. Unfired portions of all clay samples were analyzed; however, fired portions of two Mozia clay samples, BD298 and BD299, were not examined due to a scarcity of fired material. Seven mineral components were detected in the raw clay samples: quartz, calcite, muscovite, gehlenite, augite, albite, and plagioclase. Relative proportions of each mineral component were calculated using Bruker TOPAS software and these are presented in Table 5.10.

Using these quantities, biplots of quartz and plagioclase, quartz and gehlenite, quartz and augite, and quartz and albite were created (Figure 5.7). These biplots demonstrate the mineralogical diversity of these raw clay samples. Because raw clay

Table 5.10. Proportions of minerals detected by dry powder diffraction of unfired raw clay samples.

| Sample | Quartz | Calcite | Muscovite | Gehlenite | Augite | Albite | Plagioclase |
|---|---|---|---|---|---|---|---|
| BD294 | 41.59 | 22.51 | 15.37 | 0.34 | 6.46 | 0 | 13.73 |
| BD295 | 57.47 | 12.66 | 15.24 | 0.15 | 4.07 | 1.57 | 8.84 |
| BD296 | 35.41 | 41.21 | 6.12 | 5.45 | 3.1 | 0 | 8.71 |
| BD297 | 63.54 | 0.33 | 26.03 | 2.68 | 1.41 | 1.8 | 4.2 |
| BD298 | 40.93 | 21.37 | 25.8 | 1.88 | 2.92 | 3.56 | 3.54 |
| BD299 | 35.9 | 28.96 | 13.12 | 1.87 | 8.19 | 3.72 | 8.23 |
| BD300 | 55.7 | 20.34 | 10.22 | 0.54 | 4.12 | 2.32 | 6.78 |

samples from Poggioreale Nuovo, Salemi, and Mozia tend to segregate from each other in these biplots, these mineral combinations were used as a proxy for dry powder diffraction of pottery samples as well.

Five fired clay samples from Poggioreale Nuovo ($n$=1), Salemi ($n$=1), and Mozia ($n$=3) were examined by dry powder diffraction. Like the unfired clay samples, seven mineral components detected in the fired clay samples included quartz, calcite, muscovite, gehlenite, augite, albite, and plagioclase. Relative proportions of each mineral component were again calculated using Bruker TOPAS software and are presented in Table 5.11.

Biplots of quartz and plagioclase, quartz and gehlenite, quartz and augite, and quartz and albite were created (Figure 5.8), once again demonstrating the mineralogical diversity between these fired clay samples. Unlike unfired clay samples, fired clay briquettes from the three different geographic loci segregated only when comparing the proportions of quartz to albite or gehlenite. Firing these clay samples may have induced a thermal transformation of plagioclase and augite, rendering them less useful as mineral proxies representative of production location.

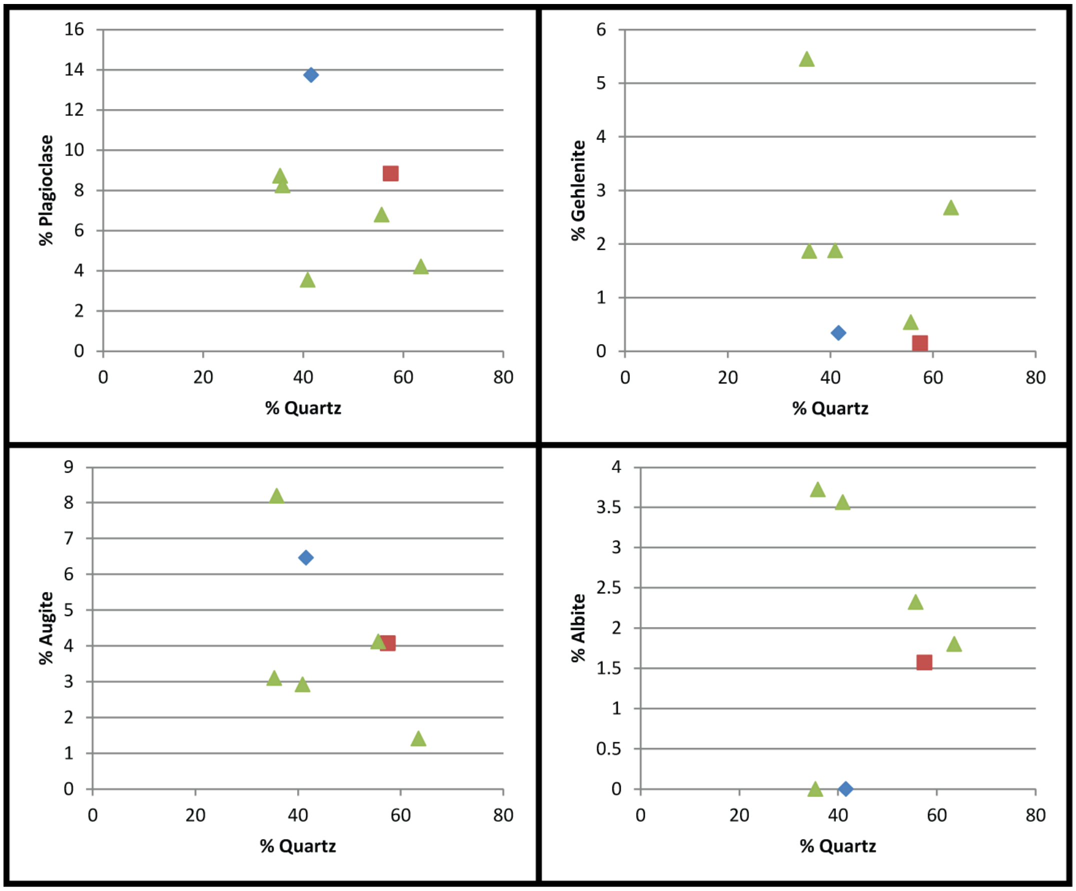



Figure 5.7. Mineral biplots from dry powder diffraction of unfired clay.

Table 5.11. Proportions of minerals detected by dry powder diffraction of fired clay samples.

| Sample | Quartz | Calcite | Muscovite | Gehlenite | Augite | Albite | Plagioclase |
|---|---|---|---|---|---|---|---|
| BD294 | 48.98 | 13.54 | 11.23 | 0.65 | 6.61 | 2.31 | 16.68 |
| BD295 | 71.38 | 5.38 | 9.40 | 0.00 | 1.23 | 1.63 | 10.99 |
| BD296 | 40.96 | 19.28 | 5.26 | 5.82 | 8.71 | 0.00 | 19.97 |
| BD297 | 68.12 | 0.22 | 4.30 | 0.00 | 1.04 | 5.08 | 21.24 |
| BD300 | 58.07 | 14.36 | 9.33 | 0.43 | 2.98 | 0.00 | 14.83 |

A total of 25 pottery samples were examined by dry powder diffraction from Monte Polizzo (*n*=1), Mozia (*n*=6), and Salemi (*n*=18). Once again, the Bruker D8 diffractor identified seven mineral components: quartz, calcite, muscovite, gehlenite,

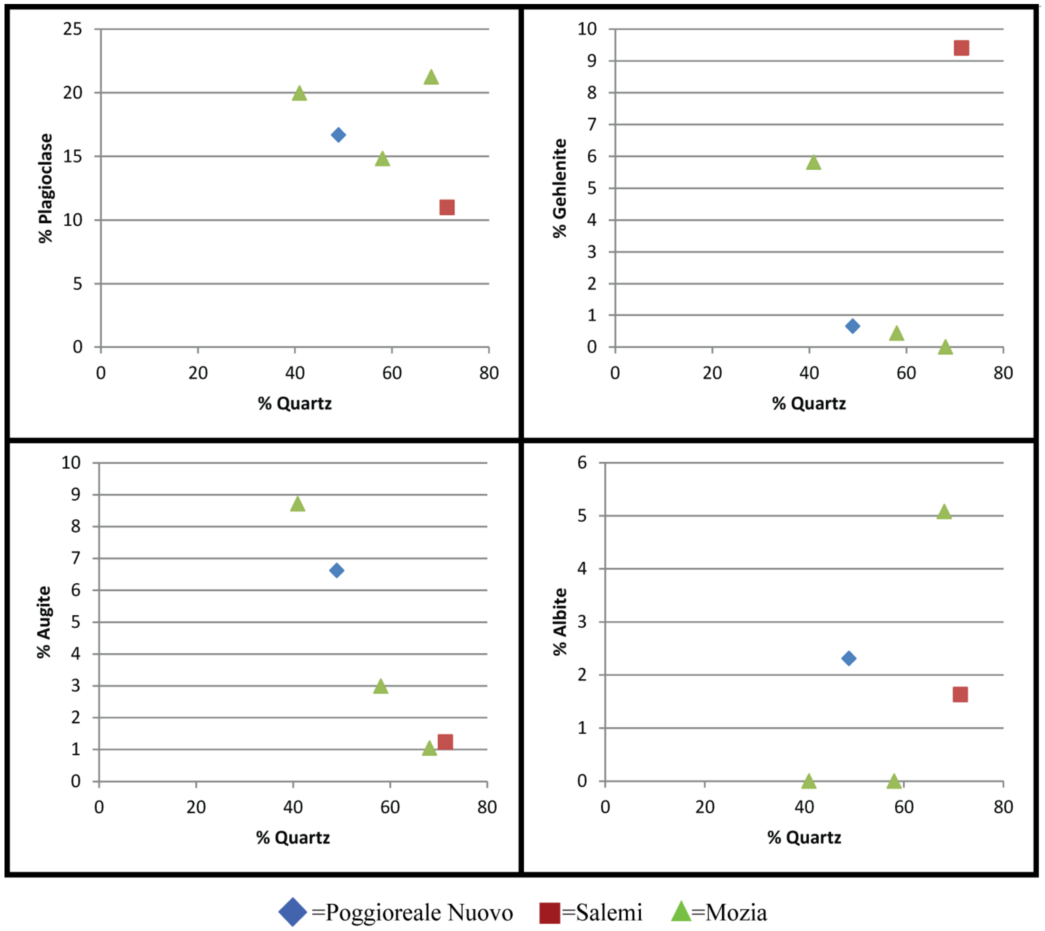



Figure 5.8. Biplots of mineralogical proportions present in fired clay as detected by dry powder diffraction.

augite, albite, and plagioclase. Relative proportions of each mineral component were calculated using Bruker TOPAS software and are presented in Table 5.12.

Biplots of quartz and plagioclase, quartz and gehlenite, quartz and augite, and quartz and albite (Figure 5.9) demonstrate some overlapping mineralogical diversities between pottery recovered from Phoenician Mozia, mixed culture Salemi, and indigenous Elymian Monte Polizzo. Despite such overlap, pottery from Salemi tended to segregate from Mozia pottery, demonstrating a slight mineralogical diversity between these two assemblages.

Table 5.12. Proportions of minerals detected by dry powder diffraction of pottery samples.

| Sample | Quartz | Calcite | Muscovite | Gehlenite | Augite | Albite | Plagioclase |
|---|---|---|---|---|---|---|---|
| BD009 | 77.17 | 0.00 | 7.47 | 0.42 | 2.19 | 3.37 | 9.38 |
| BD010 | 78.72 | 0.41 | 5.48 | 0.56 | 0.77 | 0.00 | 14.06 |
| BD012 | 52.84 | 1.81 | 6.45 | 4.78 | 4.60 | 10.85 | 18.67 |
| BD091 | 60.30 | 11.02 | 2.13 | 2.22 | 2.49 | 0.00 | 21.84 |
| BD165 | 11.93 | 7.29 | 7.02 | 0.00 | 11.09 | 17.61 | 45.07 |
| BD169 | 32.96 | 3.29 | 6.20 | 3.46 | 4.17 | 7.75 | 42.16 |
| BD172 | 18.68 | 1.24 | 21.01 | 5.04 | 10.05 | 7.45 | 36.51 |
| BD200 | 47.98 | 1.00 | 8.65 | 0.00 | 6.63 | 16.30 | 19.43 |
| BD203 | 58.12 | 6.69 | 22.36 | 0.00 | 1.18 | 0.00 | 11.65 |
| BD207 | 60.90 | 2.65 | 9.15 | 0.00 | 9.53 | 6.99 | 10.79 |
| BD209 | 85.48 | 2.24 | 1.17 | 0.79 | 2.93 | 0.00 | 7.39 |
| BD242 | 1.58 | 28.05 | 0.00 | 3.79 | 9.30 | 12.78 | 44.50 |
| BD254 | 20.70 | 19.25 | 21.05 | 1.23 | 9.11 | 0.00 | 28.66 |
| BD277 | 55.29 | 0.26 | 10.91 | 0.99 | 2.10 | 8.45 | 22.00 |
| BD279 | 80.31 | 2.76 | 16.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| BD280 | 50.07 | 0.00 | 0.00 | 0.00 | 0.00 | 49.93 | 0.00 |
| BD281 | 78.63 | 0.86 | 0.00 | 0.00 | 0.00 | 20.51 | 0.00 |
| BD282 | 26.00 | 12.47 | 0.00 | 14.24 | 0.00 | 47.29 | 0.00 |
| BD283 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BD284 | 76.66 | 0.22 | 0.00 | 5.28 | 0.00 | 17.83 | 0.00 |
| BD285 | 89.16 | 0.00 | 0.00 | 2.43 | 0.00 | 8.41 | 0.00 |
| BD286 | 70.58 | 2.37 | 0.00 | 2.85 | 0.00 | 24.20 | 0.00 |
| BD287 | 91.23 | 0.00 | 0.00 | 0.00 | 0.00 | 8.77 | 0.00 |
| BD289 | 72.20 | 0.00 | 0.00 | 3.44 | 0.00 | 24.36 | 0.00 |
| BD290 | 72.96 | 2.94 | 0.00 | 2.14 | 0.00 | 21.97 | 0.00 |

X-ray diffraction was also employed to identify clay minerals present in 20 pottery samples. Pottery samples prepared for clay separate analysis were analyzed using the Bruker D8 diffractor. Clay minerals were identified in each sample by using EVA peak matching software. Bruker TOPAS software is not capable of calculating

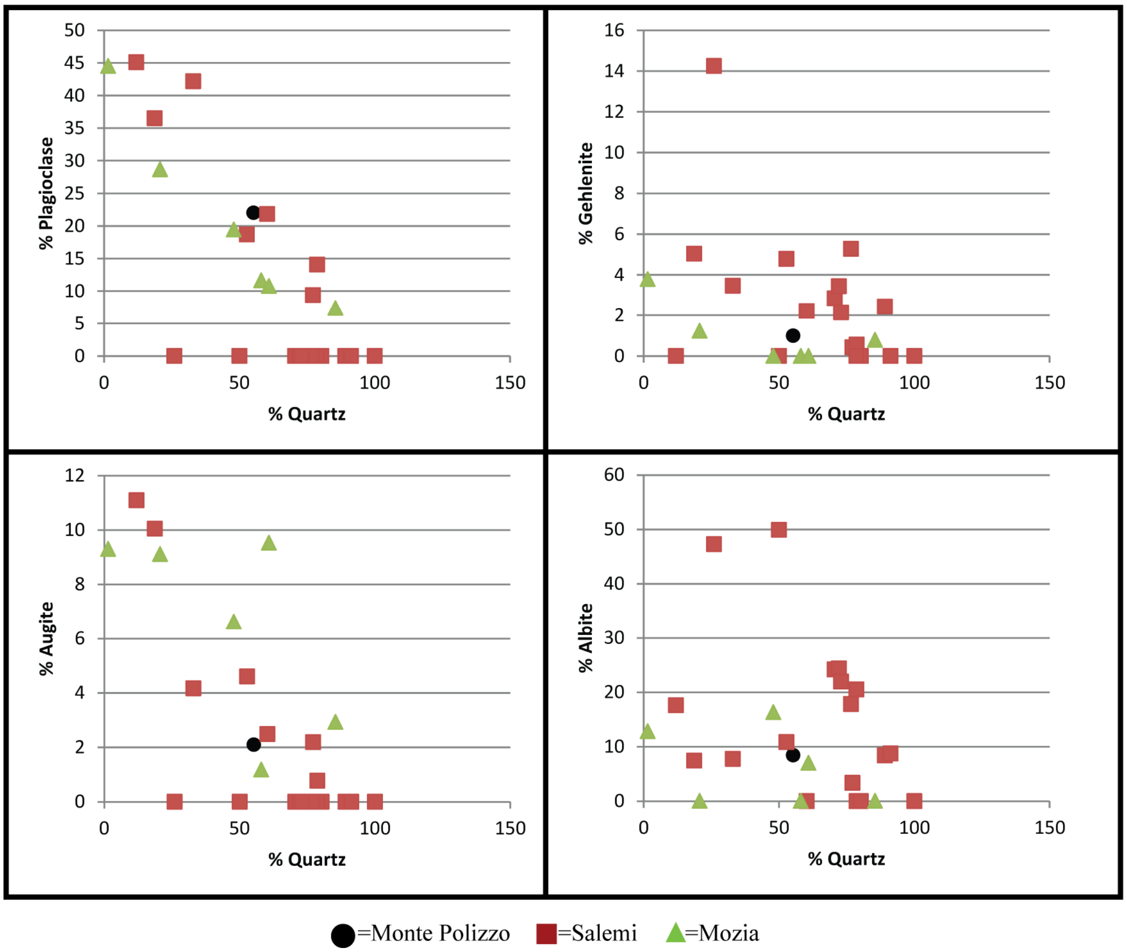



Figure 5.9. Mineral biplots from dry powder diffraction of pottery.

proportions of clay minerals because clay mineral peaks are typically much shorter and wider than aplastic mineral peaks. Such peaks are unsuitable for quantitative Rietveld analysis because very wide peaks can contribute to severe peak overlap. As a result, only the presence or absence of clay minerals was determined using EVA software. Nine clay minerals were identified in this manner, presented in Table 5.13. Both swelling clays (Smectites) and non-swelling clays were detected in each sample. Because Montmorillonite, Vermiculite, and Illite are very frequent components of western Sicilian clay pastes, the presence of other clay minerals might be a better way to examine the production and exchange of this pottery. No discernible pattern identified clusters of pottery based on clay separate diffraction.

Table 5.13. Clay minerals present in pottery samples prepared for clay separate analysis.

| | Beidellite | Montmorillonite | Nontronite | Vermiculite | Illite | Glauconite | Kaolinite | Sepiolite | Palygorskite |
|---|---|---|---|---|---|---|---|---|---|
| Sample | Swelling Clays | | | | Non-Swelling Clays | | | | |
| BD001 | X | X | | X | X | | | | X |
| BD004 | | X | X | X | X | | X | X | |
| BD011 | | X | X | X | X | | | | |
| BD161 | | X | | X | X | | | | |
| BD202 | X | | X | X | X | | X | | |
| BD240 | | | X | X | X | | X | | X |
| BD241 | | X | | | | | | | |
| BD242 | | X | | X | | | | | X |
| BD243 | | X | | X | X | X | | | |
| BD244 | | X | | X | X | X | | | |
| BD245 | | X | X | X | X | | | | |
| BD246 | | X | | X | | | | | X |
| BD247 | | | | | X | X | X | | |
| BD248 | | X | | X | X | | X | | |
| BD249 | | X | | X | | | | | X |
| BD250 | | X | | X | | | | | |
| BD251 | X | X | X | | | | | | |
| BD253 | | X | | X | | | X | | |
| BD254 | | | X | X | X | | | | X |
| BD276 | X | X | X | X | X | | | | |

## Ceramic Petrography

A total of 65 rim sherds representing 65 fired-clay vessels from five sites (Montagna Grande, Monte Bonifato, Monte Polizzo, Mozia, and Salemi) and seven clay samples from three different cachements (Mozia, Poggioreale Nuovo, and Salemi) were analyzed using ceramic petrography (Table 5.14).

Table 5.14. Number and source of ceramic petrography samples.

| Location | Pottery Samples | Clay Samples |
|---|---|---|
| Montagna Grande | 3 | 0 |
| Monte Bonifato | 1 | 0 |
| Monte Polizzo | 1 | 0 |
| Mozia | 27 | 5 |
| Poggioreale Nuovo | 0 | 1 |
| Salemi | 33 | 1 |

The 65 vessels were characterized as Attic fineware (n=1), colonial fineware (n=2), Elymian fineware (n=2), general fineware (n=7), Punic fineware (n=16), grayware (n=15), medium sandwichware (n=10), and general coarseware (n=12). A diverse number of vessel forms were included in this study, including an *attingitoio* (n=1), a broad cup (n=1), a calotte cup (n=1), a column-*krater* (n=1), *coppe* (n=3), a *dinos* (n=1), dippers (n=3), a general-*krater* (n=1), lip-cups (n=14), a mushroom jug (n=1), a *psykter-krater* (n=1), *scodelle* (n=16), a *skyphos* (n=1), a squat cup (n=1), table *amphora* (n=2), transport *amphora* (n=12), an *unguentario* (n=1), and several unidentified vessels (n=3).

At least 100 distinct, non-void points across each sample were point-counted using the methods previously described. The raw counts for each clay sample are displayed in Appendix G and for each pottery sample in Appendix H. In addition to quantitative petrographic data, nominal mineralogical data was collected recording the presence or absence of specific minerals. Appendix I presents all qualitative data recording the presence or absence of specific minerals identified microscopically from all petrographic samples. Results of the petrographic study of clay samples will be discussed first, followed by the results of pottery petrography. Finally, the results of the clay and pottery petrographic analyses will be compared.

Qualitative observations about the compositions of the seven clay samples were made microscopically. Based on the presence or absence of different single and multi-grained minerals, the seven clay samples could be divided into two groups: 1) Poggioreale Nuovo/Salemi and 2) Mozia. Table 5.15 presents the mineral components of these two clay groups. Both groups were composed of matrix containing monocrystalline quartz, opaques, and hornblende; however, the disproportionate presence of other minerals and rock fragments justified distinguishing between the two groups. For example, calcite crystals, present in the Poggioreale Nuovo/Salemi samples, were absent from most of the Mozia clay samples. Likewise, rock and shell fragments present in the Mozia clay samples were absent from the Poggioreale Nuovo/Salemi clay group.

Table 5.15. Mineral components identified microscopically from clay samples.

| Sample | Location | MQ | PQ | OP | RF | Hornblende | Mica | Augite | Calcite | Gypsum | Shell Frags | Perthitic Feldspar | Fossil Frags |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD294 | Poggioreale Nuovo | X | | X | | X | | | x | | | | X |
| BD295 | Salemi | X | | X | | X | | X | x | | | | X |
| BD296 | Mozia | X | | X | X | X | X | | | | x | | X |
| BD297 | Mozia | X | | X | X | X | | X | | | | | |
| BD298 | Mozia | X | | X | X | X | | | | | x | X | |
| BD299 | Mozia | X | | X | X | X | | | | X | x | | |
| BD300 | Mozia | X | X | X | X | X | | | x | X | x | X | X |

MQ = Monocrystalline quartz; PQ = Polycrystalline Quartz; OP = Opaque;
RF = Rock Fragments

In addition to division into the two clay groups, inter-group mineralogical variation was observed. For example, clay collected from Salemi included augite, while augite was absent from clay collected at Poggioreale Nuovo. Likewise, the five clay samples collected from Mozia differentially contained polycrystalline quartz, mica, augite, calcite crystals, gypsum, perthitic feldspar, or fossil fragments. Despite the slight variations between groups, the array of aplastic minerals present was largely uniform in each group, demonstrating that the presence/absence of minerals must be complemented by point counting, XRD, or both.

Proportions of matrix, silt and sand for all seven clay samples are presented in Table 5.16. Overall, clay collected from Salemi and Poggioreale Nuovo had higher proportions of silt than clays collected from Mozia, yet they contained relatively equal or lesser proportions of sand and matrix. These results are similar to macroscopic observations of the seven clay samples but these provide a quantitative measure for comparison.

Table 5.16. Petrographic proportions of matrix, silt, and sand identified among clay samples examined.

| Site | Material | % Matrix | % Silt | % Sand | Sand Size Index |
|---|---|---|---|---|---|
| Mozia | Clay | | | | |
| | Range (n=5) | 64.2; 88.1 | 2.1; 14.6 | 2.3; 30.8 | 1.8; 3.5 |
| | Mean (n=5) | 74.2 ± 9.7 | 8.3 ± 5.2 | 17.4 ± 10.7 | 2.6 ± 0.6 |
| Poggioreale Nuovo | Clay | | | | |
| | Range (n=1) | 81.3 | 16.6 | 2.0 | 1.1 |
| Salemi | Clay | | | | |
| | Range (n=1) | 70.5 | 27.7 | 1.6 | 1.1 |

The proportions of silt, clay, and sand recorded during petrographic analysis of fired-clay briquettes were plotted using a ternary diagram (Figure 5.10). These results demonstrate relatively homogeneous particle size proportions among all seven clay samples. Depositional environments of the clay samples can be inferred because different particle sizes and proportions are the result of various processes acting upon parent material and in developing pedogenic horizons. For instance, clays collected from

Poggioreale Nuovo and Salemi have identical sand size fractions, suggesting that these clays originated from a similar depositional environment. Additionally, high proportions of silt might indicate that these two clays are the result of aeolian deposition.

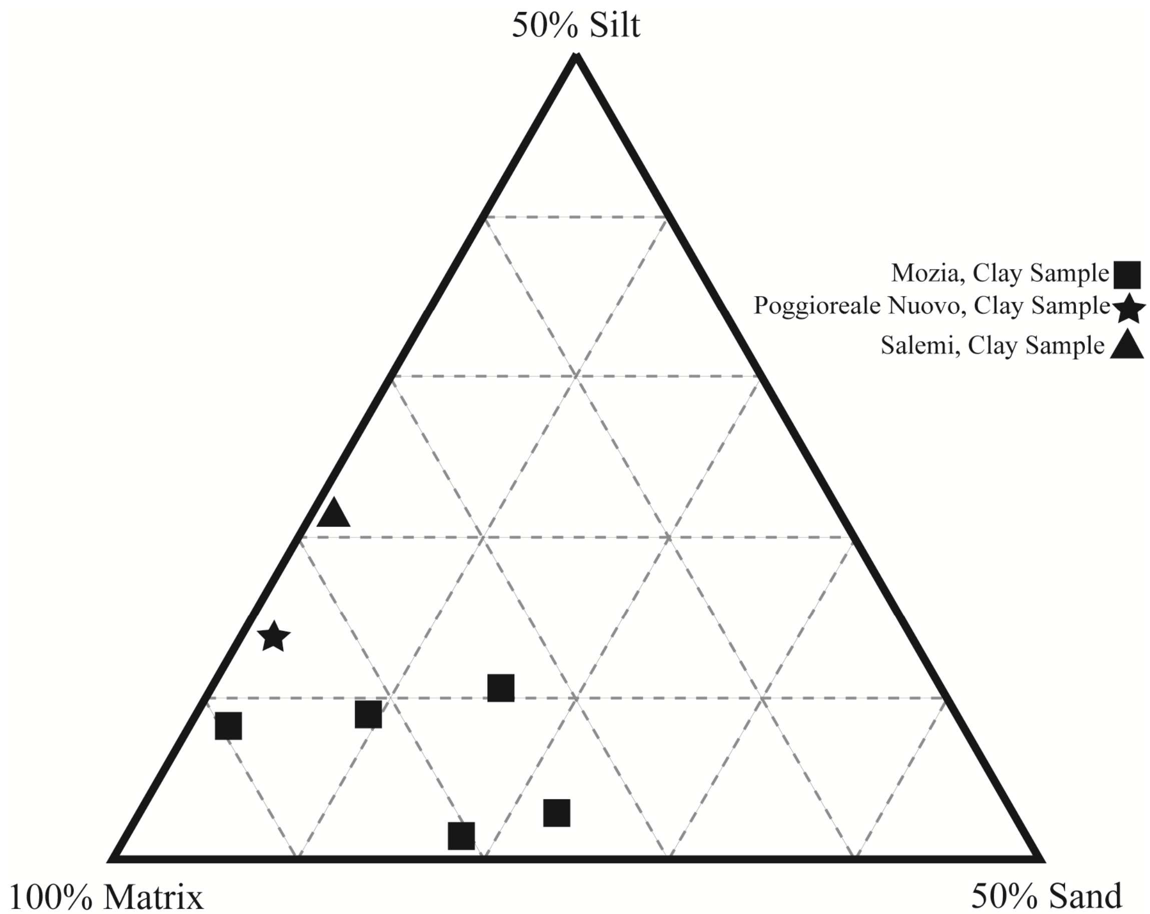



Figure 5.10. Ternary plot of proportions of silt, matrix, and sand from clay studied.

Likewise, lower proportions of silt present in the clay samples from Mozia may be the result of diverse sediments and/or coastal erosion; after all, the island of San Pantaleo was formed from Pleistocene deposits and is still subject to erosion. Such Pleistocene deposits may have transported diverse materials, depositing heavier particles while eroding lighter silt and clay sized particles, leaving higher proportions of the sand size fraction behind.

Qualitative compositional data were collected for all 65 ceramic petrography samples. The most frequent aplastic materials present in pottery sampled for ceramic petrography included monocrystalline quartz (n=65, 100%), opaque minerals (n=60, 92%), hornblende (n=49, 75%), and polycrystalline quartz (n=44, 68%). Also present though less frequent were rock fragments, mica, augite, calcite crystals, gypsum, shell fragments, perthitic feldspar, fossils, and grog. Table 5.17 presents the frequencies of aplastics observed less frequently in the pottery samples.

Table 5.17. Frequencies of less common mineral components identified microscopically from pottery samples.

| | **Rock Frags** | **Augite** | **Mica** | **Calcite** | **Shell Frags** | **Fossils** | **Grog** | **Gypsum** |
|---|---|---|---|---|---|---|---|---|
| Number | 34 | 28 | 22 | 20 | 16 | 9 | 3 | 2 |
| Frequency | 52% | 43% | 34% | 31% | 25% | 14% | 5% | 3% |

The presence or absence of different minerals and other inclusions did not always facilitate identification of production groups among different pottery types. For instance, qualitative compositions of indigenous grayware appeared to suggest segregation of these samples into two compositional groups. Mica, present in 47% of the grayware samples (n=7), coupled with a general absence of monocrystalline quartz larger than 250 μm and the presence of opaque minerals between 125 and 250 μm and calcite crystals appeared to suggest two mineralogically different groups, defined as Grayware 1 and Grayware 2 (Table 5.18). However, when the quantitative proportions of silt, matrix, and sand were plotted on a ternary diagram, no correlation was observed between the two hypothetical groups (Figure 5.11).

Anthropic aplastic material, or grog, was observed in three indigenous pottery samples. This grog, crushed pottery added to the clay paste as a tempering agent, was

Table 5.18. Hypothetical groups of grayware posited from qualitative petrography.

| Mineral | MQ | | | PQ | | Opaque | | RF | Horn-blende | Mica | Augite | Calcite (Crystals) | Perthitic Frags |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Size** | <125 | 125-250 | >250 | <125 | 125-250 | <125 | 125-250 | >250 | All | All | All | All | All |
| **Grayware 1** | X | X | X | X | X | X | X | X | X | | X | X | X |
| **Grayware 2** | X | X | | X | | X | | X | X | X | X | | X |

MQ = Monocrystalline quartz; PQ = Polycrystalline Quartz; RF = Rock Fragments

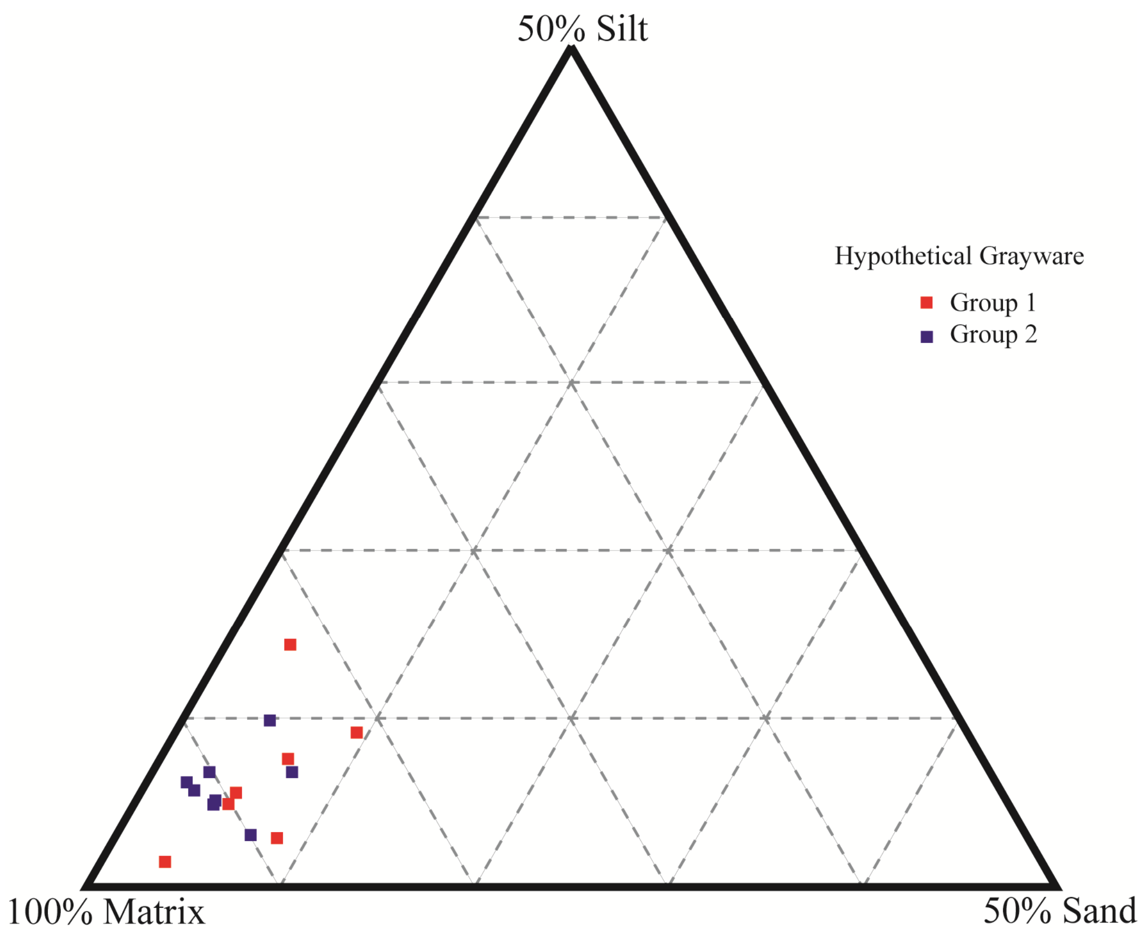



Figure 5.11. Ternary plot of proportions of silt, matrix, and sand from indigenous grayware vessels studied.

derived from vessels containing opaques, monocrystalline quartz, and hornblende. One exceptional sample, BD301, contained frequent grog inclusions, including one inclusion from a vessel itself tempered with grog (Figure 5.12).

