Hellenistic Moldmade Bowls: Tracking the Connection Between Wares and Motifs

Master’s Thesis

Presented to
The Faculty of the Graduate School of Arts and Sciences
Brandeis University
Graduate Program in Ancient Greek and Roman Studies
Dr. Andrew Koh, Advisor

In Partial Fulfillment
of the Requirements for the Degree

Master of Arts
in
Ancient Greek and Roman Studies

by
Remy Jones

February 2018
ABSTRACT

Hellenistic Moldmade Bowls: Tracking the Connection Between Wares and Motifs

A thesis presented to the Graduate Program in Ancient Greek and Roman Studies

Graduate School of Arts and Sciences
Brandeis University
Waltham, Massachusetts

By Remy Jones

This thesis addresses several questions: what wares were Hellenistic Moldmade bowls produced? What motifs are displayed on Hellenistic Moldmade bowls? How do the motifs and wares connect? Original methodology and close analysis of previously published site reports provides a framework for examining a connection between wares and motifs. This thesis will use eleven different site reports, spanning from Italy up to Bulgaria and across to Israel by which the Hellenistic Moldmade Bowls fit into an archaeological methodology.

Previous scholarly work on the origins and trade connections of Hellenistic Moldmade bowls have fallen short in discovering a link in wares and motifs to production centers for several reasons. One reason for this shortcoming, is due to the fact that ‘scholars,’ have yet to employ a methodology of establishing a connection between wares and motifs, and using that connection to promote an attribution to a workshop or production center. Another area of weakness arises when ‘scholars,’ attribute motifs to a workshop based solely on motifs, as well
as attribute molds to a workshop based solely on the molds. The standardization of wares and motifs alongside tracking the connections between these two things are instrumental in understanding the possible production centers and trade connections interactions with each site analyzed.
TABLE OF CONTENTS

TITLE PAGE .......................................................... I
COPYRIGHT PAGE ....................................................... II
ABSTRACT ........................................................................ III
TABLE OF CONTENTS ..................................................... IV
LIST OF TABLES .......................................................... V
LIST OF FIGURES ........................................................ VI
CHAPTER 1: INTRODUCTION ......................................... 1
CHAPTER 2: HISTORY REFRESHER ................................ 8
CHAPTER 3. THE HISTORY OF HELLENISTIC MOLDMADE BOWLS .......... 11
  3.1 BACKGROUND OF HELLENISTIC MOLDMADE BOWLS ...................... 11
  3.2 CHRONOLOGY AND TYPOLOGY OF HELLENISTIC MOLDMADE BOWLS .......... 19
CHAPTER 4: CREATION AND CONSTRUCTION OF HELLENISTIC MOLDMADE BOWLS ........................................ 31
  4.1 CREATION OF MOLDS OF HELLENISTIC MOLDMADE BOWLS ................. 31
  4.2 CREATION OF STAMPS AND RELIEF OF HELLENISTIC MOLDMADE BOWLS .......... 33
CHAPTER 5. HELLENISTIC MOLDMADE BOWLS: WARES AND MOTIFS .................. 36
  5.1 BACKGROUND TO BLACK SLIP PREDECESSOR .................................. 36
  5.1.1 CHEMICAL COMPOSITION OF BLACK SLIP PREDECESSOR ...................... 38
  5.1.2 PUBLICATION DEFINITION OF BLACK SLIP PREDECESSOR ................... 39
      5.2 EASTERN SIGILLATA A .................................................. 42
  5.2.1 CHEMICAL COMPOSITION OF EASTERN SIGILLATA A ......................... 44
  5.2.2 HISTORY AND TRADE OF EASTERN SIGILLATA A .............................. 44
  5.2.3 PUBLICATION DEFINITION OF EASTERN SIGILLATA A ....................... 48
      5.3 RED-ORANGE SANDY WARE ........................................... 53
  5.3.2 PUBLICATION DEFINITION OF RED-ORANGE SANDY WARE ..................... 55
      5.4 GRAY WARE ................................................................ 58
  5.4.1 PUBLICATION DEFINITION OF GRAY WARE ................................. 60
      5.5 ATTIC WARE ................................................................ 63
  5.5.1 PUBLICATION DEFINITION OF ATTIC WARE .................................. 64
CHAPTER 6. CONCLUSION ............................................... 82
BIBLIOGRAPHY .......................................................... 85
APPENDIX A .............................................................. 88
APPENDIX B .............................................................. 99
APPENDIX C .............................................................. 100
APPENDIX D .............................................................. 102
LIST OF TABLES

TABLE 1: ARCHAEOLOGICAL SITES AND THE EXISTENCE OF THE BOWLS AT THE SITE ................................................................. 5
TABLE 2: BLACK SLIP PREDECESSOR WARE AND MOTIFS .......................................................... 41
TABLE 3: EASTERN SIGILLATA A WARE AND MOTIFS .............................................................. 50
TABLE 4: RED-ORANGE SANDY WARE AND MOTIFS ............................................................... 57
TABLE 5: GRAY WARE AND MOTIFS .................................................................................. 62
TABLE 6: ATTIC WARE AND MOTIFS ................................................................................ 66
TABLE 7: EASTERN SIGILLATA A AND BLACK SLIP PREDECESSOR WARE AND MOTIFS ........................................................................... 102
LIST OF FIGURES

FIGURE 1: MAP OF THE ARCHAEOLOGICAL SITES USED FOR RESEARCH .......................... 4
FIGURE 2: TWO-HORSE CHARIOT MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWLS ....................................................... 6
FIGURE 3: TWO-HORSE CHARIOT MOTIF ATHENIAN HELLENISTIC MOLDMADE MOLD ................................................................. 6
FIGURE 4: TWO-HORSE CHARIOT MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWLS ................................................................. 7
FIGURE 5: TWO-HORSE CHARIOT MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWLS ................................................................. 7
FIGURE 6: SILVER BOWL FROM TOUKH-EL-QARMOUS ............................................. 17
FIGURE 7: THE ROTHCHILD GLASS BOWL FROM LE TRESOR DE TARANTE .. 17
FIGURE 8: ATHENIAN HELLENISTIC MOLDMADE BOWL ........................................ 18
FIGURE 9: NYMPHAEA LOTUS MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................. 18
FIGURE 10: NYMPHAEA LOTUS MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................. 18
FIGURE 11: NYMPHAEA CAERULEA MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 19
FIGURE 12: NYMPHAEA NELUMBO MOTIF ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 19
FIGURE 13: LEAF AND TENDRIL MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 22
FIGURE 14: IMBRICATE MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 22
FIGURE 15: SMALL, VEINED, POINTEDM MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 22
FIGURE 16: ROUNDED PETAL TIPS MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 22
FIGURE 17: POINTED PETAL TIPS MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 23
FIGURE 18: IVY MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ............... 23
FIGURE 19: STANDING ARTEMIS (?) MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 24
FIGURE 20: EROS BOUND MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................................... 25
FIGURE 21: HERMES TYPE MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 17
FIGURE 22: AGITATED WOMAN MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 25
FIGURE 23: DANCING GIRL MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 26
FIGURE 24: CAVALRYMAN MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 26
FIGURE 25: LONG PETAL MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 27
FIGURE 26: NET PATTERN MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 28
FIGURE 27: CONCENTRIC SEMICIRCLE MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 28
FIGURE 28: LINEAR LEAF MOTIF CORINTHIAN HELLENISTIC MOLDMADE BOWL ................................................................. 28
FIGURE 29: ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................. 30
FIGURE 30: ATHENIAN HELLENISTIC MOLD ................................................................. 34
FIGURE 31: ATHENIAN CLAY STAMP ................................................................. 34
FIGURE 32: FREE HAND DRAWING ATHENIAN HELLENISTIC MOLDMADE MOLD ................................................................. 34
FIGURE 33: STAMPED MEDALLION ATHENIAN HELLENISTIC MOLDMADE BOWL ................................................................. 34
FIGURE 34: ATHENIAN HELLENISTIC MOLDMADE RINGS ................................................................. 35
FIGURE 35: MAP DISTRIBUTION OF BLACK SLIP PREDECESSOR ................................................................. 40
FIGURE 37: PETROGRAPHIC THIN SECTION OF BLACK SLIP PREDECESSOR BY MERMELSTEIN ................................................................. 41
FIGURE 50: EASTERN SIGILLATA FORMS ................................................................. 50
FIGURE 51: MAP DISTRIBUTION OF EASTERN SIGILLATA A ................................................................. 51
FIGURE 52: MAP DISTRIBUTION OF EASTERN SIGILLATA A ................................................................. 51
FIGURE 53: MAP OF EASTERN SIGILLATA A ................................................................. 52
FIGURE 54: MAP OF ITALY DISTRIBUTION OF EASTERN SIGILLATA A ................................................................. 52
FIGURE 60: MAP OF RED-ORANGE SANDY WARE DISTRIBUTION ................................................................. 54
FIGURE 61: PETROGRAPHIC THIN SECTION OF RED-ORANGE SANDY WARE BY MERMELSTEIN ................................................................. 55
FIGURE 66: MAP OF GRAY WARE DISTRIBUTION ................................................................. 59
1. Introduction

Hellenistic Moldmade bowls intricate designs and fabrications as well as its elusive conception, trade networking, and ware composition formulates an attractive area of scholarship. ‘Scholars’ studying of ‘Hellenistic Moldmade bowls’, lacks information of their trade routes, fabrics and origins, as well as their connections between wares and motifs artistically displayed on them. I am analyzing Hellenistic Moldmade bowls from various sites by tracking the connection between wares and motifs to determine if a connection between the wares and motifs can be utilized as a form of methodology for scholars to employ when assessing Hellenistic Moldmade Bowls (Fig. 1). The term ‘ware,’ refers to what the fabric has undergone in terms of treatment or processing i.e., firing and purity processing. The sites being analyzed display interactions in a range of different geographical locations and workshops, which represents when and where the bowls were distributed during the Hellenistic period (Table 1).

Previous scholarly work on the origins and trade connections of Hellenistic Moldmade bowls have fallen short in discovering a link in wares and motifs to production centers for several reasons. One reason for this shortcoming, is due to the fact that ‘scholars,’ have yet to employ a methodology of establishing a connection between wares and motifs, and using that connection to promote an attribution to a workshop or production center. Another area of weakness arises when ‘scholars,’ attribute motifs to a workshop based solely on motifs, as well as attribute molds to a workshop based solely on the molds.

---

1 Notes by Dr. Kathleen Birney
The only semi-solid evidence for assigning a mold to a potter or workshop, occurs when the potter’s mark or stamp is sealed within the mold or bowl. Workshops producing these bowls manufacture molds with motifs, some workshops create a particular motif or stamp that becomes associated with a potter, but even this method of attribution proves troublesome. One difficulty associated with attributing a Hellenistic Moldmade bowl on the basis of a motif to a particular workshop or potter, arises when several potters create a cast of the mold containing that particular motif. For example, Susan Rotroff attributes a two-horse chariot stamp and/or motif to the Workshop of Bion (Fig. 2-3), however, the same motif is found on a bowl and mold associated with Workshop A (Fig. 4-5). The duplication of motifs and molds occurred at different workshops and sites at a higher rate than discussed in site reports.

Archaeological site reports in areas around the Eastern Mediterranean have published hundreds of catalogs, but only a small amount have analyzed an attribution of production centers, based on the link between the ware and motifs on the Hellenistic Moldmade bowl’s. Is there a connection between the wares and motifs on Hellenistic Moldmade bowls, and if so, can scholars track where Hellenistic Moldmade bowls were traded and created? By using my own standardization of wares based on established wares and previously established motifs, I will answer the question posed above.

Understanding the connection between the wares and motifs of Hellenistic Moldmade bowls is beneficial to scholars excavating and analyzing in the regions where the bowls are discovered. By tracking a connection between the wares and motifs, scholars will be able to

---

narrow down production centers, which leads to a greater understanding of economic, political interactions, such as trade in the Eastern Mediterranean. An analysis of one drinking vessel creates a more detailed and focused study on the connections between the regions of the Levant, Attica, Italy, the Aegean, and Egypt. In what wares were Hellenistic Moldmade bowls produced? Where did these wares originate? What motifs are displayed on Hellenistic Moldmade bowls? How do the motifs and wares connect? An analysis of the sites of Ashkelon, Caesarea Maritima, Antioch, Akko, Tel Dor, Ruse, Tell Atrib, the Athenian Agora, Cosa, Paphos and Samaria form the foundation of this research.

This research collection consists of 1,186 Hellenistic Moldmade bowl sherds from the eleven archaeological sites previously mentioned. Among the eleven sites, only five wares are present and the number of sherds produced in those wares are represented by the number in parenthesis next to the sites listed. The spread of bowls among the sites mentioned is as follows: Cosa (65), Antioch (311), Ruse (33), Tel Dor (167), Athenian Agora (329), Tell Atrib (19), Samaria (41), Paphos (29), Caesarea Maritima (100), Akko (13) and Ashkelon (102). The five wares (Grey, Eastern Sigillata A, Black Slip Predecessor, Orange-Sandy and Attic) are classified based on previous scholarly work that deals with the scientific determination of what comprises each ware. In order to determine the distribution and create a classification of the wares among the eleven archaeological sites, some sense of standardization needed to be created. I utilized previous scholarly work on the five wares, and applied that knowledge to the descriptions stated in each archaeological site report, to create a standard across the publications that were analyzed (see Appendix). The five wares are Gray Ware (94), Red-Orange Sandy Ware (202), Attic Ware (300), Eastern Sigillata A Ware (53) and Black Slip Predecessor Ware (21). A sub-group of Eastern Sigillata A Ware and Black Slip Predecessor Ware, are counted as one ware, because the
wares not only share a fabric, which creates complications for ‘scholars,’ to make a distinction between the two, but they also consist of 516 sherds out of 1,186 total (see Appendix). The same sites mentioned included motifs that I examined. The descriptions of the motifs are based on Susan Rotroff’s distinct motifs. The standardization of wares and motifs alongside tracking the connections between these two things are instrumental in understanding the possible production centers and trade connections interactions with each site analyzed.

