

**MORGANTINA, SICILY:  
THE WORKED BONE AND IVORY OBJECTS  
459 B.C. TO THE FIRST CENTURY A.D.**

**By**

**CYNTHIA M. JACOB**

A dissertation submitted to the  
Graduate School-New Brunswick  
Rutgers, The State University of New Jersey  
in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Art History

written under the direction of

Prof. Archer St. Clair Harvey, Ph.D.

and approved by

---

---

---

---

New Brunswick, New Jersey

MAY 2012

© 2012

Cynthia M. Jacob

ALL RIGHTS RESERVED

ABSTRACT OF THE DISSERTATION  
MORGANTINA, SICILY:  
THE WORKED BONE AND IVORY OBJECTS  
459 B.C. TO THE FIRST CENTURY A.D.

By

CYNTHIA M. JACOB

Dissertation Director:

Prof. Archer St. Clair Harvey, Ph.D.

The purpose of this dissertation is to prepare a publishable catalog of more than six hundred unpublished worked bone and ivory artifacts unearthed in successive archeological excavations of the second city of Morgantina, Sicily, beginning in 1955 and continuing until the present time. To accomplish this, it was necessary to examine all these bone and ivory objects, to assess them in terms of relationship to the larger Greek *koine* of the Mediterranean basin, to categorize and describe them in detail, and to photograph them.

Morgantina, an inland Greek colony dating from the second quarter of the sixth century B.C., flowered after destruction by fire in 459 B.C. at the hands of an indigenous leader, Ducetius, and continued to flourish during the Hellenistic era. The city was captured in 211 B.C., during the Roman invasion and conquest of Syracuse. The city survived in diminished form from 211 B.C. to the mid-first century A.D. Most of the

bone and ivory objects cannot be dated more closely than the period 459 B.C., the date of the destruction by fire, to the first century A.D., when the city disappeared.

The Morgantina artifacts which are the subject of this dissertation consist largely of items for daily use, such as utensils for personal grooming and jewelry for personal adornment, implements for writing, tools for a variety of purposes, handles, hinges and other structural and decorative components for furniture, game pieces, and miscellaneous pieces of uncertain application. From study of these objects, one can conclude that all conform substantially to similar worked bone and ivory objects found throughout the wide geographical area constituting the Greek world prior to the first century A.D. The Morgantina objects evidence strong connections to that Greek world, even with locales which could be considered far-flung geographically and temporally. They do not, however, demonstrate the cultural flowering which other categories of artifacts from the city reflect.

## **TABLE OF CONTENTS**

	<u>Page</u>
ABSTRACT OF THE DISSERTATION .....	ii
CHAPTER 1: INTRODUCTION, HISTORICAL BACKGROUND AND EXCAVATION HISTORY .....	1
A Brief History of Morgantina .....	2
Dating.....	4
Other Issues in Assessing the Objects .....	7
CHAPTER 2: THE OBJECTS AND THEIR HISTORIES.....	14
I.    Bone or Ivory? .....	14
II.   Items for Personal Use .....	15
Cosmetic or Medicinal Spoons and Spatulas.....	15
Combs .....	18
Jewelry .....	19
Amulets .....	19
Beads and Plaques.....	20
Pins .....	21
III.  Objects with Undetermined Functions.....	26
Rings .....	26
Eyelets/Reinforcements .....	30
Disks .....	33
Points.....	36
A Stylus and Probable Styli .....	37

	Simple Points at Both Ends, Bulging in Midsection.....	38
	Points With Beveled or Tapered Ends .....	39
	Points With Indented Tips .....	39
	Points With Elongated Tips .....	39
	Small Slender Points .....	40
IV.	Tools .....	40
	Tools for Use in Ceramics and Leather Production.....	41
	A Probe .....	44
	Awls/Punches.....	45
	Tools for Scraping.....	46
V.	Furniture Components and Accessories.....	47
	Hinges .....	47
	Socket.....	53
	Handles .....	54
	Furniture Mounts and Decorative Accessories .....	55
	Decorated Worked Cylinders.....	55
	Other Furniture Components .....	59
	Furniture Appliqués and Veneers .....	60
	Finials.....	62
V.	Miscellaneous .....	64
	Gaming Pieces .....	64
	Sculptural Pieces .....	65
	A Miniature Spindle Whorl .....	67

Toggles/Bobbins .....	68
Unknown.....	69
CHAPTER 3: WHAT THE OBJECTS TELL US.....	70
CATALOG .....	75
I.        ITEMS FOR PERSONAL USE.....	76
A.        Ogival and Oval Cosmetic or Medicinal Spoons.....	76
B.        Round Cosmetic Spoons .....	78
C.        Small Cosmetic Spatulas.....	79
D.        Combs .....	80
E.        Amulets .....	81
F.        Beads and Plaques.....	82
G.        Pins.....	84
1.        Complete or Nearly Complete Round-Headed Pins .....	84
2.        Oval-Headed Pins, Largely Complete .....	86
3.        Round and Oval-Headed Pins, Incomplete .....	88
4.        Pins with Decorated Finials, Complete and Incomplete.....	90
II.       OBJECTS WITH UNDETERMINED FUNCTIONS .....	93
A.        Bone Ring-Like Objects .....	93
1.        Complete .....	93
2.        Finished Ring or Hinge.....	93
3.        Ring Fragments .....	93
B.        Eyelets/Reinforcements .....	93
1.        Partial Eyelets .....	98