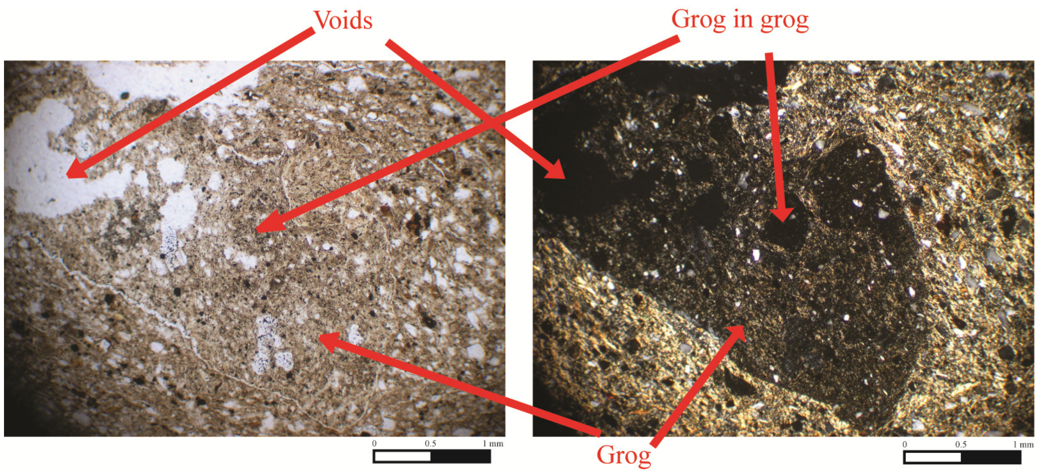



Figure 5.12. Grog identified in BD301, seen with 40-power magnification under PP light (left) and XP light (right).

Compared to indigenous grayware, the manufacture of Punic fineware appears to have been more standardized. Sixteen samples of Punic fineware were examined petrographically. Qualitatively, these 16 samples are relatively similar; all contained monocrystalline quartz and opaques, as well as other aplastic inclusions (presented in Table 5.19). The conspicuous absence of grog among Punic fineware samples is directly tied to manufacturing techniques, demonstrating that the potters who manufactured these vessels chose natural materials over anthropogenic ones. Because the Punic fineware samples appear to be qualitatively similar, they may have been manufactured from similar techniques or materials from geologically similar sources.

Table 5.19. Number and frequency of Punic fineware samples containing specific aplastic inclusions.

| Punic Fineware | MQ | PQ | OP | RF | Horn-blende | Mica | Augite | Calcite (crystals) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | 16 | 11 | 16 | 6 | 14 | 1 | 7 | 5 | 1 | 7 | 9 | 0 | 0 |
| Frequency | 100 | 69 | 100 | 38 | 88 | 6 | 44 | 31 | 6 | 44 | 56 | 0 | 0 |

MQ=Monocrystalline quartz; PQ=Polycrystalline quartz; OP=Opaque minerals; RF=Other Rock fragments.

Quantitative proportions of silt, matrix, and sand observed among all Punic fineware samples were recorded and plotted on a ternary diagram (Figure 5.13). Similar proportions of different sized components suggest that these samples may belong to one production group. If these samples had been manufactured from different materials or with different methods, particle sizes would have varied between production groups. This conclusion is congruent with the qualitative mineralogical conclusion that these Punic fineware samples were manufactured using similar materials and methods.

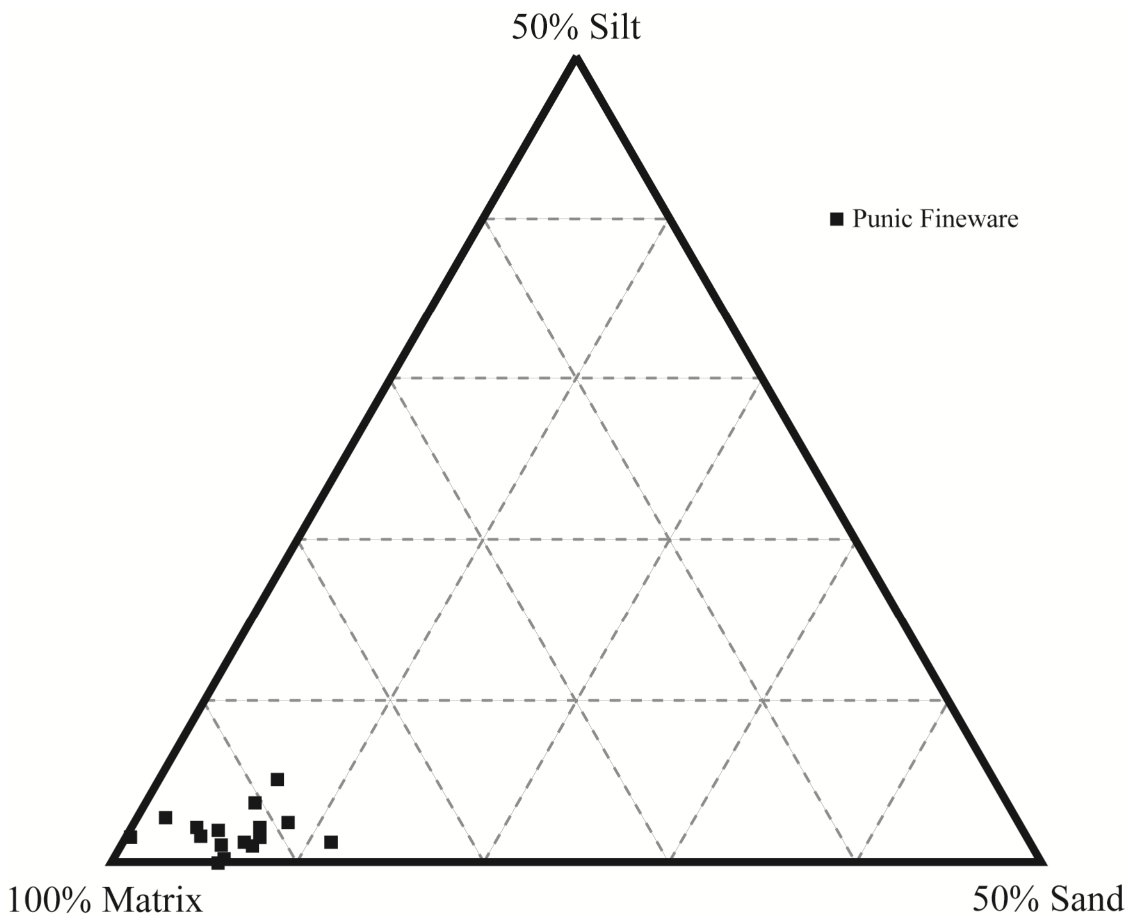



Figure 5.13. Ternary plot of proportions of silt, matrix, and sand from Punic fineware vessels studied.

Petrographic analysis of all pottery samples identified differences and similarities between the samples. Table 5.20 presents the proportions of matrix, silt and sand for groups of pottery samples as well as a sand size index (derived from Stoltman 1991:109). These tabular results demonstrate that proportions of matrix, silt, and sand detected in Punic fineware samples from Mozia and Salemi are within one standard deviation of each

Table 5.20. Petrographic range, mean, and standard deviation for groups of pottery thin sections examined.

| Site | Material | % Matrix | % Silt | % Sand | Sand Size Index |
|---|---|---|---|---|---|
| Montagna Grande | Elymian Fineware | | | | |
| | Range (n=2) | 57; 65.6 | 19.8; 20.3 | 14.5; 22.6 | 2.0; 2.7 |
| | Mean (n=2) | 61.3 ± 6.0 | 20.0 ± 0.3 | 18.6 ± 5.7 | 2.3 ± 0.5 |
| Montagna Grande | Medium Sandwichware | | | | |
| | Range (n=1) | 68.1 | 15.4 | 16.3 | 2.0 |
| Monte Bonifato | Grayware | | | | |
| | Range (n=1) | 67.3 | 16.3 | 16.3 | 2.1 |
| Monte Polizzo | Medium Sandwichware | | | | |
| | Range (n=1) | 76.0 | 10.5 | 13.4 | 2.5 |
| Mozia | Coarseware | | | | |
| | Range (n=12) | 66.8; 86.5 | 0.5; 8.8 | 8.9; 27.4 | 2.4; 3.8 |
| | Mean (n=12) | 78.0 ± 5.8 | 4.1 ± 2.2 | 17.8 ± 4.7 | 3.3 ± 0.4 |
| Mozia | Punic Fineware | | | | |
| | Range (n=15) | 60; 92.9 | 0.0; 16.7 | 0.9; 35.8 | 1.4; 3.9 |
| | Mean (n=15) | 73.8 ± 8.7 | 6.4 ± 4.3 | 19.8 ± 8.4 | 2.5 ± 0.6 |
| Salemi | Salemi Attic Fineware | | | | |
| | Range (n=1) | 91.1 | 8.8 | 0.0 | 1.0 |
| Salemi | Salemi Colonial Fineware | | | | |
| | Range (n=2) | 53.1; 76.1 | 22.0; 33.6 | 1.8; 13.2 | 1.2; 1.4 |
| | Mean (n=2) | 64.6 ± 16.3 | 27.8 ± 8.2 | 7.55 ± 8.1 | 1.3 ± 0.1 |
| Salemi | General Fineware | | | | |
| | Range (n=7) | 66.0; 92.1 | 5.5; 29.5 | 1.9; 24.7 | 1.1; 2.7 |
| | Mean (n=7) | 74.0 ± 9.9 | 17.2 ± 8.3 | 8.8 ± 8.5 | 1.5 ± 0.6 |
| Salemi | Grayware | | | | |
| | Range (n=14) | 45.9; 82.3 | 5.3; 42.2 | 7.1; 27.4 | 1.3-2.6 |
| | Mean (n=14) | 63.3 ± 10.0 | 20.4 ± 9.3 | 16.3 ± 6.8 | 1.7 ± 0.3 |
| Salemi | Punic Fineware | | | | |
| | Range (n=1) | 79.3 | 7.7 | 12.8 | 1.7 |
| Salemi | Medium Sandwichware | | | | |
| | Range (n=8) | 52.5; 84.4 | 5.7; 32.0 | 9.8; 19.1 | 1.4; 2.6 |
| | Mean (n=8) | 71.1 ± 10.4 | 15.7 ± 8.0 | 13.2 ± 3.4 | 1.9 ± 0.4 |

other. This suggests that the one Punic fineware vessel sampled from Salemi (BD001) is texturally similar to those recovered from Mozia, suggesting that the population of Salemi consumed sympotic vessels from Mozia and/or had access to Phoenician imports.

Likewise, vessels sampled from Monte Bonifato and Montagna Grande contained similar matrix and silt proportions and identical proportions of sand of nearly the same size grains. This may suggest that Monte Bonifato grayware and Montagna Grande medium sandwichware were constructed of materials collected from similar types of clay deposits, and produced using relatively similar clay preparation techniques at both sites, or that these vessels were manufactured at the same site and were then exchanged to other locales.

Proportions of matrix, silt, and sand observed in all pottery thin-sections were plotted on a ternary diagram (Figure 5.14). The close similarity between the Punic fineware from Mozia and Salemi (BD001 only) is again demonstrated. Very similar proportions of grayware from Salemi and Monte Bonifato are likewise demonstrated. This also demonstrates that the pottery from Salemi can be distinguished from the pottery from Mozia in this analysis. Some overlap is present, which can tested using XRD or XRF data.

Finally, the results of petrographic analysis of clay and pottery samples were compared. In all samples the most frequent aplastic material identified was quartz. Monocrystalline quartz was the most frequent type, occurring in all 72 (100%) of the thin sections examined. Polycrystalline quartz, observed in 45 (63%) of all samples, was the second most frequent type of quartz. Other frequently encountered aplastic components are presented in Table 5.21.

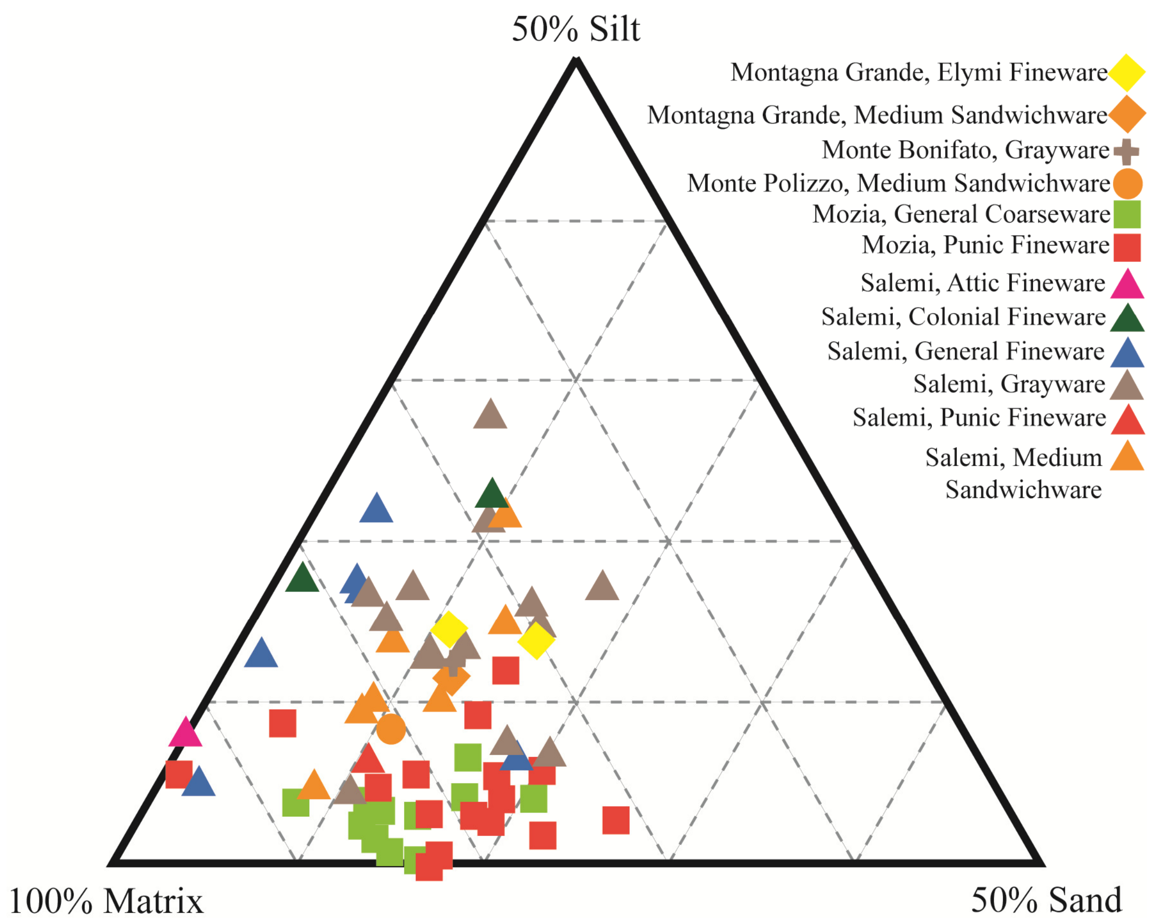



Figure 5.14. Ternary diagram plotting proportions of matrix, silt, and sand detected on pottery thin sections.

Table 5.21. Frequency of aplastic inclusions observed in all clay and pottery samples.

| All Clay and Pottery Samples | MQ | PQ | OP | RF | Horn-blende | Mica | Augite | Calcite (crystals) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number | 72 | 45 | 67 | 39 | 56 | 23 | 30 | 23 | 4 | 20 | 29 | 13 | 3 |
| Frequency | 100 | 63 | 93 | 54 | 78 | 32 | 42 | 32 | 6 | 28 | 40 | 18 | 4 |

Clays and pottery samples were compared petrographically to identify possible associations between contexts. Clay collected from Poggioreale Nuovo is petrographically unlike any of the pottery studied in this analysis. Clay collected from Mozia was compared to the matrix, silt, and sand values of Punic fineware and general coarseware vessels from Mozia. Table 5.22 presents the combined range, mean, and standard deviation of Mozia clay and pottery samples. General coarsewares from Mozia are most similar to (within one standard deviation of) one clay sample, BD297. The other four clay samples collected from Mozia do not appear to be similar to these general coarseware pottery samples. Punic fineware samples from Mozia are also most similar to (within one standard deviation of) clay sample BD297. Qualitatively, Punic finewares are typically most similar to BD297 because of the presence of augite. Shell and perthitic feldspar, present in Punic fineware but not in clay sample BD297, may represent aplastic material added by potters.

Table 5.22. Range, mean, and standard deviation of Punic fineware, general coarseware, and individual clay samples from Mozia.

| Site | Material | % Matrix | % Silt | % Sand | Sand Size Index |
|---|---|---|---|---|---|
| Mozia | Coarseware | | | | |
| | Range (n=12) | 66.8; 86.5 | 0.5; 8.8 | 8.9; 27.4 | 2.4; 3.8 |
| | Mean (n=12) | 78.0 ± 5.8 | 4.1 ± 2.2 | 17.8 ± 4.7 | 3.3 ± 0.4 |
| Mozia | Punic Fineware | | | | |
| | Range (n=15) | 60; 92.9 | 0.0; 16.7 | 0.9; 35.8 | 1.4; 3.9 |
| | Mean (n=15) | 73.8 ± 8.7 | 6.4 ± 4.3 | 19.8 ± 8.4 | 2.5 ± 0.6 |
| Mozia | Clay Samples | | | | |
| BD296 | Range (n=1) | 65.85 | 4.07 | 30.08 | 3.45 |
| BD297 | Range (n=1) | 75.54 | 2.16 | 22.30 | 2.97 |
| BD298 | Range (n=1) | 77.39 | 11.30 | 11.30 | 2.42 |
| BD299 | Range (n=1) | 88.10 | 9.52 | 2.38 | 1.80 |
| BD300 | Range (n=1) | 64.23 | 14.63 | 21.14 | 2.45 |

Pottery sampled from Salemi was likewise compared to clay collected from Salemi. Table 5.23 presents the combined range, mean, and standard deviation of Salemi clay and pottery groups. Clay collected in Salemi is only relatively similar to (within one standard deviation of) colonial fineware pottery sampled from Salemi. Grayware samples from Salemi are similar (within one standard deviation) only in terms of the proportions of matrix and silt; sand proportions are significantly higher for grayware than clay collected from Salemi. This may have been the result of potters adding sand sized particles as a tempering agent, or the clay used to manufacture grayware in Salemi was not collected from this deposit. Qualitatively, Salemi grayware samples frequently

Table 5.23. Range, mean, and standard deviation of pottery groups and clay samples from Salemi.

| Site | Material | % Matrix | % Silt | % Sand | Sand Size Index |
|---|---|---|---|---|---|
| Salemi | Salemi Attic Fineware | | | | |
| | Range (n=1) | 91.1 | 8.8 | 0.0 | 1.0 |
| Salemi | Salemi Colonial Fineware | | | | |
| | Range (n=2) | 53.1; 76.1 | 22.0; 33.6 | 1.8; 13.2 | 1.2; 1.4 |
| | Mean (n=2) | 64.6 ± 16.3 | 27.8 ± 8.2 | 7.55 ± 8.1 | 1.3 ± 0.1 |
| Salemi | General Fineware | | | | |
| | Range (n=7) | 66.0; 92.1 | 5.5; 29.5 | 1.9; 24.7 | 1.1; 2.7 |
| | Mean (n=7) | 74.0 ± 9.9 | 17.2 ± 8.3 | 8.8 ± 8.5 | 1.5 ± 0.6 |
| Salemi | Grayware | | | | |
| | Range (n=14) | 45.9; 82.3 | 5.3; 42.2 | 7.1; 27.4 | 1.3-2.6 |
| | Mean (n=14) | 63.3 ± 10.0 | 20.4 ± 9.3 | 16.3 ± 6.8 | 1.7 ± 0.3 |
| Salemi | Punic Fineware | | | | |
| | Range (n=1) | 79.3 | 7.7 | 12.8 | 1.7 |
| Salemi | Medium Sandwichware | | | | |
| | Range (n=8) | 52.5; 84.4 | 5.7; 32.0 | 9.8; 19.1 | 1.4; 2.6 |
| | Mean (n=8) | 71.1 ± 10.4 | 15.7 ± 8.0 | 13.2 ± 3.4 | 1.9 ± 0.4 |
| BD295 | Clay Sample | | | | |
| | Range (n=1) | 70.5 | 27.7 | 1.6 | 1.1 |

included perthitic feldspar and sometimes included mica. Perthitic rock fragments may represent aplastic materials added by indigenous potters, however the presence of mica is more problematic. Mica particles smaller than 125 μm likely represent natural inclusions present in the clay, however clay collected from Salemi did not contain mica. Perhaps indigenous potters at Salemi collected clay from a different source. These results are further exemplified in Figure 5.15, a ternary diagram plotting all pottery and clay samples together.

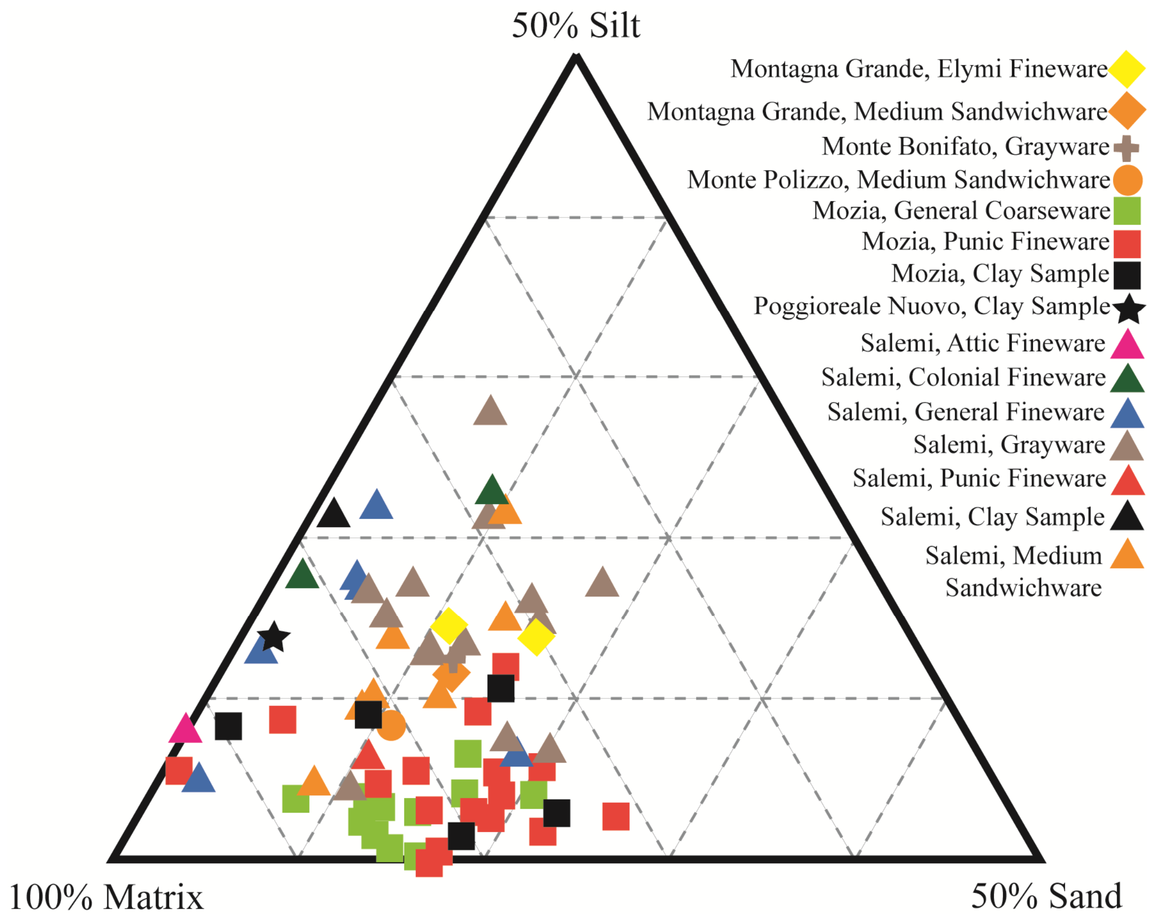



Figure 5.15. Ternary diagram plotting proportions of matrix, silt, and sand detected on all pottery and clay thin sections.

In addition to these inclusive aplastics, post-depostional calcite accretions were microscopically observed adhering to ancient breaks on much of the pottery (Figure 5.16). Such calcite accretions were observed in 27.4% (n=20) of all samples. The relatively high frequency of post-depositional calcite observed in thin-sections significantly affects interpretation of XRF and XRD data. As a result, calcium detected by XRF must be dismissed as a contaminant, and likewise calcite must be dismissed from XRD results.

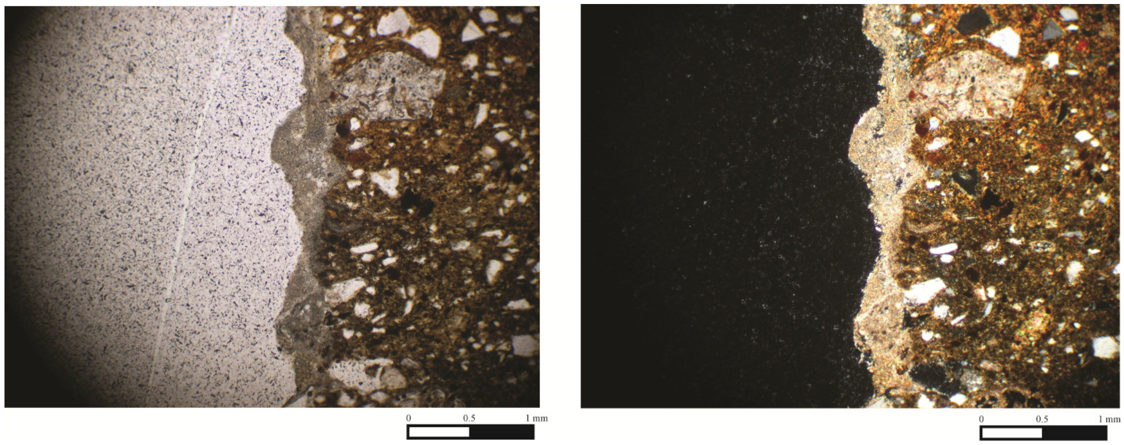



Figure 5.16. Post depositional calcite adhering to the broken edge of a fired clay vessel (BD001). Photo taken under 40-power magnification in PP light (left) and XP light (right).

## Summary of Results

This study explored seventh to fourth century BC western Sicilian pottery stylistically and compositionally. Stylistic analyses of pottery vessels from seven sites identified 25 vessel forms emblemically associated with indigenous Sicilian, Greek, or Phoenician cultures. Five vessels bridged emblemic boundaries for form. These were termed “mixed-form” vessels because they incorporated elements from more than one emblemic form. Examples included the *scodella-skyphos*, *attingitoio-krater, scodella-*lip-cup, and the *kantharos-psykter*. Analysis of manufacturing style identified production techniques that were distinctively indigenous Sicilian, Greek, or Phoenician. No emblemically mixed manufacturing processes could be identified.

Surface treatments (including decoration) were classified as indigenous Sicilian, Greek, or Phoenician. Six vessels sampled from Monte Polizzo and Mozia bridged emblemic identification and are termed “mixed-décor”. Examples include black slip (Greek) atop incised *denti di lupo* (indigenous Sicilian), black bands and meanders (indigenous Sicilian or Greek) atop Phoenician red slip, as well as other combinations of painted bands, bars, and meanders on different colored slips.

Each stylistic variable (vessel form, manufacturing style, and surface treatment), was then compared to the others in order to identify mixed-style vessels. Such vessels include more than one emblemic association. For example, a mixed-style vessel could be a Greek form manufactured using Greek techniques, but decorated with indigenous Sicilian motifs. A total of 65 mixed-style vessels were identified in the 156 vessel sample subjected to stylistic analysis. This suggests that while mixed-style vessels were not infrequent components of feasting assemblages in western Sicily during the seventh through fourth centuries BC, they were not especially common either. Most of these vessels were recovered from mortuary contexts; however, mixed-style vessels were sampled from domestic contexts as well. In addition, the majority of these vessels are associated with contexts dating from the mid-sixth to mid-fifth century BC.

Elemental XRF analysis proved challenging; however, the results suggest that pottery recovered from Salemi was the most elementally diverse, possibly the result of exchange with multiple trading partners. Furthermore, mixed-style vessels from Salemi appear to be elementally similar to pottery from Salemi as well as Mozia, suggesting that some mixed-style pottery was manufactured at diverse locations and exchanged between polities. With further testing, the exchange of mixed-style vessels during the seventh to fourth centuries can be better understood.

The results of the XRD analyses were varied. Dry powder diffraction demonstrated mineralogical diversity between clay samples collected at Mozia, Salemi, and Poggioreale Nuovo. Pottery samples analyzed using dry powder diffraction also demonstrated mineralogical diversity; pottery from Salemi segregated from Mozia pottery, particularly with regard to the proportions of quartz to plagioclase, albite, or gehlenite. However, the results of diffraction of clay seperates were not as conclusive. Little to no correlation between samples was observed, although this may be the result of small sample size.

The results of the petrographic analysis were also varied. Qualitative analysis of pottery thin sections suggests one group of Punic fineware was characterized by the presence of shell fragments, while two groups of indigenous grayware were characterized by the presence of opaques and mica, or grog within the matrix. These different types of aplastics found in different frequencies might reflect natural differences in the source materials employed by potters, or different manufacturing techniques (particularly in the case of the grog). Quantitative petrographic analysis suggests that all Punic fineware samples were very similar to each other, and that grayware from Monte Bonifato and Salemi are similar to eachother. This might suggest that similar source materials were selected by potters, or that clay paste preparation techniques varied between the two cultures, but were similar at two indigenous Sicilian population centers (Salemi and Monte Bonifato).

# CHAPTER VI: DISCUSSION

This study of seventh to fourth century BC pottery defined and successfully identified mixed-style vessels manufactured and used by the indigenous and mercantile populations of ancient Sicily. The theory of cultural hybridity was engaged to answer four research questions involving indigenous social change, using stylistic and compositional analyses of pottery to model complex social transformation. Socially imbued variables, including vessel form, manufacturing technique, and decoration were identified and compared to investigate how ancient Sicilian pottery used in feasting was affected by the intersection of several cultural traditions. This chapter reviews those four research questions, addressing each individually in light of the results of the preceding analysis; finally, future research directions are posited.

## Exploring Indigenous Hybridization in Ancient Sicily

This study has demonstrated that pottery styles can reflect varying degrees of social interaction, entanglement, and transformation. Mixed-style vessels are material representations of social interconnectedness, expressing a synthesis of two or more emblemic styles. As a result, a mixed-style pot which incorporates Greek and indigenous, Phoenician and indigenous, or Greek and Phoenician styles on a single vessel demonstrates a different degree of entanglement than a vessel which combines elements derived from all three cultures. Material transformation can serve as a proxy for social transformation; therefore, the more complex the mixing of styles on vessels, the more complex the socially interconnected climate may have been.

This study suggests that material culture hybridization can represent social hybridization. In the context of the consumer, mixed-style vessels are representative of a behavioral or social transformation. For example, the adoption of mixed-style drinking cups by indigenous Sicilians followed the introduction and adoption of Greek sympotic behavior and accoutrements. In this case, the material culture transformation occurred as a component of broader social entanglement processes. However, the potters who manufactured mixed-style vessels may have done so simply to exploit a niche and increase sales and personal wealth. In such cases, the potter(s) who manufactured a mixed-style vessel need not be socially hybridized. Instead, such mixed-style vessels could have been manufactured for an export market, having nothing to do with social hybridization of the producer. Examples of pottery workshops specializing in production for such an export market existed in Athens, where Attic potters manufactured vessels specifically destined for markets in Etruria (Eisman 1972:49-50; Rasmussen 1985:36, 38; Gill 1994:101) and Thrace (Oakley 2009:72). Just because Attic potters manufactured mixed-style vessels for export does not mean they were socially hybridized; these entrepreneurs were economically, not socially, motivated.

Indigenous Sicilian social transformation involved emulation as well as translation of foreign Greek and Phoenician culture and material culture during the seventh to fourth centuries BC. The adoption of sympotic behavior and material culture, Greek script, and Greek architecture during this period suggests that the indigenous Elymi actively incorporated foreign lifeways into their own. Hybridized indigenous culture clearly preserved elements of Iron Age Elymian cultural identity; a complete absence of indigenous elements would suggest the forced abandonment of traditional lifeways. Indigenous populations might not have set out to actively preserve their own cultural patrimony; rather, the preservation of Iron Age indigenous culture may have been an inadvertent result of social interaction, interconnectedness, and eventual transformation. Likewise, geographic proximity to an *emporion* or a colony, or both, may have played a role in the degree to which foreign stylistic and formal categories were incorporated into local feasting assemblages. Hybridized culture developed from earlier indigenous lifeways, as new lifestyles were added to old ones in an accretional transformative process which occurred over several generations. The stimuli responsible for the development of social hybridization and mixed-style material culture are discussed next.