Figure 1. Map of the archaeological sites used for research; (Red: the sites where the bowls begin to occur in the 3rd c. BC and Blue: the sites where the bowls begin in the 2nd c. BC)

---

<table>
<thead>
<tr>
<th>Site</th>
<th>Dates of When Bowls Existed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athenian Agora, Athens, Greece</td>
<td>223/4 BCE - 50 BCE</td>
</tr>
<tr>
<td>Antioch, Turkey</td>
<td>3rd c BCE – 2nd c BCE</td>
</tr>
<tr>
<td>Tel Dor, Israel</td>
<td>2nd c. BCE – 1st c. BCE</td>
</tr>
<tr>
<td>Ashkelon, Israel</td>
<td>2nd c. BCE - 1st c. BCE</td>
</tr>
<tr>
<td>Tel Atrib, Egypt</td>
<td>275 BCE – 1st c. BCE</td>
</tr>
<tr>
<td>Paphos, Cyprus, Greece</td>
<td>Mid 2nd c BCE – 1st c BCE</td>
</tr>
<tr>
<td>Akko, Israel</td>
<td>Mid-Late 2nd c BCE – 1st c. BCE</td>
</tr>
<tr>
<td>Ruse, Bulgaria</td>
<td>146 BCE – 30 BCE</td>
</tr>
<tr>
<td>Samaria, Israel</td>
<td>2nd c. BCE – 1st c. BCE</td>
</tr>
<tr>
<td>Caesarea Maritima, Israel</td>
<td>2nd c BCE- 1st c. BCE</td>
</tr>
<tr>
<td>Cosa, Italy</td>
<td>175 BCE – after 75 BCE</td>
</tr>
</tbody>
</table>
Figure 2. Two-Horse Chariot motif on an Athenian Hellenistic Bowl attributed to the Workshop of Bion; originally published by Susan Rotroff as no. 152 on Plate 28.

Figure 3. Two-Horse Chariot motif on an Athenian Hellenistic bowl mold attributed to the workshop of Bion; originally published by Susan Rotroff as no. 275 on Plate 54.
Figure 4. Two-Horse Chariot motif on an Athenian Hellenistic Moldmade bowl attributed to Workshop A; originally published by Susan Rotroff as no. 151 on Plate 28

Figure 5. Two-Horse Chariot motif on an Athenian Hellenistic bowl mold attributed to Workshop A; originally published by Susan Rotroff as no. 276 on Plate 54
2. History Refresher

The Hellenistic period consisted of constant conflict, but the ramifications of the Chremonidean War, ushered in a new form of luxury tableware, which was the Hellenistic Moldmade bowls. In order to understand the connection of the Chremonidean War to the beginning of the Hellenistic moldmade bowls, further background information about the contemporary political and economic standings of the time must be explained. Antigonus Gonatas had become the ruler of Macedon and with that title, practically, the ruler of Greece, in 276 BCE. Antigonus Gonatas had weakened Athens political freedom, by running Greece as though it was Macedon proper. The Greek and Spartans came together to fight against Antigonus Gonatas and to regain their freedom in Athens, in the Chremonidean War (267-262 BCE). Ptolemy II was an ally to Athens during the War, however, Athens had lost the War. Athens now had a pro-Macedonian governor as well as garrisons. The alliance between the Ptolemies and Athens was vital in the history of the bowls.

Ptolemy II was succeeded by Ptolemy III Euergetes, whom successfully freed the Greeks in Athens. Ptolemy III, not only negotiated subsidies with Kleomenes III, but also freed the Greeks in Athens, which lead to the removal of the garrisons on the port of Piraeus and Athens. The removal of the garrisons allowed for trade between Egypt and Athens. Athens rewarded

---

Ptolemy III, with a festival and many other titles mention in Chapter III. The festival dedicated to Ptolemy III, was called the Ptolemaia. It’s postulated that the Ptolemaia brought forth metal bowls that were the predecessors to the Hellenistic Moldmade bowls. The trade patterns of the bowls are unclear; however, political occurrences have led to educated guesses of these trade patterns.

Ptolemaic power began to decrease by 221 BCE and Rome’s power increased over the next several years. A combination of the Macedonian (214, 200 BCE) and Syrian Wars, as well as turmoil within the Macedonian rule, led to the rise of Roman power. Rome’s continuous climb to power essentially led to the decline of the Hellenistic Moldmade bowls. Rome won control over Macedon and the Macedonian kingdom, by winning the Battle of Pydna in 168 BCE. The victory at the Battle of Pydna led to Rome, ‘freeing,’ Delos, however, Delos now served Rome’s trading needs instead of Rhodes. Rhodes economy was decimated by Rome’s ‘freeing,’ of Delos, which indirectly gave cause to the Achaean League’s war against Rome. Greece, still seeking proper freedom, was sacked in 146 BCE at Corinth due to the Achaean League’s war against Rome. The Hellenistic Moldmade bowls popularity within Greece began to decrease, but their popularity in Asia Minor and in the Levant began to increase (Table 1). The next century saw Rome’s power increase and turn into an empire, and conversely the Hellenistic Moldmade bowls decreased in favor.

---

In 86 BCE, Sulla sacks Athens and the Athenian economy stumbles. The Hellenistic Moldmade bowls shortly fell out of favor in Athens and Greece after this event. The same pattern is seen throughout Tel Dor and the rest of the Levant during this time, see Chapter V.

Pompey came to power in the East (58 BCE) and reorganized the territories, which gave Rome a strategic highway in Asia Minor that ran from Laodikeia through Lykaonia to Tarsus.\textsuperscript{13}

Pompey’s rearranging of Asia Minor greatly affected the trade of goods, which brought forth a deafening decline in Hellenistic Moldmade bowls and increase in Arrentine Ware.

3. The History of Hellenistic Moldmade Bowls

3.1 Background to Hellenistic Moldmade Bowls

Hellenistic Moldmade Bowls began in 224/223 BCE and lasted until the middle of the first century CE. The name, Hellenistic Moldmade Bowls, is the name that will be used throughout this paper. The name has gone through several changes that has ultimately deemed the bowls ‘Hellenistic Moldmade Bowls.’ The most common name, ‘Megarian Bowls,’ was coined by Otto Benndorf. Benndorf created the name ‘Megarian bowl’ in 1883, when he published plaster casts of the bowls, said to originate in Megara.\textsuperscript{14}

Scholars have attempted to attribute ancient words that represent the Hellenistic Moldmade Bowls. The first author, Athenaios, who sourced his information from Pamphilos, used the term \textit{nmitomos}, an Athenian drinking cup possibly attributed to the Hellenistic Moldmade Bowls, but the term could also apply to other moldmade vessels produced in Athens.\textsuperscript{15} The second word also termed by Athenaios is the \textit{kovdu}, a Persian drinking cup that originated as a type of crystal ball, where visions appeared.\textsuperscript{16} The \textit{kovdu} was also used as a drinking cup for libations in the Greek and Achaemenid cultures.\textsuperscript{17} The content of the bowls consisted of wine, due to the type of motifs and figures featured in relief on the bowls, which

would’ve suited events such as *symposia* or festival, such as the Ptolemaia. Athenian Hellenistic Moldmade Bowls “fall within a range of 0.075 - 0.09 m. in height and 0.14 - 0.16 m. in diameter. Their capacities range from *ca.* 450 cc to liter, most falling between 500 and 800 cc.”

The Greeks used a variety of different techniques when concocting wine and, therefore, they could hold many different mixtures. The bowls’ lack of a foot or handles can be explained by the theory that once the wine was consumed, the bowls would be purposefully placed upside down to empty the liquid and display the beautiful decoration. Scholars have yet to determine an ancient word ascribed to the Hellenistic Moldmade Bowls. Further research must be conducted in order to ascertain an ancient word used to describe Hellenistic Moldmade Bowls. Almost a century and a half has passed since ‘Megarian Bowls’ was coined and new evidence has been found.

The bowls have no feet or handles. Their hemispherical shape is impressed with highly decorative figures and motifs. Hellenistic Moldmade Bowls are a luxury tableware, imitating metal bowls that once were highly prized. Production of the Hellenistic Moldmade Bowls began in Athens, because of Egyptian influence and trade in the third century BCE. Several historical factors point to Egyptian influence in Athens. The single event leading to the influence of Egypt in Athens occurs in 229 BCE, when Athens regained freedom from the Macedonians. Athenian freedom from the Macedonians allows Athens to rekindle its friendship with Egypt, which Athens does during the third century BCE. The Athenians rekindle their ties with Egypt by commencing trade, adding King Ptolemy III Euergetes to the tribes of Athens and throwing

---


festivals in honor of Egyptian kings. Rotroff states “there is no doubt that bowls of precious metal served as models for the first moldmade relief bowls.” Two critical pieces of evidence point to the Athenian Hellenistic Moldmade bowls imitating metal bowls. The first pieces of evidence are three types of palms native to Egypt, which are the *Nymphaea lotus* (Fig. 6-7), the *Nymphaea Caerulea* (Fig. 8) and the *Nymphaea Nelumbo* (Fig. 9). The three palms are found on hemispherical bowls dating as far back as the Old Kingdom in Egypt. The most compelling aspect of Hellenistic Moldmade Bowls is that the form of the hemispherical bowl “had an unbroken history in Egypt...it was current in Egypt in the early Hellenistic period.” Athens is the earliest manufacturer known to date for Hellenistic Moldmade bowls. Athenian potters are the inventors of creating Hellenistic Moldmade bowls from casts of metal bowls. Hellenistic Moldmade bowls are found in Southern Russia, Pergamon, Kyme, Hama, Labraunda, Tarsus, Corinth, Argos, Delos, Siphnos, Cyprus, Paphos, Akko, Ashkelon, Eretria, Italy and many more sites around the world (Fig. 2).

The first historical event marking Egyptian influence in Athens occurs in 223/4 BCE. The Athenians threw a festival in honor of King Ptolemy III Euergetes, their benefactor. King Ptolemy III Euergetes was the Macedonian king in Egypt and the festival to honor kings in Egypt

---

23 Image for Figure 6 originally in Rotroff, Susan I. *The Athenian Agora. Athenian and Imported Moldmade Bowls. XXII, The American School of Classical Studies at Athens* (1982): Plate 9, No. 55.
was called the Ptolemaia. The Ptolemaia occurred in 224/3 BCE in Athens, Greece. Athens honors King Ptolemy III Euergetes in four ways. The first, by naming one of the twelve tribes after him, followed by a statue of Ptolemy III joining the Monument of Eponymous Heroes, the naming of a deme after his queen, Berenike, and lastly the establishment of a priesthood of the royal couple. The Ptolemaia is crucial to the history of Hellenistic Moldmade Bowls, because the Alexandrian metal bowls appearing in the Ptolemaia bring inspiration and possibly casts used by Athenian potters to create the first Hellenistic Moldmade Bowls. Silver bowls found during the excavation at Toukh-el-Qarmous display the first evidence of potters casting molds from metal vessels (Fig 10). Another example of Athenian Hellenistic Moldmade bowls imitating earlier metal and glass bowls is the comparison of the Rothschild Glass Bowl from le tresor de tarante (Fig. 11), and an Athenian Hellenistic Moldmade bowl from the Athenian Agora (Fig. 12). The introduction of Hellenistic Moldmade bowls could have begun by someone having close ties with the Ptolemies and commissioning a potter and/or Athenian supporters, or Ptolemaic ambassadors had them made as souvenirs or gifts. The theory presented by Rotroff states,  

[I]t is likely that the vessels carried in honor of King Ptolemy III in Athens would have been imported from Alexandria, of the foremost centers for the production of precious metalwork. They would have been seen by large numbers of Athenians and excited widespread admiration in the city. A shrewd and enterprising

---

Athenian potters might well have recognized a market for cheap imitations of the magnificent gold and silver bowls. If this is so, we date the first Athenian moldmade bowls in the year 224/3.\textsuperscript{31}

The Alexandrian bowls presented during the procession inspired Athenian potters to adopt these bowls as the standard wine drinking vessel instead of the more expensive *kantharoi* for Athens. Rotroff states that “...everything about them suggests that they are direct mechanical copies of the metal originals that inspired the invention of ceramic moldmade bowls at Athens.”\textsuperscript{32} The creation date for Athenian Hellenistic Moldmade Bowls and for the introduction of Hellenistic Moldmade Bowls around the world is 223/4 BCE in history.\textsuperscript{33} Two other historical events in Rome also support the idea that Hellenistic Moldmade Bowls are secondary copies of metal bowls.