## Feasting, Wine, and Transformation

As indigenous Sicilians interacted with Greek and Phoenician colonists, they began to adopt foreign behaviors, including, but certainly not limited to, those related to feasting. The earliest evidence of feasting behavior in Europe and the Mediterranean dates to the Neolithic (Sherratt 1987), suggesting that feasting was well established in Sicily prior to the arrival of Greek colonists and Phoenician merchants. Feasting behaviors transformed over time, incorporating elements from neighboring populations into newly synthesized behaviors. Like other indigenous populations, the western Sicilian Elymi adopted elements of the Greek symposium, an appealing form of wine consumption packaged by the Greeks and emulated by diverse peoples across Homer's "wine-dark sea" (*Ody.*). Feasting and sympotic behavior energized communication and interaction, facilitating social and material transformation. Such feasts amplified the social aspects of the commensual meal, strengthening social bonds and creating new ones (Wells 2012:80). Feasts were (and remain) social functions where participation communicated status and power between and among the participants. The consumption of alcoholic beverages during the feast animated communication by "facilitating social interaction and channeling the flow of social relations" (Dietler 1990:361).

Proper participation in the feast was very important and included the use of socially appropriate feasting accoutrements. Similar to the Celts of west-central Europe (Arnold 1999:85), the possession and display of foreign-style drinking equipment may have served to indicate social status among indigenous Sicilians. Specific vessel forms such as the *kylix*, lip-cup, *kantharos*, and *krater*, all directly associated with Greek feasting behavior, may have been afforded special attention as exotic vessels from afar. Possessing or using such vessels became a means to establish, maintain or exert one's prestige within the group (Vives-Ferrándiz 2008:265). Objects (in this case, sympotic vessels) manufactured or influenced by foreign cultures can "increase the ideological power and political prestige of those who acquire them" (Helms 1988:263). Acquiring these objects demonstrates an individual's prestige because possessing such exotica testifies to the "personal characteristics of the acquirer, who has had to deal…with a conceptually distinctive foreign realm" (Helms 1993:101).

Possessing sympotic vessels may have demonstrated prestige in the indigenous Sicilian community; the vessels objectified the social acumen of the individual as a cultural agent navigating between distant and local social boundaries. Accordingly, it was in the best interests of indigenous Sicilians to own and consume alcoholic beverages from such vessels, potentially accounting for the popularity of Greek-style sympotic behavior and utensils. Likewise, the similarity of these assemblages in widely distributed Greek colonial contexts suggests that the Greeks consciously manipulated the feasting package as a strategic means of establishing control of elite social and economic networks.

Just what types of alcoholic beverages were produced and consumed by indigenous Sicilians remains unknown. Iron Age Sicilian populations cultivated a wide array of grains, including barley, emmer, and free-threshing wheat (Stika 2004:268; Stika, et al. 2008:S144). Such grains could easily have been transformed into an alcoholic beverage to be consumed at social functions (Crewe and Hill 2012; Dietler 2010:184). Evidence suggesting the presence of grapes (*Vitis vinifera*) predates the Iron Age in Sicily; Neolithic contexts at Grotta dell'Uzzo contained microscopic remains of grapes, yet it remains unclear whether these remains were from wild or cultivated plants (Constantini 1981:241; Rivera Nũñez and Walker 1981:225). Although Iron Age contexts at Monte Polizzo and Salemi have yielded evidence for cultivated grapes (Stika, et al. 2008:S144), the best supporting evidence for the adoption of wine consumption remains the presence of fired clay vessels associated with the consumption of wine. Following contact with Greek and Phoenician colonists and traders, indigenous Sicilian cultures were most interested in sympotic vessels (Hodos 2006:154); hence the frequency of foreign and mixed-style commensal vessels at Archaic indigenous archeological sites. As Dietler comments, "The cargoes of most ships…settled quickly on wine and a limited range of drinking ceramics" (2010:194).

As a result, such vessels became politically and socially important for indigenous participants attempting to express their social status or find a common ground with foreign merchants. Just as consuming wine from a pint glass at a formal event would be a social *faux pas* for modern Americans (archaeology graduate students aside), so too was consuming wine from an indigenous *attingitoio* or *capeduncola* during Greek-style feasts over two millennia ago. In this way, indigenous hospitality was socially transformed in order to wine-and-dine mercantile neighbors from distant lands, streamlining indigenous Sicilian populations among the developing general Mediterranean culture. This accounts for *why* emblemically Greek vessels became popular among indigenous populations. However, it does not account for the presence of imitation, mixed-style vessels. Imported sympotic vessels appear to have been equally common components of indigenous feasting assemblages during the seventh through sixth centuries BC; however, these imports appear to have become more frequent during the fifth and fourth centuries BC.

Through the fifth century BC, indigenous Sicilian potters continued to manufacture grayware and sandwichware pottery just as they had for hundreds of years. A decline in the production of such pottery at the end of the fifth century may have signaled a transition in potting traditions. At that point, indigenous Sicilian potters appear to have transformed their manufacturing techniques, resulting in the abandonment of grayware and sandwichware clay fabrics and the appearance of a number of general fineware clay fabrics in their place. A similar technological transformation has been observed at Spanish archaeological sites. For instance, indigenous Iberian populations appropriated Phoenician potting technology at Acinipo (Ronda la Vieja), leading to a transformation that incorporated local and foreign production styles (de Groot 2011:106; Sanna 2009:162).

Likewise, the presence of emblemically foreign vessel forms manufactured using indigenous techniques in Sicily appears to signal a social transformation in which the foreign forms represent the adoption of foreign feasting practices. Contact with Greek merchants and colonists introduced indigenous Sicilians to Greek sympotic feasting traditions. As elements of these feasting traditions gained popularity among indigenous Sicilian populations, so too did the material culture associated with the feast. Vessels such as the *krater* and lip-cup, objects which physically contained liquids and metaphorically contained status, came in vogue among indigenous populations.

Unfortunately, it remains difficult to discuss the precise nature of the association of imported and/or mixed-style sympotic vessels with indigenous western Sicilian elites. Lacking mortuary evidence, it currently appears that imported sympotic vessels were infrequent, prized components of indigenous feasting assemblages. Possible associations between elites and mixed-style vessels are similarly difficult to identify. Such vessels have been recovered from mortuary contexts at Mozia; however, the archaeological provenance of these vessels is simply listed as having come from a tomb, severely restricting the association of elites to such assemblages.

Such vessels were common components of feasting assemblages in the Greek colonies; however, they were seldom present in seventh and sixth century BC indigenous contexts. It appears that large quantities of sympotic vessels were imported to the Greek colonies in Sicily from Athens; yet very few of these were traded to the neighboring indigenous populations. The Gaggera necropolis at Greek Selinus provides an excellent proxy for Greek imports during the sixth and fifth centuries. Imported sympotic vessels account for 67% of all fired clay vessels deposited in tombs there during the sixth century (Kustermann Graf 2002:33) and increased to 77% in the fifth century (Kustermann Graf 2002:48), suggesting that the exchange of these vessels may have been restricted to Greek colonies. Could elites have been controlling access to these imports, and if so, which elites: Greek, indigenous, or both? The presence of imported and imitation sympotic vessels in elite graves at indigenous Sabucina suggests some elites in indigenous settlements did have access to imports while others utilized local mixed-style sympotic vessels. The sudden influx of imported Greek pottery in the first half of the fifth century, after the Carthaginian victories over the Greek colonies of Himera, Selinus, and Akragas, suggests that Greeks were restricting exchange. Perhaps the Greek elite were consuming the imports themselves, with few left for strategic trade with their "barbarian" neighbors. Once the socio-economic balance was upset, the exchange of these vessels with indigenous populations may have been more frequent.

Scarcity of imported sympotic vessels within indigenous settlements is further evidenced by the repair and curation of imported cups. A fragment of an imported Attic cup dating from the fifth century BC recovered in Salemi preserves evidence of repair. A single hole carefully drilled through the vessel wall below the rim (Figure 6.1) demonstrates that some of these imported vessels were repaired when broken, suggesting that they were rare enough to make such repairs worthwhile, even if the vessel could only serve as a display piece.

Because imported Greek and Phoenician sympotic vessels were scarce outside the colonies and *emporia*, they provided an opportunity for entrepreneurial indigenous potters. The resulting one-offs emulated the lip-cups and *kraters* common in colonial Greek feasting assemblages. Similar theories have been employed to account for local imitations of Greek pottery recovered at the Heuneburg hillfort (Pape 2000:108), at sites around the Golfe du Lion (Garcia 2004:17), and in Etruscan Cerveteri (Regter 2003). Political relations between indigenous Sicilians and colonists at Greek Selinus were


Figure 6.1. Fragment of Attic cup with evidence of repair.

fragile during the sixth century BC (Dinsmoor 1973:112); as indigenous western Sicilian populations allied themselves with Phoenician Mozia, they distanced themselves from Greek Selinus (Dunbabin 1948:333-334). Such political tension may have hindered the exchange of Greek imports from Selinus to indigenous populations.

The reverse of this is known from the ancient Mediterranean. Attic potters manufactured vessels specifically targeting the Etruscan market, producing "Greek-inspired" vessels never meant to be used by Greeks (Lynch 2009:162-163). Greek-style vessel forms manufactured by Greeks for export to a foreign market can be equated to Greek-style vessel forms manufactured by foreigners for use in a foreign, albeit local, market. Such vessels demonstrate an exotic quality; for both the Etruscans (who imported Greek vessels) and the indigenous Sicilians (who imitated or hybridized them), that quality was the Greek-ness of the vessel and its associated sympotic status.

Greek-style lip-cups manufactured using indigenous grayware and sandwichware fabrics as well as Punic fineware fabrics suggest that indigenous or Phoenician potters, working with familiar techniques, manufactured these imitations in order to satisfy the market demand, which clearly was greater than the supply of actual imports at most Iron Age Sicilian sites.

These "hybridized" vessels, incorporating emblemically associated variables from different cultures, synthesized a new type of material culture. Such artifacts have also been called transculturated (Antonaccio 2005) but hybridized seems more apt here (Cañete and Vives-Ferrándiz 2011:134; Ferrer Martín 2012; Jiménez 2011:118). These terms however, are somewhat misleading; while objects themselves may be functionally hybridized, they can never be physically hybridized. Instead, two or more different style objects may be physically synthesized into a mixed-style object. Such a classification segregates the mixed nature of its physical characteristics from any functional hybridization of the object.

Mixed-style vessels represent different degrees of social interconnectedness in seventh to fourth century BC western Sicily. One vessel in this study, BD220, demonstrates the complexity of this social entanglement especially clearly. This vessel, recovered from a sixth century BC mortuary context at Phoenician Mozia, incorporates emblemic styles from all three cultures inhabiting western Sicily at that time. This Greek vessel form (lip-cup) was manufactured using indigenous Sicilian techniques and decorated with multi-faceted indigenous, Greek, and Phoenician styles (Figure 6.2). The cream slip and dark painted bars on the interior of the rim are typical of indigenous painted pottery of the period. The painted band of curved bars below the rim loosely

Figure 6.2. Mixed-style vessel incorporating indigenous, Greek, and Phoenician styles.

resembles the Greek-key pattern that commonly adorns Attic vessels. Finally, the dark gray painted bands encircling the lower half of the vessel are a typical Phoenician decorative style commonly found on other pottery from Mozia.

This vessel represents the material expression of a complex, multi-nodal social entanglement; demonstrating why the concept of hybridity in material culture must be refined in order to be useful to archaeologists. Mixed-style pottery is more than imitation; each vessel is a composit of different interlocking social styles creating an object which is not quite local, but not quite foreign. In this way, mixed-style vessels are physical manifestations of the middle ground; the result of interaction and transformation processes that constitute culture contact scenarios.

## Composition, Production, Exchange

Exploring western Sicilian pottery elementally was a difficult task. However, correlations between quantitative elemental clusters and clay fabric observations suggest that edXRF is a promising tool in explorations of the production and exchange of ancient pottery in western Sicily. Principal components analysis coupled with hierarchical cluster analysis segregated pottery and clay samples into different groups (clusters). Cluster one was the most diverse, including indigenous pottery recovered from Monte Bonifato, Salemi, and clay from Poggioreale Nuovo and Mozia. Because this cluster was so elementally diverse and included a number of outliers, it suggests that some vessels recovered in Salemi (those included in cluster one) may have been manufactured at a different population center, providing elemental evidence positing the ancient exchange of pottery between communities, which had previously gone untested but was tacitly assumed.

Other elemental clusters appear to be congruous with stylistic groups. For instance, indigenous grayware and sandwichware vessels recovered from Salemi tended to group in clusters two and three. These vessels may have been manufactured in Salemi, the two groups possibly resulting from different clay preparation methods. Cluster four, composed of two sandwichware vessels recovered in Salemi, may represent imports from the Aegean. Cluster five may represent another group of pottery manufactured in Salemi. Association with clay collected from Salemi further supports this conclusion. Finally, cluster six appears to correspond with the majority of the clay samples collected from Mozia as well as one mixed-style vessel stylistically associated with Phoenician/Punic manufacture at Mozia.

Although the results of edXRF appear to have successfully segregated Sicilian pottery and clay samples, it is important to note the elemental diversity of mineralogical inclusions present in fired-clay vessels. Because minerals contain various elements (Tables 6.1 and 6.2), the elemental composition of pottery samples is equally diverse and complex, requiring a multifaceted approach to compositional analysis. The number and diversity of elements present in the pottery samples required multiple, complementary analyses in order to unpack the ancient production and exchange evidence represented by these vessels.

X-ray diffraction of clay and pottery samples indicates that similar types of aplastic materials were included in different types of pottery. Quartz, for instance, is ubiquitous in the pottery and clay samples analyzed, suggesting that its presence is a

Table 6.1. Chemical composition of non-clay minerals present in fired-clay vessels.

| Mineral | Chemical Formula |
|---|---|
| Quartz | $SiO_2$ |
| Plagioclase | $(Na,Ca)Al_{1\text{-}2}Si_{3\text{-}4}O_s$ |
| Calcite | $CaCO_3$ |
| Muscovite | $KAl_3Si_3O_{10}(OH)_2$ |
| Gehlenite | $Ca_2Al(AlSiO_7)$ |
| Augite | $(Ca,Na)(Mg,Fe,Al)(Al,Si)_2O_5$ |
| Albite | $NaAlSi_3O_8$ |

natural component of the local geology. Additionally, one clay sample recovered from Mozia (BD294) requires further discussion. This sample was collected from the eroded mudbrick component of the fortification wall adjacent to the south gate and was collected under the assumption that the mudbricks were manufactured from clays located on the island of San Pantaleo. The XRD analysis of this sample however, demonstrates that the clay from the mudbrick wall differs mineralogically from the local clays. Proportions of gehelenite and albite (but not plagioclase or augite) differ drastically from other clays located on San Pantaleo (Figure 6.3). This variation may be the result of adding aplastic materials to the mudbrick paste, however the absence of albite from the mudbrick, which is present in the Mozia clays, remains puzzling. This might suggest that

Table 6.2. Chemical composition of clay minerals present in fired-clay vessels.

| Mineral | Chemical Formula |
|---|---|
| Beidellite | $Na_{0.5}Al_{2.5}Si_{3.5}O_{10}(OH)_2 \bullet (H_2O)$ |
| Montmorillonite | $Na_{0.2}Ca_{0.1}Al_2Si_4O_{10}(OH)_2(H_2O)_{10}$ |
| Nontronite | $Na_{0.3}Fe^{3+}{}_2Si_3AlO_{10}(OH)_2 \bullet 4(H_2O)$ |
| Vermiculite | $Mg_{1.8}Fe^{2+}{}_{0.9}Al_{4.3}SiO_{10}(OH)_2 \bullet 4(H_2O)$ |
| Illite | $K_{0.6}(H_3O)_{0.4}Al_{1.3}Mg_{0.3}Fe^{2+}{}_{0.1}Si_{3.5}O_{10}(OH)_2 \bullet (H_2O)$ |
| Glauconite | $K_{0.6}Na_{0.05}Fe^{3+}{}_{1.3}Mg_{0.4}Fe^{2+}{}_{0.2}Al_{0.3}Si_{3.8}O_{10}(OH)_2$ |
| Kaolinite | $Al_2Si_2O_5(OH)_4$ |
| Sepiolite | $Mg_4Si_6O_{15} \bullet 6(H_2O)$ |
| Palygorskite | $Mg_{1.5}Al_{0.5}Si_4O_{10}(OH) \bullet 4(H_2O)$ |

the mudbricks were manufactured from another clay source not sampled in this study, or that they were produced elsewhere and transported to the island of San Pantaleo for installation as an important component of the fortification. Further inquiry may address this issue.

The results of the ceramic petrography also demonstrate the importance of a multifaceted approach to compositional analysis. The ubiquitous presence of monocrystalline quartz and opaques, for instance, suggests that these were natural components rather than aplastics added by potters during clay paste preparation. Such conclusions are supported by similar proportions of monocrystalline quartz and opaque minerals in raw clay samples. Likewise, the presence of mica in some samples might best represent a natural inclusion present in local clays which were not sampled, or micaceous clays selected by potters in distant lands.

These results suggest that, although Moziese clays varied internally, they are statistically similar to Punic fineware and coarseware pottery in the samples from Mozia

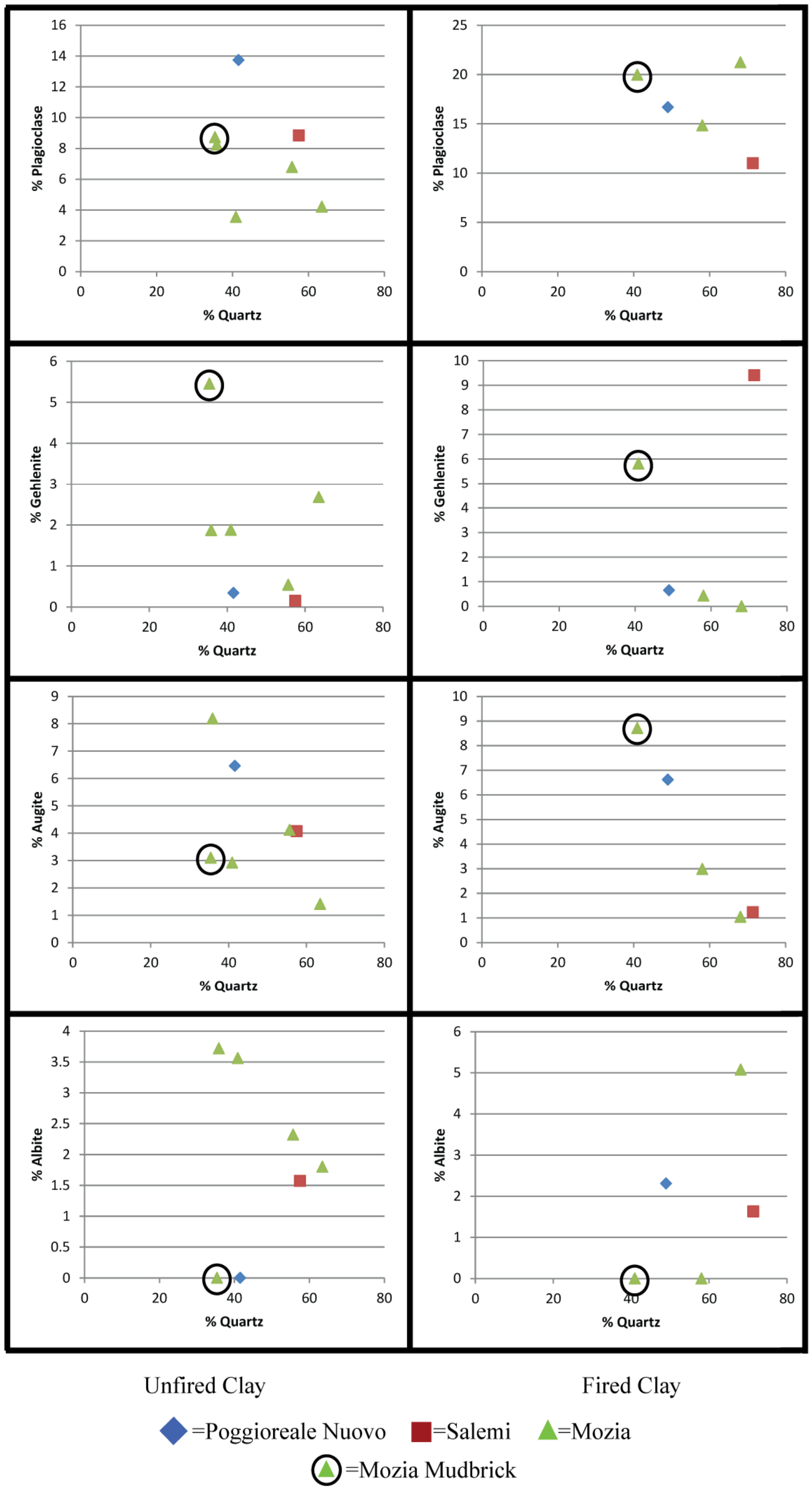



Figure 6.3. Biplots of mineral proportions of unfired and fired clay samples as detected by XRD emphasizing the segregation of Mozia mudbrick from other Mozia clay samples.

tested in this study. Clay from near Mozia's Kothon (Sample BD296) however, appears to be significantly different from the Punic fineware at the site (Table 6.3), suggesting that the pottery was not derived from the same source as this anthropic clay lens. The high proportion of sand present in the clay sample collected from near the Kothon at Mozia (BD296) may indicate that the clay, derived from eroded mudbrick, either is not local to Mozia, or had a high proportion of sand added as a tempering agent.

Table 6.3. Petrographic proportions of Punic fineware from Mozia relative to clay from near Mozia's Kothon.

| Sample | Material | % Matrix | % Silt | % Sand | Sand Size Index |
|---|---|---|---|---|---|
| BD296 | Clay | 65.9 | 4.1 | 30.1 | 3.5 |
| Average | Punic Fineware | 74.2 ± 9.7 | 8.3 ± 5.2 | 17.4 ± 10.7 | 2.6 ± 0.6 |

The results of the petrographic analysis of pottery and clay have helped identify pottery manufacturing techniques employed by ancient potters in western Sicily. The presence of perthitic feldspar in indigenous grayware samples, yet its absence from clay samples, suggests that this aplastic material was added to the clay, possibly as a tempering agent. Likewise, the presence of shell and perthitic feldspar in Punic fineware is unlike the clay collected at Mozia, suggesting once again that these aplastic materials may have been added by potters to improve the thermal qualities of the clay paste.

Observed inconsistencies between grain size proportions and qualitative mineralogical compositions may be the result of diverse clay preparation methods employed at production centers. Disparate petrographic results from indigenous grayware pottery suggest that there is no correlation between quantitative and qualitative petrographic results. However, had clay preparation methods varied from potter to potter, the resultant petrographic observations would also vary. As a result, different manufacturing choices might obscure petrographic patterning, suggesting a lack of correlation between samples when in fact such correlations may have existed.

Other manufacturing choices were also observed petrographically. The inclusion of grog in the indigenous pottery demonstrates that indigenous potters actively selected anthropic material as an aplastic added to their clay pastes. The observed absence of grog in the Greek and Phoenician pottery suggests that grog temper was an indigenous choice that may predate colonial contact. Further petrographic analysis of Sicilian Bronze Age, Copper Age, and Neolithic pottery may clarify the appearance and use of grog among Sicilian cultures over time. The absence of grog in grayware mirrors the absence of grog in Greek and Phoenician pottery. Perhaps the technique of manufacturing grayware emulated Greek pottery production; the appearance of new vessel forms and dark-burnished pottery may testify to an indigenous version of decorated Greek vessels present in very small numbers at interior, non-coastal indigenous sites. Indigenous grayware may have been the result of emulation, an indigenous Sicilian response to market forces expressed on vessels which first came in vogue at the end of the seventh century.

These mixed-style vessels appear to have remained locally isolated; the few identified in this study were determined to have an elemental or mineralogical composition different from local pottery. This may be interpreted as a preference for local products manufactured within the population center where one lived. Such an explanation is akin to contemporary “Buy local” campaigns in which locally manufactured goods are preferred over imported ones. Alternatively, this may reflect the find contexts of the samples as scarcer imported sympotic vessels may not have been discarded.

This study clearly demonstrated that a complex social middle ground developed between indigenous Sicilians, Greek colonists, and Phoenician traders. A similar middle ground developed in the North American fur trade between the French and the Algonquians, incorporating elements of both the secular and the formal, a "product of everyday life and a product of formal diplomatic relations between distinct peoples" (White 1991:53). Western Sicily was no different; linguistic evidence suggests a transformation of both the sacred and profane spheres of life at the time.

The adoption of Greek letter forms in the late sixth and early fifth century BC presumably facilitated economic relations with merchants who could read Greek. The resulting archaeologically visible linguistic transformation may have been more economically than socially motivated. Indigenous Sicilians who understood Greek had an economic advantage in conducting trade in much the same way as Chinese who understand English today benefit from acquiring a "universal" trading language (Adamson and Morris 1997:3; Hu 2005:6; Pennycook 1994:21; Ross 1992:239). In much of South Asia also, English has become "embedded in local institutional contexts" after first being introduced by colonialism (Pennycook 2003:7). The adoption of Greek by indigenous Sicilians may be similar to the manner in which English has become a trade language in modern Asia.

Such an economic explanation may account for the initial appearance of Greek script employed to record indigenous words and the eventual adoption of Greek as a language written by indigenous cultures in Sicily and elsewhere in the Mediterranean. For instance, onomastic inscriptions, those indicating only a name, employing Greek letter-forms to create anHellenic scripts have been found at several sites across western

Sicily. It appears that these inscriptions, recovered from both indigenous and colonial sites, may have been created by indigenous Sicilians using Greek letters to represent indigenous words. One of the most important representations of linguistic entanglement in western Sicily is preserved on an *oscillium* recovered from Solunto. This artifact preserves a Punic inscription preceeding an anHellenic onomast (Guzzo Amadasi 1967:62; Tusa 1965:200) (Figure 6.4). This combination suggests that the indigenous, Greek, and Phoenician cultures of Late Iron Age western Sicily synthesized a socio-linguistic middle ground just as complex as is indicated by mixed-style pottery. Perhaps the use of Greek was limited in scope to economic transactions while indigenous languages continued to be spoken. If so, this reinforces the role of economics in facilitating social entanglement and transformation.

Differing lifeways were both “an idea and a reality” distinct from each other as expressed by “speaking in a certain way, behaving according to a code of regulations, and even feeling certain things and not others” (Said 1978:227). In seventh through fifth century BC Sicily, such differences succinctly characterized colonial Greek and mercantile Phoenician populations, socially distinguishing them from extant indigenous Sicilian groups (Ferrer Martín 2012). The social middle ground was itself a nuanced social space. Ideally, the western Sicilian middle ground would have incorporated elements from all of the cultures involved, decreasing the social distances between each culture while proportionately increasing the social distances from themselves (Figure 6.5).

The resulting social vortex suggests that the exchange of ideas and lifestyles occurred in a homogenous manner, but this appears not to have been the case. The

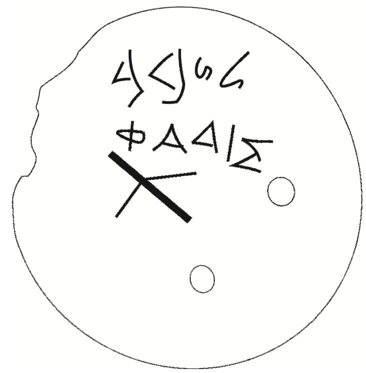


Figure 6.4. Illustration of the linguistically entangled *oscillum* recovered from Solunto (after Tusa 1965:Figure 25).

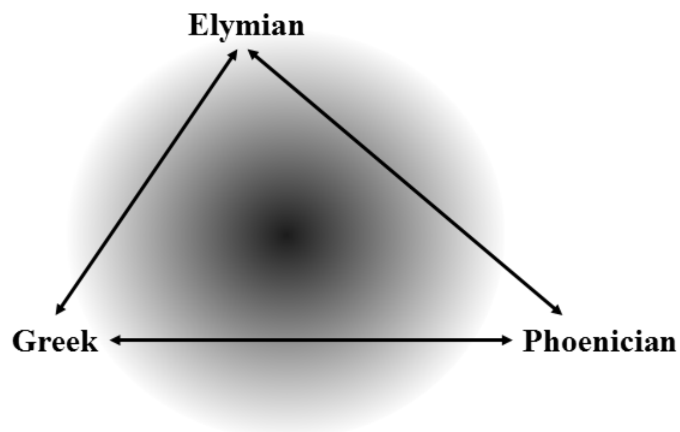



Figure 6.5. Idealized social middle ground in Late Iron Age western Sicily.

western Sicilian Elymi are an excellent example. As the Elymi came into contact with Greek colonists and Phoenician traders, communication and interaction with the two foreign cultures was not equal. As a result, indigenous Sicilians disproportionately adopted elements of Greek lifestyles over Phoenician ones. As the Elymi began to emulate Greek feasting behaviors, they decreased the social distance between themselves and their Greek neighbors. At the same time, they did not appear to have proportionately decreased the distance between themselves and the Phoenicians. The resulting social middle ground was disproportionate, favored Greek over Phoenician culture, creating an asymmetrical tri-nodal entanglement.

The socio-economic relationships between indigenous Sicilians and their Greek and Phoenician neighbors were important in developing the social middle ground; however, equally important was the relationship between the Greek and Phoenician centers in Sicily. The presence of Greek pottery in the Phoenician *emporia* may be the result of mercantile relations with the Greek colonists, or they may have been transported from Greece by Phoenician merchants. Future inquiry may address this issue.

This middle ground was not an indigenous, Greek, or Phoenician development. It developed from all these cultures as they simultaneously crossed porous social boundaries. The material expression of this transformation incorporated foreign and mixed-style feasting vessels alongside indigenous ones. Such a behavioral modification was not unique to the indigenous Elymi; feasting assemblages from Southern Italy suggest a similar process of incorporation. At Monte Del Bufalo, a combination vessel representing a “set” of associated vessels was partially reconstructed from fragments of a broken *olla* and *attingitoi*. Along the rim of the *olla*, several shallow depressions may have held the *attingitoi*, suggesting the *attingitoi* may have been associated with the *olla* as components of a feasting set (di Gennaro and Belelli Marchesini 2010:19). This set may represent an indigenous feasting set incorporating a large closed form vessel (an indigenous *olla*) with several drinking vessels (indigenous *attingitoi*).

## The Economic Role of the Feast

This study suggests that the development and spread of mixed-style pottery among the Elymi might best be explained economically. As Iron Age and Archaic period

Elymian populations came in contact with their Greek neighbors, they were introduced to Greek wine consumption feasts. These feasts became more popular among the Elymi beginning in the early sixth century BC; however, socially appropriate sympotic feasting vessels were initially restricted in number and distribution. Trade with their colonial neighbors could not satisfy the demand for *kylikes* and *kraters* among indigenous communities. As the demand far outweighed the supply, indigenous potters may have acted as material mediators, producing imitation or hybridized, mixed-style vessels in order to meet the increasing demand. These vessels mimicked Greek forms while incorporating indigenous and Greek potting technologies and decorations. Finished mixed-style vessels were then consumed by the Elymi alongside and in lieu of Greek imports. This suggests that material transformation occurred concomitant with social transformation. Mixed-style vessels may not have represented an intentionally created material middle ground, but they did preserve evidence of a social middle ground incorporating Greek feasting practices among Elymian social activities.

Mixed-style vessels appear to have been an economically motivated response materialized by indigenous and Phoenician potters who responded by producing wares that were in high demand. Technological choices, parallel to stylistic choices, bridged cultures. As indigenous culture changed, so did pottery production/decoration techniques. Mixed-style vessels were often not as intricately decorated as imported Attic or Corinthian materials. This does not indicate that indigenous potters were incapable of producing such highly decorated vessels. Rather, indigenous consumers may have been more concerned with obtaining the appropriate vessel form in order to participate in, or better yet, host such a party.

As a result, few mixed-style vessels incorporated mixed-style decorations; those few which did combined indigenous impressed/incised designs with Greek painted decorative patterns such as the "Greek key." One such vessel recovered from Salemi demonstrates the versatility of indigenous potters in emulating foreign designs using the techniques they were most familiar with (Figure 6.6). Another example bridging indigenous form and Greek decoration comes from the Finocchito necropolis: an indigenous *scodellone* decorated with incised lines forming the Greek key pattern (Frasca 1981:43, N. Inv. 16691). Indigenous potters actively selected which decorative schemes to place on their products. The resultant mixed-style might represent the material correlate of social hybridization, the adoption of certain foreign features alongside traditional ones (Angelo 1997:121). The widespread development of such material in the seventh through fourth centuries BC suggests that material emulations were not just a western Sicilian phenomenon; mixed-style cups have been recovered from Etruria (Botto 2010:154; Cristofani and Harris 1984:35), Spain (de Groot 2011:106; Sanna 2009:162), and Sardinia (Bernardini 2000; 2006:136; Guirguis 2010:181),

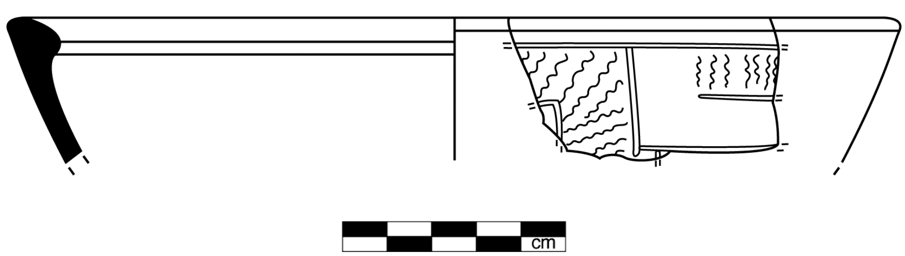



Figure 6.6. Schematic illustration of BD009, demonstrating the mixed-style decorative motif applied to the surface.

suggesting that the emulation of Greek feasting vessels was a common response of western Mediterranean indigenous populations to the introduction of Greek sympotic wares.

## Architectural Responses to Social Interaction

The ancient architectural remains of indigenous, Greek, and Phoenician populations preserve archaeologically visible responses to social entanglement in another material culture medium. Foreign architectural styles are found at indigenous Segesta and Phoenician Mozia, suggesting that social interaction resulted in the exchange of cult practice and architectural designs as well as feasting equipment. For instance, the Doric-style temple at Segesta preserves evidence of Greek design (Dinsmoor 1973:112), construction (Burford 1961:93), and cult practice (Mistretta 2002:75), yet was centrally located in western Sicily at indigenous Elymian Segesta. The construction of an emblemically Greek cultic structure at indigenous Segesta suggests that a shift in social ideology rapidly spread among the indigenous population due to intensive interaction and entanglement in the sixth century BC.

Fortifications can also preserve architectural evidence of mixed-style construction. The fortification walls that frequently encircled population centers were constructed using a number of different techniques. These construction methods were sometimes combined, similar to mixed-style pottery techniques, in order to improve upon the fortifications. For example, the fortification walls at Phoenician Mozia appear to have been influenced by Greek construction techniques. The walls at Mozia were erected as mud brick atop a rubble-core stone foundation; a method employed by the Greeks at Corinth (Carpenter 1936:6), Mantinea (Fougères 1898:145-146; Lawrence 1979:206), and Eleusis (Lawrence 1979:206) to prevent the mudbrick from dissolving in rainwater (Lawrence 1979:206). This fortification method, as a means to both protect and impress, spread throughout the Mediterranean and beyond; evidence of such a wall has even been found in central Europe at the Heuneburg hillfort (Arnold 2010:101). This suggests that contact and interaction involved the exchange of a wide array of concepts and behaviors among diverse populations.

The foreign cultures which interacted with indigenous Sicilians were themselves influenced by external impulses. In addition to the mixed-style vessels present at Mozia, both Greek and Egyptian architecture and iconography (Moscati 1996:51, 55; Scandone 1969:119) are found there, suggesting that the inhabitants of Mozia were actors in multiple social entanglements as a result of mercantile contact across the Mediterranean. Sicily's strategic location as a doorway to the western Mediterranean cannot be overemphasized; the extent and types of external influences were a direct result of the geographic position of the island in relation to shipping routes from the east to the west and vice-versa. The presence of both Phoenican and Greek centers on Sicily provided a greater "international" scope to the entanglements of the seventh through fourth centuries BC.

## Looking Forward into the Past

This study has begun to explore the processes of material and social transformation in ancient Sicily as reflected in a limited ceramic sample, yet much remains to be explored. Future approaches can expand on this study by including other categories of evidence: additional sites, materials, language choices, or geographic loci. Mixed-style vessels have been recovered from Cozzo Paparina (Tusa, et al. 1990:41-42), Marianopoli (Fiorentini 1984-1985:474), Morgantina (Leighton 1993:179, 181, 213; Lyons 1996:189, 194, 213) and other sites. Mixed-style vessels also have been recovered in peninsular Italy at Alianello (Tagliente 1999:20), Contrada da Canneto (Adelfia) (de Juliis 1995:Pl.19 No. 2), Monte Irsi (Small and Barker 1977:114), Oppido Lucano (Lissi Caronna 1980:206, 276), and other sites.

Metal artifacts also hold significant potential for future studies of social transformation. The adoption of metal feasting implements by indigenous populations could further reinforce a model of the broader adoption of foreign feasting behaviors postulated here. Such is the case in seventh century BC Campania, Latium, Etruria, and Tuscany, where metal cheese graters, textually associated with feasting and the warrior ethos, are archaeologically associated with feasting assemblages in Greek warrior graves (Ridgway 1997). Ridgway (1997:338) suggests that these artifacts, recovered as components of sympotic drinking sets, evidence the diffusion of Greek sympotic behavior as a social custom adopted by local elites. Future analysis of sympotic accessories in different media could complement the results of pottery analysis by providing a perspective on less well known feasting behaviors.

More importantly, the development and transformation of monetary systems in the Archaic and Classical Mediterranean must consider standards of measure, materials of value, language(s) present, and emblemic representations on the obverse and reverse of coins. The emulation or rejection of a foreign monetary system is socially and economically determined, providing another significant avenue to approach social transformation from a material perspective. Transformations of the built environment, including secular, religious, public, and fortification architectural styles, as well as spatial organization, can also be explored in more detail to round out our understanding of material expressions of social change.

Linguistic approaches to social entanglement and transformation could also be pursued further, providing information about everyday communication, legal and political events, and the language of commerce. Such an approach is severly limited, however, by the fragmentary evidence that could, moreover, preserve etic biases. Different geographic loci of interaction, of course, could offer complementary or alternative responses to interaction and entanglement. Such studies should be critical of the social, political, and economic stimuli powering material transformation in order to move beyond simply attributing emulation to "imitation"; considering the social significance of the emulated material must remain a primary goal of such studies.

## Conclusion

Within the past 100 years, modern communication and transportation have facilitated global interaction on an unprecedented scale, decreasing the physical distances between cultures while increasing the social distances between generations. As social transformation is taken onboard by younger generations, traditional cultural lifeways merge with foreign ones, becoming reinvented and repackaged as hybrid cultural behaviors capable of bridging social chasms impassable several generations earlier. Such hybrid cultures preserve traditional identities while selectively incorporating elements of the "other."

The French Maoist philosopher Guy Lardreau's poignant comment that "there is nothing more mysterious than what is collectively called a culture" (Lardreau 1981:115) is especially relevant here. Sicily was the location of a multi-component intersection of cultures, with diverse populations colliding time and time again. The theory of cultural hybridity is an appropriate way to conceptualize the social entanglements that developed between indigenous Sicilians, Greek colonists, and Phoenician merchants. As these cultures intensified contact and interaction, they became entangled and intermeshed, transforming themselves and forming sophisticated cultural middle grounds. Although the theory of cultural hybridity may not apply to all social entanglements (Gandhi 1998:136), it is well suited to the study of Sicilian entanglement during the seventh through fourth centuries BC, elucidating the nuanced responses and transformations of later proto-global interactions at the same time. Mixed-style pottery served an important role in the development, spread and adoption of social mediation; pottery styles were both transformed and transforming, communicating new concepts to spatially and socially diverse consumers. Mixed-style vessels have long been known from colonial contexts across the Mediterranean; however, they have often been interpreted as simple, low-quality imitations of Greek forms. Classifying these mixed-style vessels merely as imitations ignores their social significance and oversimplifies the context in which they were produced. An important series of inter-related questions remains: why were such vessels produced, by whom, and for whom?

Emulating the "other" materially is not unknown prior to the mid-first millennium BC in Sicily or elsewhere. Bernabo Brea (1990:52) posited that twelfth century BC Ausonian pottery at Pantalica decorated with painted chevrons was meant to imitate Prototypical Helladic material from Apulia. Much later, fifth and fourth century Attic potters manufactured emulations of indigenous Italian *attingitoi* and Phoenician plates which are now termed *kyathoi* and fish plates, respectively.

By reconsidering the social context of pottery production, we can better understand social transformation more generally. In this way, we can break from earlier interpretations and consider the complexity of the economic and social stimuli responsible for the development of mixed-style pottery. The introduction of Greek feasting behaviors and accoutrements (including lip-cups and *kraters*) to indigenous polities initiated a social transformation process between the seventh and fourth centuries BC that is, in some respects, similar to Neolithic and Bronze Age Aegean transformations. Just as feasting behaviors influenced material culture and society in earlier prehistoric Aegean communities (Halstead and Barrett 2004:1), a similar process affected Iron Age and Archaic period indigenous Sicilian populations. The feast brought diverse people together, spilling (sometimes literally) food, drink, and culture while conveying a sense of shared identity, even if only during the feast itself.

The Elymi did not simply mimick Greek feasting rituals; they rarely incorporated their own vessel forms among mixed-style pottery. Instead, they emulated the Greek feast, choosing to actively pursue a feasting tradition different from their own. The transition from indigenous vessels to Greek forms suggests that while the feasting behavior was significant, consuming liquid from a Greek-style cup was more important than how that cup was manufactured or decorated. This transformation in feasting vessel form suggests that the consumable was transformed as well. The manner in which Elymian potters manufactured mixed-style vessels, retaining indigenous pottery manufacturing techniques while producing a novel vessel form, suggests that the demand for the form exceeded the availability of such forms. Hybridity in the form of mixed-style feasting vessels was no act of resistance to change, or an attempt to retain indigenous tradition; it was primarily an entrepreneurial response exploiting an economic opportunity. That opportunity waned after the mid-fifth century BC when colonial and imported vessels became more readily available. At this time the indigenous populations of western Sicily allied themselves with Athens against Syracusa (La Torre 2011:110), facilitating the importation of Greek sympotic vessels. The resulting influx of Greek imports eclipsed the impetus to manufacture mixed-style pottery, once again transforming feasting behaviors and the requisite vessel assemblages. It was then that the mixed-style vessel, so highly desired several generations earlier, became just another surrogate vessel in a tomb, a stand-in for a costlier import from Athens.

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# APPENDIX A: SAMPLED VESSEL CONTEXTS

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD225 | N. Inv. 713 | Industrial | Entella |
| BD226 | N. Inv. E 727 | Industrial | Entella |
| BD227 | N. Inv. 729 | Industrial | Entella |
| BD228 | N. Inv. 109 | Industrial | Entella |
| BD229 | N. Inv. E 845 | Industrial | Entella |
| BD230 | N. Inv. E 740 | Industrial | Entella |
| BD231 | N. Inv. E 741 | Industrial | Entella |
| BD232 | N. Inv. E755 | Industrial | Entella |
| BD233 | N. Inv. E 760 | Industrial | Entella |
| BD234 | Area 1021 | Industrial | Entella |
| BD235 | Area 1021 | Industrial | Entella |
| BD236 | ENAW 95, 1021 | Industrial | Entella |
| BD237 | ENA 95, 1021 | Industrial | Entella |
| BD238 | ENAW 95, 1021 | Industrial | Entella |
| BD239 | ENAW 95, 1021 | Industrial | Entella |
| BD301 | MG171.US1.02 | Fill | Montagna Grande |
| BD278 | S171.02 | Surface | Montagna Grande |
| BD302 | S171.02 | Surface | Montagna Grande |
| BD173 | MB2009, SAS4, US0 | Fill | Monte Bonifato |
| BD174 | MB2009, US26 | Fill | Monte Bonifato |
| BD175 | MB2008.US9 | Fill | Monte Bonifato |
| BD176 | MB, SAS4, US62 | Fill | Monte Bonifato |
| BD291 | SAS5N.US33.09 | Fill | Monte Bonifato |
| BD292 | SAS5N.US33.09 | Fill | Monte Bonifato |
| BD293 | SAS5N.US29.09 | Fill | Monte Bonifato |
| BD303 | SAS5N.US33.09 | Fill | Monte Bonifato |
| BD013 | US2103 | Fill | Monte Finestrella |
| BD014 | US2103 | Fill | Monte Finestrella |
| BD015 | US3002 | Fill | Monte Finestrella |
| BD016 | SAS3 US 3002 | Fill | Monte Finestrella |
| BD017 | SAS2C US2303 | Fill | Monte Finestrella |
| BD018 | SAS2C US2303 | Fill | Monte Finestrella |
| BD019 | SAS2C US2303 | Fill | Monte Finestrella |
| BD020 | US3002 | Fill | Monte Finestrella |
| BD021 | SAS2B US2200 | Fill | Monte Finestrella |
| BD022 | US1005 | Fill | Monte Finestrella |
| BD023 | SAS2A US2101 | Fill | Monte Finestrella |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD024 | SAS2A US2101 | Fill | Monte Finestrella |
| BD025 | US1005 | Fill | Monte Finestrella |
| BD026 | US2303 | Fill | Monte Finestrella |
| BD027 | US1000 | Fill | Monte Finestrella |
| BD028 | US2101 | Fill | Monte Finestrella |
| BD029 | US2101 | Fill | Monte Finestrella |
| BD030 | US2101 | Fill | Monte Finestrella |
| BD031 | US2101 | Fill | Monte Finestrella |
| BD032 | US3003 | Fill | Monte Finestrella |
| BD033 | US3003 | Fill | Monte Finestrella |
| BD034 | US3003 | Fill | Monte Finestrella |
| BD035 | US3003 | Fill | Monte Finestrella |
| BD036 | US3003 | Fill | Monte Finestrella |
| BD037 | US3002 | Fill | Monte Finestrella |
| BD038 | US1005 | Fill | Monte Finestrella |
| BD039 | US2000 | Fill | Monte Finestrella |
| BD040 | US3000 | Fill | Monte Finestrella |
| BD041 | SAS1 US1005 | Fill | Monte Finestrella |
| BD042 | US3002 | Fill | Monte Finestrella |
| BD043 | US3002 | Fill | Monte Finestrella |
| BD044 | US3002 | Fill | Monte Finestrella |
| BD045 | US3002 | Fill | Monte Finestrella |
| BD046 | US3002 | Fill | Monte Finestrella |
| BD047 | US3002 | Fill | Monte Finestrella |
| BD048 | SAS1 US1005 | Fill | Monte Finestrella |
| BD049 | US3002 | Fill | Monte Finestrella |
| BD050 | US3002 | Fill | Monte Finestrella |
| BD051 | US3002 | Fill | Monte Finestrella |
| BD052 | US3002 | Fill | Monte Finestrella |
| BD053 | US3002 | Fill | Monte Finestrella |
| BD054 | US2103 | Fill | Monte Finestrella |
| BD055 | US3000 | Fill | Monte Finestrella |
| BD056 | SAS2C US2303 | Fill | Monte Finestrella |
| BD057 | SAS2A US2101 | Fill | Monte Finestrella |
| BD063 | US3002 | Fill | Monte Finestrella |
| BD058 | A122014, #40982, N. Inv. 2452 | Domestic | Monte Polizzo |
| BD059 | Area A, #44571, N. Inv. 3958 | Domestic | Monte Polizzo |
| BD060 | Area A, A140346, N. Inv. 3966 | Domestic | Monte Polizzo |
| BD061 | Area A, A145027, E145046, F145088, #44243 | Domestic | Monte Polizzo |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD062 | A127955, E127961, #40269 | Domestic | Monte Polizzo |
| BD064 | Area A, A131021, E131028, #41338 | Domestic | Monte Polizzo |
| BD065 | Area A, A145008, E14024, #44581, N. Inv. 3840 | Domestic | Monte Polizzo |
| BD066 | Area A, A122018, F901570, #41514, N. Inv. 2622 | Domestic | Monte Polizzo |
| BD067 | Area A, E126175, A122014, #40609, N. Inv. 2452 | Domestic | Monte Polizzo |
| BD068 | Area A, A145102, E145116, FC145143, #44210, N. Inv. 3859 | Domestic | Monte Polizzo |
| BD069 | Area A, A122018, E135828, #41079 | Domestic | Monte Polizzo |
| BD075 | Area A, F136138, A128046, #44434 | Domestic | Monte Polizzo |
| BD076 | Area A, A127955, E122358, #40502 | Domestic | Monte Polizzo |
| BD077 | Area A, F137066, A131021, #41381, N. Inv. 2506 | Domestic | Monte Polizzo |
| BD078 | Area A, A128046, E130557, #40554, N. Inv. 2436 | Domestic | Monte Polizzo |
| BD079 | Area A, ID130292, Exc. U. 122021, Lager 128046, #40330, N. Inv. 2436 | Domestic | Monte Polizzo |
| BD080 | Area A, E136479, A122018, #41044, N. Inv. 2390 | Domestic | Monte Polizzo |
| BD081 | Area A, F135881, A128046, #40630, N. Inv. 2436 | Domestic | Monte Polizzo |
| BD082 | Area A, A145237, E145250, #44382 | Domestic | Monte Polizzo |
| BD083 | Area A, A130865, E130871, #40864, N. Inv. 2496 | Domestic | Monte Polizzo |
| BD084 | Area A, F130872, A130865, #40880, N. Inv. 2496 | Domestic | Monte Polizzo |
| BD085 | Area A, F135943, A127975, #40616, N. Inv. 2461 | Domestic | Monte Polizzo |
| BD086 | House 1, SQ. 3504, 1F14275, Art. 549.99 | Domestic | Monte Polizzo |
| BD087 | House 1, A3055, F8659, Art#. 589 | Domestic | Monte Polizzo |
| BD088 | House 1, 1F16777, SQ. 3665, Art. 22 | Domestic | Monte Polizzo |
| BD089 | House 1, 140601, 1FP41486, Art. 1509 | Domestic | Monte Polizzo |
| BD093 | House 1, A3055, FG231, #562 | Domestic | Monte Polizzo |
| BD094 | House 1, A3055, 1F10988, Art. 474 | Domestic | Monte Polizzo |
| BD095 | Area A, A128046, E130557, #40554, N. Inv. 2436 | Domestic | Monte Polizzo |
| BD096 | Locus C, Trench 0113, Subtrench L, Layer 25, Point 115623, Art. # 2440 | Domestic | Monte Polizzo |
| BD097 | N. Inv. 17998 | Domestic | Monte Polizzo |
| BD098 | N. Inv. 14354 | Domestic | Monte Polizzo |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD099 | Zone A, #75581 | Domestic | Monte Polizzo |
| BD100 | 17895, 17896 | Domestic | Monte Polizzo |
| BD101 | Locus A, Tr. K99, TtE, L10 | Domestic | Monte Polizzo |
| BD102 | N. Inv. 2441 | Domestic | Monte Polizzo |
| BD103 | Locus A, K100, L7, N.Inv. 3607 | Domestic | Monte Polizzo |
| BD104 | Zone 7, #2051 | Domestic | Monte Polizzo |
| BD107 | Area K, US 138 | Domestic | Monte Polizzo |
| BD108 | Area N, US1015 | Domestic | Monte Polizzo |
| BD109 | Area S, US508 | Domestic | Monte Polizzo |
| BD158 | House I, ART. 612, A3055 | Domestic | Monte Polizzo |
| BD159 | House I, SQ 3060, 1F11874, Art. N. 76, N. Inv. 322 | Domestic | Monte Polizzo |
| BD160 | Area N US1010 | Domestic | Monte Polizzo |
| BD105 | 1A42444B US2, N. Inv. 840 | Mortuary | Monte Polizzo |
| BD106 | 1A42444B US2, N. Inv. 835 | Mortuary | Monte Polizzo |
| BD110 | T16382.US16, ID# 1F27908, 1F27923, 1F17262, N. Inv. 641 | Mortuary | Monte Polizzo |
| BD277 | A120.02 | Surface | Monte Polizzo |
| BD255 | Mozia 1872, Ampliamento Luogo di Arsione, Ambiente G, Strato III (Distrusione), N. Inv. 4525 | Domestic | Mozia |
| BD256 | Mozia Cass 306, Mozia 1872, Ampliamento Luogo di Arsione, Strato di Bruciato, N. Inv. 4500 | Domestic | Mozia |
| BD257 | Mozia Cass 306, Mozia 1872, Ampliamento Luogo di Arsione, Strato di Bruciato, N. Inv. 4500 | Domestic | Mozia |
| BD258 | Mozia Cass 306, Mozia 1872, Ampliamento Luogo di Arsione, Strato di Bruciato, N. Inv. 4500 | Domestic | Mozia |
| BD240 | MO 87, K. Est. 9, B14 | Industrial | Mozia |
| BD241 | MO 91, K 64.182, Loc. 6432 | Industrial | Mozia |
| BD242 | MO 94, K62.108, Loc. 6225 | Industrial | Mozia |
| BD243 | MO 94, K62.63, Loc. 6222 | Industrial | Mozia |
| BD244 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD245 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD246 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD247 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD248 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD249 | MO 94, K62.109, Loc. 6225 | Industrial | Mozia |
| BD250 | MO 94, K62.108, Loc. 6225 | Industrial | Mozia |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD251 | MO 94, K62.108, Loc. 6225 | Industrial | Mozia |
| BD252 | MO 94, K62.108, Loc. 6225 | Industrial | Mozia |
| BD253 | MO 87, K. Est. 1.66, Loc. 123 | Industrial | Mozia |
| BD254 | MO 87, K. Est. 24.14, Loc. 24.04 | Industrial | Mozia |
| BD199 | Tomb 108A, N.Inv. 4237 | Mortuary | Mozia |
| BD200 | Tomb 108A, N.Inv. 4497 | Mortuary | Mozia |
| BD201 | Tomb 5, N. Inv. 6895 | Mortuary | Mozia |
| BD202 | Tomb 5, N. Inv. 4248, Cass. 138 | Mortuary | Mozia |
| BD203 | Tomb 5, N. Inv. 4248, Cass. 138 | Mortuary | Mozia |
| BD204 | Tomb 5, N. Inv. 4248, Cass. 138 | Mortuary | Mozia |
| BD205 | Tomb 108A, N. Inv. 6801 | Mortuary | Mozia |
| BD207 | Tomb 5, N. Inv. 7418 | Mortuary | Mozia |
| BD208 | Tomb 5, N. Inv. 6894 | Mortuary | Mozia |
| BD209 | Tomb 108A, N. Inv. 4498, Cass 306 | Mortuary | Mozia |
| BD210 | Tomb 108A, N. Inv. 4498, Cass 306 | Mortuary | Mozia |
| BD211 | N. Inv. 6077 | Mortuary | Mozia |
| BD212 | N. Inv. 1808 | Mortuary | Mozia |
| BD213 | N. Inv. 2688 | Mortuary | Mozia |
| BD214 | N. Inv. 1813 | Mortuary | Mozia |
| BD215 | N. Inv. 2761 | Mortuary | Mozia |
| BD216 | N. Inv. 2760 | Mortuary | Mozia |
| BD217 | N. Inv. 4389 | Mortuary | Mozia |
| BD218 | N. Inv. 1682 | Mortuary | Mozia |
| BD219 | N. Inv. 2711 | Mortuary | Mozia |
| BD220 | N. Inv. 2759 | Mortuary | Mozia |
| BD221 | N. Inv. 1681 | Mortuary | Mozia |
| BD222 | N. Inv. 2721 | Mortuary | Mozia |
| BD223 | N. Inv. 2734 | Mortuary | Mozia |
| BD224 | N. Inv. 4376 | Mortuary | Mozia |
| BD188 | Necropolis Ovest, Tomb 40, N. INV. 1839 | Mortuary | Sabucina |
| BD189 | Necropoli Sud, Tomba 49, Dug 1958, N. Inv. S173 or S/73 | Mortuary | Sabucina |
| BD190 | Necropoli Nord-Est, Tomba 15, S 25 | Mortuary | Sabucina |
| BD191 | Necropolis sud, LL 2621 | Mortuary | Sabucina |
| BD192 | 2043g | Mortuary | Sabucina |
| BD193 | Necropoli Sud, LL.2601 | Mortuary | Sabucina |
| BD194 | Necropoli Ouest, Tomba 44 | Mortuary | Sabucina |
| BD195 | Necropoli Sud, Tomb 6, N. Inv. 2373 | Mortuary | Sabucina |
| BD196 | Necropoli Ovest, Tomb 278, N. Inv. 2350 | Mortuary | Sabucina |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD197 | Necropoli Ouest, Tomba 45, N. Inv. 1895, 1896, 1897, 1898 | Mortuary | Sabucina |
| BD198 | 2341, 27047 | Mortuary | Sabucina |
| BD001 | CAS20.US131.07 | Domestic | Salemi |
| BD002 | CAS20.US133.07 | Domestic | Salemi |
| BD003 | CAS10.US55.06 | Domestic | Salemi |
| BD004 | CAS23.US107.06 | Domestic | Salemi |
| BD006 | CS2.US16.03 | Domestic | Salemi |
| BD007 | CS.US13.01 | Domestic | Salemi |
| BD008 | CAS10.US18.04 | Domestic | Salemi |
| BD009 | CAS21.US71.06 | Domestic | Salemi |
| BD010 | CS2.US38.03 | Domestic | Salemi |
| BD011 | CS.US5.01 | Domestic | Salemi |
| BD012 | CS.US11.01 | Domestic | Salemi |
| BD090 | CS2.US10.03 | Domestic | Salemi |
| BD092 | CAS23.US94.06 | Domestic | Salemi |
| BD161 | CAS18.US38.05, CAS041 | Domestic | Salemi |
| BD163 | CS.US17.01 | Domestic | Salemi |
| BD164 | CS.US18.01 | Domestic | Salemi |
| BD165 | CS.US9.01 | Domestic | Salemi |
| BD166 | CAS18.US46.05 | Domestic | Salemi |
| BD168 | CAS11.US25.04 | Domestic | Salemi |
| BD169 | CAS19.US40.05 | Domestic | Salemi |
| BD170 | CAS11.US25.04 | Domestic | Salemi |
| BD171 | CAS21.US71.06 | Domestic | Salemi |
| BD172 | CAS11.US25.04 | Domestic | Salemi |
| BD276 | CAS22.US99.06 | Domestic | Salemi |
| BD281 | CAS37.US151.12 | Domestic | Salemi |
| BD282 | CAS37.US151.12 | Domestic | Salemi |
| BD283 | CAS24.US118.06 | Domestic | Salemi |
| BD284 | CAS10.US9.04 | Domestic | Salemi |
| BD285 | CAS11.US25.04 | Domestic | Salemi |
| BD286 | CAS11.US20.04 | Domestic | Salemi |
| BD287 | CAS20.US36.05 | Domestic | Salemi |
| BD289 | CAS18EXT.US70.05 | Domestic | Salemi |

| Sample | Archaeological Provenance | Context Type | Site Location |
|---|---|---|---|
| BD290 | CAS18EXT.US51.05 | Domestic | Salemi |
| BD005 | LCZ32.US38.10 | Fill | Salemi |
| BD091 | CS2.US0.03 | Fill | Salemi |
| BD167 | CAS10.US10.04 | Fill | Salemi |
| BD279 | LCZ32.US72.11 | Fill | Salemi |
| BD280 | LCZ32.US72.11 | Fill | Salemi |
| BD288 | LCZ32.US71.11 | Fill | Salemi |

# APPENDIX B: DATA CODING PARAMETERS

**Diagnostic Component**

| | |
|---|---|
| 1 | Rim |
| 2 | Body |
| 3 | Base |
| 4 | Handle |
| 5 | Rim with Handle |
| 6 | Rim to Base |
| 7 | Indeterminate |
| 0 | Not Applicable |

**Rim Form Classification**

| | |
|---|---|
| 1 | Flared |
| 2 | Everted |
| 3 | Simple |
| 4 | Inverted |
| 5 | Offset |
| 0 | Not Applicable |

**Rim Treatment Classification**

| | |
|---|---|
| 1 | Thickened Inner Rim |
| 2 | Thickened Outer Rim |
| 3 | Outer Ridge |
| 4 | Inner Ledge |
| 5 | None |
| 0 | Not Applicable |

**Lip Form Classification**

| | |
|---|---|
| 1 | Rounded |
| 2 | Flat |
| 3 | Tapered |
| 0 | Not Applicable |

**Ware-Type Classification**

| | |
|---|---|
| 1 | Fine |
| 2 | Medium |
| 3 | Coarse |
| 0 | Not Applicable |

**Macroscopic Paste Sorting Classification**

| | |
|---|---|
| 1 | Very Poor |
| 2 | Poor |
| 3 | Well |
| 4 | Very Well |
| 0 | Not Applicable |

**Vessel Construction Classification**

| | |
|---|---|
| 1 | Hand – Pinched |
| 2 | Hand – Slabbed |
| 3 | Hand – Coiled |
| 4 | Hand – Molded |
| 5 | Hand – Unknown |
| 6 | Wheel Thrown |
| 99 | Indeterminate |
| 0 | Not Applicable |

**Inclusive Material Classification**

| | |
|---|---|
| 1 | Mineral |
| 2 | Vegetal |
| 3 | Shell |
| 4 | Grog |
| 5 | Multiple |
| 6 | Unidentified |
| 0 | Not Applicable |

**Clay Fabric Colors**

| | |
|---|---|
| 1 | Recorded from Munsell Soil Chart |

**Ware-Class Classification**

| | |
|---|---|
| 1 | General |
| 2 | Sandwichware |
| 3 | Grayware |
| 4 | Elymian |
| 5 | Attic |
| 6 | Colonial |
| 7 | Corinthian |
| 8 | Punic |
| 99 | Indeterminate |
| 0 | Not Applicable |

**Vessel Form Classification, General**

| | |
|---|---|
| 1 | Open Form |
| 2 | Closed Form |
| 0 | Not Applicable |

**Vessel Form Classification, Specific**

| | |
|---|---|
| 1 | Attingitoio |
| 2 | Capeduncola |
| 3 | Coppa |
| 4 | Skyphos |
| 5 | Kantharos |
| 6 | Kylix |
| 7 | Lip-Cup |
| 8 | Kyathos |
| 9 | Squat Cup |
| 10 | Calotte Cup |
| 11 | Carenated Calotte Cup |
| 12 | Broad Cup |
| 13 | Scodella |
| 14 | Lekanis |
| 15 | General-Krater |
| 16 | Column-Krater |
| 17 | Volute-Krater |
| 18 | Calyx-Krater |
| 19 | Bell-Krater |
| 20 | Dinos |
| 21 | Fish Plate |
| 22 | Phoenician Plate |
| 23 | Amphora, Table |
| 24 | Amphora, Transport |
| 25 | Hydria |
| 26 | Psykter |
| 27 | Olla |
| 28 | Oinochoae |
| 29 | Olpe |
| 30 | Mushroom Jug |
| 31 | Dipper |
| 32 | Unguentario |
| 33 | Mixed-Form |

**Continued on next page**

**Vessel Form Classification, Specific (Continued)**

| | |
|---|---|
| 34 | Pyxis |
| 35 | Incense Burner |
| 99 | Unidentified |
| 0 | Not Applicable (ie. clay) |

**Exterior Surface Treatment**

| | |
|---|---|
| 1 | Slipped |
| 2 | Burnished |
| 3 | Slipped and Burnished |
| 0 | None |

**Slip Color Classification**

| | |
|---|---|
| 1 | Black |
| 2 | Brown |
| 3 | Reddish Brown |
| 4 | Red |
| 5 | Orange |
| 6 | Gray |
| 7 | Cream |
| 8 | White |
| 9 | Tan |
| 0 | Not Applicable |

**Interior Surface Treatment**

| | |
|---|---|
| 1 | Slipped |
| 2 | Burnished |
| 3 | Slipped and Burnished |
| 0 | None |

**Slip Color Classification**

| | |
|---|---|
| 1 | Black |
| 2 | Brown |
| 3 | Reddish Brown |
| 4 | Red |
| 5 | Orange |
| 6 | Gray |
| 7 | Cream |
| 8 | White |
| 9 | Tan |
| 0 | Not Applicable |

**Exterior Decorative Motif Type**

| | |
|---|---|
| 1 | Incised/Impressed |
| 2 | Painted, Monochrome |
| 3 | Painted, Polychrome |
| 4 | None |
| 0 | Not Applicable |

**Incised/Impressed Decorative Motif Classification**

| | |
|---|---|
| 1 | Horizontal Lines |
| 2 | Vertical Lines |
| 3 | Diagonal Lines |
| 4 | Meander |
| 5 | Ring |
| 6 | Circular Punctate |
| 7 | Square Punctate |
| 8 | Denti di Lupo Type 1 |
| 9 | Denti di Lupo Type 2 |
| 10 | Denti di Lupo Type 3 |
| 11 | Other |
| 0 | Not Applicable |

**Exterior Painted Decorative Motif Classification**

| | |
|---|---|
| 1 | Band |
| 2 | Bar |
| 3 | Meander |
| 4 | Field |
| 5 | Figure |
| 6 | Band with Bars |
| 7 | Band with Meander |
| 8 | Band with Field |
| 9 | Bars with Field |
| 10 | Bands, Bars, and Field |
| 11 | Other |
| 0 | Not Applicable |

**Exterior Paint Color**

| | |
|---|---|
| 1 | Black |
| 2 | Brown |
| 3 | Reddish Brown |
| 4 | Red |
| 5 | Orange |
| 6 | Gray |
| 7 | Cream |
| 8 | White |
| 9 | Tan |
| 10 | Black and Brown |
| 11 | Black and Red |
| 12 | White and Brown |
| 13 | Brown and Tan |
| 14 | Black and White |
| 15 | Multiple Other |
| 0 | Not Applicable |

**Interior Decorative Motif Type**

| | |
|---|---|
| 1 | Incised/Impressed |
| 2 | Painted, Monochrome |
| 3 | Painted, Polychrome |
| 4 | None |
| 0 | Not Applicable |

**Interior Painted Decorative Motif Classification**

| | |
|---|---|
| 1 | Band |
| 2 | Bar |
| 3 | Meander |
| 4 | Field |
| 5 | Figure |
| 6 | Band with Field |
| 7 | Bands with Bars |
| 8 | Bars with Field |
| 9 | Bands, Bars, and Field |
| 10 | Other |
| 0 | Not Applicable |

**Interior Paint Color**

| | |
|---|---|
| 1 | Black |
| 2 | Brown |
| 3 | Reddish Brown |
| 4 | Red |
| 5 | Orange |
| 6 | Gray |
| 7 | Cream |
| 8 | White |
| 9 | Tan |
| 10 | Black and Brown |
| 11 | Black and Red |
| 12 | White and Brown |
| 13 | Brown and Tan |
| 14 | Black and White |
| 15 | Multiple Other |
| 0 | Not Applicable |