On numerous occasions, Roman generals flaunt their triumphal riches from victories overseas. Rotroff specifically points out two triumphs occurring in the second century BCE. The first triumph in 189 BCE celebrated Lucius Scipio’s victory over Asia, when Scipio “displayed vast quantities of decorate silver and gold.”\textsuperscript{34} The second triumph in 133 BCE celebrated “[W]hen Attalos III bequeathed the kingdom of Pergamon to Rome...his personal effects, including large amounts of precious tableware, were auctioned to eager buyers in the city.”\textsuperscript{35}


Grace changes her chronology based on the annual eponyms stamps of the Rhodian handles. Grace uses the Pergamon deposit dating of 175 BCE, and counts back by allotting each name one year, arriving at 240 BCE. This moves the terminus post quem for Hellenistic Moldmade Bowls in Athens to 233-220 as well as the eponym Xenodratos to ca. 211 BCE, once again revising Hellenistic Moldmade Bowls in Athens to ca. 226-211 BCE.


presence of Hellenistic Moldmade bowls in East Asia and Israel exhibit that there was a possible rise in the tradition of the Greek symposium, which brought forth the import of Ionian and Ephesus Hellenistic Moldmade bowls “via the commercial harbours of the Gold of Iskenderun.” The triumphs of 189 BCE and 133 BCE as well as the Ptolemaia in 223/4 BCE, exhibit that the metal bowls seen during these processions were probable inspirations for Athenian potters to create the Hellenistic Moldmade bowls. The Hellenistic Moldmade bowls lost favor among the different cultures as Rome’s power grew, due to Arrentine ware becoming the standard drinking vessel.

In 86 BCE, Sulla sacked Athens and its economy stumbled. The Athenian Hellenistic Moldmade Bowls, shortly after the sack of 86 BCE, fell out of favor. The same pattern is seen throughout the other areas where Hellenistic Moldmade Bowls have been found. In the region of modern Israel, several sites stopped producing Hellenistic Moldmade Bowls in the first to middle first century BCE. The ware that succeeded the Hellenistic Moldmade Bowls is Arrentine ware, which was manufactured in Italy. Arrentine Ware quickly became the standard luxury tableware, subsequently ending the production, trade and use of Hellenistic Moldmade bowls.

Hellenistic Moldmade Bowls began in 223/4 BCE, when Athens and Egypt regained a friendship, which led to trade among these two cultures. In turn, the Ptolemaia festival began the production of the Hellenistic Moldmade Bowls, which were casted from Alexandrian metal bowls brought from Egypt. Several metal and glass bowls, such the Hildesheim bowl, the silver bowl from Toukh-el- Qarmous and the Rothschild Glass Bowl from Le Tresor de Tarante attest to the archaeological evidence of the positive outcomes of trade between Athens and Egypt and

---

further prove Egyptian influence on Hellenistic Moldmade Bowls. Two aspects of The Hellenistic Moldmade Bowls aid scholars in creating a chronology and typology for the bowls, which are the motifs discussed briefly and the context of artifacts surrounding the bowls, such as coins and stamped Rhodian handles.

Figure 6. Silver bowl from Toukh-el-Qarmous ca. 300-250 BCE

Figure 7. The Rothschild Glass Bowl from Le Tresor de Tarante
Figure 8. A photograph of an Athenian Hellenistic Moldmade Bowl from the Athenian Agora

Figure 9. An Athenian Hellenistic Moldmade Bowl displaying *nymphaea lotus*

Figure 10. An Athenian Hellenistic Moldmade Bowl displaying a variant of *nymphaea lotus*
3.2 Chronology and Typology of Hellenistic Moldmade Bowls

The chronology and typology of Hellenistic Moldmade relief bowls are tricky, due to the process of manufacturing and the lack of a standard typology. The bowls were created using molds that could last generations and be reused on multiple bowls. The best way to date a bowl is by knowing its context. In order to create a stable and valid context for the Athenian Hellenistic Moldmade Bowls, Rotroff used Homer Thompson’s initial dating of the bowls and

---

adjusted the dates based on Virginia Grace’s dating of stamped amphora handles alongside coins to date the bowls. Grace changes Thompson’s chronology and thus Rotroff’s chronology by analyzing the annual eponyms stamps on the Rhodian handles. Grace utilizes the Pergamon deposit date of 175 BCE as the bases, and counts back by allotting each name one year, arriving at 240 BCE. The terminus post quem for Hellenistic Moldmade Bowls in Athens moves from ca. 275 BCE to 233-220 BCE as well as the eponym Xenostatos to ca. 211 BCE, which revises the beginning of Hellenistic Moldmade Bowls in Athens to ca. 226-211 BCE. Rotroff utilized a combination of Homer Thompsons, F. Courby and Charles Edwards typology in the publication of the Athenian Hellenistic Moldmade Bowls, which is based on the motifs represented. Three scholars studying Hellenistic Moldmade Bowls created a chronology and typology. The first scholar was F. Courby, who created a typology for Delian Hellenistic Moldmade Bowls.

F. Courby studied Delian Hellenistic Moldmade Bowls. Courby isolated the Delian Hellenistic Moldmade Bowls into four different classes based on decoration in order to create a typology. The first class, Class I, is ‘the bols à godrons’. The second class, Class II, is ‘bols à bossettes et à imbrications.’. The third class, Class III, is called ‘bols à décor végétal et floral.’. The last class, Class IV, is ‘bols à décor varié et corolle végétale.’

Charles Edwards divided the Corinthian Hellenistic Moldmade bowls into three succinct categories. The three categories are laid out by Edwards in an attempt to create a typology and

http://www.jstor.org/resources.library.brandeis.edu/stable/148015.
chronology with more detail than Courby had previously done. The categories are as follows: 1) Foliage Bowls; 2) Figured Bowls; and 3) Linear Bowls.  

The first category is called Foliage Bowls. Edwards described Foliage Bowls as “Courby’s II, bols à bossettes et à imbrications, and III, bols à décor végétal et floral, along with others.” Edwards ‘others’ under the Foliage Bowls, includes leaf and tendril, imbricate, small, veined, pointed leaves, rounded petal tips, pointed petal tips, and ivy (Figs. 13-18). The Corinthian Foliage Bowl category is dated to ca. 250 to 146 BCE, based on the context and deposits of where the bowls were unearthed. Each sub-category, however, within Foliage Bowls is also given a rough date. The dates of the sub-categories are based on context. The leaf and tendril sub-category is roughly dated to 200 BCE, imbricate to ca. 200 BCE, small, veined, pointed leaves to roughly 200-146 BCE, rounded petal tips to 146 BCE, pointed petal tips to roughly 146-110 BCE, and ivy roughly to 175-146 BCE.

---

Figure 13. Corinthian Hellenistic Moldmade Bowls, examples of ‘leaf and tendrils’

Figure 14. Corinthian Hellenistic Moldmade Bowl, example of ‘imbricate’

Figure 15. Corinthian Hellenistic Moldmade Bowl, example of ‘small, veined, pointed leaves’
Figure 16. Corinthian Hellenistic Moldmade Jug, example of ‘rounded petal tips’

Figure 17. Corinthian Hellenistic Moldmade Bowl, example of ‘pointed petal tips’

Figure 18. Corinthian Hellenistic Moldmade Bowls, example of ‘ivy’
The second category is Figured Bowls. Edwards described Figured Bowls as “IV, bols à décor varié et corolle végétale.” Figured Bowls were produced entirely by stamping. The Corinthian Figured Bowls are roughly produced between 275 to 146 BCE. Edwards states that “relative chronology can be best established on its general lines perhaps by means of the individual scenes represented.” The sub-categories under Figured Bowls are defined by the different scenes, myths, animals, etc. represented on the bowls. Edwards identified ‘a standing Artemis (?); Eros bound; a Hermes type; the agitated woman; the girl dancing; and the cavalryman’ (Figs. 19-24), as possible local Corinthian products.

Figure 19. Corinthian Hellenistic Moldmade Bowl, example of ‘a standing Artemis(?)’

---

55 Edwards, Charles Malcolm. “Corinth 1980: Molded Relief Bowls.” *Hesperia: The Journal of the American School of Classical Studies at Athens* 50, no. 2 (1981): Image for Figure 14 originally plate 67, no. 800; Image for Figure 15 originally plate 68, no. 808; Image for Figure 16 originally plate 68, no. 812; Image for Figure 17 originally plate 71, no. 802; Image for Figure 18 originally plate 68, no. 807; Image for Figure 19 originally plate 71, no. 841.
Figure 20. Corinthian Hellenistic Moldmade Bowl, example of ‘Eros bound’

Figure 21. Corinthian Hellenistic Moldmade bowl, example of a ‘Hermes type’

Figure 22. Corinthian Hellenistic Moldmade bowl, example of an “agitated woman”
The last category is Linear Bowls. G.R. Edwards described Linear Bowls as “other related groups, appears his I, bols à godrons.” Edwards ‘other related groups,’ includes long petal, net pattern, concentric semi-circle and linear leaf (Fig. 25-28). Edwards dated Corinthian Linear Bowls roughly from 160 to 44 BCE. As stated earlier, the dating of the Corinthian Bowls are based on context and Thompson’s extensive chronological work on Athenian Moldmade Bowls and historical events. The sub-category dates are as follows; long-petal (150-
146 BCE),\textsuperscript{59} net-pattern (160-146 BCE),\textsuperscript{60} concentric-semicircle (150-146 BCE),\textsuperscript{61} and linear-leaf (ca. 150-146 BCE).\textsuperscript{62} The concentric-semicircle bowls may have originated in Macedonia, based on the similarity in decoration to a Macedonian coin.\textsuperscript{63} The third scholar to introduce a chronology and typology for Hellenistic Moldmade Bowls is Homer Thompson.

Figure 25. Corinthian Hellenistic Moldmade bowl with examples of ‘long-petals’

Figure 26. Corinthian Hellenistic Moldmade bowl with examples of ‘net pattern’

Homer Thompson divided the Athenian Hellenistic Moldmade bowls into five different categories based on the find spot of the bowls. The dating of the find spots are based on coins and lamps, which was done in 1934, but was later changed by Rotroff based on Grace’s dating of the amphorae handles associated with the bowls. Group A consists of Athenian Hellenistic Moldmade bowls found in a well that Thompson dated to the 3rd century BCE.⁶⁴ Group A

contains the Athenian Hellenistic Moldmade bowl that is very similar in motif to the Rothschild Glass bowl previously mentioned (Figs. 7). Group B contains no Athenian Hellenistic Bowls despite that large level of occupation dating from fourth century BCE to the first century CE. The Athenian Hellenistic Bowls found in Group C come from a cistern dating to the second half of the third century to the end of the Hellenistic period. The Moldmade bowls from Group C represent a wide range of motifs found amongst Hellenistic Moldmade Bowls in general. Group D dates to the Hellenistic period, and more narrowly the middle of the second century BCE, and contains 24 bowls with varying motifs. The last group is Group E, called the Cistern, dating between the turn of the second century BCE to the early years of the first century CE. Group E contains 12 moldmade bowls, one of which looks like a silver bowl from Hildesheim (Figs. 29).
All of these chronologies and typologies are based on historical and archaeological findings, such as known historical dates, coins and stamped amphora handles. The chronology can change based on new information about the context surrounding the Hellenistic Moldmade Bowls, such as new dates assigned to coins and/or stamped Rhodian handles. Historically speaking, the typology is based on two things as seen in Chapter 3, which are the motifs and the workshops. The current methodology used in creating a typology for Hellenistic Moldmade Bowls falls short in representing an accurate production center or workshop, which can lead to complications in discovering economic patterns relating to the bowls. The importance of an accurate chronology and typology is vital to the understanding of Hellenistic Moldmade Bowls, because it creates a model that other sites can use to cross compare and contrast, which can lead to understanding trade routes, production centers and the history of Hellenistic Moldmade Bowls.
4. Creation and Construction of Hellenistic Moldmade Bowls

Hellenistic Moldmade bowls were created to provide less expensive luxury tableware than metal or glass bowls previously rendered. Potters created the first molds by using the metal bowls as casts to create the molds and motifs. Molds do not necessarily indicate that they come from where they were found or were invented at the centers associated with the bowls. The only instances where molds can provide solid chronology is when a potter’s stamp is found on the mold or even the bowl itself. The creation of the mold and stamps used to create the motifs represented on the bowls is outlined in detail below.

4.1 Creation of the Mold for Stamps and Reliefs

1. The potter uses wet, thick clay and a wheel to create the mold.

2. The first way potters ever created molds, was by shaping the soft clay, also used in the creation of the bowl, on another vessel, as postulated by Thompson, Rotroff, C. Edwards and G.R. Edwards, this is a metal vessel70, (Fig. 30).71

3. The second way is by the potter creating the mold by throwing the clay and mold on the wheel and shaping the mold into a hemispherical bowl with no feet or handles.72


4. Once the mold is fully formed on the wheel by the potter and the clay is pliable, the potter applies the delicate motifs to the interior of the mold.\textsuperscript{73}

5. The rim and medallion are the first zones the potter “delimited by beading or wheel-run grooves.”\textsuperscript{74}

6. Stamps are pressed into the interior of the rest of the bowl’s decorative areas. The stamps are probably made of clay, but wood or metal could be used (Fig. 31).\textsuperscript{75} Rim patterns were probably impressed on the bowl with a roller due to the large size of the bowls.\textsuperscript{76} Figural bowls probably purely stamped.\textsuperscript{77}

7. If further decoration is required, such as floral and long petal bowls, potters would execute designs by hand (Fig. 32).\textsuperscript{78} Specific motifs require different skills. The jewelling commonly found on long-petal bowls is executed by punching tiny, hollow holes in the mold (Fig. 33).\textsuperscript{79} Free-hand artistry is used for the tendril, vine, twigs and guilloche motifs in the mold with a sharp tool.\textsuperscript{80}

8. The completed mold would be fired and then used for the manufacturing of bowls.
4.2 Creation of Hellenistic Moldmade Bowls

1. The potter pushes clay into every surface of the mold with his fingers, making sure to cover all the hollow surfaces thoroughly (Fig. 34).  