# APPENDIX C: CERAMIC PETROGRAPHY DATA COLLECTION FORMS

## Ceramic Petrography Form 1

**Sample #** ________ **Slide Box #** ________ **Slot #** ________ **Date** ________

**Site** ________ **Diagnostic** ________ **Period** ________

**Qualitative observations:** **Lens Power** ________

Matrix description:

Paste birefringence:

Size & shape of inclusions:

Distinctive textures:

General comments:

Balco v.12.03

## Ceramic Petrography Form 2

**Sample # ____________** **Slide Box # ___________** **Slot # ___________** **Date ____________**

**Quantitative observations – Point counting** **Lens Power ____________**

| | |
|---|---|
| **Matrix** | |
| **Voids** | |

| Inclusions | | | | |
|---|---|---|---|---|
| (<63 µm) | (63-125 µm) | (125-250 µm) | (250-500 µm) | (>500 µm) |
| | | | | |

**General comments:**

## Ceramic Petrography Form 3

**Sample #** ____________ **Slide Box #** ___________ **Slot #** ___________ **Date** ____________

**Qualitative observations:** **Lens Power** ___________

| Mineral | (<125 µm) | (125-250 µm) | (>250 µm) | Comments |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
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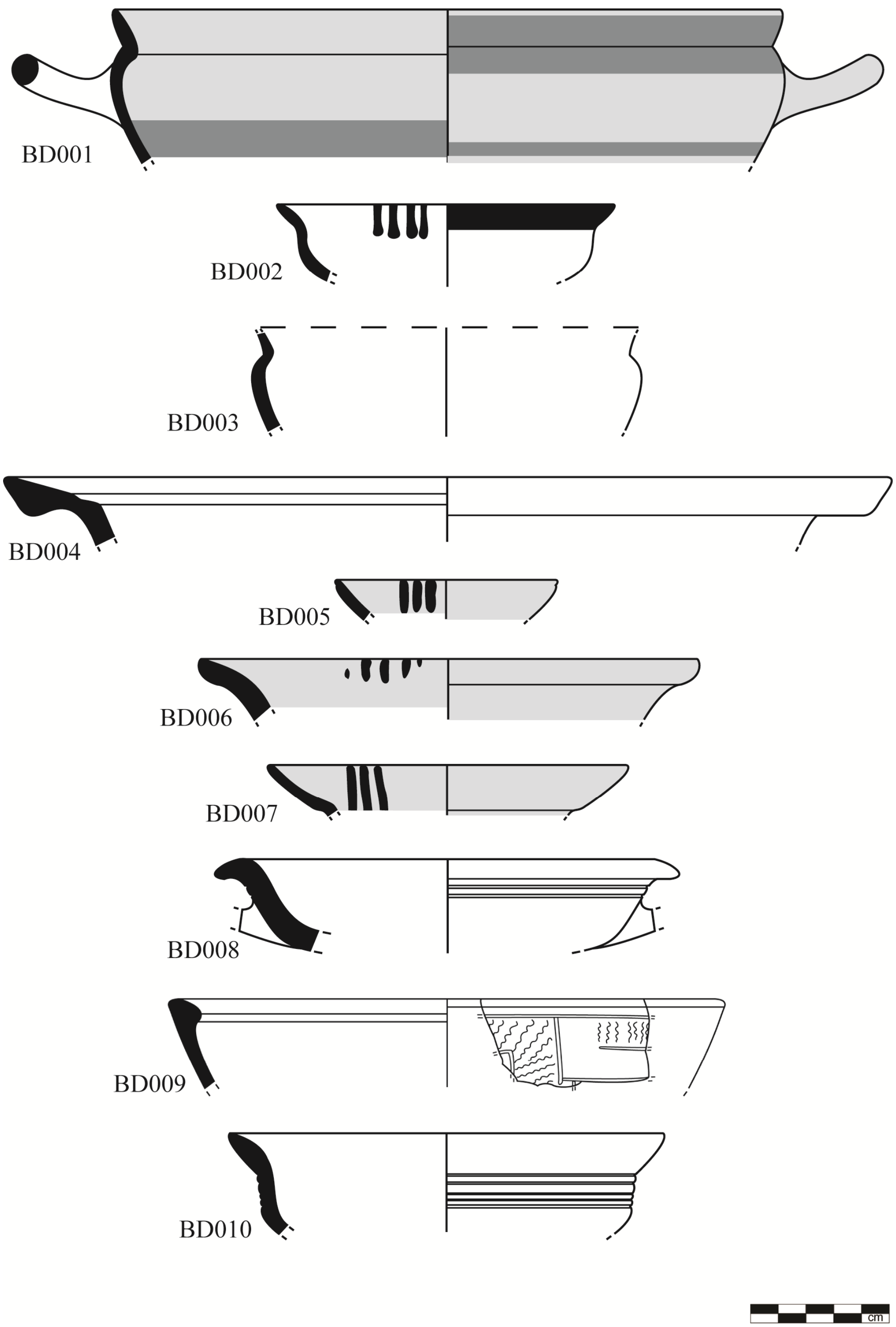
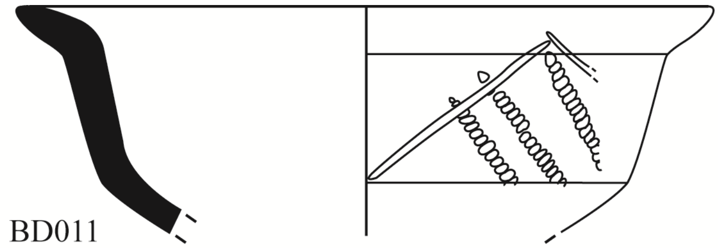
| | | | | |

# APPENDIX D: TECHNICAL ILLUSTRATIONS OF VESSELS INCLUDED IN THIS STUDY





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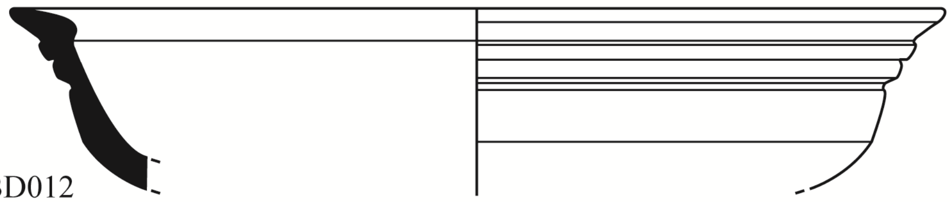

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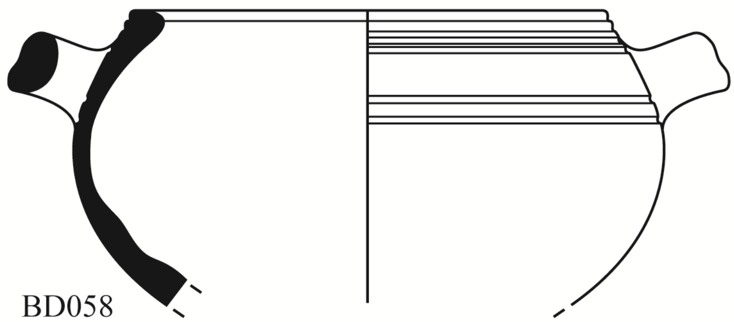

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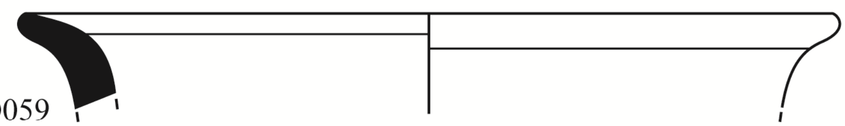

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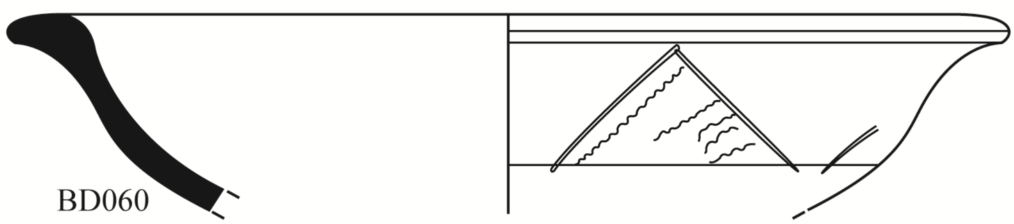

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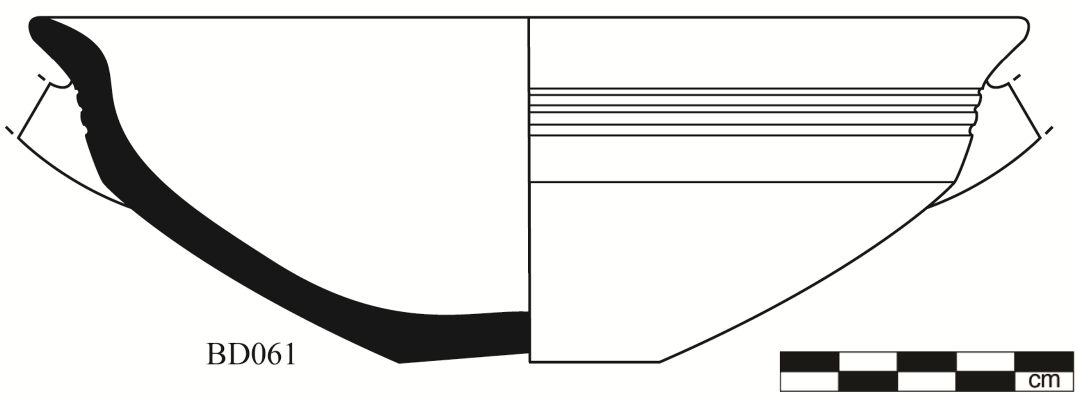


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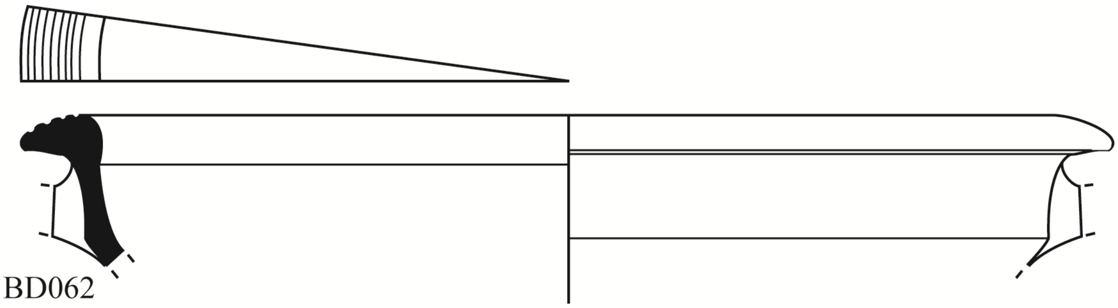

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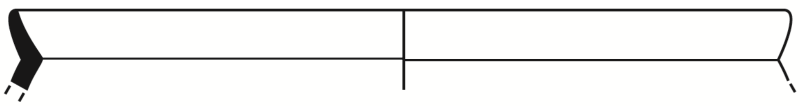

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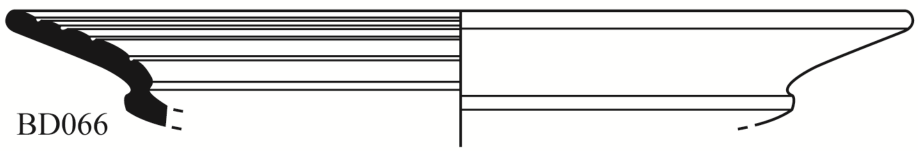

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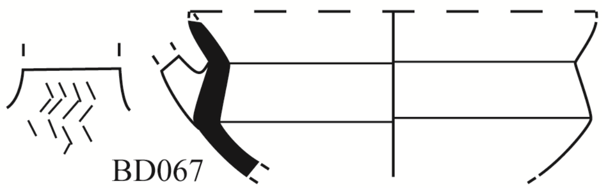

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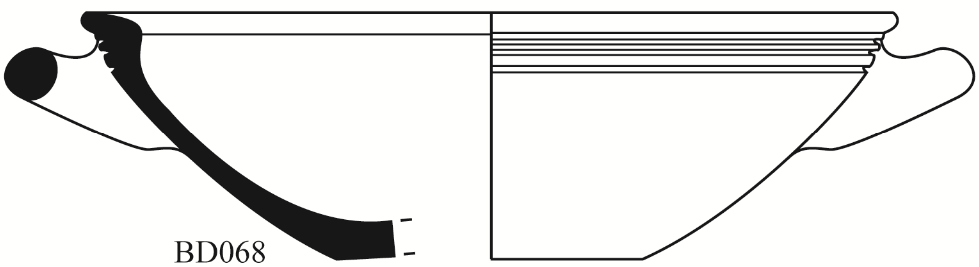

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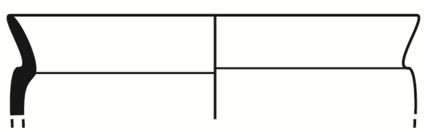

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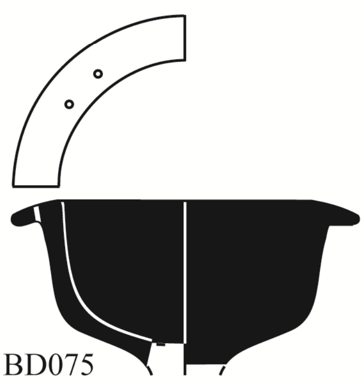

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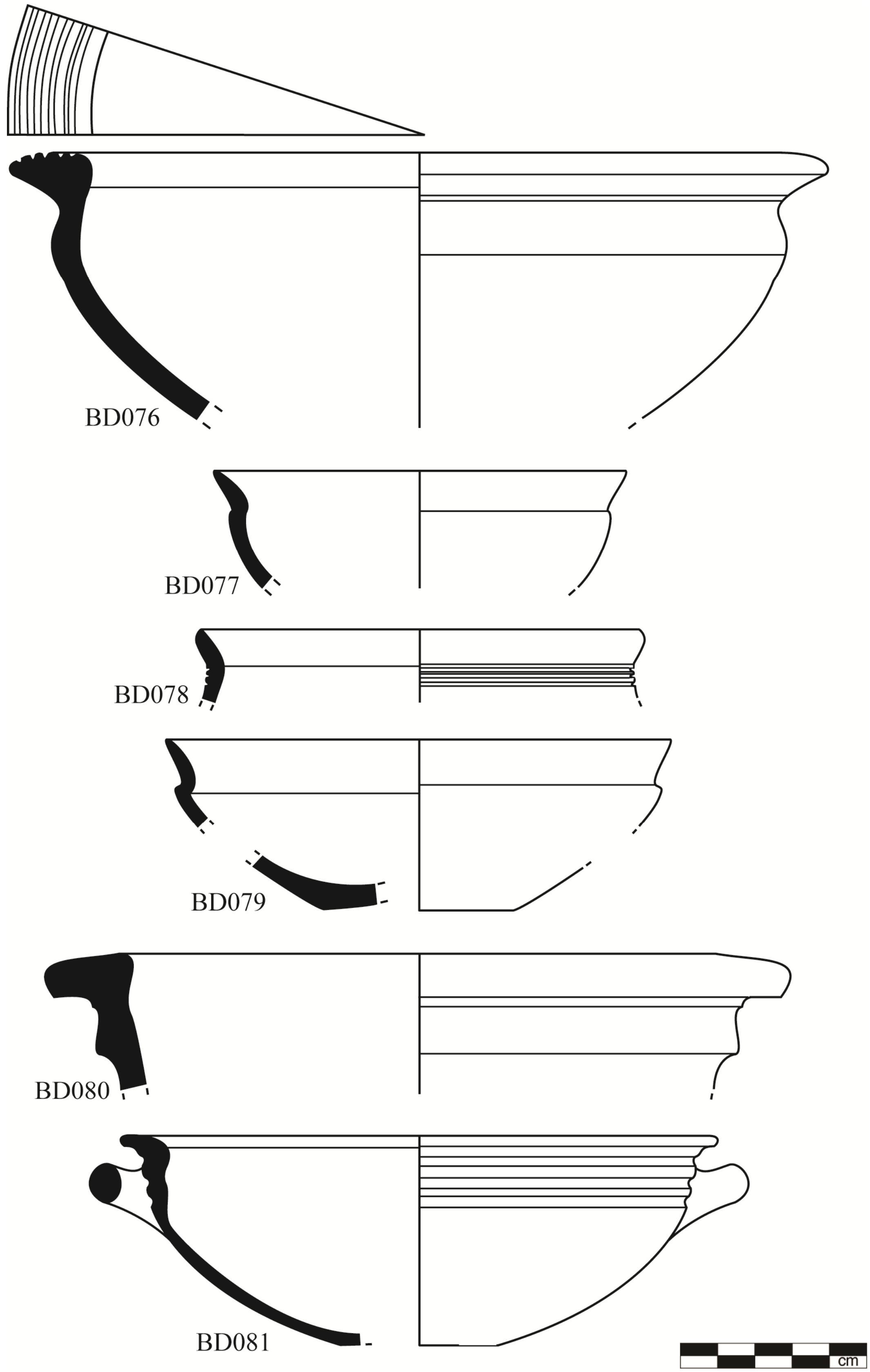
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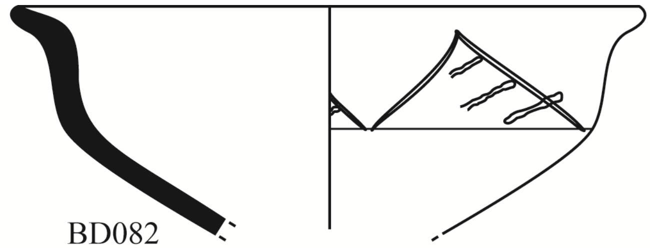

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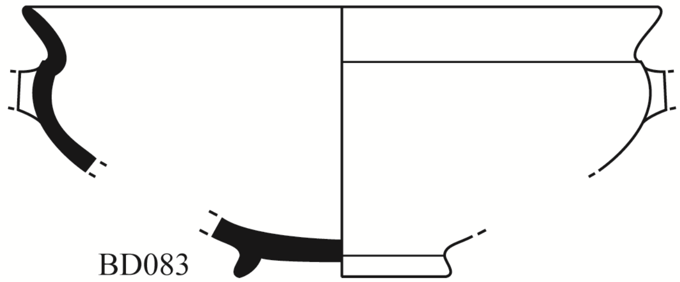

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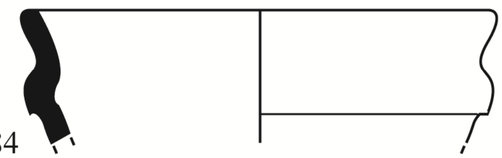

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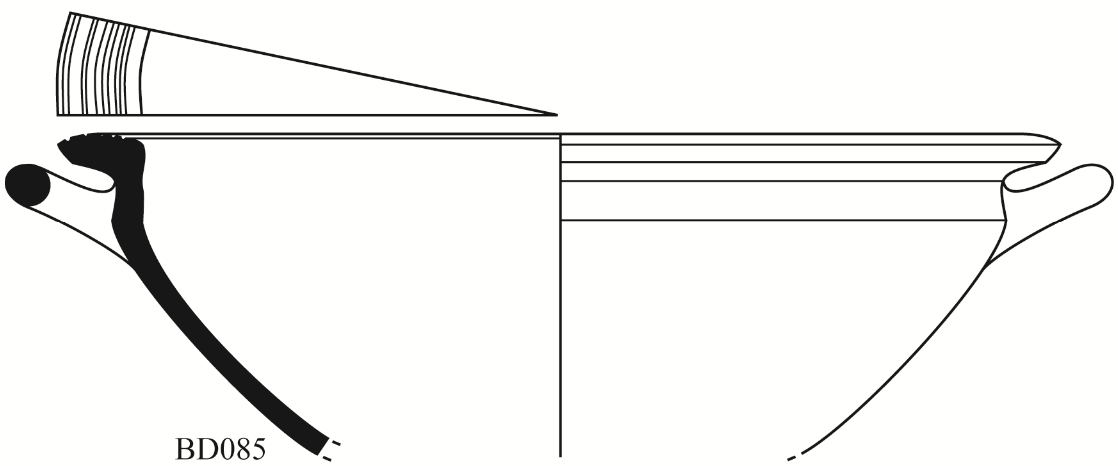

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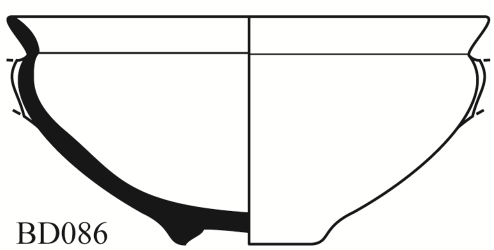

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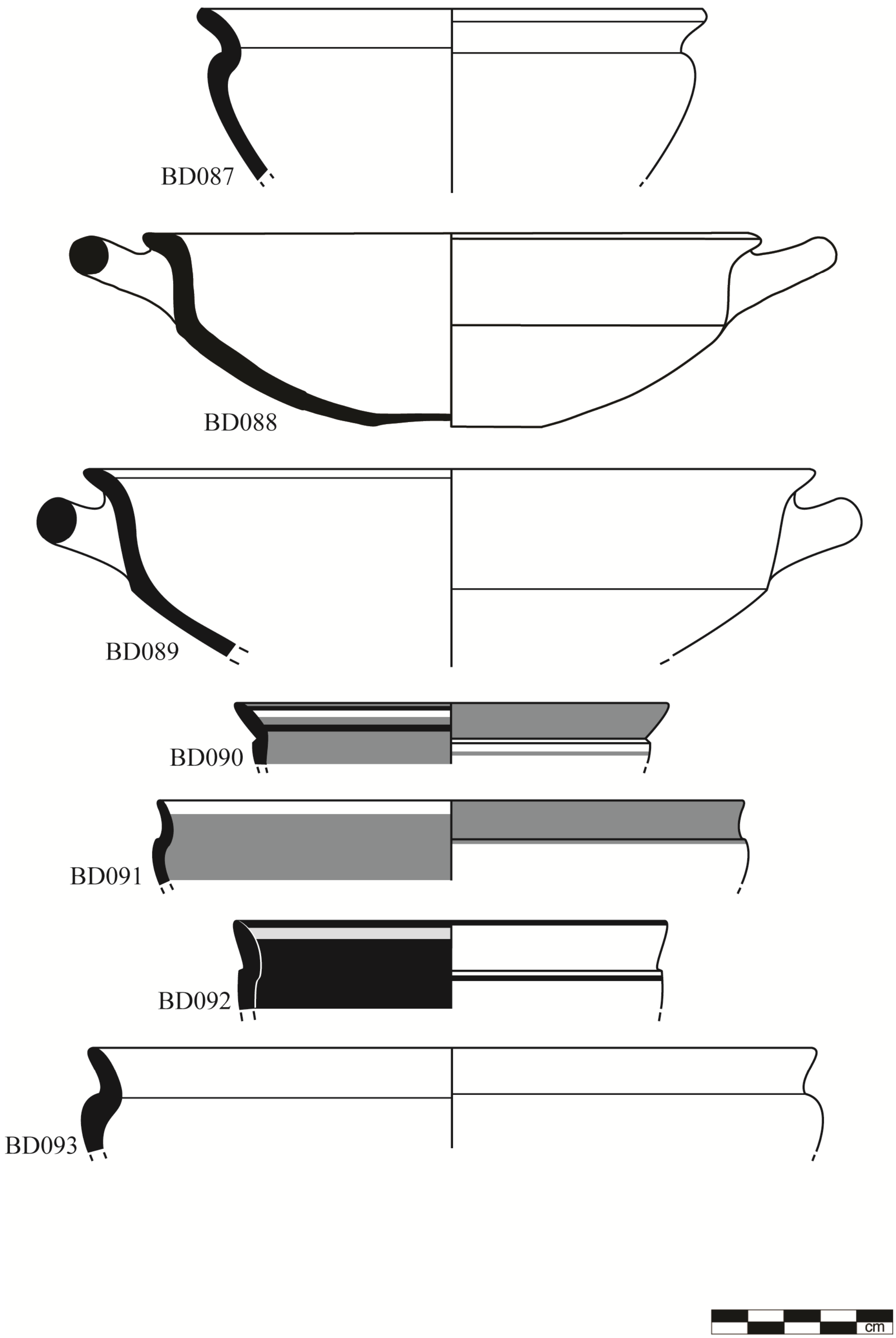
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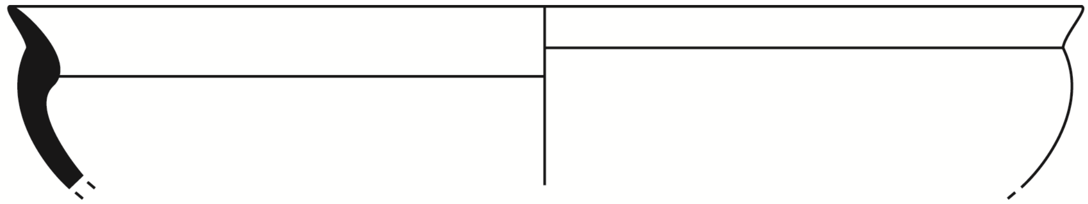

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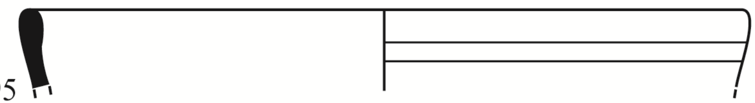

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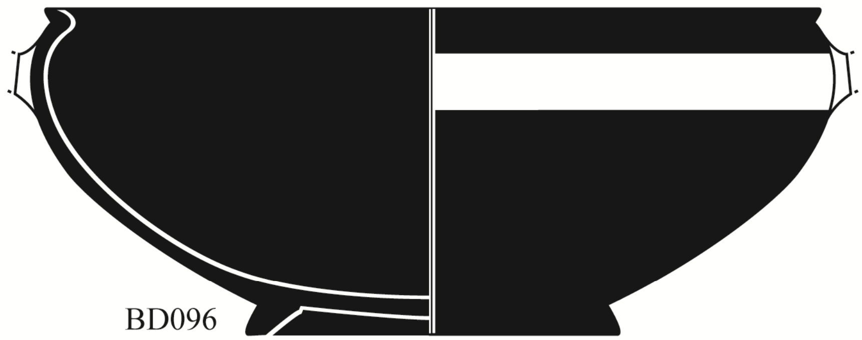

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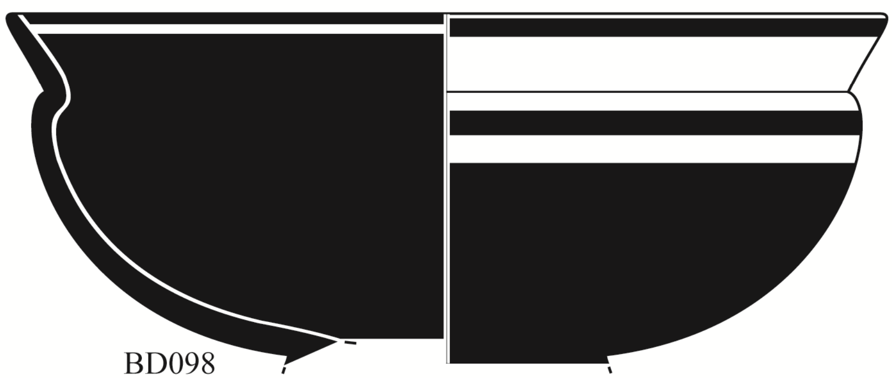

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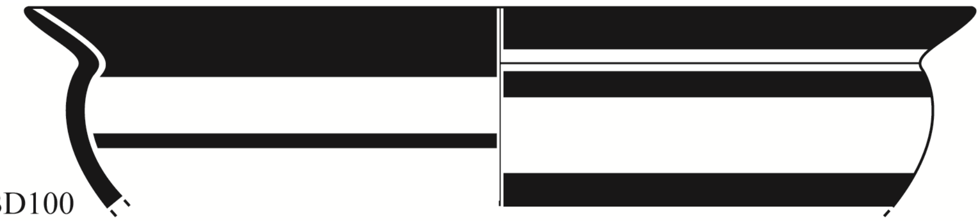

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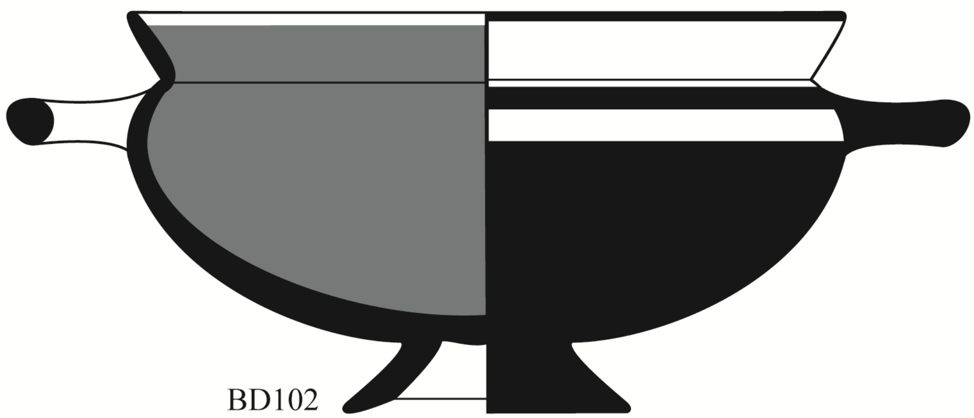

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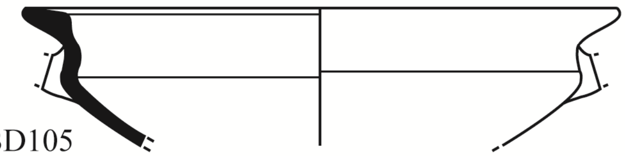

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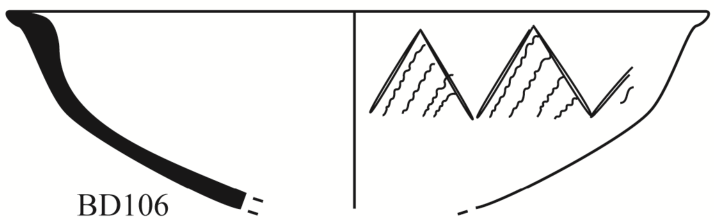

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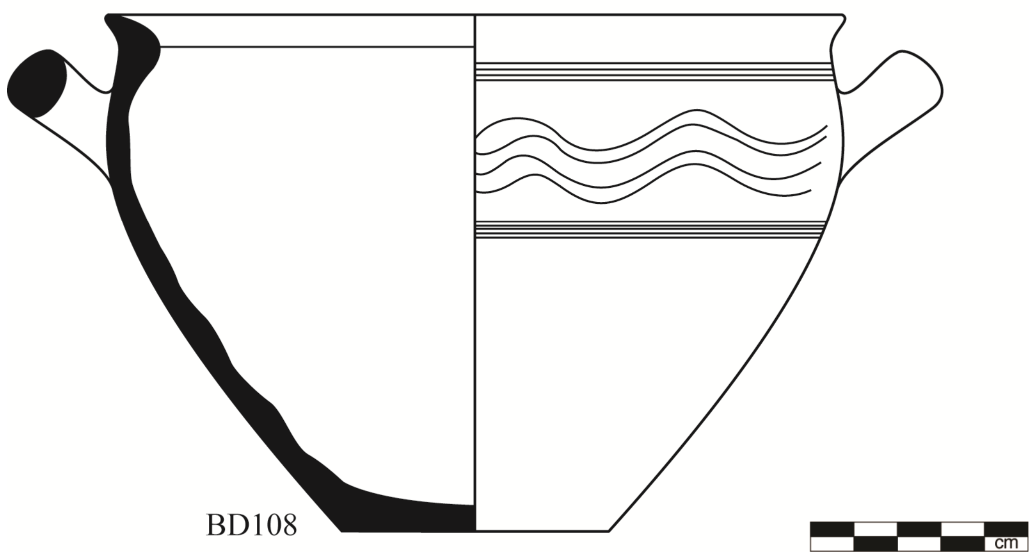


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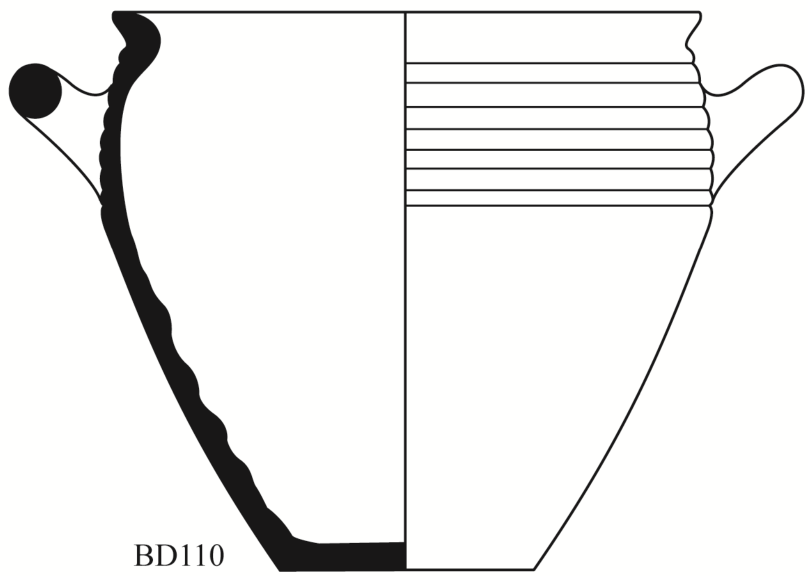

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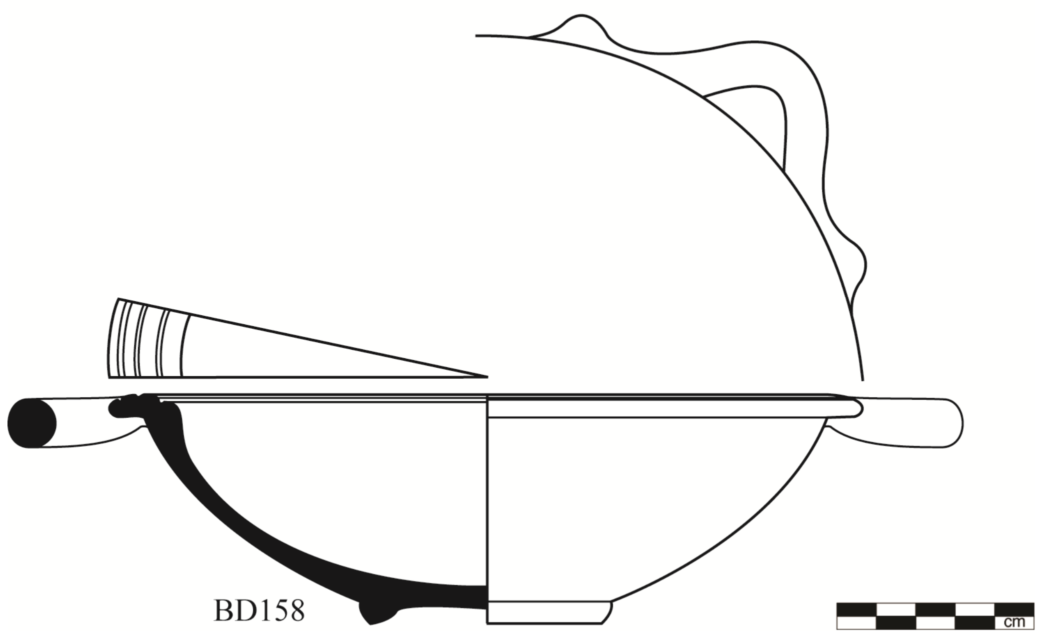


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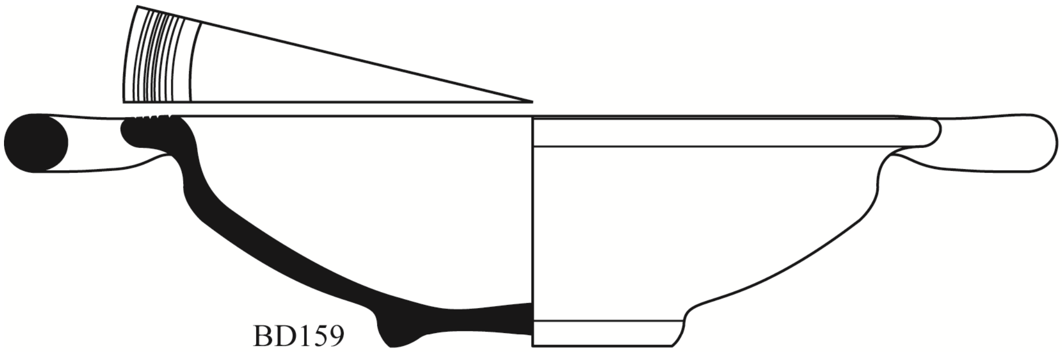

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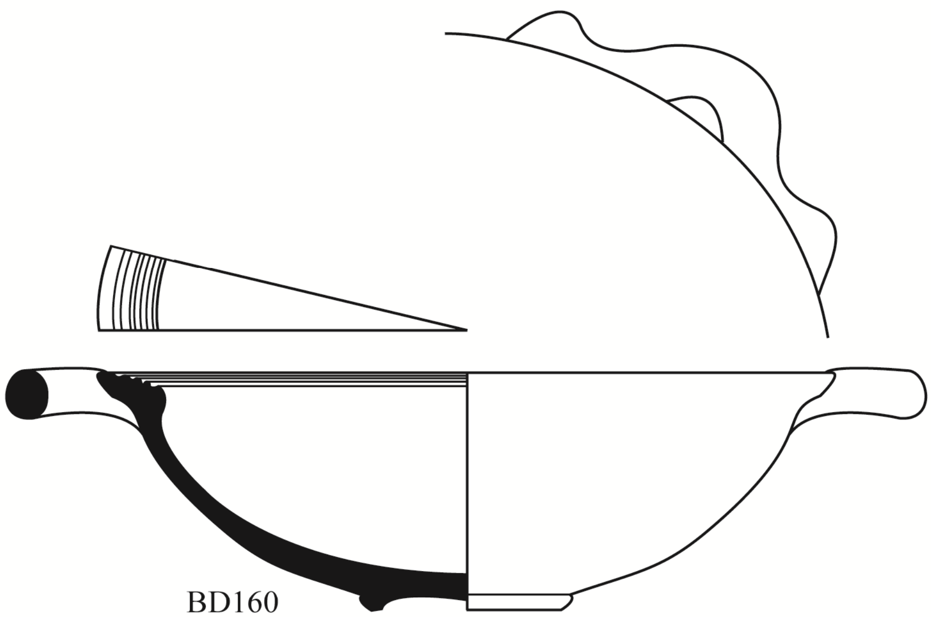

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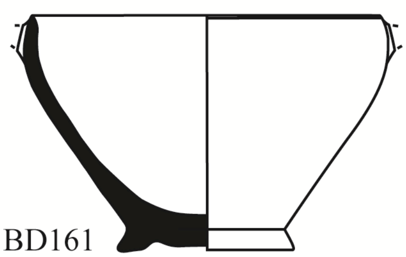

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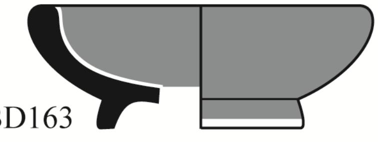

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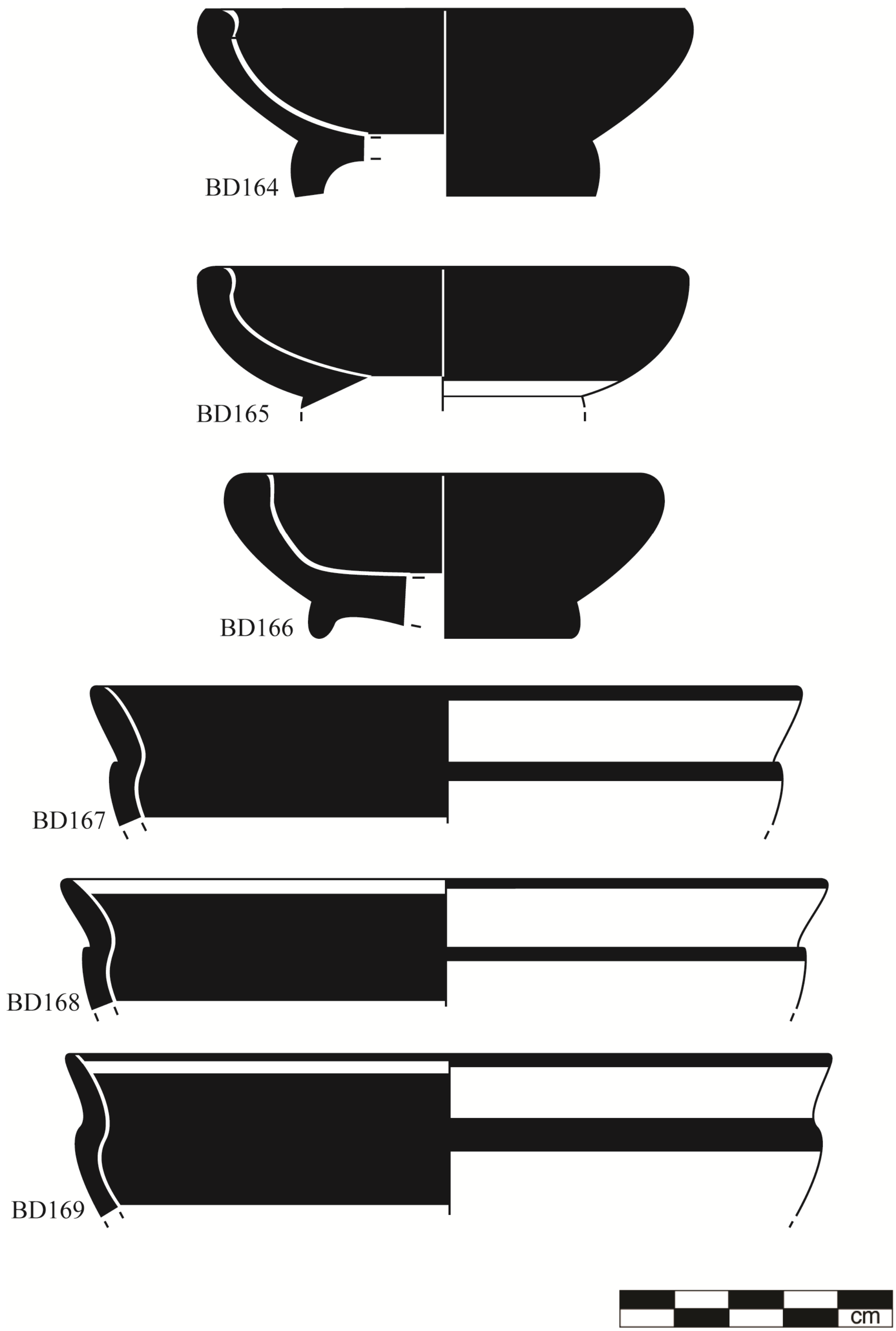
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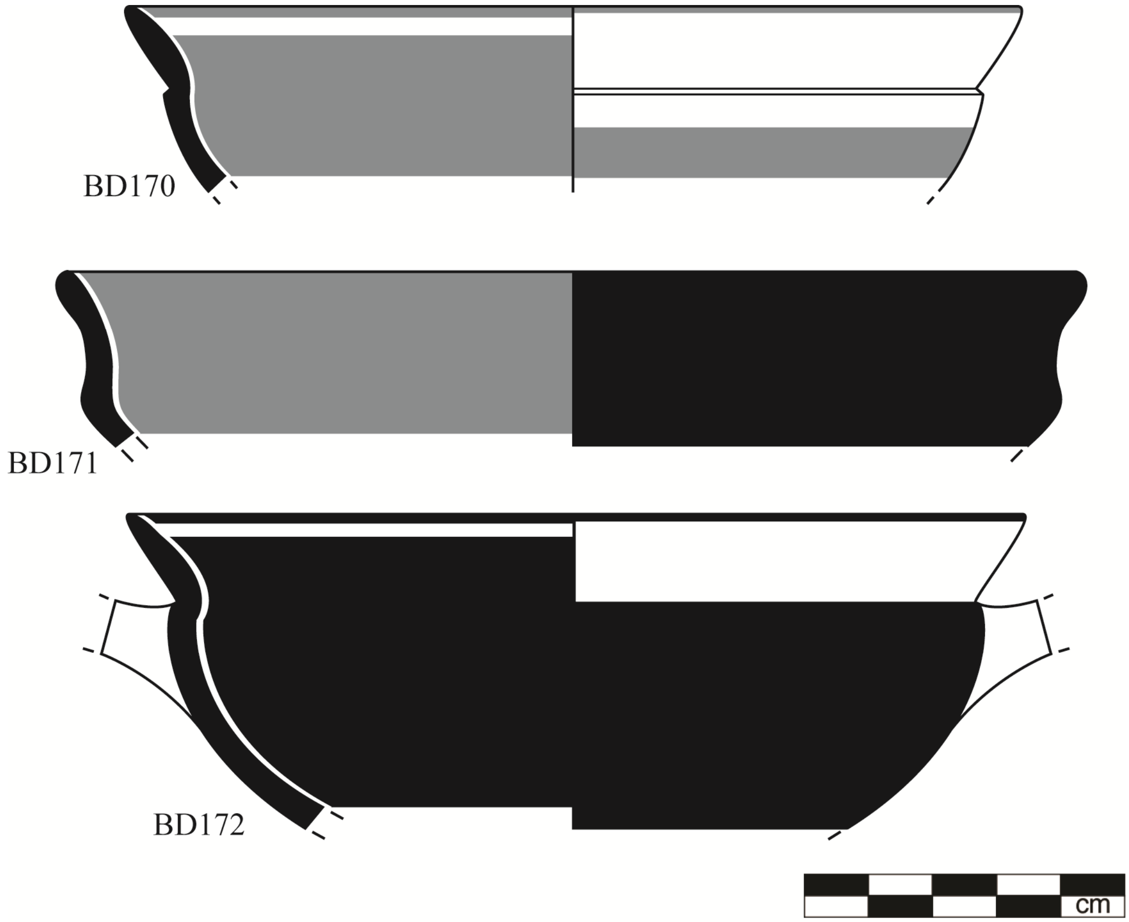
BD167
BD168
BD169
cm

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See Panvini 2008:174-175

BD189
See Panvini 2008:150

BD190
See Panvini 2008:168

BD191
See Panvini 2008:129

BD192
No Illustration

BD193
See Panvini 2008:128

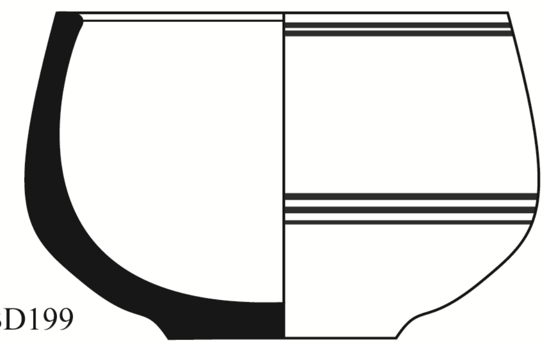
BD194
See Panvini 2008:192-193

BD195
See Sedita Migliore 1981:136, Fig. 109

BD196
See Panvini 2008:209

BD197
See Panvini 2008:180

BD198
No Illustration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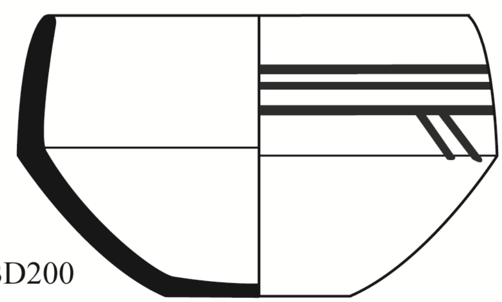
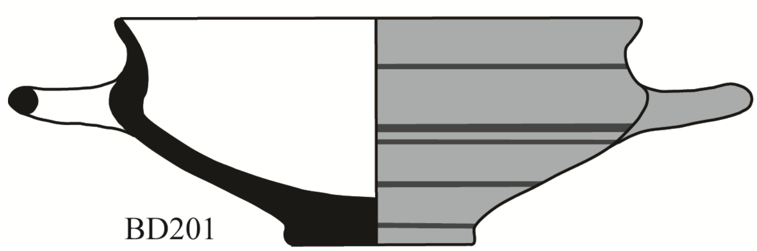
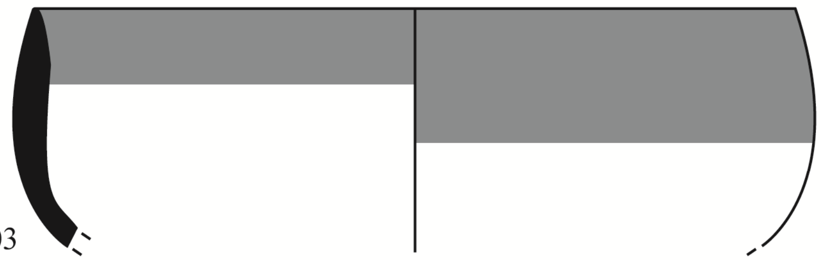
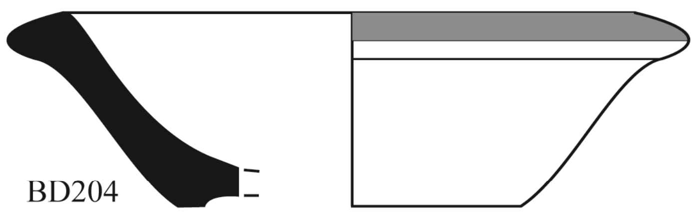

BD200


BD201

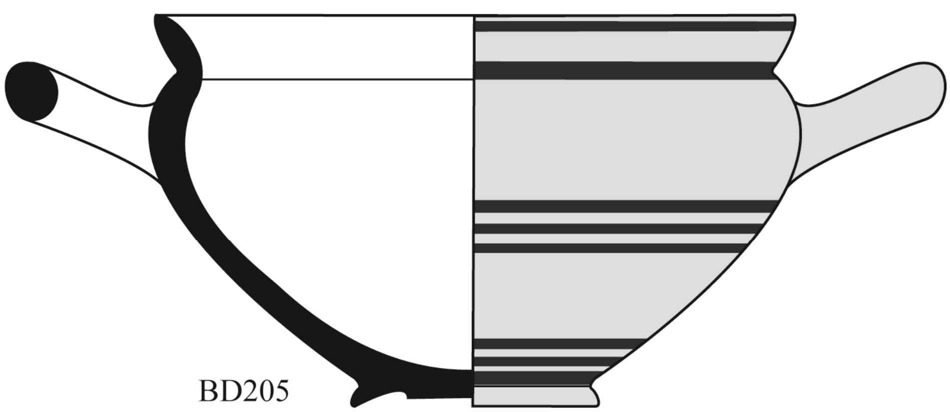
BD202



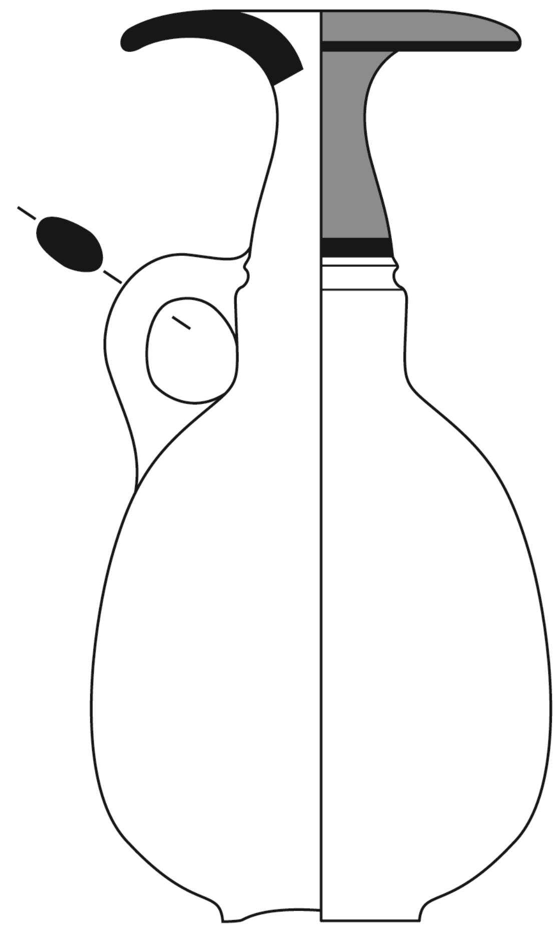
BD203



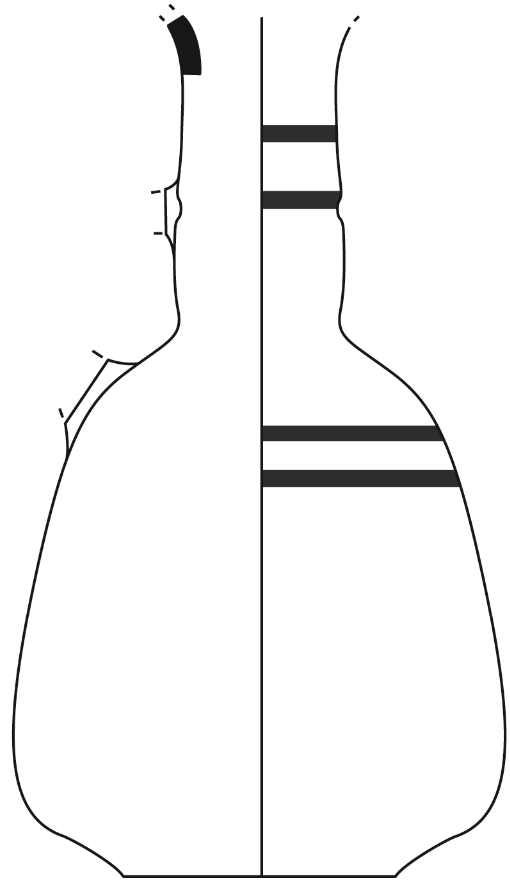
BD204



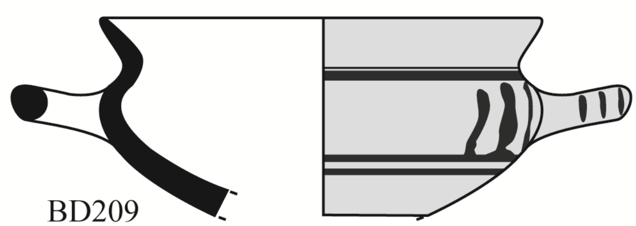
BD205



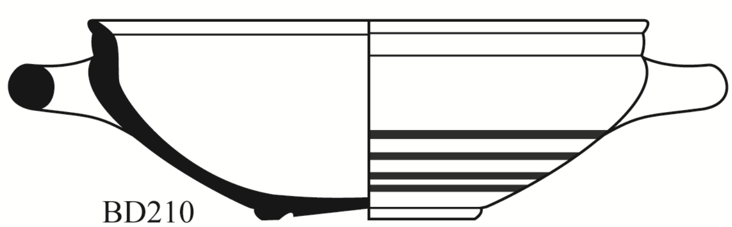
BD207



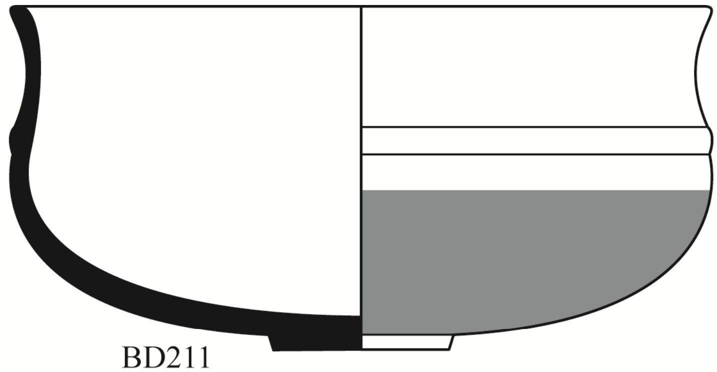
BD208



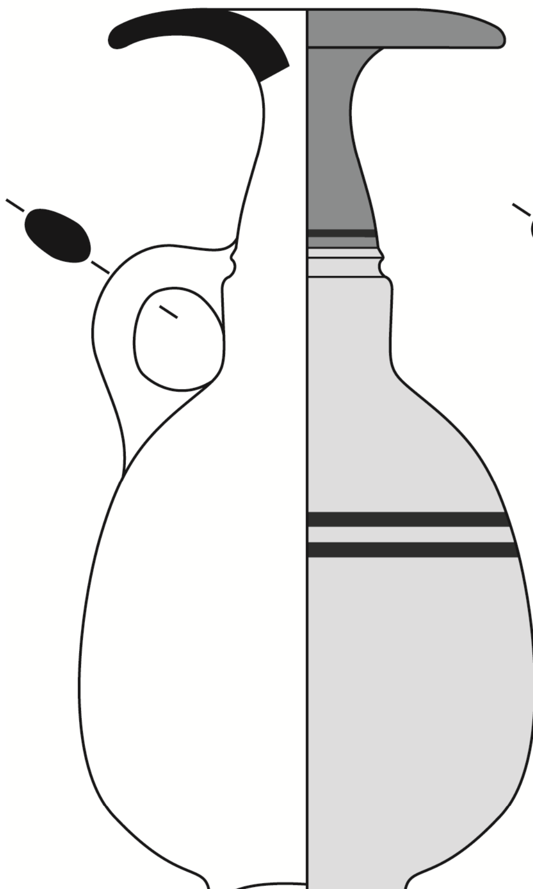
BD209



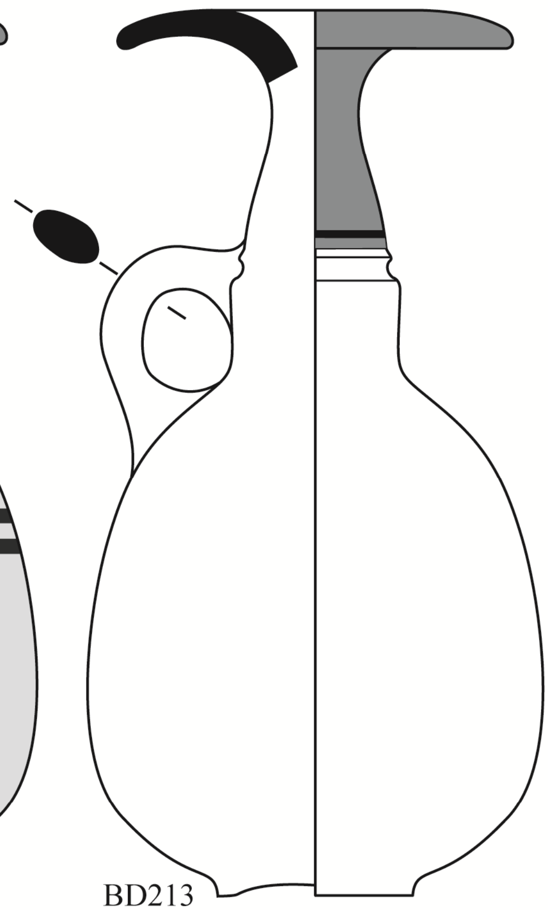
BD210



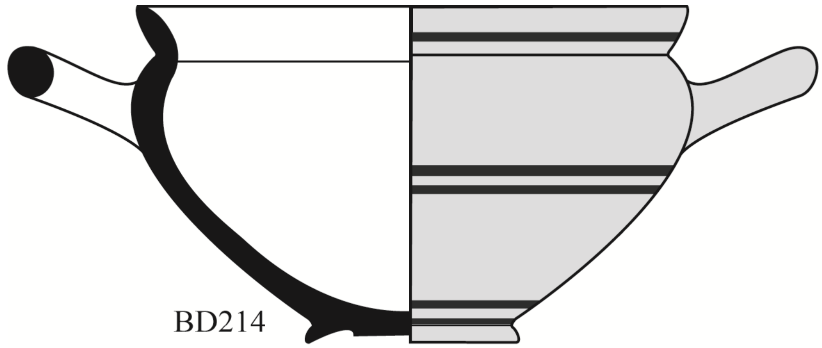
BD211

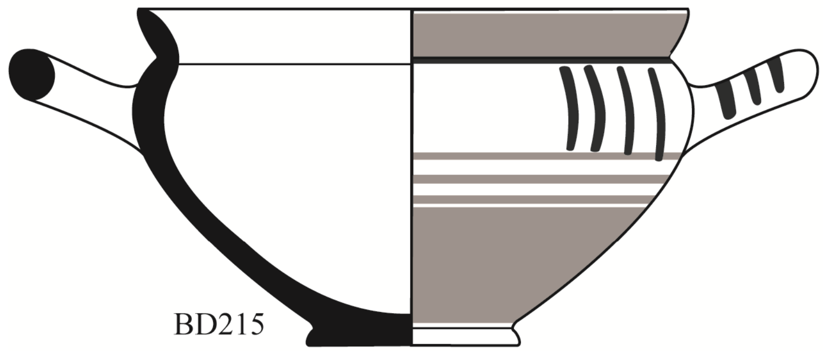


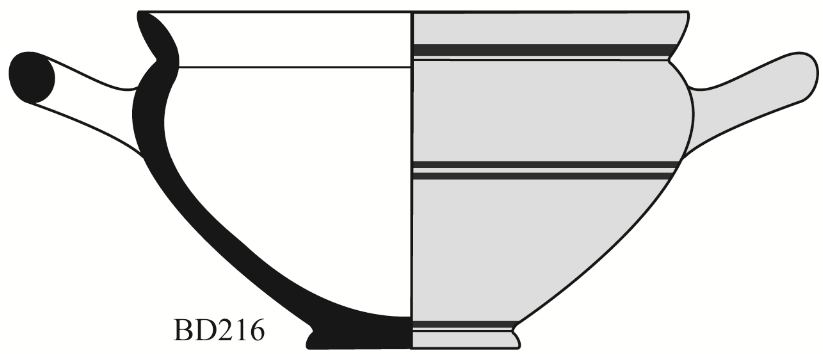
BD212

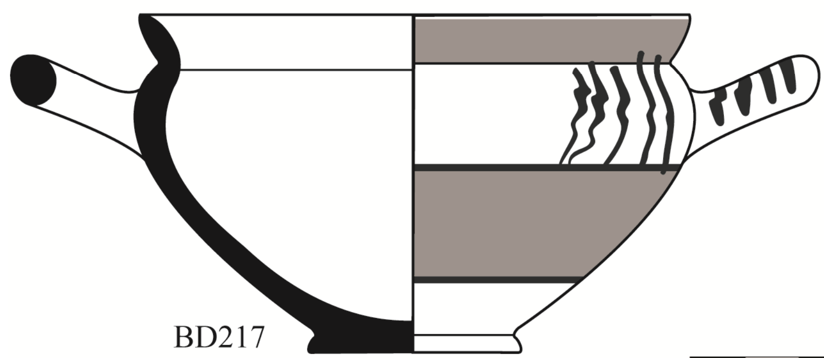


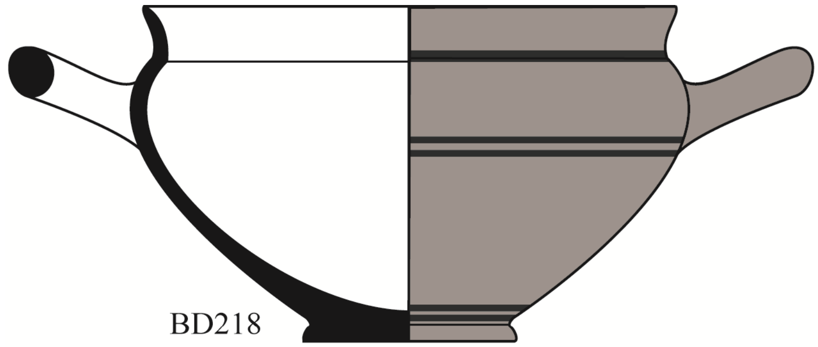
BD213


BD214

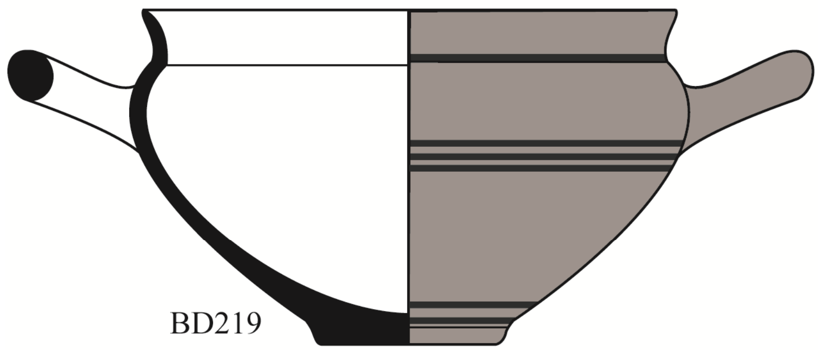

BD215


BD216

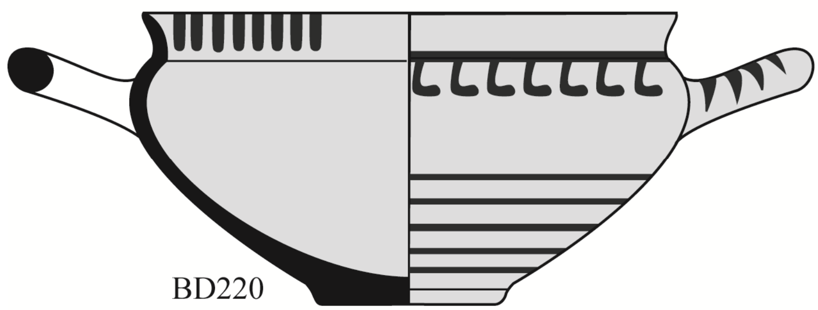

BD217



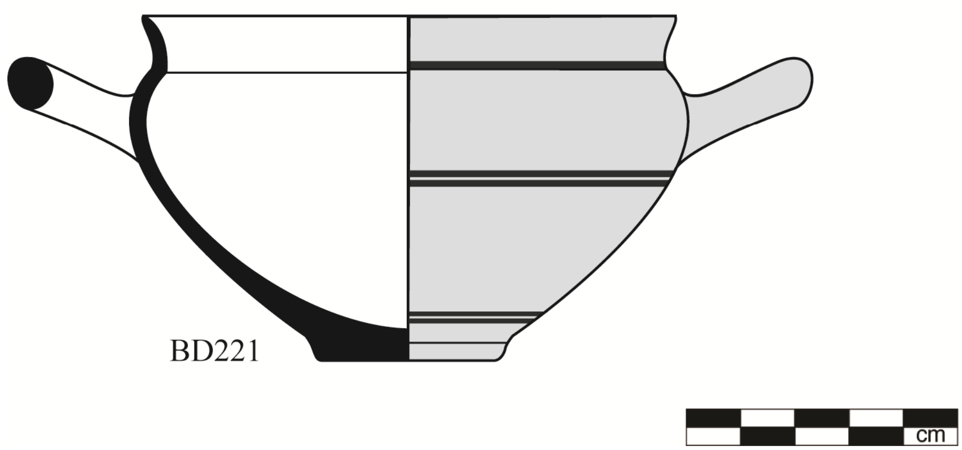
BD218



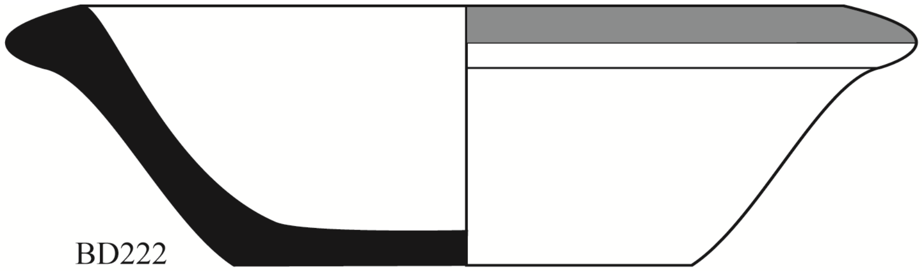
BD219



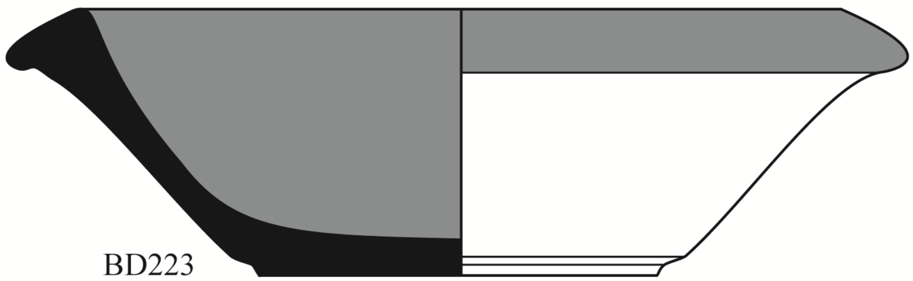
BD220



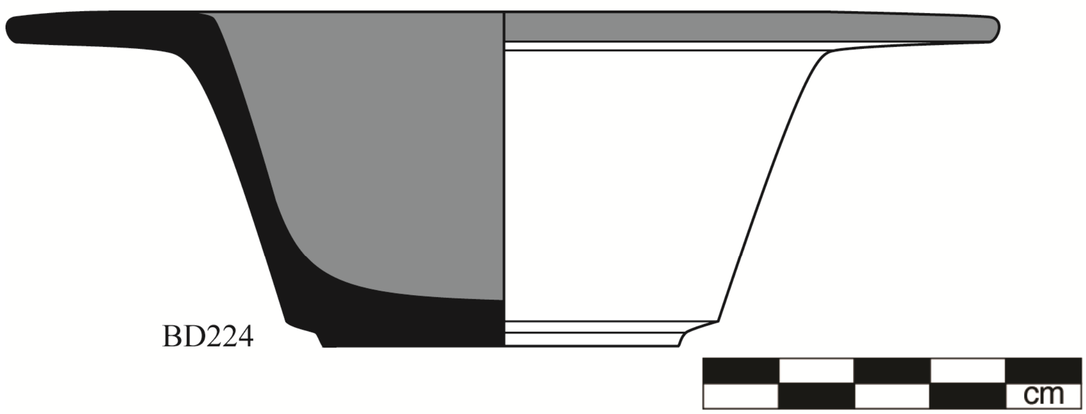

BD221



BD222



BD223




BD224

BD225
See Gargini 1995:116 (Fig. 2, N. 15)