2. Placing damp clay on the edges of the centered mold on the wheel, the potter smoothed the interior, which allows for wheel marks to show, and often after the mold is made, potters added wheel made designs to the mold.  

3. The bowl sits in the mold, until the bowl shrinks and hardens for stability and removal from the mold.  

4. The potter sometimes takes an extra step before firing the bowl, by pressing stamps into the hardened mold (Fig. 33).  

5. The potter glazes the bowls and adds grooves.  

6. The potter then stacks the bowls in the kiln with “small clay rings between them to keep them apart.” (Fig. 34)  

7. Once the potter is satisfied the bowls are fired. The rings sometimes leave the bottom of the bowl with a red glaze and the upper body of the bowl with a dark brown glaze.  

---

84 Rotroff, Susan I. "Hellenistic Pottery: Athenian and Imported Moldmade Bowls." *The Athenian Agora* 22 (1982): Image for Figure 4 originally plate 62, no. 346  
85 Rotroff, Susan I. "Hellenistic Pottery: Athenian and Imported Moldmade Bowls." *The Athenian Agora* 22 (1982): Image for Figure 4 originally plate 54, no. 275  
87 Rotroff, Susan I. "Hellenistic Pottery: Athenian and Imported Moldmade Bowls." *The Athenian Agora* 22 (1982): Image for Figure 5 originally plate 72, nos. 414-5  
Figure 30. Athenian Hellenistic Mold

Figure 31. Athenian Clay Stamps

Figure 32. Athenian Hellenistic Moldmade bowl displaying free hand drawing in a mold

Figure 33. Athenian Hellenistic Moldmade Bowl with an example of a stamped medallion after the clay has hardened
Figure 34. Athenian Hellenistic Moldmade rings, used to stack the moldmade bowls.
5. Hellenistic Moldmade Bowls: Wares and Motifs

5.1 Background to Black Slip Predecessor (BSP)

Black Slip Predecessor Ware is the precursor to Eastern Sigillata A Ware (ESA). Black Slip Predecessor Ware is also known as Maroon Ware. Scholars discovered “tight linkages between ESA and the Maroon Ware confirms the typological hypothesis that the Maroon ware was but a precursor for ESA...”

Archaeologists have found Black Slip Predecessor Ware in Greece, Israel, Turkey, Jordan, Syria, and Italy (Fig 35). Black Slip Predecessor fabric is made from a calcareous clay, which allows a large amount of variety in color due to the different firing temperatures potters used.

Black Slip Predecessor Ware visually looks and feels the same as ESA Ware, because both fabrics are made up of rich amounts of Co, Cr, Fe, Ni and Ca. Black Slip Predecessor Ware is macroscopically difficult to differentiate from ESA Ware and also chemically indistinguishable from ESA Ware. The only variation between Black Slip Predecessor Ware and Eastern Sigillata A Ware is to what degree the fabric was fired and how the potters fired the fabric.

Black Slip Predecessor Ware emerged from the long standing Eastern Mediterranean black gloss ceramics by north Syrian potters. Potters produced Black Slip Predecessor Ware,

---


using a multiple firing system consisting of a reduction stage followed by an oxidation stage, much like the three-stage firing process used by the Greeks. Black Slip Predecessor fabric was fired between 750 and 900 degrees. The fabric of Black Slip Predecessor has a pale brown appearance (10YR 7/4-10YR 8/4) (Fig 37) which consists of textures that are “hard and granular, and without visible inclusions...sometimes small lime inclusions; the color may be pink (7.5YR 7/4). The very pale brown color of the biscuit is unusual for a black-slipped ware and indicative of calcareous clay.” Black Slip Predecessor Ware’s slip is fired in a reduced setting.

The surface of Black Slip Predecessor Ware ranges from a low to a high lustrous slip, usually in a purplish-brown to orange slip, however, the purplish-brown slip is more common. The reduced firing process results in colors varying from ‘dark gray (N3/)’ and ‘dark grayish brown (10YR 3/2)’ up to a ‘dark reddish-brown (5YR 3/2).’ Unlike ESA Ware, Black Slip Predecessor Ware wasn’t slipped by double dipping the vessel. Black Slip Predecessor Ware has several different forms that it’s manufactured in, such as, fish plates, Hellenistic Moldmade Bowls and bowls with incurved rims. Black Slip Predecessor Ware’s common forms derive from Greece. The potters who created the Black Slip Predecessor Ware were responsible for creating the one-stage firing red form, called ESA Ware.

Hellenistic Moldmade Bowls made in ESA, date from 150 BCE to 50 BCE, which means that Black Slip Predecessor Ware Hellenistic Moldmade Bowls were created a short time before

the ESA Ware bowls. Scholars, through scientific analysis have determined a provenance of either the site of Tarsus in Turkey or Laodikeia in Syria with possible ports at: 1) Myriandos; 2) Rhosos; and 3) Seleukia ad Pieria, but most likely the area around Antioch. The provenance of Black Slip Predecessor can only be theorized by scientific analysis and limited archaeological evidence, because archaeologists have yet to identify any wasters or kilns which contain Black Slip Predecessor.

5.1.1 Chemical Composition of Black Slip Predecessor

Black Slip Predecessor fabric chemically consists of ophiolite and calcareous clay with large amounts of Co, Cr, Fe and Ni. In the past, several scholars conducted X-ray fluorescence, neutron activation analysis (NAA) and petrography on Eastern Sigillata A fabric to determine a variety of questions, such as provenance, composition and the chemical connection between Black Slip Predecessor Ware (BSP) and Eastern Sigillata A Ware (ESA). The results from the test mentioned before, have concluded that Black Slip Predecessor, is in fact the precursor to ESA Ware. Based on the chemical and archaeological results, we can safely assume that Black Slip Predecessor Ware originated in the same place as ESA Ware.


contains large amounts of Co, Cr, Fe and Ni, which means the source of the fabric must come from a mafic or ultramafic area, much like the areas in northern Syria.\textsuperscript{98}

\textbf{5.1.2 Publication Definitions of Black Slip Predecessor Ware}

I approached each publication with a set of standards based on the Munsell chart when available in each publication and the colors listed within the publication (See Appendix). The Black Slip Predecessor Ware standards I used were dark gray (N3/) and dark grayish brown (10YR 3/2), dark reddish-brown (5YR 3/2) to a very pale brown (10YR 8/3) in the Munsell chart. The standard colors used to identify the Black Slip Predecessor Ware were pale brown, brown, gray-brown, yellow brown, tan and beige when publications lacked Munsell chart colors.

The various publications used a combination of brown, very pale brown, light brown, BSP, beige, pale brown, and yellowish brown when the Munsell chart colors were unavailable. The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are very pale brown (10YR 7/3), light brown (7.5YR 6/4), yellowish brown (10YR 6/4), very pale brown (10YR 8/4). By creating a standard of Black Slip Predecessor fabric, I was able to analyze previously published Hellenistic Moldmade Bowls. After analyzing the various publications on Black Slip Predecessor Wares, I was able to track a connection between the ware and motif.

The Hellenistic Moldmade bowls were divided by body parts (rim, body, calyx, medallion) as lined out in Rotroff’s article. Table 2, displays the different motifs represented on each body part in Black Slip Predecessor. I’ve included the five most common motifs when available on each body part from the highest to lowest count; excluding the plain and ridges

motif due to large amounts of these motifs across fabrics. The five most common motifs displayed on the rim were beading (Fig 38), ovolo (Fig 39), rosette (Fig 40), heart guilloche (Fig 41) and egg and dart (Fig. 42). The body’s top five most common motifs were fauna (Fig 43), figural (Fig. 44), rosette (Fig. 40), acanthus (Fig 45) and shell (Fig 46). The calyx’s top two motifs were leaves (Fig 47), and ferns (Fig 48). The medallion only had two motifs represented, which were rosettes (Fig 40) and ridges (Fig 49).

Figure 35. Map displaying the distribution of Black Slip Predecessor ca. 224/223-50 BCE
Figure 37. Petrographic thin section of Black Slip Predecessor originally in Mermelstein as Figure 3.4 pg. 61

<table>
<thead>
<tr>
<th>MOTIF</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDGES</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEADING</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAUNA</td>
<td>7</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSETTE</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PLAIN</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIGURAL</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERN</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVOLO</td>
<td>1</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIRALS</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VINES</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALTAR</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATE STEMS</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAVES</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VESSEL</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHELL</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENDANT</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUKRANIA</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FROND</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMPHORA</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2 Eastern Sigillata A

Eastern Sigillata A has had many different names. Zahn was the first scholar to identify ESA in 1904, naming ESA, ‘Pergamene Ware.’ The next scholar, Waage in 1948, named ESA ‘Late Hellenistic Red.’ Kenyon in 1957 named the fabric ‘Eastern Sigillata A.’ Lastly in 1983 Gunneweg et al. named the fabric ‘Eastern Terra Sigillata I.’ After discovering the provenance was in Northern Syria, scholars have stuck with Kenyon’s name Eastern Sigillata A, which is the name the author uses.

Eastern Sigillata A, belongs to a wider group of wares known as Eastern Terra Sigillata. Eastern Sigillata A is the successor of Black Slip Predecessor, also known as Maroon Ware. Scholars discovered “the tight linkages between ESA and the Maroon ware confirms the typological hypothesis that the Maroon ware was but a precursor for of ESA...” Archaeologists have found Eastern Sigillata in Greece, Israel, Turkey, Jordan, Syria, Italy and Jordan. Eastern Sigillata A is made from a calcareous clay, which allows a large amount of variety in color due to the different firing temperatures potters used.

Potters produced Eastern Sigillata A, by using a one-stage firing process; firing the vessels between 900 and 1000 degrees. The most distinct feature of Eastern Sigillata A are the light colors of the fabric. Slane describes and defines Eastern Sigillata A as hard and granular, without visible inclusions; its color varies between very pale brown (10YR 8/3) and pink (7.5YR 7/4) [...] minority of pieces have a softer, pink biscuit (7.5YR 7/4), in which tiny sparkling inclusions are sometimes visible...  

---


The colors range from a light yellow to a red, which many publications list as a buff or cream and on rare occasions, Eastern Sigillata A vessels can be light gray. The Hellenistic Moldmade bowls made in ESA fabric were slipped by holding the bowl around the medallion and calyx and dipping them completely into the slip. Potters finger prints left marks on the vessels from the process of dipping and the rim is usually dark red with a non-reflective sheen.

The potters who created the Black Slip Predecessor (BSP) were responsible for creating the one-stage firing red form, called Eastern Sigillata A. Based on Crowfoot’s forms (Fig. 50) for Eastern Sigillata A, the Hellenistic Moldmade bowl is Form 20 and in Gunneweg’s publication it’s form 19b (Fig 50). Scholars use the different forms of Eastern Sigillata A to date the vessels. The first forms of ESA are found at Hama and Antioch. Hellenistic Moldmade bowls made in Eastern Sigillata A date from 150 BCE to 50 BCE. Scholars, through scientific analysis have determined a provenance of either the site of Tarsus in Turkey or Laodikeia in Syria, with possible ports at 1) Myriandos, 2) Rhosos and 3) Seleukia ad Pieria. The provenance of ESA

---

can only be theorized by scientific analysis and limited archaeological evidence, because archaeologists have yet to identify any wasters or kilns which contain Eastern Sigillata A.

5.2.1 Chemical Composition of Eastern Sigillata A

Eastern Sigillata A fabric chemically consists of ophiolite and calcareous clay with large amounts of Co, Cr, Fe and Ni. In the past, several scholars conducted X-ray fluorescence, NAA and petrography on Eastern Sigillata A to determine a variety of questions, such as provenance, composition and the chemical connection between Black Slip Predecessor (BSP) and Eastern Sigillata (ESA). Slane et al. determined through chemical analysis that the calcium percentage in ESA lies between 9.5 to 11 percent, consistent with all Eastern Sigillata Wares. ESA contains large amounts of Co, Cr, Fe and Ni, which means the source of the fabric must come from a mafic or ultramafic area, much like the areas in northern Syria. Scientific analysis completed on Eastern Sigillata A reveals the reason for the variety in fabric color and slip color and provenance to a certain extent.

5.2.2 History and Trade of Eastern Sigillata A

Eastern Sigillata A is the successor of Black Slip Predecessor and emerged around 150 BCE in the form of Hellenistic Moldmade bowls. The earliest form of ESA known to date are located in the Levant. The first forms of ESA are found at Hama and Antioch, which links the

origin of Eastern Sigillata A in northern Syria. Scholars have made educated guesses about the trade patterns of Eastern Sigillata A, stating “ESA originated at a source in northern Syria and was distributed down the Orontes Valley or the contrary, that it originated in the area between Tel Anafa and Hama and was carried northward up the Orontes Valley to Antioch…”\textsuperscript{110} No matter what side of the debate of trade patterns, the origin of Antioch source for Eastern Sigillata A has been proven archaeologically and scientifically. Debates surrounding the trade patterns and influences, however, occur to this day. A lack of wasters or kilns in the archaeological finds creates conflicts with pinpointing trade routes as well as the exact provenance.