BD226
No Illustration

BD227
See Gargini 1995:131 (Fig. 16, N. 32)

BD228
See Gargini 1995:131 (Fig. 16, N. 31)

BD229
See Gargini 1995:159 (Fig. 30, N. 156)

BD230
See Gargini 1995:134 (Fig. 18, N. 48)

BD231
See Gargini 1995:134 (Fig. 18, N. 49)

BD232
See Gargini 1995:140 (Fig. 21, N. 67)

BD233
See Gargini 1995:140 (Fig. 21, N. 71)

BD234
No Illustration

BD235
See Guglielmino 2000: Plate 125, N. 5

BD236
No Illustration

BD237
See Guglielmino 2000: Plate 128, N. 1-2

BD238
See Guglielmino 2000: Plate 126, N. 4

BD239
No Illustration

BD240
No Illustration

BD241
No Illustration

BD242
No Illustration

BD243
No Illustration

BD244
No Illustration

BD245
No Illustration

BD246
No Illustration

BD 247
No Illustration

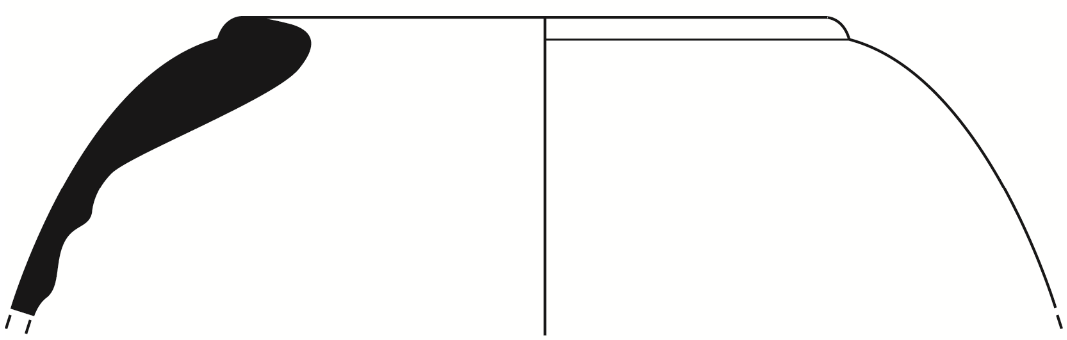
BD248
No Illustration

BD249
No Illustration

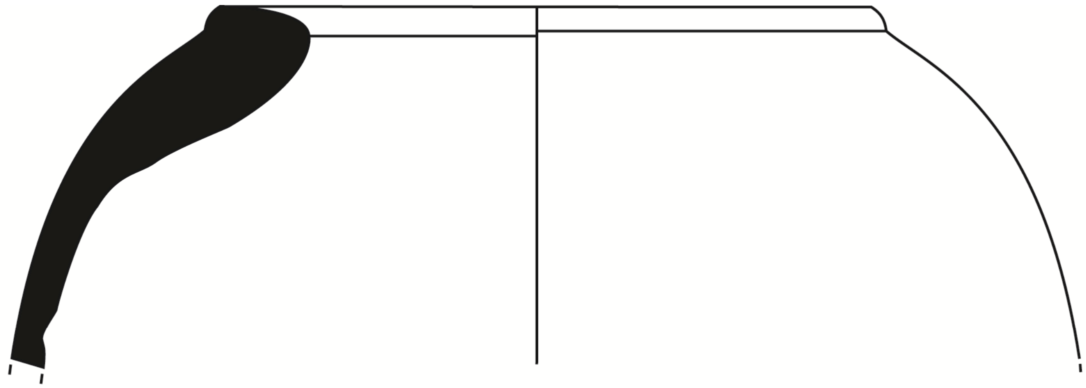
BD250
No Illustration

BD251
No Illustration

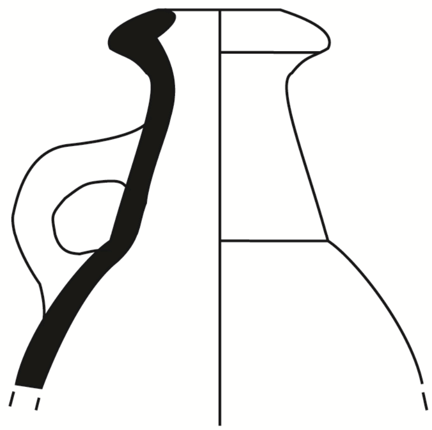
BD252
No Illustration



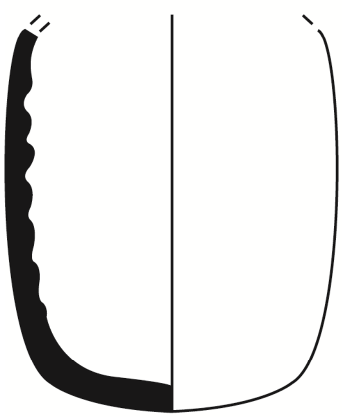
BD253



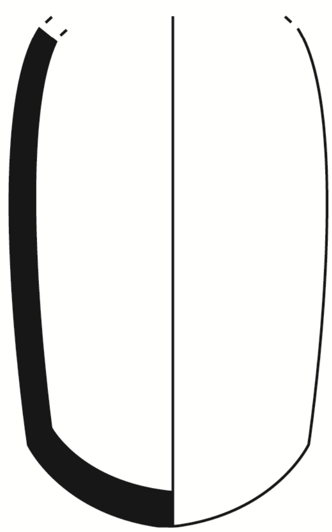
BD254



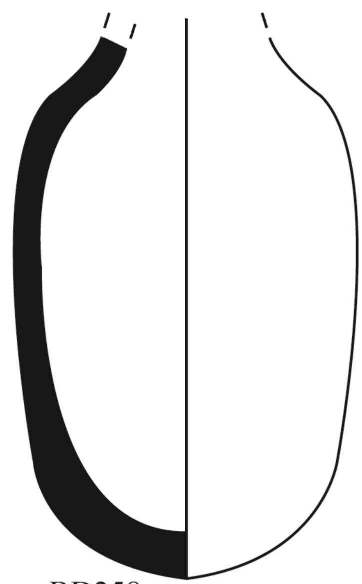
BD255



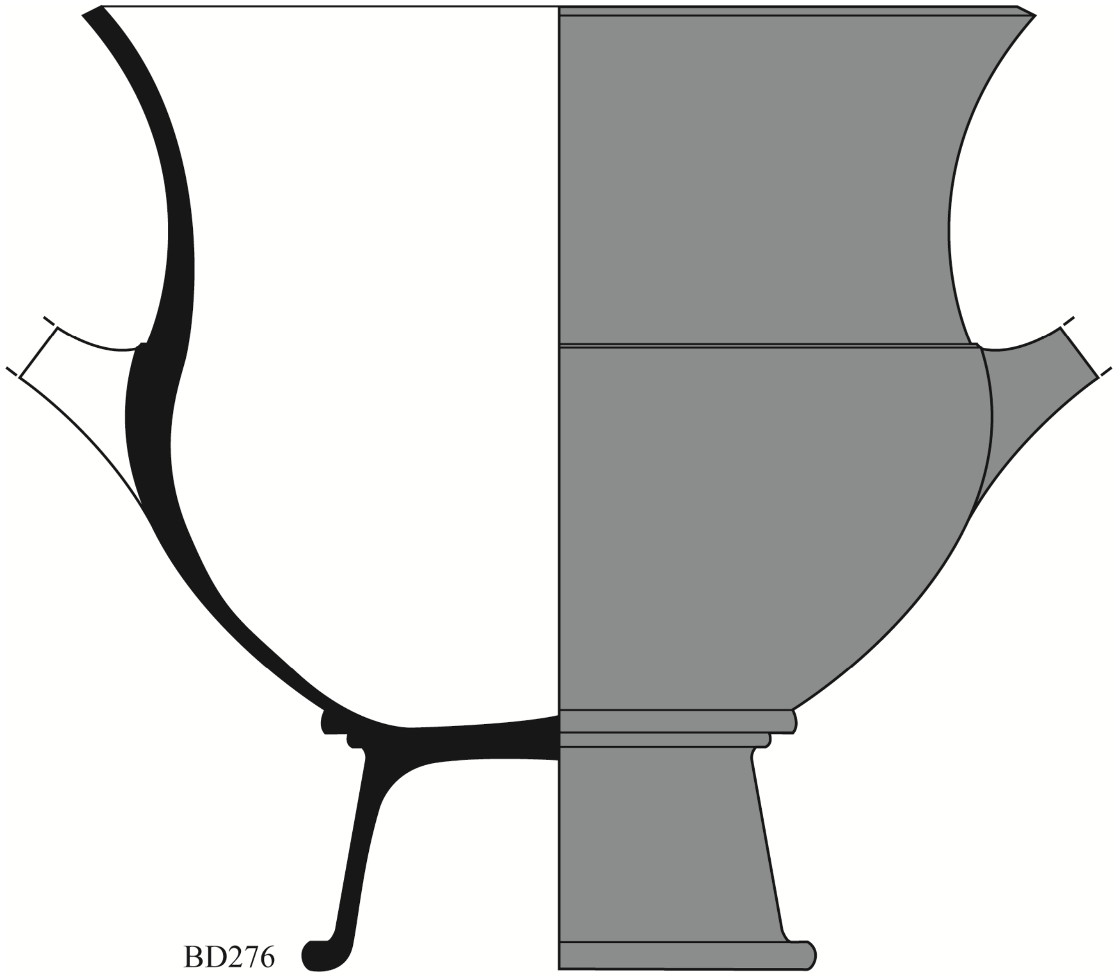
BD256



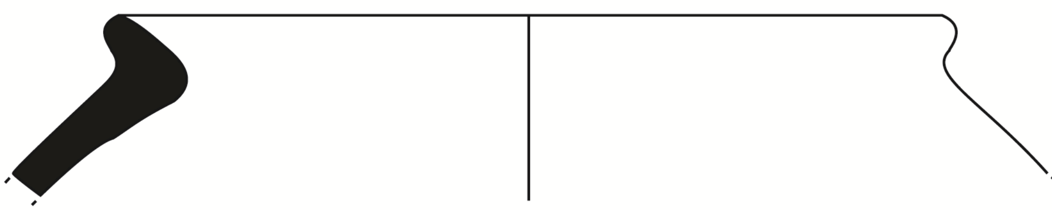
BD257



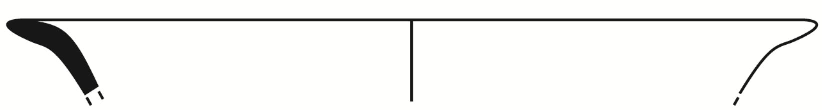
BD258



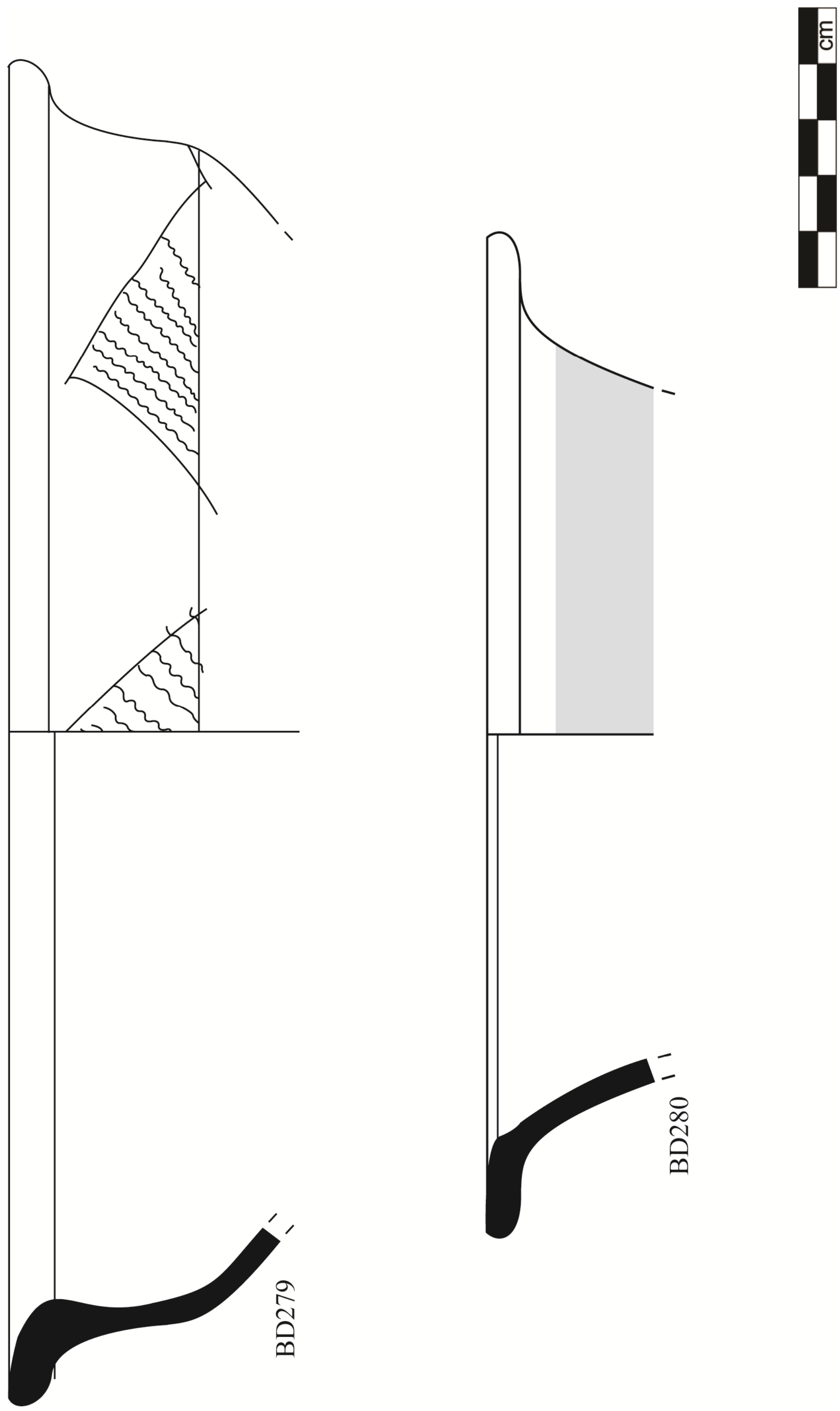
BD276

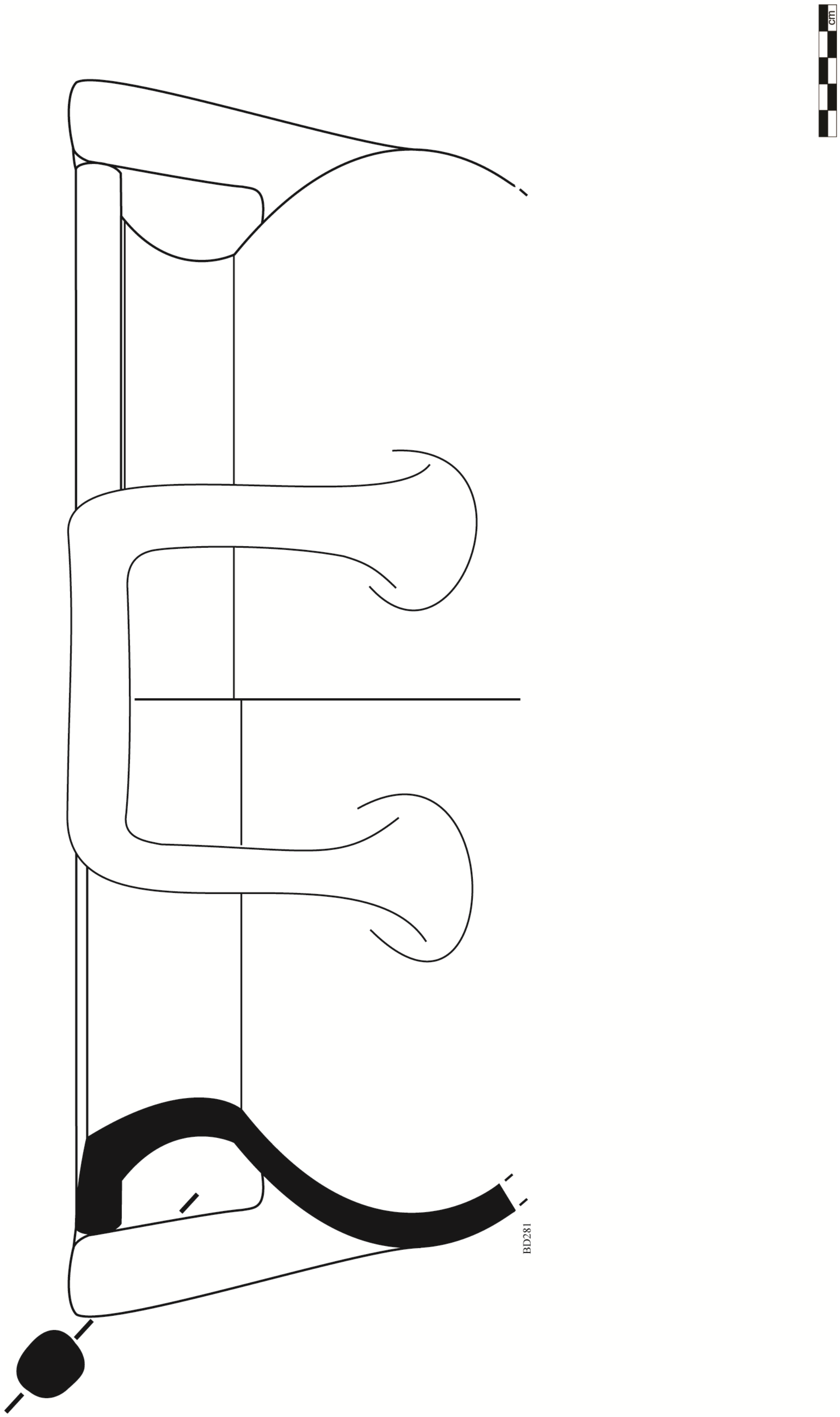


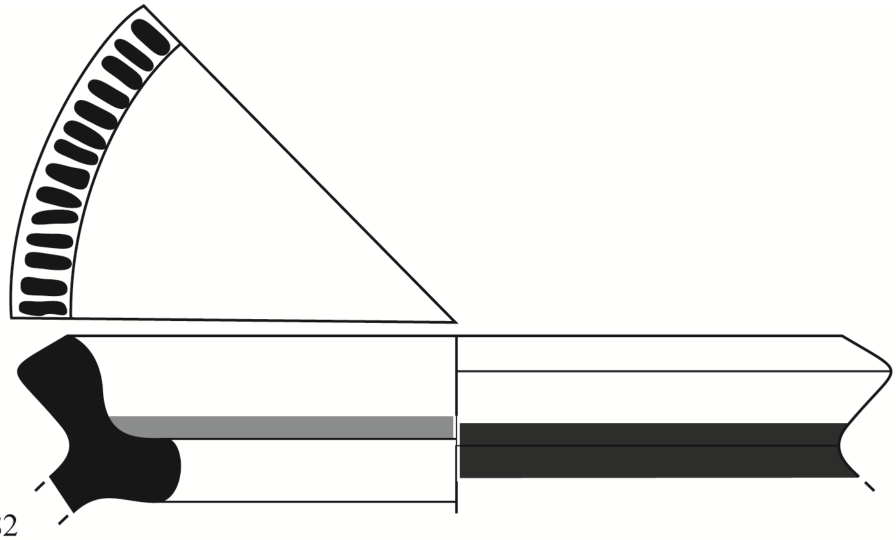
BD277



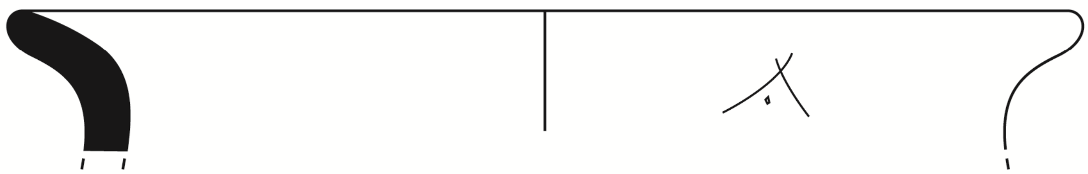
BD278


cm
BD279
BD280

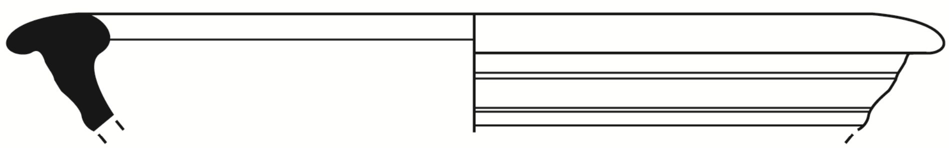

cm
BD281



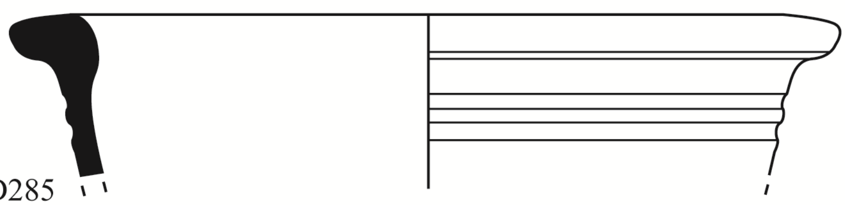
BD282



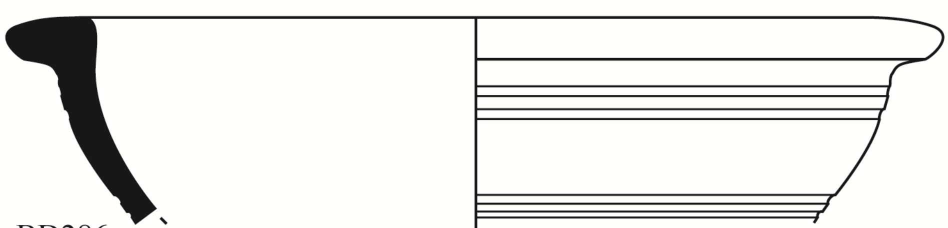
BD283



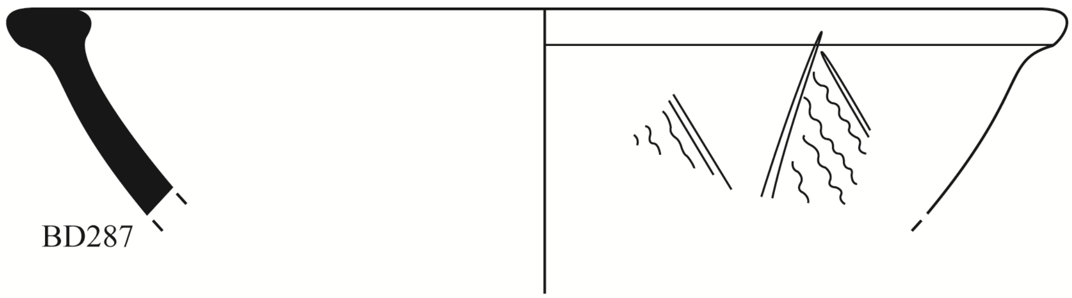
BD284



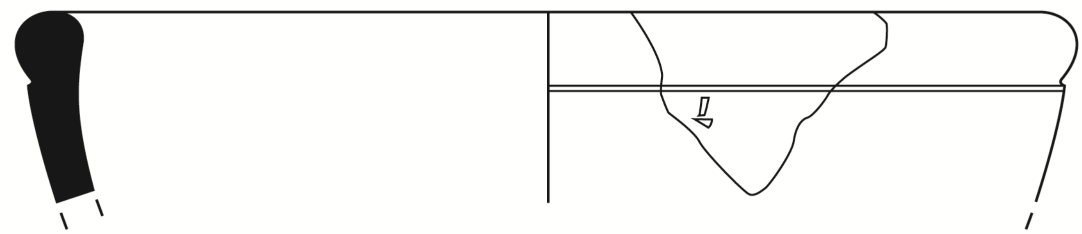
BD285



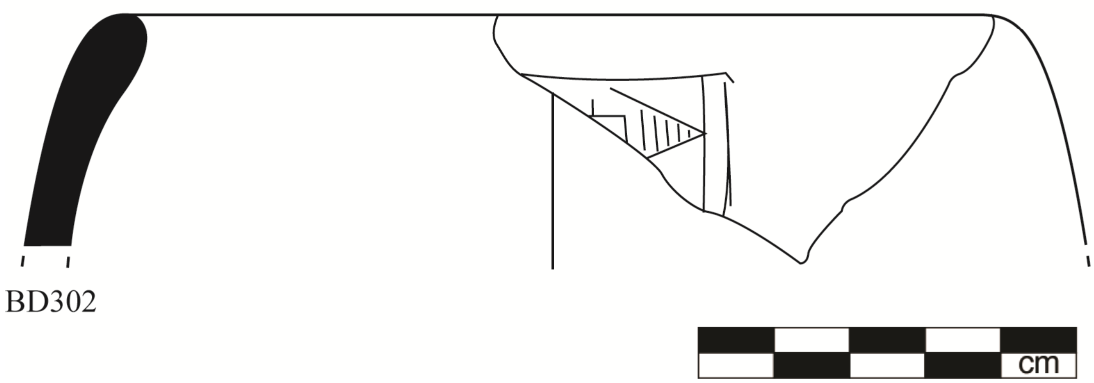
BD286



BD287



BD301




BD302

# APPENDIX E: IDENTIFICATION OF MIXED-STYLE VESSELS USING EMBLEMIC CHARACTERISTIC VARIABLES

| Sample | Form | Clay Fabric | Decoration | Mixed-Style |
|---|---|---|---|---|
| BD001 | Greek | Indigenous | Indigenous | Yes |
| BD002 | Indigenous | Greek | Indigenous | Yes |
| BD003 | Greek | Indigenous | None | Yes |
| BD004 | Greek | Indigenous | Indigenous | Yes |
| BD005 | Greek | Greek | Indigenous | Yes |
| BD006 | Indigenous | Indigenous | Indigenous | No |
| BD007 | Greek | Indigenous | Indigenous | Yes |
| BD008 | Indigenous | Indigenous | Indigenous | No |
| BD009 | Indigenous | Indigenous | Indigenous | No |
| BD010 | Indigenous | Indigenous | Indigenous | No |
| BD011 | Indigenous | Indigenous | Indigenous | No |
| BD012 | Indigenous | Indigenous | Indigenous | No |
| BD058 | Indigenous | Indigenous | Indigenous | No |
| BD059 | Indigenous | Indigenous | Indigenous | No |
| BD060 | Indigenous | Indigenous | Indigenous | No |
| BD061 | Indigenous | Indigenous | Indigenous | No |
| BD062 | Indigenous | Indigenous | None | No |
| BD064 | Greek | Indigenous | None | Yes |
| BD066 | Phoenician | Indigenous | Indigenous | Yes |
| BD067 | Indigenous | Indigenous | Indigenous | No |
| BD068 | Indigenous | Indigenous | Indigenous | No |
| BD069 | Greek | Greek | None | No |
| BD075 | Phoenician | Greek | Greek | Yes |
| BD076 | Indigenous | Indigenous | Indigenous | No |
| BD077 | Greek | Indigenous | Indigenous | Yes |
| BD078 | Indigenous | Indigenous | Indigenous | No |
| BD079 | Greek | Indigenous | Greek | Yes |
| BD080 | Indigenous | Indigenous | None | No |
| BD081 | Indigenous | Indigenous | Greek | Yes |
| BD082 | Indigenous | Indigenous | Mixed | Yes |
| BD083 | Greek | Indigenous | Greek | Yes |
| BD084 | Indigenous | Indigenous | Indigenous | No |
| BD085 | Indigenous | Indigenous | Greek | Yes |
| BD086 | Greek | Indigenous | Indigenous | Yes |
| BD087 | Greek | Indigenous | Indigenous | Yes |

| Sample | Form | Clay Fabric | Decoration | Mixed-Style |
|---|---|---|---|---|
| BD088 | Indigenous | Indigenous | Greek | Yes |
| BD089 | Indigenous | Indigenous | Greek | Yes |
| BD090 | Greek | Greek | Greek | No |
| BD091 | Greek | Greek | Greek | No |
| BD092 | Greek | Greek | Greek | No |
| BD093 | Greek | Indigenous | Indigenous | Yes |
| BD094 | Greek | Indigenous | Greek | Yes |
| BD095 | Indigenous | Indigenous | Indigenous | No |
| BD096 | Greek | Greek | Greek | No |
| BD097 | Greek | Greek | Greek | No |
| BD098 | Greek | Greek | Greek | No |
| BD099 | Greek | Greek | Greek | No |
| BD100 | Greek | Greek | Greek | No |
| BD101 | Greek | Greek | Greek | No |
| BD102 | Greek | Greek | Greek | No |
| BD103 | Greek | Greek | Greek | No |
| BD104 | Greek | Greek | Greek | No |
| BD105 | Mixed | Indigenous | None | Yes |
| BD106 | Indigenous | Indigenous | Indigenous | No |
| BD107 | Greek | Greek | Greek | No |
| BD108 | Mixed | Indigenous | Indigenous | Yes |
| BD109 | Greek | Greek | Greek | No |
| BD110 | Mixed | Indigenous | Indigenous | Yes |
| BD158 | Greek | Indigenous | Indigenous | Yes |
| BD159 | Greek | Indigenous | Indigenous | Yes |
| BD160 | Greek | Indigenous | Indigenous | Yes |
| BD161 | Greek | Greek | Greek | No |
| BD163 | Greek | Greek | Greek | No |
| BD164 | Greek | Greek | Greek | No |
| BD165 | Greek | Greek | Greek | No |
| BD166 | Greek | Greek | Greek | No |
| BD167 | Greek | Greek | Greek | No |
| BD168 | Greek | Greek | Greek | No |
| BD169 | Greek | Greek | Greek | No |
| BD170 | Greek | Greek | Greek | No |
| BD171 | Greek | Greek | Greek | No |
| BD172 | Greek | Greek | Greek | No |