The production of Eastern Sigillata A was mass-produced based on the high levels of finds. The main bulk of Eastern Sigillata A, was distributed between and reached its heyday between 150 to 100 BCE and the first quarter of the 1st century AD (Fig 51-52).\textsuperscript{111} Eastern Sigillata A was perhaps transported and sold in bulk, based on the “300 specimens recovered from the sea off the Turkish coast not far from the Antalya-once presumably part of the cargo of a ship heading for the Aegean.”\textsuperscript{112} The level of production has been calculated roughly. Lund provides a scale of Eastern Sigillata A’s production over the 300 years of its existence. The calculations report a “total output of about 23,506,600 vessels...which translates into a mean annual output of 78,355 examples.”\textsuperscript{113} The high quantity leaves scholars to believe that Eastern

Sigillata A forms were created using molds. In the case of Hellenistic Moldmade bowls, this is certainly the case. Based on NAA, Gunneweg et al. dates the Hellenistic Moldmade bowls from Samaria in 150-50 BCE, Tarsus in 190-50 BCE, Ashdod in 134-110 BCE and Tel Anafa in 150-50 BCE (Fig. 53). However, the date for Eastern Sigillata A Hellenistic Moldmade bowls in general is 150-50 BCE, with characteristics of slightly outturned rims and a brown-red colored slip. Lund et al. propose that the origin and production of Eastern Sigillata A occurred in three possible ports, 1) Myriandos, 2) Rhosos and 3) Seleukia ad Pieria.

The trade pattern of Eastern Sigillata A may have begun with the Hellenistic Moldmade bowls, and reached its highest peaks at the sites of Hama, Tel Anafa, Antioch, Tarsus, and Paphos. The Hellenistic mold made bowls found in Italy are possibly being exported from Ephesus, due to the wide reach of the Ephesus workshop (Fig. 54). Ephesus exported products into the Aegean, the Black Sea area, the Italian peninsula and further West. One important historical event in the trade of Eastern Sigillata A between the east and the west occurred in 167 BCE, when Rome handed Delos over to Athens. Rome allowed Athens to have Delos on the term that the harbor of Delos acted as a place where no taxation occurred on imports or exports.

Eastern Sigillata A achieved success during the Late Hellenistic period due to Rome’s influence and power in the East. The trade and connection between Rome and the East lead to “integrating eastern material culture into a Roman way of life.” Delos was known for their role as a connection between the East and the West. Malfitana phrases Delos as a “trans-Mediterranean emporium, involving mainly Greek, Italian and Oriental traders in eastern luxuries and slaves only for a short period.” During the second century BCE Delos catered for the needs of Italy…by funneling large amounts of slaves and a wide variety of luxury products, mainly from the Near East to Rome. Levantine merchants clearly contributed largely to the success of the island port by controlling the supply mechanisms.

Hellenistic Moldmade bowls should be considered part of the Eastern luxuries coming from the Levantine merchants into Italy. Scholars have debated whether West influences East or vice versa when discussing Eastern Sigillata A. Examining Eastern Sigillata A and Arrentine poses as a solid example of the East influencing West. Slane proposes a convincing case, that Eastern Sigillata A influences Arrentine ware and that the East influenced the West concerning Eastern Terra Sigillata. The main crux of the argument deals with the firing techniques used by Italy, Greece and the Levant.

Black Slip Predecessor and Eastern Sigillata A were produced in a one-stage firing process, which according to Slane, Italy can’t ‘claim priority.’

---

period, Italy uses a three-stage firing process, whereas potters in the Levant used a one-step firing process, which allows for a consistent red fired vase.\textsuperscript{125} Furthermore “potters in Arezzo later adopted both the production strategy of ESA… and its firing technology (single stage, red product), while retaining their own system of stamping open forms.”\textsuperscript{126} Based on the distribution of Eastern Sigillata A during the political chaos of the Hellenistic period, the circulation was based on pre-established trade routes.\textsuperscript{127} Production began in northern Syria, which spread to Western Cyprus at the end of the second century BCE and up to Pergamon in the first half of the first century BCE.\textsuperscript{128} In conclusion the East influenced the West, but the West made it their own in decoration, which led to the creation of Arrentine Ware and West Terra Sigillata which ended the reign of Hellenistic Moldmade bowls.

### 5.2.3 Publication Definitions of Eastern Sigillata A

The Eastern Sigillata A Ware standards I used were very pale brown (10YR 8/3) through to a pink (7.5YR 7/4) in the Munsell chart. The standard colors used to identify the Eastern Sigillata A Ware fabric were pink, pale brown, pinkish, salmon, dull pink, and buff when publications lacked Munsell chart colors.

The various publications used a combination of pink, cream pinkish, pinkish buff, pinkish, reddish buff, salmon, dark pink and ESA when the Munsell chart colors were


The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are pink (7.5YYR 7/4). By creating a standard of Eastern Sigillata A Ware, I was able to analyze previously published Hellenistic Moldmade bowls. After analyzing the various publications on fabrics, I was able to track a connection between the ware and motif.

The Hellenistic Moldmade bowls were divided by body parts (rim, body, calyx, medallion) as lined out in Rotroff’s article. Table 3, displays the different motifs represented on each body part in Eastern Sigillata A fabric. I’ve included the five most common motifs when available on each body part from the highest to lowest count; excluding the plain and ridges motif due to large amounts of these motifs across fabrics. The four most common motifs displayed on the rim were beading (Fig 38), egg and dart (Fig 42), heart pendant (Fig 55), and ovolo (Fig 39). The body’s top five most common motifs were fauna (Fig 43), figural (Fig. 44), foliage (Fig. 56), vines (Fig 57) and rosette (Fig 40). The calyx’s top four motifs were acanthus (Fig 45), long petal (Fig 58), leaves (Fig 47), and imbricate (Fig 59). The medallion only had three motifs represented, which were rosettes (Fig 40), ridges (Fig 49) and beading (Fig 38).


Table 3. Eastern Sigillata A Ware and Motifs

<table>
<thead>
<tr>
<th>MOTIF</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDGES</td>
<td>23</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>BEADING</td>
<td>15</td>
<td>11</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>10</td>
<td></td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>9</td>
<td>9</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>FIGURAL</td>
<td>8</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>LONG PETAL</td>
<td>8</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ROSETTE</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FOLIAGE</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VINES</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SCROLLS</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>OVOLO</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLAIN</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMBRICATE</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAUNA</td>
<td>11</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART PENDANT</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOTUS PETAL</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERN</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA LOTUS</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAVES</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENDANT DROPS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUKRANIA</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMPHORA</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAPES</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORNUCOPIA</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROUNDED IMBRICATE</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERTICAL BEADING</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOWER</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTRAGULUS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 50. Left: Form 19b established by Gunneweg; Right: Form 20 established by Crowfoot
Figure 51. Map taken from Lund 2006, originally fig. 10.4 of the distribution of ESA ca. 150-100 BCE

Figure 52. Map taken from Lund 2006, originally fig. 10.5, displaying the distribution of ESA in the 1st century BCE

---


Figure 53. Map of the Levant, Turkey and Syria with sites containing ESA

Figure 54. Map of Italy displaying sites where ESA has been found


5.3 Red-Orange Sandy Ware

Red-Orange Sandy Ware has recently been discovered and distinguished (Fig 60). Mermelstein divided the Red-Orange Sandy Ware into two groups, 1) Sandy group and the 2) Orange-Brown group (Fig 61) based on eyeballing the sherds from Tel Dor Area D4.\textsuperscript{135} Mermelstein and scholars through NAA were able to distinguish that Orange-Brown and Sandy were probably one Ware. Red-Orange Sandy Ware belongs in Group 1 in Mermelstein’s typology. Group 1 is believed to originate in Asia Minor\textsuperscript{136}, however petrographic analysis conducted on Hellenistic Moldmade bowl sherds from Ashkelon came up with different results.

The origin of Red-Orange Sandy Ware is hard to distinguish due to a lack of research on the matter. As mentioned before, the sherds at Dor were divided into two groups. The first group, Sandy, is believed to originate in Asia Minor. The second group, Orange-Brown, is believed to originate in the Levant, perhaps a similar center like the producers of Black Slip Predecessor and Eastern Sigillata A.\textsuperscript{137} Mermelstein concludes that the division of the two are incorrect and that the origin of Red-Orange Sandy fabric is somewhere in Asia Minor, but the core of the group belongs to Black Slip Predecessor and Eastern Sigillata A. The Ashkelon petrographic analysis on Red-Orange Sandy Ware ties the origin of the ware with in Eastern Cyprus, possibly in the region of Paphos and Akamas.\textsuperscript{138} The origin of Red-Orange Sandy Ware has yet to be determined.

\textsuperscript{135} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) Figure 3.3 pg. 61
\textsuperscript{136} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 98.
\textsuperscript{137} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 96
\textsuperscript{138} Notes from Dr. Birney
Red-Orange Sandy Ware contains Sodium, Rubidium, and Cesium\textsuperscript{139} unlike Eastern Sigillata and Black Slip Predecessor. The fabric of Red-Orange Sandy ware has a brownish orange appearance (7.5YR 5/4) to a bright red color (2.5YR 5/6). The consistency of Red-Orange Sandy Ware’s fabric texture is hard and granular with “microscopic quartz and some gray and white inclusions.”\textsuperscript{140} The surface of Red-Orange Sandy fabric ranges from a low to a high lustrous slip, usually an orange slip, however, some sherds appear metallic. Further research on Red-Orange Sandy fabric is necessary in order to evaluate a production center and trade patterns during the Hellenistic period.

Figure 60. Map of Red-Orange Sandy Ware distribution ca.223/224-50 BCE

\textsuperscript{139} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 97.

\textsuperscript{140} Notes from Dr. Kathleen J. Birney
5.3.1 Publication of Red-Orange Sandy Ware

The Red-Orange Sandy Ware standards used were brownish orange in appearance (7.5YR 5/4) to a bright red color (2.5YR 5/6) in the Munsell chart. The standard colors used to identify the Red-Orange Sandy Ware were orange, red, orange-brownish, reddish-brown and dull red when publications lacked Munsell chart colors.

The various publications used a combination of light reddish brown, light red, red, reddish-brown, red-brown, light ocher, orange, dark orange, light orange, dark bright orange, dark brownish-orange and reddish when the Munsell chart colors were unavailable.141 The

Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are light reddish brown (2.5YR 6/4), light red (2.5YR 6/6), red (2.5Y 5/6), light reddish brown (5YR 6/3) reddish brown (5YR 5/4).\textsuperscript{142} By creating a standard of Red-Orange Sandy Ware, I was able to analyze previously published Hellenistic Moldmade bowls. After analyzing the various publications on Red-Orange Sandy Ware, I was able to track a connection between the ware and motif.

The Hellenistic Moldmade bowls were divided by body parts (rim, body, calyx, medallion) as lined out in Rotroff’s article.\textsuperscript{143} Table 4, displays the different motifs represented on each body part in Red-Orange Sandy Ware. I’ve included the five most common motifs when available on each body part from the highest to lowest count; excluding the plain and ridges motif due to large amounts of these motifs across fabrics. The five most common motifs displayed on the rim were egg and dart (Fig 42), meander (Fig 62), beading (Fig 38), spirals (Fig 63), and rosette (Fig 40). The body’s top five most common motifs were long petal (Fig 58), vines (Fig. 57), acanthus (Fig. 45), rosette (Fig 40) and figural (Fig 44). The calyx’s top five motifs were nymphaea lotus (Fig 64), imbricate (Fig 59), acanthus (Fig 45), long petal (Fig 58) and net (Fig 65). The medallion only had three motifs represented, which were rosettes (Fig 40), ridges (Fig 49) and beading (Fig 38).