| Sample | Form | Clay Fabric | Decoration | Mixed-Style |
|---|---|---|---|---|
| BD188 | Greek | Greek | Greek | No |
| BD189 | Greek | Greek | Indigenous | Yes |
| BD190 | Mixed | Indigenous | Indigenous | Yes |
| BD191 | Indigenous | Indigenous | Indigenous | No |
| BD192 | Indigenous | Indigenous | Indigenous | No |
| BD193 | Indigenous | Indigenous | Indigenous | No |
| BD194 | Greek | Greek | Greek | No |
| BD195 | Greek | Greek | Greek | No |
| BD196 | Greek | Greek | Indigenous | Yes |
| BD197 | Greek | Greek | Indigenous | Yes |
| BD198 | Greek | Greek | Greek | No |
| BD199 | Phoenician | Phoenician | Indigenous | Yes |
| BD200 | Phoenician | Phoenician | Indigenous | Yes |
| BD201 | Greek | Phoenician | Phoenician | Yes |
| BD202 | Greek | Phoenician | Mixed | Yes |
| BD203 | Phoenician | Phoenician | Phoenician | No |
| BD204 | Phoenician | Phoenician | Phoenician | No |
| BD205 | Greek | Phoenician | Indigenous | Yes |
| BD207 | Phoenician | Phoenician | Phoenician | No |
| BD208 | Phoenician | Phoenician | Phoenician | No |
| BD209 | Greek | Phoenician | Mixed | Yes |
| BD210 | Greek | Phoenician | Indigenous | Yes |
| BD211 | Greek | Phoenician | Phoenician | Yes |
| BD212 | Phoenician | Phoenician | Indigenous | Yes |
| BD213 | Phoenician | Phoenician | Phoenician | No |
| BD214 | Greek | Phoenician | Phoenician | Yes |
| BD215 | Greek | Phoenician | Mixed | Yes |
| BD216 | Greek | Phoenician | Indigenous | Yes |
| BD217 | Greek | Phoenician | Mixed | Yes |
| BD218 | Greek | Phoenician | Phoenician | Yes |
| BD219 | Greek | Phoenician | Phoenician | Yes |
| BD220 | Greek | Indigenous | Mixed | Yes |
| BD221 | Greek | Phoenician | Indigenous | Yes |
| BD222 | Phoenician | Phoenician | Phoenician | No |
| BD223 | Phoenician | Phoenician | Phoenician | No |
| BD224 | Phoenician | Phoenician | Phoenician | No |
| BD225 | Greek | Indigenous | Indigenous | Yes |

| Sample | Form | Clay Fabric | Decoration | Mixed-Style |
|---|---|---|---|---|
| BD226 | Greek | Indigenous | Indigenous | Yes |
| BD227 | Phoenician | Indigenous | Indigenous | Yes |
| BD228 | Greek | Indigenous | Indigenous | Yes |
| BD229 | Greek | Indigenous | Indigenous | Yes |
| BD230 | Indigenous | Indigenous | Indigenous | No |
| BD231 | Indigenous | Indigenous | Indigenous | No |
| BD232 | Greek | Indigenous | Indigenous | Yes |
| BD233 | Indigenous | Indigenous | Indigenous | No |
| BD234 | Indigenous | Indigenous | Indigenous | No |
| BD235 | Indigenous | Indigenous | Indigenous | No |
| BD236 | Indigenous | Indigenous | Indigenous | No |
| BD237 | Indigenous | Indigenous | Indigenous | No |
| BD238 | Greek | Indigenous | Greek | Yes |
| BD239 | Indigenous | Indigenous | Indigenous | No |
| BD240 | Phoenician | Phoenician | Indigenous | Yes |
| BD241 | Phoenician | Phoenician | None | No |
| BD242 | Phoenician | Phoenician | None | No |
| BD243 | Phoenician | Phoenician | None | No |
| BD244 | Phoenician | Phoenician | None | No |
| BD245 | Phoenician | Phoenician | Phoenician | No |
| BD246 | Phoenician | Phoenician | None | No |
| BD247 | Phoenician | Phoenician | None | No |
| BD248 | Phoenician | Phoenician | None | No |
| BD249 | Phoenician | Phoenician | None | No |
| BD250 | Phoenician | Phoenician | None | No |
| BD251 | Phoenician | Phoenician | None | No |
| BD252 | Phoenician | Phoenician | None | No |
| BD253 | Phoenician | Phoenician | Indigenous | Yes |
| BD254 | Phoenician | Phoenician | Indigenous | Yes |
| BD255 | Phoenician | Phoenician | Indigenous | Yes |
| BD256 | Phoenician | Phoenician | Indigenous | Yes |
| BD257 | Phoenician | Phoenician | Indigenous | Yes |
| BD258 | Phoenician | Phoenician | Indigenous | Yes |
| BD276 | Mixed | Phoenician | Phoenician | Yes |
| BD277 | Greek | Indigenous | None | Yes |
| BD278 | Indigenous | Indigenous | None | No |
| BD279 | Indigenous | Indigenous | Indigenous | No |

| Sample | Form | Clay Fabric | Decoration | Mixed-Style |
|---|---|---|---|---|
| BD280 | Indigenous | Indigenous | Indigenous | No |
| BD281 | Greek | Indigenous | Indigenous | Yes |
| BD282 | Indigenous | Indigenous | Indigenous | No |
| BD283 | Indigenous | Indigenous | Indigenous | No |
| BD284 | Indigenous | Indigenous | Indigenous | No |
| BD285 | Indigenous | Indigenous | Indigenous | No |
| BD286 | Indigenous | Indigenous | Indigenous | No |
| BD287 | Indigenous | Indigenous | Indigenous | No |
| BD301 | Indigenous | Indigenous | Indigenous | No |
| BD302 | Indigenous | Indigenous | Indigenous | No |

# APPENDIX F: XRF ELEMENTAL COUNTS DETECTED FOR POTTERY AND CLAY SAMPLES EXAMINED

| Sample | As Kα2 | Br Kα2 | Cu Kα2 | Mo Kα2 | Nb Kα2 | Sr Kα2 | Ni Kα2 | Rb Kα2 | Rh Kα2 | Ru Kα2 | Y Kα2 | Zn Kα2 | Zr Kα2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD007 | 128 | 61 | 452 | 84 | 402 | 9676 | 5915 | 1608 | 1614 | 2438 | 371 | 733 | 3599 |
| BD279 | 373 | 27 | 200 | 122 | 481 | 4718 | 5645 | 1621 | 1871 | 3220 | 511 | 653 | 11477 |
| BD280 | 150 | -6 | 142 | 13 | 485 | 5670 | 6115 | 1771 | 1460 | 2563 | 579 | 468 | 7854 |
| BD281 | 343 | 40 | 91 | 69 | 472 | 4193 | 6572 | 1839 | 1700 | 3038 | 584 | 382 | 7872 |
| BD282 | 178 | 34 | 40 | 2 | 308 | 10642 | 4637 | 1391 | 1775 | 2391 | 328 | 321 | 3142 |
| BD283 | 182 | 19 | 106 | 18 | 454 | 2848 | 6104 | 1547 | 1309 | 2604 | 707 | 324 | 9603 |
| BD284 | 129 | 77 | 83 | 10 | 454 | 2909 | 5528 | 1480 | 1293 | 2349 | 355 | 321 | 7418 |
| BD285 | 107 | 20 | 0 | 74 | 375 | 3486 | 6318 | 1647 | 1811 | 3207 | 450 | 337 | 8413 |
| BD286 | 202 | 22 | 177 | 56 | 549 | 4421 | 6187 | 1768 | 1815 | 2980 | 481 | 466 | 7259 |
| BD287 | 411 | 16 | 115 | 80 | 500 | 3379 | 7213 | 1899 | 1863 | 3008 | 712 | 425 | 12507 |
| BD288 | 493 | 61 | 95 | 77 | 599 | 1739 | 8245 | 2240 | 1795 | 2939 | 676 | 309 | 10597 |
| BD289 | 353 | 84 | 229 | 12 | 562 | 3833 | 8621 | 2361 | 1717 | 2550 | 584 | 574 | 9709 |
| BD290 | 260 | 29 | 360 | 44 | 424 | 6500 | 5333 | 1686 | 1692 | 2822 | 470 | 601 | 9699 |
| BD295 | 197 | 13 | 50 | 1 | 490 | 7659 | 5144 | 1431 | 1035 | 2527 | 471 | 299 | 7123 |
| BD296 | 457 | 1153 | 34 | 62 | 112 | 7089 | 2416 | 534 | 1703 | 2619 | 207 | 209 | 4484 |

| Sample | As Kα2 | Br Kα2 | Cu Kα2 | Mo Kα2 | Nb Kα2 | Sr Kα2 | Ni Kα2 | Rb Kα2 | Rh Kα2 | Ru Kα2 | Y Kα2 | Zn Kα2 | Zr Kα2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD297 | 264 | 782 | 44 | 1 | 414 | 1526 | 6149 | 1806 | 1345 | 3051 | 382 | 322 | 6669 |
| BD298 | 176 | 615 | 68 | 20 | 325 | 3835 | 5264 | 820 | 1312 | 2344 | 242 | 308 | 3567 |
| BD299 | 75 | 678 | 63 | 1 | 380 | 5635 | 2761 | 1349 | 1263 | 3022 | 254 | 297 | 4095 |
| BD300 | 220 | 63 | 83 | 56 | 239 | 4128 | 3435 | 930 | 1035 | 1977 | 184 | 288 | 3468 |
| BD301 | 195 | 166 | 40 | 1 | 322 | 16041 | 4487 | 1403 | 1574 | 2987 | 323 | 301 | 4045 |
| BD291 | 252 | 16 | 230 | 16 | 502 | 9334 | 6621 | 2198 | 1670 | 2550 | 519 | 495 | 4256 |
| BD292 | 247 | 27 | 244 | 49 | 516 | 8399 | 6734 | 2159 | 1712 | 2653 | 448 | 609 | 4166 |
| BD293 | 220 | 103 | 167 | 21 | 488 | 5795 | 6644 | 1313 | 1695 | 3092 | 457 | 496 | 4808 |
| BD001 | 59 | 16 | 41 | 0 | 153 | 2227 | 2051 | 441 | 664 | 703 | 85 | 234 | 2086 |
| BD002 | 109 | 10 | 10555 | 34 | 329 | 10696 | 4286 | 998 | 1228 | 1572 | 347 | 9080 | 3772 |
| BD003 | 203 | 33 | 216 | 0 | 301 | 3134 | 4637 | 1397 | 1211 | 2085 | 423 | 514 | 6450 |
| BD004 | 246 | 45 | 72 | -4 | 358 | 5276 | 6276 | 1502 | 991 | 1720 | 469 | 436 | 6337 |
| BD006 | 253 | 69 | 86 | 1 | 437 | 4453 | 5974 | 2027 | 1246 | 2396 | 362 | 382 | 6276 |
| BD008 | 144 | 6 | 68 | 3 | 328 | 4176 | 3822 | 910 | 1065 | 1847 | 290 | 264 | 5615 |
| BD009 | 246 | 49 | 67 | 0 | 366 | 3481 | 4827 | 1176 | 1171 | 2287 | 439 | 319 | 9151 |

| Sample | As Kα2 | Br Kα2 | Cu Kα2 | Mo Kα2 | Nb Kα2 | Sr Kα2 | Ni Kα2 | Rb Kα2 | Rh Kα2 | Ru Kα2 | Y Kα2 | Zn Kα2 | Zr Kα2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD010 | 338 | 44 | 97 | 34 | 351 | 2927 | 4548 | 1175 | 1404 | 2433 | 395 | 342 | 7252 |
| BD011 | 155 | 29 | 51 | -2 | 349 | 2580 | 5415 | 1354 | 1196 | 2403 | 512 | 332 | 10810 |
| BD012 | 205 | 48 | 68 | 44 | 354 | 4969 | 5591 | 1531 | 1213 | 2053 | 479 | 425 | 7674 |
| BD161 | 270 | 50 | 96 | 27 | 310 | 17273 | 4434 | 692 | 1367 | 2072 | 298 | 400 | 6273 |
| BD276 | 196 | 5 | 1892 | 0 | 281 | 5336 | 5217 | 1141 | 1178 | 1928 | 327 | 1924 | 6806 |

# APPENDIX G: RAW POINT DATA FROM CERAMIC PETROGRAPHY OF CLAY THIN SECTION SLIDES

| Sample | Location | Matrix | <63µm | 63-125µm | 125-250µm | 250-500µm | >500µm | Voids | Total Points |
|---|---|---|---|---|---|---|---|---|---|
| BD296 | Mozia | 81 | 5 | 4 | 10 | 13 | 10 | 3 | 123 |
| BD297 | Mozia | 105 | 3 | 10 | 9 | 9 | 3 | 6 | 139 |
| BD298 | Mozia | 89 | 13 | 1 | 5 | 2 | 5 | 2 | 115 |
| BD299 | Mozia | 111 | 12 | 0 | 0 | 0 | 3 | 13 | 126 |
| BD300 | Mozia | 79 | 18 | 5 | 9 | 7 | 5 | 0 | 123 |
| BD294 | Poggioreale Nuovo | 122 | 25 | 3 | 0 | 0 | 0 | 7 | 150 |
| BD295 | Salemi | 84 | 33 | 2 | 0 | 0 | 0 | 3 | 119 |

# APPENDIX H: RAW POINT DATA FROM CERAMIC PETROGRAPHY OF POTTERY THIN SECTION SLIDES

| Sample | Location | Matrix | <63µm | 63-125µm | 125-250µm | 250-500µm | >500µm | Voids | Total Points |
|---|---|---|---|---|---|---|---|---|---|
| BD278 | Montagna Grande | 75 | 17 | 9 | 4 | 3 | 2 | 5 | 110 |
| BD301 | Montagna Grande | 73 | 26 | 4 | 5 | 2 | 18 | 5 | 128 |
| BD302 | Montagna Grande | 149 | 45 | 11 | 9 | 6 | 7 | 18 | 227 |
| BD303 | Monte Bonifato | 95 | 23 | 11 | 2 | 4 | 6 | 6 | 141 |
| BD277 | Monte Polizzo | 187 | 26 | 4 | 13 | 4 | 12 | 4 | 246 |
| BD199 | Mozia | 82 | 15 | 10 | 10 | 4 | 0 | 12 | 121 |
| BD200 | Mozia | 71 | 9 | 9 | 16 | 3 | 2 | 7 | 110 |
| BD201 | Mozia | 80 | 4 | 13 | 11 | 1 | 2 | 9 | 111 |
| BD202 | Mozia | 87 | 5 | 6 | 16 | 4 | 1 | 7 | 119 |
| BD203 | Mozia | 86 | 8 | 5 | 8 | 4 | 2 | 10 | 113 |
| BD204 | Mozia | 105 | 28 | 7 | 15 | 11 | 2 | 9 | 168 |
| BD205 | Mozia | 72 | 5 | 13 | 19 | 10 | 1 | 6 | 120 |
| BD207 | Mozia | 91 | 7 | 11 | 17 | 3 | 1 | 4 | 130 |
| BD209 | Mozia | 122 | 9 | 6 | 13 | 2 | 1 | 10 | 153 |
| BD210 | Mozia | 103 | 11 | 7 | 18 | 8 | 2 | 12 | 149 |
| BD211 | Mozia | 90 | 11 | 1 | 3 | 2 | 0 | 2 | 107 |
| BD240 | Mozia | 147 | 1 | 7 | 13 | 13 | 3 | 102 | 184 |
| BD241 | Mozia | 136 | 7 | 9 | 14 | 3 | 0 | 53 | 169 |
| BD244 | Mozia | 117 | 7 | 2 | 1 | 10 | 7 | 7 | 144 |
| BD245 | Mozia | 120 | 3 | 1 | 5 | 9 | 8 | 5 | 146 |
| BD246 | Mozia | 123 | 9 | 2 | 8 | 18 | 8 | 12 | 168 |
| BD247 | Mozia | 80 | 10 | 3 | 3 | 9 | 8 | 3 | 113 |
| BD248 | Mozia | 117 | 10 | 5 | 11 | 14 | 18 | 12 | 175 |
| BD250 | Mozia | 116 | 6 | 2 | 1 | 5 | 4 | 63 | 134 |
| BD251 | Mozia | 109 | 4 | 2 | 1 | 4 | 12 | 57 | 132 |
| BD252 | Mozia | 102 | 5 | 5 | 3 | 5 | 11 | 61 | 131 |
| BD253 | Mozia | 130 | 2 | 4 | 4 | 12 | 7 | 22 | 159 |
| BD254 | Mozia | 236 | 18 | 10 | 10 | 22 | 27 | 8 | 323 |
| BD255 | Mozia | 106 | 7 | 0 | 0 | 1 | 0 | 13 | 114 |
| BD256 | Mozia | 85 | 1 | 1 | 5 | 9 | 8 | 4 | 109 |

| Sample | Location | Matrix | <63µm | 63-125µm | 125-250µm | 250-500µm | >500µm | Voids | Total Points |
|---|---|---|---|---|---|---|---|---|---|
| BD257 | Mozia | 97 | 5 | 5 | 15 | 2 | 2 | 11 | 126 |
| BD258 | Mozia | 111 | 0 | 4 | 21 | 2 | 2 | 8 | 140 |
| BD001 | Salemi | 87 | 31 | 20 | 7 | 1 | 0 | 6 | 146 |
| BD002 | Salemi | 75 | 19 | 16 | 2 | 0 | 0 | 2 | 112 |
| BD003 | Salemi | 115 | 17 | 35 | 15 | 0 | 0 | 5 | 182 |
| BD004 | Salemi | 192 | 29 | 20 | 5 | 1 | 0 | 10 | 247 |
| BD005 | Salemi | 75 | 10 | 8 | 8 | 6 | 6 | 4 | 113 |
| BD006 | Salemi | 92 | 56 | 8 | 3 | 4 | 12 | 4 | 175 |
| BD007 | Salemi | 93 | 6 | 4 | 6 | 1 | 3 | 5 | 113 |
| BD008 | Salemi | 104 | 29 | 19 | 5 | 1 | 1 | 2 | 159 |
| BD009 | Salemi | 95 | 84 | 13 | 2 | 3 | 2 | 1 | 199 |
| BD010 | Salemi | 83 | 13 | 24 | 5 | 0 | 0 | 8 | 125 |
| BD011 | Salemi | 114 | 66 | 57 | 8 | 1 | 2 | 9 | 248 |
| BD012 | Salemi | 157 | 39 | 21 | 0 | 2 | 0 | 6 | 219 |
| BD091 | Salemi | 60 | 38 | 12 | 2 | 1 | 0 | 1 | 113 |
| BD161 | Salemi | 83 | 24 | 1 | 0 | 1 | 0 | 4 | 109 |
| BD165 | Salemi | 117 | 7 | 0 | 3 | 0 | 0 | 7 | 127 |
| BD167 | Salemi | 76 | 34 | 2 | 1 | 2 | 0 | 0 | 115 |
| BD168 | Salemi | 76 | 24 | 5 | 0 | 1 | 0 | 2 | 106 |
| BD169 | Salemi | 110 | 33 | 9 | 1 | 0 | 0 | 14 | 153 |
| BD170 | Salemi | 87 | 16 | 2 | 0 | 0 | 0 | 1 | 105 |
| BD172 | Salemi | 113 | 11 | 0 | 0 | 0 | 0 | 1 | 124 |
| BD276 | Salemi | 154 | 15 | 23 | 1 | 0 | 1 | 5 | 194 |
| BD279 | Salemi | 77 | 32 | 22 | 6 | 1 | 0 | 7 | 138 |
| BD280 | Salemi | 100 | 30 | 1 | 1 | 2 | 6 | 13 | 140 |
| BD281 | Salemi | 94 | 32 | 11 | 3 | 0 | 0 | 5 | 140 |
| BD282 | Salemi | 103 | 7 | 3 | 1 | 6 | 2 | 9 | 122 |
| BD283 | Salemi | 111 | 62 | 17 | 7 | 1 | 3 | 11 | 201 |
| BD284 | Salemi | 90 | 22 | 8 | 9 | 1 | 0 | 7 | 130 |
| BD285 | Salemi | 100 | 38 | 24 | 16 | 0 | 0 | 6 | 178 |
| BD286 | Salemi | 100 | 25 | 14 | 5 | 0 | 1 | 13 | 145 |
| BD287 | Salemi | 115 | 32 | 12 | 2 | 0 | 1 | 8 | 162 |
| BD288 | Salemi | 74 | 14 | 1 | 11 | 1 | 4 | 10 | 105 |
| BD289 | Salemi | 92 | 13 | 5 | 9 | 1 | 0 | 13 | 120 |
| BD290 | Salemi | 82 | 14 | 7 | 4 | 1 | 0 | 4 | 108 |

# APPENDIX I: MINERALS IDENTIFIED IN THIN SECTION SLIDES

| Sample | MQ | PQ | OP | RF | Hornblende | Mica | Augite | Calcite (Crystals) | Calcite (Post Dep) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD001 | X | X | X | X | X | | X | X | X | | X | | X | |
| BD002 | X | X | X | X | | | X | | X | | | | | |
| BD003 | X | X | X | X | X | | X | | | | | X | | |
| BD004 | X | X | X | X | X | X | X | | X | | | | X | |
| BD005 | X | | X | X | | | | | X | | | | | |
| BD006 | X | X | X | X | X | X | | | | | | | | X |
| BD007 | X | X | X | X | X | | | X | X | | X | X | | |
| BD008 | X | X | | | X | | | X | X | X | | X | | |
| BD009 | X | X | X | X | X | | X | | X | | | | | |
| BD010 | X | X | X | | X | | | | X | | | X | | |
| BD011 | X | X | X | | X | | X | | X | | | X | | |
| BD012 | X | X | X | | X | | | | | | | | | |
| BD091 | X | X | X | | X | | X | X | | | | X | X | |
| BD161 | X | X | X | | | | | X | | | | | | |
| BD165 | X | | X | | X | X | | | | | | | | |
| BD167 | X | X | X | X | X | X | | X | | | | X | | |
| BD168 | X | | X | | X | | | | X | | | | | |

MQ=Monocrystalline Quartz; PQ=Polycrystalline Quartz; OP=Opaques; RF=Rock Fragments

| Sample | MQ | PQ | OP | RF | Hornblende | Mica | Augite | Calcite (Crystals) | Calcite (Post Dep) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD169 | X | | X | | X | | | | X | | | | | |
| BD170 | X | X | | | X | X | X | | X | | | | | |
| BD172 | X | | X | | X | X | | X | | | | | | |
| BD199 | X | X | X | X | X | | | X | X | | X | X | | |
| BD200 | X | | X | X | X | | X | | | X | | X | | |
| BD201 | X | X | X | | X | | | X | | | | X | | |
| BD202 | X | X | X | | X | | | | | | | X | | |
| BD203 | X | X | X | | X | | | X | | | X | | | |
| BD204 | X | X | X | X | X | | X | X | | | X | X | | |
| BD205 | X | | X | | | | | | | | | | | |
| BD207 | X | X | X | X | X | | X | | | | X | | | |
| BD209 | X | | X | X | X | | X | | | | X | X | | |
| BD210 | X | X | X | | X | | | | X | | | X | | |
| BD211 | X | X | X | | X | | | | | | | X | | |
| BD240 | X | X | X | | X | | | | | | | | | |
| BD241 | X | | X | | X | | | | | | | | | |
| BD244 | X | X | X | | | | | X | | | X | | X | |

MQ=Monocrystalline Quartz; PQ=Polycrystalline Quartz; OP=Opaques; RF=Rock Fragments

| Sample | MQ | PQ | OP | RF | Hornblende | Mica | Augite | Calcite (Crystals) | Calcite (Post Dep) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD245 | X | X | X | X | | | | | | | X | X | X | |
| BD246 | X | X | X | X | | X | X | X | | | X | X | | |
| BD247 | X | | X | X | | | | X | | | X | | X | |
| BD248 | X | | X | X | X | | | X | | | X | | X | |
| BD250 | X | X | X | | | | | | X | | | | | |
| BD251 | X | X | X | | X | | | | X | | | | | |
| BD252 | X | X | X | X | X | | X | | X | | | | | |
| BD253 | X | X | X | X | | | | | | | | | | |
| BD254 | X | X | X | X | | X | X | X | X | | X | X | | |
| BD255 | X | X | X | | X | | | X | X | | X | | | |
| BD256 | X | | X | X | | | | | | | | | | |
| BD257 | X | | X | | X | | X | | | | X | | | |
| BD258 | X | X | X | | X | | X | | | | | | | |
| BD276 | X | X | X | | X | X | X | | X | | | X | | |
| BD277 | X | X | X | X | X | X | | | | | | | | |
| BD278 | X | | X | X | X | X | | | | | | | | |
| BD279 | X | | X | | X | X | X | X | | | | X | | |

MQ=Monocrystalline Quartz; PQ=Polycrystalline Quartz; OP=Opaques; RF=Rock Fragments

| Sample | MQ | PQ | OP | RF | Hornblende | Mica | Augite | Calcite (Crystals) | Calcite (Post Dep) | Gypsum | Shell Frags | Perthitic Frags | Fossil Frags | Grog |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BD281 | X | X | X | | X | X | X | | | | | X | | |
| BD282 | X | | X | X | X | | X | X | X | | X | | X | X |
| BD283 | X | X | X | X | X | X | X | | | | | X | | |
| BD284 | X | X | X | X | X | X | X | | | | | | | |
| BD285 | X | X | X | | X | X | X | | | | | X | | |
| BD286 | X | X | X | X | X | X | | | | | | X | | |
| BD287 | X | | | X | X | X | X | | | | | X | | |
| BD288 | X | X | | X | | X | X | | | | | | | |
| BD289 | X | X | | X | | | X | | | | | X | | |
| BD290 | X | X | X | | X | X | | | | | | X | | |
| BD301 | X | | X | X | X | X | | | | | | | | X |
| BD302 | X | | X | X | X | X | | | | | | | | |
| BD303 | X | | X | | | | | X | X | | | | X | |

MQ=Monocrystalline Quartz; PQ=Polycrystalline Quartz; OP=Opaques; RF=Rock Fragments

# CURRICULUM VITAE

William M. Balco Jr.

**Degrees:**
2007 M.A., Northern Illinois University (Anthropology)
2004 B.A., Northern Illinois University (History)
2004 B.A., Northern Illinois University (Anthropology)

**Positions Held:**
Associate Lecturer, Department of Anthropology, University of Wisconsin-Milwaukee (2011)
Associate Lecturer, Department of Religious Studies, Philosophy, and Anthropology, University of Wisconsin-Stevens Point (2010)

**Courses Taught:**
Human Origins
- *Taught once, 171 students instructed*

Introduction to Archaeology
- *Taught twice, 86 students instructed*

**Major Grants, Fellowships and Awards:**
NSF Doctoral Dissertation Improvement Grant MIL105529 (2011)
UWM Graduate Student Travel Award (2010)
UWM Chancellors Award (2009)
UWM Chancellors Award (2008)
UWM Graduate Student Travel Award (2008)
The Etruscan Foundation, Fieldwork Fellowship (2008)
UWM Chancellors Award (2008)
UWM Chancellors Award (2007)

**Publications:**
Articles and Chapters in Books

2012 Balco, W.M. Tri-Nodal Social Entanglements in Iron Age Sicily: Material and Social Transformation. *Field Notes: A Journal of Collegiate Anthropology* 3.1: 24-35.

2009 Balco, W.M. and M.J. Kolb. Loomweights as material culture indicators: a western Sicilian case study. In *SOMA 2008: Proceedings of the XII symposium on Mediterranean archaeology, Eastern Mediterranean University, Famagusta, North Cyprus, 5-8 March 2008*, edited by H. Oniz, pp. 177-182. BAR International Series 1909, Archaeopress; Oxford.

2009 Balco, W.M. Neolithic Cultural Hybridity: Social entanglements and the development of hybrid culture in the western Mediterranean. *Field Notes: A Journal of Collegiate Anthropology* 1: 1-16.

Compliance Reports

2012 Richards, P.B. and W.M. Balco. "Archaeological Investigations Within Uncatalogued Burial Site 47WT0019/BWT-0016". Historic Resource Management Services, University of Wisconsin-Milwaukee, Archaeological Research Laboratory Report of Investigation No. 187, Milwaukee, WI.

2011 Balco, W.M., J.D. Richards, and S.A. Schneider. "Progress Report of an Archaeological Investigation of the Ryan Creek Interceptor, City of Franklin, Milwaukee County, Wisconsin". Historic Resource Management Services, University of Wisconsin-Milwaukee, Archaeological Research Laboratory Report of Investigation No. 179, Milwaukee, WI.

2010 Balco, W.M. and J.D. Richards. "Archaeological Investigation of a Storm Sewer Easement, Village of Thiensville, Ozaukee County, Wisconsin". Historic Resource Management Services, University of Wisconsin-Milwaukee, Archaeological Research Laboratory Report of Investigation No. 178. Milwaukee, WI.

2004 Atwell, K.A, T.E. Berres, K. Righeimer, and W.M. Balco. "A Phase I Archaeological Survey of the 590 Acre Prairie Green Preserve Project, Kane County, Illinois". Northern Illinois University, Contract Archaeology Program. Project Completion Report Vol. 14, No. 2. DeKalb, IL.

**Papers and Posters Presented:**

**2012**

- Paper presented at Theory in (Ancient) Greek Archaeology (TiGA), University of Michigan, Ann Arbor, Michigan, May 4, 2012. Talk title: Greeks, the Middle Ground, and Indigenes: Social Entanglements in Late Iron Age Western Sicily.
- Paper presented at the Society for American Archaeology 77th Annual Meeting, Memphis, Tennessee, April 20, 2012. Talk title: Social Entanglement and Mixed-Style Artifacts in Western Sicily.
- Paper presented at The Art of the Coroplast Speaks: The Story of Archaeology, Art History and the Ceramic Arts symposium at Angelo State University, San Angelo, Texas, April 19, 2012. Talk title: Loomweight Production and Exchange in Iron Age Western Sicily: Reflections of Social Transformation.
- Invited speaker, Milwaukee Wisconsin Archaeological Society, Milwaukee, Wisconsin, March 19, 2012. Talk title: The Iron Age Elymi of Western Sicily: Changing Perspectives of a Mysterious Culture.
- Paper presented at the 2012 UWM Anthropology Student Union Anthropology Colloquium held in Milwaukee, Wisconsin, March 4, 2012. Talk title: Material Correlates of Social Change: Mixed-Style Pottery in Iron Age Western Sicily.

- Paper presented at the Second City Anthropology Conference held in Chicago, Illinois, March 3, 2012. Talk title: Material Culture and Social Transformations in Iron Age Western Sicily.
- Invited speaker, Rock River Chapter, Wisconsin Archaeological Society, Horicon, Wisconsin, January 18, 2012. Talk title: Iron Age Indigenous Sicilians: Redefining Perspectives of a Past Culture.

**2011**

- Invited speaker, Careers in Science, Nathan Hale High School, West Allis, Wisconsin, May 9, 2011. Talk title: Archaeology: From Interest to Career.

**2010**

- Poster presented at Ceramics, Cuisine and Culture: The archaeology and science of kitchen pottery in the ancient Mediterranean World held at The British Museum, London, December 16-17, 2010. Poster title: Opening the Cupboard of the Past: Archaeometry of Kitchen Pottery from Salemi, Sicily (Co-authored with M.J. Kolb and V. Musella).
- Paper presented at the Second Science and Archaeology Symposium held in Urbana, Illinois, November 12, 2010. Talk title: Loomweights, Exchange, and Archaeometry in Iron Age Western Sicily.
- Invited speaker, Beaver Dam Historic Society, Beaver Dam Wisconsin, March 11, 2010. Talk title: Complex Social Entanglements: Loomweights and exchange in Iron Age western Sicily.

**2008**

- Paper presented at the 12$^{th}$ Annual Symposium on Mediterranean Archaeology, held at Eastern Mediterranean University, Famagusta, TRN Cyprus, March 5-8, 2008. Talk title: Loomweights as Material Culture Indicators: A western Sicilian case study.
- Paper presented at the 2$^{nd}$ Annual Anthropology Student Union Conference, held in Milwaukee, Wisconsin, March 1, 2008. Talk title: Western Sicilian Loomweights as Material Culture Indicators

**Fieldwork:**

- Illinois State Archaeological Survey (ISAS) Northern Illinois Field Station (NIFS). Field Technician (November 2012-Present)
- Saint Anselm University excavations at Coriglia, Umbria (Italy). Multi-component (Etrusco-Roman) site; compositional analysis XRF consultant. (May 2010)
- Garfield Farm Museum excavations in St. Charles, Illinois (USA). Historic farmstead excavation; field technician. (September 2009)
- University of Wisconsin-Milwaukee Historic Resource Management Services in Wisconsin (USA). Prehistoric and historic survey, excavation and archaeological monitoring; field technician and field supervisor. (July 2009-Present)
- University of Michigan Kelsey Museum excavations at Gabii, Roma (Italy). Multi-component (Iron Age, Republican Roman, Late Antique) site; assistant trench supervisor. (June-July 2009)

- University of Wisconsin-Milwaukee excavations at Margarita, Quintana Roo (Mexico). Classic to Late Terminal Classic Maya site; trench supervisor. (July 2008; December 2010-January 2011)
- Geo-Marine, Inc. contract archaeology excavations in Virginia (USA). Prehistoric survey; field technician. (March 2008)
- Northern Illinois University paleontological excavations in southeast Montana (USA). GIS technician. (September 2004)
- Northern Illinois University Contract Archaeology Program excavations in Illinois (USA). Prehistoric and historic survey and excavation; field technician. (July 2003-March 2006)
- Northern Illinois University excavations in Salemi, Trapani, Sicily (Italy). Multi-component (Iron Age to modern) urban excavations; trench supervisor, laboratory supervisor. (Summers 2003-2008, 2010-2012)

**Professional Memberships:**
Archaeological Institute of America (2011-present)
Wisconsin Archaeological Society (2010-present)
General Association of Mediterranean Archaeologists (2008-present).
UWM Anthropology Student Union (2007-present)
The Etruscan Foundation (2005-present)
Society for American Archaeology, (2005-present)
American Philological Association, (2005-present)
Association of Ancient Historians, (2004-present)
Northern Illinois University Alumni Association, (2004-present)
Marmion Alumni Association, (1999-present)