\textsuperscript{142} Rotroff, Susan I. “Hellenistic Pottery: Athenian and Imported Moldmade Bowls.” \textit{The Athenian Agora} 22 (1982): 87-92
\textsuperscript{143} Rotroff, Susan I. "Hellenistic Pottery: Athenian and Imported Moldmade Bowls." \textit{The Athenian Agora} 22 (1982): 5
<table>
<thead>
<tr>
<th>MOTIFS</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDGES</td>
<td>134</td>
<td>108</td>
<td>9</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>PLAIN</td>
<td>47</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>31</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSETTE</td>
<td>49</td>
<td>16</td>
<td>15</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>MEANDER</td>
<td>28</td>
<td>27</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEADING</td>
<td>25</td>
<td>19</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>24</td>
<td>15</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIRALS</td>
<td>21</td>
<td>17</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONG PETAL</td>
<td>26</td>
<td>18</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VINES</td>
<td>20</td>
<td>18</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMBRICATE</td>
<td>16</td>
<td>7</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA LOTUS</td>
<td>16</td>
<td>5</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIGURAL</td>
<td>16</td>
<td>1</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVY GARLAND</td>
<td>13</td>
<td>12</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SQUARE WITH LINES</td>
<td>13</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHECKERS</td>
<td>9</td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POINED IMBRICATE</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEWELS</td>
<td>14</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA CAERULEA</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOWERS</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SCROLL</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>GRAPES</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVOLO</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEVRON</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOLIAGE</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VEGETAL</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LESBIAN RELIEF</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STARS</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GARLAND</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROULETTING</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENDRILS</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAVES</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERN</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAVES</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DART</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTRAGALUS</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERTICAL BEADING</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROUNDED IMBRICATE</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRONDS</td>
<td>5</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FAUNA</td>
<td>8</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PINECONE</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BERRIES</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA NELUMBO</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUKRANIA</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CORNUCOPIA</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALTAR</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>CONCENTRIC CIRCLES</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENDANT DROPS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AMPHORAE</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOLLOW CIRCLES</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAND AND REEL</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACorns</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHIELD</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAK LEAVES</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROPE</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VESSELS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOUBLE SPIRALS</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4 Gray Ware

Gray Ware has recently been discovered and distinguished by Mermelstein and scholars. Mermelstein named the ware Grey-Brown, (Fig 66) based on eyeballing the sherds from Tel Dor Area D4.\textsuperscript{144} Gray Ware fabric belongs in Group 1 in Mermelstein’s typology. Group 1 is believed to originate in Asia Minor\textsuperscript{145}, however Gray Ware is believed to be Cypriote in origin.\textsuperscript{146} Petrographic analysis conducted on Hellenistic Moldmade bowl sherds from Ashkelon yielded different results.

The origin of Gray Ware is hard to distinguish due to a lack of research on the subject. The first group in Mermelstein’s typology, Gray Ware, is believed to originate in Asia Minor. The Ashkelon petrographic analysis on Gray Ware ties the origin of the ware within Eastern Cyprus, possibly in the region of Paphos and Akamas.\textsuperscript{147} Ashkelon petrographic analysis also indicates that Gray Ware belongs to the Red-Orange Sandy Ware. Gray Ware may result from an ‘oxidized atmosphere’ coupled with a low firing temperature ca. 700 degrees.\textsuperscript{148} The origin of Gray Ware has yet to be determined.

Gray Ware contains Sodium, Rubidium, and Cesium\textsuperscript{149} unlike Eastern Sigillata and Black Slip Predecessor. The fabric of Gray Ware has a gray brownish appearance (2.5Y 4/1- 5Y 5/1) (Fig 67). The consistency of Gray Ware fabric texture is a “hard fired and well-levigated fabric with microscopic gray and white inclusions, treated with a thick, flaky and semi-lustrous

\textsuperscript{144} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 97.
\textsuperscript{145} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 96.
\textsuperscript{146} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 97. 62-63.
\textsuperscript{147} Notes from Dr. Kathleen J. Birney
\textsuperscript{148} Notes from Dr. Birney
\textsuperscript{149} Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) 96.
black slip.” The surface of Gray Ware anges from a low to a high thick lustrous slip, usually a black slip, however, some sherds appear gray-brown or purple. Further research on Gray Ware fabric is necessary in order to evaluate a production center and trade patterns during the Hellenistic period.

Figure 66. Map displaying the distribution of Gray Ware ca. 223/224-50 BCE

---

150 Notes from Dr. Kathleen J. Birney
5.4.1 Publication Definition of Gray Ware

The Gray Ware standards used were (2.5Y 4/1- 5Y 5/1) in the Munsell chart. The standard colors used to identify the Gray Ware, were gray, light gray, dark gray, grayish-brown and dull gray when publications lack Munsell chart colors.

The various publications used a combination of micaceous Gray Ware\textsuperscript{151}, gray, light gray, dark gray, grayish-brown, dull gray, Ephesian Gray and Ionian gray when the Munsell chart colors were unavailable.\textsuperscript{152} Ephesian or Ionian gray is described as “very fine, dense, micaceous clear gray.”\textsuperscript{153} The Munsell chart colors were used in only one publication, the

\begin{itemize}
Athenian Agora publication. The colors are micaceous gray (5Y 5/1), dark gray (10YR 5/1), light gray (2.5Y 7/2), micaceous light gray (10YR 6/1). By creating a standard of Gray Ware fabric I was able to analyze previously published Hellenistic Moldmade bowls. After analyzing the various publications Gray Ware, I was able to track a connection between the ware and motif.

The Hellenistic Moldmade bowls were divided by body parts (rim, body, calyx, medallion) as lined out in Rotroff’s article. Table 5, displays the different motifs represented on each body part in Gray Ware. I’ve included the five most common motifs when available on each body part from the highest to lowest count; excluding the plain and ridges motif due to large amounts of these motifs across fabrics. The five most common motifs displayed on the rim were rosettes (Fig 40), jewels (Fig 68), heart guilloche (Fig 41), astragalus (Fig 69), and beading (Fig 38). The body’s top five most common motifs were, imbricate (Fig 59), ferns (Fig. 48), pinecone (Fig. 70), figural (Fig 44) and triangle leaves (Fig 71). The calyx’s top five motifs were imbricate (Fig 59), acanthus (Fig 45), long petals (Fig 58), ferns (Fig 49) and spirals (Fig 63). The medallion only had three motifs represented in Gray Ware fabric, which were rosettes (Fig 40), ridges (Fig 49) and concentric circles (Fig 72).

2016 140 she references Hayes 1991:8, 11 and Gassner 1997:251-252; Rosenthal- Heginbottom, Renate, Imported Hellenistic and Roman Pottery from Tel Dor, Israel, in: Stern, E, “Excavations at Dor, Final Report 1B. Areas A and C: The Finds, Qedem Reports 367, describes the Ionian gray fabric as being the same fabric of reddish-brown fabric as well as similarly made like the Knidian gray lamps
<table>
<thead>
<tr>
<th>MOTIFS</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIDGES</td>
<td>62</td>
<td>50</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>PLAIN</td>
<td>37</td>
<td>37</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ROSETTE</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>MEANDER</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>BEADING</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>SPIRALS</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>LONG PETAL</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>VINES</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>IMBRICATE</td>
<td>31</td>
<td>17</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>NYMPHAEA LOTUS</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FIGURAL</td>
<td>7</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>SQUARE WITH LINES</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>JEWELS</td>
<td>9</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>FLOWERS</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>OVOLO</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>NET</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>GARLAND</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TENDRILLS</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>FERN</td>
<td>16</td>
<td>12</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>DART</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>ASTRAGALUS</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>FRONDS</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>FAUNA</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>PINECONE</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CONCENTRIC CIRCLES</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PENDANT DROPS</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TRIANGLES</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
5.5 Attic Ware

Attic Ware has been studied and analyzed for almost a century. During the Hellenistic times the spread of Attic Ware declined (Fig 73). Attic Ware originates in deposits near Athens. The deposit used by ancient potters is located near the modern town of Amarousi, more specifically in the vicinity around the Sacred Way leading to Eleusis. Attic Ware is extremely pure and has great plastic properties, which allowed potters to create exquisite bowls. The mineralogical makeup of Attic Ware consists of quartz and feldspar, which are found in metamorphic areas (Fig 74). The chemical composition Attic Ware is silicon (above 5%), aluminum (above 5%), iron (above 5%), titanium (.01-.09%), magnesium (1-5%), calcium (1-5%), copper (.01-.09%), potassium (.01-.09%), manganese (.01-.09%), lead (.01-.09%), zinc (.01-.09%), nickel (.01-.09%), chromium (.01-.09%), and barium (.01-.09%).

The visual aspects of Attic Ware are less detailed. Attic Ware has a distinct reddish-brown appearance (7.5YR 6/4) to a bright red color (2.5YR 5/6). The ideal temperature that ancient potters used to fire Attic clay was between 950-975 degrees. The consistency of Attic Ware fabric texture is hard and slightly micaceous. The surface of Attic Ware is a thick lustrous slip, usually black, however, some sherds appear metallic, tan, brown, red and orange.

---

5.5.1 Publication Definition of Attic Ware

The Attic Ware standards I used were reddish brown (7.5YR 6/4) to a bright red color (2.5YR 5/6) in the Munsell Soil chart (Fig. 75). The standard colors used to identify the Attic Ware were orange, red, orange-brownish, reddish-brown and dull red when publications lacked Munsell chart colors.

The various publications used a combination of Attic, reddish-brown when the Munsell chart colors were unavailable.\textsuperscript{162} The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are light reddish brown (7.5YR 6/4) to a bright red color (2.5YR 5/6).\textsuperscript{163} By creating a standard of Attic Ware, I was able to analyze previously published Hellenistic Moldmade bowls. After analyzing the various publications on Attic fabrics, I was able to track a connection between the ware and motif.

The Hellenistic Moldmade bowls were divided by body parts (rim, body, calyx, medallion) as lined out in Rotroff’s article.\textsuperscript{164} Table 6, displays the different motifs represented on each body part in Attic Ware. I’ve included the five most common motifs when available on each body part from the highest to lowest count; excluding the plain and ridges motif due to large amounts of these motifs across fabrics. The five most common motifs displayed on the rim were double spirals (Fig 76), heart guilloche (Fig 41), beading (Fig 38), fauna (Fig 43), and palmettes (Fig 77). The body’s top five most common motifs were fauna (Fig 43), figural (Fig. 44), rosette (Fig. 40), nymphaea lotus (Fig 64) and long petal (Fig 58). The calyx’s top five

motifs were ferns (Fig 48), imbricate (Fig 59), frond (Fig 78), nymphaea lotus (Fig 64) and leaves (Fig 47). The medallion only had three motifs represented, which were rosettes (Fig 40), ridges (Fig 49) and figural (Fig 44).

Figure 73. Attic Ware distribution ca. 223/4- 50 BCE

Figure 74. Thin section of an Attic Hellenistic sherd showing a) quartzite or schist b) quartzite c) schist originally published in Farnsworth as plate 67 No. 9
<table>
<thead>
<tr>
<th>MOTIF</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIGURAL</td>
<td>283</td>
<td>19</td>
<td>196</td>
<td>18</td>
<td>50</td>
</tr>
<tr>
<td>RIDGES</td>
<td>339</td>
<td>215</td>
<td>6</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>PLAIN</td>
<td>202</td>
<td>201</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FAUNA</td>
<td>370</td>
<td>42</td>
<td>311</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>DOUBLE SPIRALS</td>
<td>121</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSETTE</td>
<td>191</td>
<td>36</td>
<td>30</td>
<td>7</td>
<td>118</td>
</tr>
<tr>
<td>BEADING</td>
<td>111</td>
<td>75</td>
<td>1</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>FERNS</td>
<td>93</td>
<td>8</td>
<td>6</td>
<td>69</td>
<td>10</td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>78</td>
<td>77</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>PALMETTES</td>
<td>61</td>
<td>42</td>
<td>12</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>IMBRICATE</td>
<td>51</td>
<td>12</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRONDS</td>
<td>45</td>
<td>9</td>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAVES</td>
<td>83</td>
<td>39</td>
<td>8</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>NYMPHAEAE LOTUS</td>
<td>57</td>
<td>24</td>
<td>30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>OVOLO</td>
<td>39</td>
<td>37</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>LONG PETAL</td>
<td>34</td>
<td>23</td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>24</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PINECONE</td>
<td>23</td>
<td>10</td>
<td>11</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TENDRILS</td>
<td>26</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>20</td>
<td>8</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POINTED IMBRICATE</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOWERS</td>
<td>16</td>
<td>18</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEWELS</td>
<td>16</td>
<td>6</td>
<td>9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>FLEUR DE LIS</td>
<td>19</td>
<td>9</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>LOTUS BUDS</td>
<td>11</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>GRAPEVINES</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPIRALS</td>
<td>14</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ROUNDED IMBRICATE</td>
<td>10</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAR</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAPES</td>
<td>7</td>
<td>6</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUKRANIA</td>
<td>7</td>
<td>6</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NYMPHAEAE CAERULAE</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROPE</td>
<td>5</td>
<td>4</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CONVEX BAND</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOTUS COROLLA</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INVERTED EGG AND DART</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOWERS</td>
<td>13</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIGAE</td>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEVRON</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONVEX LONG PETAL</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIRCLE</td>
<td>2</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Figure 38. Sherd with beading from Ashkelon unpublished; an example of Gray Ware; photo number: 29738; artifact number: Reg. 7

Figure 39. Sherd with ovolo motif from Tel Dor; originally Figure 3.5 pg 69 Mermelstein
Figure 40. Sherd with rosette from Ashkelon unpublished; photo number: 29773; artifact number; RP 11810

Figure 41. Sherd with heart guilloche from Ashkelon unpublished; photo number: 29769; artifact number: Reg. 5a
Figure 42. Bowl with egg and dart motif from Ashkelon unpublished; photo number: 29774; artifact number: Reg. 3

Figure 43. Sherd with fauna from Ashkelon unpublished; Photo number: 29732; artifact number: RP 11990
Figure 44. Sherd with figural motif from Tel Dor originally figure 3.21 pg. 77 in Mermelstein

Figure 45. Sherd with acanthus motif from Ashkelon unpublished; photo number: 29756; artifact number: RP 11845
Figure 46. Sherd with shell motif from the Athenian Agora originally fig 65 on plate 11

Figure 47. Sherd with leaf motif from Ashkelon unpublished; photo number: 29771; artifact number: RP 11986
Figure 48. Sherd with fern motif from Ashkelon unpublished; photo number: 29759; artifact number: RP 11862

Figure 49. Sherd with ridge motif from Ashkelon unpublished; photo number: 29754; artifact number: RP11522
Figure 55. Sherd with heart pendant motif from Ashkelon unpublished; photo number: 29770; artifact number: Reg. 3

Figure 56. Bowl with foliage motif from the Athenian Agora originally no. 49 plate 8
Figure 57. Sherd with vine motif from Ashkelon unpublished; photo number: 29743; artifact number: RP 11804

Figure 58. Sherd with long petal motif from Ashkelon unpublished; photo number: 30827; artifact number: RP 11995
Figure 59. Bowl with imbricate motif from Ashkelon unpublished photo number: 29774; artifact number: Reg. 3

Figure 62. Sherd with meander motif from Tel Dor; originally 3.8 pg. 71
Figure 63. Sherd with spiral motif from Ashkelon unpublished; photo number: 29773; artifact number: RP 11810

Figure 64. Bowl with nymphaea lotus motif from the Athenian Agora; originally figure 58; pl. 10
Figure 65. Sherd with net motif from the Athenian Agora; originally fig. 403; pl. 69

Figure 68. Sherd with jewel motif from Ashkelon unpublished; photo number: 29712; artifact number: RP 14943
Figure 69. Sherd with astragalus motif from Tel Atrib; originally no. 10 pg. 432

Figure 70. Bowl with pinecone motif from the Athenian Agora; originally no. 3 pl. 1
Figure 71. Sherd with triangle leaf from Ashkelon unpublished; photo number: 29710; artifact number:?

Figure 72. Bowl with concentric semi-circle motif from the Athenian Agora; originally no. 401a-c pl. 68
Figure 75. Sherd with double spiral motif from Tel Dor; originally Fig. 3.6 pg. 70

Figure 76. Bowl with palmette motif from the Athenian Agora; originally no. 30, pl. 5
Figure 77. Sherd with frond motif from Ashkelon unpublished; photo number: 29766; artifact number: RP 11893
6. Conclusion

The sites of Ruse, Bulgaria, Akko, Tel Dor, Agora in Athens, Antioch, Samaria, Cosa, Italy, Ashkelon, Paphos, Akko and Caesarea Maritima comprise of the catalogued items used for tracking a connection between wares and motifs. The publications range in classification and dates, which creates a difficult determination of ware and classification. One of the main components to determine the connection between ware and motif is correctly identifying the ware. The publications variation in dates creates another layer of difficulty, due to the rapid discovery of wares. A system of standardizing wares in previously published articles was one step in determining a connection between wares and motifs. However, a lack of origin in the Red-Orange Sandy Ware and Gray Ware caused a large hurdle in deciphering the trade patterns of Hellenistic Moldmade bowls. The second step involved utilizing previously published sites reports as mentioned earlier and tracking the different motifs occurring on the four different parts of the Hellenistic Moldmade Bowls. After examining and analyzing the material of 1,186 sherds spread across ten sites in various geographical locations in five different wares there is connection between ware and motif, however the lack of identification of wares by eyeballing (Munsell), petrography nor by motifs, blurs the ability to make a distinction based on a connection between ware and motif.

The different wares proved to be difficult based on the variety of dates of publication. The earlier publications didn’t have the same technology available today. The lack of technology in the earlier publications caused the scholars to use either Munsell colors, or plan eyeballing and listing of the colors they saw. Munsell colors and general eyeballing of the wares can be
problematic for a variety of reasons. Many of the wares are made of fine fabric, which doesn’t allow for the naked eye to see certain features that could indicate the ware. Another problem, which can only be picked up through NAA, is the nuances found in the wares chemical makeup. For example, Black Slip Predecessor is related to Eastern Sigillata A, but they’re two different wares. Earlier publications wouldn’t have knowledge of these nuances, which can cause a major obstacle in correctly identifying the ware. Another method needs to be created in order to correctly identify the different wares. The same can be said of motifs.

Every publication used motifs as the only way to create a typology for Hellenistic Moldmade Bowls. The same motifs occurred on the same parts of the Hellenistic Moldmade bowls in different wares. The rim motifs that occurred repeatedly in high numbers on every ware was beading, egg and dart, rosettes, heart guilloche and meander. The body motifs that were represented in every ware in high levels were fauna, figural, rosette, foliage and acanthus. The calyx motifs displayed equally on every ware were long petal, imbricate, and ferns. The medallion had three motifs represented in every ware which were ridges, rosettes and beading. The high number of repeated motifs on every ware analyzed proves tracing a production origins on the motifs. The high amount of repetition in the motifs in every ware, proves that using only the motif for typology is not an accurate way to trace or connect the bowls to their origin.

In conclusion, the future of learning about the connection of ware and motif is possible. The technology and scientific tools need to catch up with the rate of archaeological finds. A lack of standardization in wares is directly correlated to a lack of technology in pinpointing wares not only in the field but also in research in general. The tried methods of Munsell charts and petrography aren’t enough in identifying wares. The second half of the future of tracing a connection between wares and motifs, would be in not using just one out of the two to identify a
production center. Motifs can’t be used on its own to identify an origin for the Hellenistic Moldmade bowls. Hellenistic Moldmade Bowls production center or origins can be traced by examining the ware and motif together, but better technology and different methods for identifying wares and a standard in publications of the wares needs to occur first in order for this methodology to be effective.


Mermelstein, D., Sandra. “Production and Exchange of Hellenistic Moldmade Bowls at Tel Dor.” California State, Northridge (2013) i-162.


Appendix A: Extended History Refresher of the Hellenistic Period

The Hellenistic Period is marked by political chaos, cultural growth and territorial matches between cultures. After the death of Alexander the Great, the expansive empire (Fig. 1) he had built in his young life was split between the Macedonian *diadochoi*. June 11, 323 BCE, marks the Death of Alexander the Great in Babylon as well as the struggle for power for the next two hundred years to come. The first to strike blood in the struggle for Alexander’s empire was Philip Arrhidaios, who became king of Macedon with Perdikkas (c. 365-321 BCE), who became regent from 323 to 321 BCE. The rest of Alexander’s empire was split by the *diadochoi*. Ptolemy I Soter (r. 323-285 BCE) ruled Egypt, Antigonos I Monopthalmos (r. 306-301 BCE) ruled great Phrygia, Lysimachos (r. 323-281 BCE) ruled Thrace, and Leonnatos (r. 323-322 BCE) ruled Hellespontine Phrygia. Once the *diadochoi* were set in place, civil strife and political struggles ensued.

Athens seized the moment and revolted against the Macedonian rule. The revolt broke out in 323 BCE and the Athenians were put down by the Macedonians in 322 BCE. Athens lost the port of Piraeus and a Macedonian garrison was put into place. Meanwhile, the Macedonian empire was falling apart. Perdikkas and Krateros perished and a new arrangement was made amongst the diadochoi. Ptolemy I Soter continued to rule Egypt, Antigonos Monophthalmos continued to rule Greater Phrygia as well as control Asia, and Antipater hoped to take control of Macedon; however, a new power rose. Seleukos I Nikator, became the ruler of Babylonia in 321 BCE, after murdering Perdikkas. The peace reached after Perdikkas’s death didn’t last long.

Antipater lost the battle against old age and passed away in 319 BCE. Antipater’s passing led to yet another series of political and territorial warfare among the *diadchoi*. Polycerchon became king of Macedonia instead of Antipater’s son Kassandros. Kassandros pursued Polycerchon for his rightful place on the Macedonian throne. In 317 BCE, Philip Arrhidaios’s wife, Eurydike, requested Kassandros to rule Macedon, which ended with the execution of Philip Arrhidaios. Kassandros successfully claimed the throne of Macedon and with it, mainland Greece, where Demetrios of Phaleron presided on Kassandros’s behalf. Meanwhile, battles ensued between Seleukos I Nikator, Ptolemy I Soter, Kassandros, Lysimachos and Antigonos.

Seleukos convinced Ptolemy and Lysimachos that Antigonos was attempting to take over Alexander the Great’s empire. In 314 BCE, the “Proclamation of Tyre,” occurred where Ptolemy’s army was besieged by Antigonos and an assembly was called. Antigonos denounced Kassandros on multiple accounts and decreed the Greeks have their freedom with no garrisons. Ptolemy and Seleukos in 312/311 went into battle against Antigonos in the Battle of Gaza, where Demetrios, Antigonos’s son, faced defeat. Peace between the successors was reached in 311 BCE.

Kassandros became general of Europe until Alexander the IV could rule. Lysimachos continued to rule Thrace, Ptolemy continued to rule Egypt as well as cities in Cyrenaica and

---

Arabia and Antigonos was granted all of Asia.\textsuperscript{178} Peace was never settled among the successors and territorial dominance continued. Ptolemy claimed Corinth and Sikyon, while also placing two garrisons in the Peloponnese.\textsuperscript{179} Seleukos I Nikator kept moving eastward past Babylon and spent five years building his eastern empire against foreign invaders. Demetrios of Phaleron liberated the Greeks in 307 BCE and Athens returned to a democracy. Antigonos became king of the Macedonian empire in 306 BCE,\textsuperscript{180} upsetting the balance of peace. Ptolemy and Antigonos continued to fight over the islands of Rhodes and Cyprus. Ptolemy lost Cyprus while Antigonos discussed diplomacy with Rhodes, settled after the Rhodian's pledged an alliance to Antigonos.\textsuperscript{181} The final nail in Antigonos’s coffin occurred in 301 BCE at the Battle of Ipsus, when Kassandros, Lysimachos and Seleukos were victorious over Antigonos, who died in battle.\textsuperscript{182} Civil strife in all of the successors territories left the empire weak. Demetrios seized the opportunity in 294 BCE, taking Athens, the Peloponnese and Macedon.\textsuperscript{183} After the death of Ptolemy I, Lysimachos, Seleukos I and Demetrios split the territories up once more. The two victors and main dynasties in 281 BCE, were Ptolemy II Philadelphos and Antiochos I.

Antigonos Gonatas became ruler of Macedon in 276 BCE after fighting off the Celtic invaders.\textsuperscript{184} Antigonos Gonatas had things settled in Macedon and in most of Greece, while


Ptolemy II Philadelphos had several wars to fight. The First Syrian War was fought between Antiochos I and Magas, Antiochos I’s brother in law and Ptolemy’s half-brother, and Ptolemy II from 274-271 BCE. The First Syrian War consisted of Antiochos I, defeating the Galatians, the Seleucids capturing Damascus, Magas invading Egypt, mutiny in the Egyptian army, Ptolemy II expelling Magas, a treaty between Egypt and Rome, Ptolemy II’s navy attacking the Seleucids forcing Antiochos I to retreat and a Peace Treaty in 272 BCE. The First Syrian War left Ptolemy II as an independent ruler with a temporary alliance with Rome, however, Ptolemy II had more wars to fight.

The Chremonidean War was fought by the Greeks and Spartans in Athens to regain their freedom from Antigonos Gonatas from 267-262 BCE. Ptolemy II was an ally to Athens in gaining freedom from the Antigonids rule and had one of his commanders fight in the war. Athens lost to Antigonos Gonatas in 262 BCE and garrisons were placed in Athens as well as a pro-Macedonian governor for several years to come. During the Chremonidean War, the First Punic War was underway beginning in 264 BCE between Rome and Carthage. The Seleucid Kingdom received a successor, Antiochos II, in 261 BCE. The new ruler of the Seleucid Kingdom and Ptolemy II entered into war.

The Second Syrian War (260-253 BCE) and the Third Syrian War (246-241 BCE) was between Antiochos II and Ptolemy II. The end of the Second Syrian War was sealed by Antiochos II marrying Berenike in 253 BCE, strengthening Ptolemy II’s rule after losing many

---

territories in the Aegean.\textsuperscript{189} Before the Third Syrian War, Ptolemy II died and was succeeded by Ptolemy III Euergetes. Antiochos II died and was succeeded by Seleukos II and the end of the First Punic War concluded with Carthage in complete ruins.

The Third Syrian War sprung from the unstable dynastic marriages and heirs left in the wake of the Ptolemaic and Seleucid rulers’ deaths. The Ptolemaic empire was able to take over Seleukeia, one of the Seleucid cities as well as Antioch’s port to the Mediterranean. The Third Syrian War ended in a peace treaty in 241 BCE with the Seleucid Empire unstable.\textsuperscript{190} In 239 BCE, the Achaean and Aetolian leagues entered into a war against the Macedonians. Greece established their independence in Bactria in 239 BCE, and the Parni established Parthia as an independent state in 238 BCE further debilitating the Seleucid Empire.\textsuperscript{191} As the Seleucid Empire crumbled, further North and West, war broke out.

In the North at Pergamon, Attalos went to war against the Galatians and succeeded. By 227 BCE, Attalos of Pergamon becomes the master of Asia Minor.\textsuperscript{192} Meanwhile in Greece, Ptolemy III Euergetes, was negotiating subsidies with Kleomenes III, the Spartan king. In 229 Demetrios II died and Ptolemy III Euergetes seized the opportunity to support freedom for the Greeks, specifically in Athens. Ptolemy removed the garrisons on the port of Piraeus and Athens rewarded Ptolemy with a festival and many other titles mentioned in Chapter IV. By 221 BCE, Sicily and Sardinia were made Roman Provinces, Hannibal was commander of the Carthaginians and three new accessions to the Macedonian, Seleucid and Ptolemaic thrones were put into place.


Philip V took over Macedonian rule, Ptolemy IV controlled Egypt and Antiochos III ruled Asia. The new diadochoi were as power hungry for territorial claim as their forefathers. The Fourth Syrian War broke out in 219 BCE and lasted till 217 BCE, when Antiochos III regained the city of Seleukeia. Ptolemy IV, fueled from the loss of Seleukeia, was determined to win over the Syrian region. The Battle of Raphia in 217 BCE, displayed Egypt’s power as a nation, driving out Antiochos III from Syria temporarily. During the continuous territorial fights among Alexander’s successors, Hannibal seized and captured Saguntum. Hannibal’s advances continued to plague Rome.

Rome was slowly rising to power as the Macedonian successors continued to fight amongst each other. Rome entered into several wars with Illyria, Carthage and Philip V. The First Macedonian War occurred in 214 BCE, when Philip V hoped to obtain parts of the Eastern shore of the Adriatic. The war proved to be Philip V’s downfall. In 205, peace was set between Philip V and Rome in the Peace of Phoinike, which deemed that the Romans now had allies in the Ilians, King Attalos, Pleuratos, Nabis, Eleians, Messenians and the Athenians. During the same time, Rome was dealing with Hannibal and the Carthaginians encroaching into Italy. Rome finally defeated Hannibal, the Carthaginians and Hasdrubal in 202 BCE, when Scipio Africanus defeated the troops in North Africa.

---

The Romans learned that Philip V aided Hannibal in the battle against Scipio Africanus, leading to the Second Macedonian War in 200 BCE. The war ended in 197 BCE, when another peace agreement was settled. The peace agreement required that Philip V free the Greeks in Asia and Europe, surrender to Rome before 196 BCE, withdraw garrisons on Greek subjects and to pay a certain amount of money to Rome. Meanwhile, The Fifth Syrian War had begun and ended and Greece gained freedom from Rome at the Isthmus of Corinth in 196 BCE. The Macedonian successors were not done putting up a fight against Rome’s ever-growing power.

Antiochos III had upset the Achaean League in 191 BCE, who had close ties with Rome. Later that year, Antiochos III was defeated in a battle at Thermopylai. The Peace of Apameia required Antiochos III to cede all his territory that lay west of Tauros and to pay Rome extreme fees, while Rome reorganized the Greek East they won in the war against Antiochos III. Rome had now conquered two of the four great empires once under Alexander the Great’s reign in a matter of twelve years.

Rome asserted their power once more over the Macedonians, in particular over Perseus, the successor to Philip V, at the battle of Pydna in 168 BCE. Rome finally had won control over Macedon and the Macedonian kingdom, which was split into four states. Rome then gave ‘freedom’ to Delos, the prosperous island perfectly situated in the Aegean in 168 BCE. Delos now served Rome’s trading needs instead of Rhodes. The Battle of Pydna proved Rome’s power,

creating a rippling effect. Illyria’s territory was split into three independent republics; Epeiros as well as other territories conquered by Rome saw large amounts of citizens put into slavery and Rhodes economy was decimated by Rome’s freeing of Delos. As Rome’s power grew, the last two great empires, the Seleucids and the Ptolemies faced an uphill battle.

Antiochos IV set in motion the Maccabaean Revolt, which scarred the Seleucid kingdom and created a negative relationship with the Jewish community within his kingdom. The relations between the last two empires were weak and Rome played the two against each other like puppets, resulting in the Fourth Macedonian War and the Sixth Syrian War. Greece, still seeking proper freedom, was sacked in 146 BCE at Corinth due to the Achaean League’s war against Rome. Corinth wasn’t the only area crushed by Roman power. In 146 BCE, Carthage was razed to the ground by Rome and Africa and Macedon became Roman provinces. Attalos of Pergamon bequeathed Pergamon to Rome in 133 BCE. The Seleucid Empire’s negative relationship with the Jewish community ended their great reign. In 129 BCE, Parthia defeated the Seleucids, due to the Seleucids focus on the Jewish revolts. All but one empire, the Ptolemies, stood at the end of the second century BCE. Rome defeated the slaves in the First Slave War in 129 BCE, and kings that aided Rome in victory were rewarded with territories. Mithridates V of Pontos received Phrygia, the Cappadocians received Lykaonia and the other free cities of Asia became Roman provinces. Mithridatic Wars plagued the next thirty years of history in the East and West.

---

Mithridates VI succeeded Mithridates V in 120 BCE, and charged to the Black Sea and beyond to conquer territories. Mithridates first annexed Cappadocia and Bithynia and split Paphlagonia with Nikomedes III. In 89 BCE, the Mithridatic Wars commenced. Mithridates successfully swooped down Asia Minor while massacring Roman citizens, due to Rome’s Social War back in Italy. Mithridates moved to Greece, were Athenians welcomed the invasion. Sulla came to Rome’s rescue in 86 BCE, quickly driving Mithridates back to Asia and taking over Athens and Greece. Mithridates and Rome reached peace in 85 BCE, by agreeing to give up all the conquered territories, pay Rome a war indemnity and confine himself to his own kingdom. However, Rome upset the peace by raiding several Pontic areas commencing the Second Mithridatic War in 83–81 BCE, which resulted in pushing off war until 74 BCE. The last war consisted of Mithridates invading the Roman province of Paphlagonia and Bithynia, which ended in Mithridates committing suicide in 63 BCE. Rome conquered most of the Eastern Empires and began to experience civil strife within Rome itself.

Pompey came to power in the East and reorganized the territories. Pompey obtained Cilicia and added Cyprus (58 BCE), once a Ptolemaic trade connection, and Phrygia (56 BCE). Rome now had a strategic highway in Asia Minor that ran from Laodikeia through Lykaonia to Tarsos. Rome also obtained the Roman province of Syria. Pompey’s rearranging of Asia Minor greatly affected the trade of goods, seeing a decline in Hellenistic Moldmade bowls

---

and increase in Arrente Ware. Back home, Rome underwent a dramatic Civil War between Pompey and Caesar beginning in 49 BCE.

Caesar had successfully drawn Pompey out of Italy and Pompey fled to Egypt. Pompey met his fate in Egypt, where Caesar arrived too late. Caesar became entangled in an Egyptian quarrel between Ptolemy XIII and Cleopatra VII. Cleopatra VII and Caesar had a child, which Caesar left to complete duties for Rome. Asia was transformed by Caesar’s campaigns and Rome’s Empire expanded to its largest extent. When Caesar finally reached Rome, he was assassinated in 44 BCE. The assassination brought forth more civil strife spanning from Italy to Africa.

Brutus and Cassius disrupted the distribution of taxes for personal use in several areas in the Mediterranean. The assassins amassed enough money and men to march on Mark Antony and Octavian in Macedonia in 42 BCE. Mark Antony and Octavian defeated the assassins near Philippi and broke up the territories with the East under Antony’s control and the West under Octavian. Antony and Cleopatra VII became allies and lovers. Antony’s loyalty, dependence, granting of sovereignty over territories to Cleopatra, etc. led to an extreme rivalry between Octavian and Antony. The Battle of Actium in 31 BCE proved ill for Antony and Cleopatra, who faced defeat against Octavian’s army. Mark Antony and Cleopatra committed suicide and Egypt was annexed by Rome. The death of Cleopatra and Antony marked the end of Ptolemaic reign and the end of the Hellenistic period.

---

Appendix B

Methodology for Excel Statistics

1. Eleven site reports were used to create the data in order to interpret the connection between wares and motifs. Each site had several columns, each column containing different information.
2. The main categories analyzed were wares, motifs and site.
3. The excel spreadsheets were broken down into three tables to allow for easier searching, the bowls, motifs, and a table linking the two.
4. In this way anyone can search by fabric and pull the top motif types for each kind (rim, wall, etc).
5. Anyone can also search for motifs by region, fabrics by region, or combine all those searches into one.

A live link to search this information and the data created can be found here:

Remy Jones Thesis 2018
Appendix C

Methodology of Wares

I approached each publication with a set of standards based on the Munsell chart when available in each publication and the colors listed within the publication.

1. The Black Slip Predecessor Ware standards I used were dark gray (N3/) and dark grayish brown (10YR 3/2), dark reddish-brown (5YR 3/2) to a very pale brown (10YR 8/3) in the Munsell chart. The standard colors used to identify the Black Slip Predecessor Ware were pale brown, brown, gray-brown, yellow brown, tan and beige when publications lacked Munsell chart colors. The various publications used a combination of brown, very pale brown, light brown, BSP, beige, pale brown, and yellowish brown when the Munsell chart colors were unavailable. The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are very pale brown (10YR 7/3), light brown (7.5YR 6/4), yellowish brown (10YR 6/4), very pale brown (10YR 8/4).

2. The Red-Orange Sandy Ware standards used were brownish orange in appearance (7.5YR 5/4) to a bright red color (2.5YR 5/6) in the Munsell chart. The standard colors used to identify the Red-Orange Sandy Ware were orange, red, orange-brownish, reddish-brown and dull red when publications lacked Munsell chart colors. The various publications used a combination of light reddish brown, light red, red, reddish-brown, red-brown, light ocher, orange, dark orange, light orange, dark bright orange, dark brownish-orange and reddish when the Munsell chart colors were unavailable. The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are light reddish brown (2.5YR 6/4), light red (2.5YR 6/6), red (2.5Y 5/6), light reddish brown (5YR 6/3) reddish brown (5YR 5/4).
3. The Eastern Sigillata A Ware standards I used were very pale brown (10YR 8/3) through to a pink (7.5YR 7/4) in the Munsell chart. The standard colors used to identify the Eastern Sigillata A Ware fabric were pink, pale brown, pinkish, salmon, dull pink, and buff when publications lacked Munsell chart colors. The various publications used a combination of pink, cream pinkish, pinkish buff, pinkish, reddish buff, salmon, dark pink and ESA when the Munsell chart colors were unavailable. The Munsell chart colors were used in only one publication, the Athenian Agora publication. The colors are pink (7.5YYR 7/4).

4. The Gray Ware standards used were (2.5Y 4/1-5Y 5/1) in the Munsell chart. The standard colors used to identify the Gray Ware, were gray, light gray, dark gray, grayish-brown and dull gray when publications lack Munsell chart colors. The various publications used a combination of micaceous Gray Ware, gray, light gray, dark gray, grayish-brown, dull gray, Ephesian Gray and Ionian gray when the Munsell chart colors were unavailable. The colors are micaceous gray (5Y 5/1), dark gray (10YR 5/1), light gray (2.5Y 7/2), micaceous light gray (10YR 6/1).

5. The Attic Ware standards I used were reddish brown (7.5YR 6/4) to a bright red color (2.5YR 5/6) in the Munsell Soil chart. The standard colors used to identify the Attic Ware were orange, red, orange-brownish, reddish-brown and dull red when publications lacked Munsell chart colors. The various publications used a combination of Attic, reddish-brown when the Munsell chart colors were unavailable. The colors are light reddish brown (7.5YR 6/4) to a bright red color (2.5YR 5/6).
### Appendix D

**Table 7. Black Slip Predecessor and Eastern Sigillata A and Motifs**

<table>
<thead>
<tr>
<th>MOTIF</th>
<th>TOTAL</th>
<th>RIM</th>
<th>BODY</th>
<th>CALYX</th>
<th>MEDALLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAIN</td>
<td>117</td>
<td>116</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>BEADING</td>
<td>129</td>
<td>100</td>
<td>19</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SQUARE WITH LINES</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEANDER</td>
<td>9</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RIDGES</td>
<td>205</td>
<td>162</td>
<td>4</td>
<td>1</td>
<td>38</td>
</tr>
<tr>
<td>FIGURAL</td>
<td>127</td>
<td>5</td>
<td>118</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>EGG AND DART</td>
<td>92</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VINES</td>
<td>88</td>
<td>2</td>
<td>76</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SCROLLS</td>
<td>72</td>
<td>4</td>
<td>53</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>ACANTHUS</td>
<td>63</td>
<td>43</td>
<td>19</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>VEGETAL</td>
<td>60</td>
<td>56</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROSETTE</td>
<td>83</td>
<td>16</td>
<td>22</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>FAUNA</td>
<td>114</td>
<td>4</td>
<td>103</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA LOTUS</td>
<td>25</td>
<td>18</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FERN</td>
<td>28</td>
<td>23</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMBRICATE</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OVOLO</td>
<td>35</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART PENDANT</td>
<td>17</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NET</td>
<td>15</td>
<td>12</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LONG PETAL</td>
<td>19</td>
<td>11</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>GARLAND</td>
<td>9</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>HEART GUILLOCHE</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLOWER</td>
<td>19</td>
<td>3</td>
<td>14</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>FLEUR DE LIS</td>
<td>8</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAVES</td>
<td>25</td>
<td>19</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEART SHAPE FLORET</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENDRIL</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POINTED IMBRICATE</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PALMETTES</td>
<td>11</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>FROND</td>
<td>11</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FOLIAGE</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENDANT DROPS</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LESBIAN RELIEF</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAR</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA NELUMBO</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JEWEL</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYMPHAEA CAERULEA</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAVES</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SPIRAL</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOUKRANIA</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAPE</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BERRIES</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOUBLE SPIRALS</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVY</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASTRAGALUS</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PINECONE</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DART</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALTAR</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONCENTRIC SEMICIRCLES</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>