2.	An Unusual Eyelet .....	99
C.	Disks .....	99
1.	Decorated Both Sides.....	99
2.	Decorated on One Side .....	101
D.	Points.....	105
1.	Complete or Nearly Complete Simple/Plain Points.....	105
a.	Stylus.....	105
b.	Points With Swelling in Midsection and Points on Both Ends.....	105
2.	Complete Points With Tapered or Beveled Ends .....	106
3.	Incomplete Points With Gradual Taper on Shaft.....	108
4.	Incomplete Points.....	109
a.	Simple Incomplete Points .....	109
b.	Points With Elongated Tips .....	110
c.	Points With Slender Shafts and Tips (incomplete).....	110
5.	Indented Points.....	110
a.	Complete Indented Points .....	111
b.	Incomplete Indented Points.....	112
6.	Miscellaneous Points, Primarily Lacking Both Termini.....	112
a.	Tapering and Slightly Tapering Shafts .....	112
b.	Bulging Shafts.....	112
c.	Slender Shafts .....	113
d.	Possible Styli.....	113
e.	Small Pieces .....	113



III.	TOOLS.....	113
A.	Tools Possibly Used in Ceramic or Leather Production.....	113
B.	A Bone Probe.....	114
C.	Awls/Punches.....	115
D.	Scrapers/Spatulate Tools.....	115
IV.	FURNITURE COMPONENTS AND ACCESSORIES.....	115
A.	Hinge Components.....	115
1.	Hinge Components With Two Holes and Two or More Bands of Parallel Incised Lines.....	116
2.	Hinge Components With Two Holes and One Band of Parallel Incised Lines .....	117
3.	Hinge Components With One Hole and One Band of Parallel Incised Lines .....	120
4.	Decorated Fragments .....	121
5.	Hinge Components/One Hole/Undecorated .....	122
a.	Measured, One Hole, Undecorated .....	122
b.	Unmeasured, One Hole, Undecorated Cylinder .....	126
6.	Sawn, Unfinished Rings/Hinges/Spacers With Central Cavities; No Hole.....	126
7.	Hinge Fragments With Hole .....	127
8.	Fragments of Sawn Bone .....	127
9	Nineteen Worked Incomplete Fragments .....	128
10.	Unusual Possible Hinge Components.....	128
B.	Socket.....	129
C.	Handles .....	129

1.	Handles With Collars for Insertion .....	129
2.	Three Bone Handles Perforated With Metal.....	131
D.	Decorative Worked Cylinders.....	131
1.	Decorated Lathe-Worked Solid Cylinders/Furniture Mounts.....	131
2.	Decorated Lathe-Worked Hollow Cylinders/Furniture Mounts .....	133
E.	Other Furniture Components .....	135
F.	Furniture Decorations: Appliqués, Veneers and Finials .....	136
1.	Decorative Ornaments, Possibly for Chest or Other Furniture.....	136
2.	Pieces of Veneer .....	136
3.	Three Dimensional Pieces, Possibly Finials .....	137
V.	MISCELLANEOUS .....	139
A.	Gaming Pieces .....	139
B.	Carved Bull's Head.....	140
C.	Miniature of a Woman Carrying Round Objects .....	141
D.	Two Carved Medallions.....	141
E.	Miniature Spindle Wheel .....	141
F.	Five Similar Pieces .....	142
G.	Unknown Objects.....	143
H.	Astragaloi.....	144
I.	Other Minimally Worked Bone Objects .....	145
	FIND SPOT AND DATING CHART .....	148
	FIGURES .....	172
	Figs. 1-4: Ogival Cosmetic or Medicinal Spoons.....	173

Fig. 5: Oval Cosmetic or Medicinal Spoon .....	174
Fig. 6: Round Cosmetic or Medicinal Spoons .....	175
Fig. 7: Cosmetic or Medicinal Spatulas .....	176
Figs. 8-10: Combs and Possible Combs .....	177
Figs. 11-12: Amulets.....	178
Figs. 13-14: Beads/Plaques.....	179
Fig. 15: Round-Headed Pins, Complete .....	180
Fig. 16: Oval-Headed Pins, Complete .....	181
Fig. 17: Incomplete Round and Oval Headed Pins.....	182
Figs. 18-23: Pins With Decorated Finials .....	183
Fig. 24: Ring-Like Objects .....	186
Fig. 25: Finished Ring or Hinge .....	187
Fig. 26: Comparison of Fig. 25 with two similar hinge components .....	188
Figs. 27-29: Eyelets/Reinforcements .....	189
Fig. 30: Disks Decorated on Both Sides .....	190
Fig. 31: Disks Decorated on One Side.....	191
Fig. 32: Stylus .....	192
Fig. 33: Points With Swelling in Midsection and Points on Both Ends .....	193
Fig. 34: Points With Beveled or Tapered Ends.....	194
Fig. 35: Incomplete Points With Gradual Taper on Shaft .....	195
Fig. 36: Simple Incomplete Points.....	196
Fig. 37: Points With Elongated Tips.....	197
Fig. 38: Complete or Nearly Complete Indented Points.....	198
Fig. 39: Incomplete Indented Points .....	199
Fig. 40: Miscellaneous Points, Primarily Lacking Both Termini .....	200
Fig. 41: Tools Possibly Used in Ceramic or Leather Production .....	201
Fig. 42: Obverse and Reverse of Hollowed Tool .....	202
Fig. 43: Probe and Awl .....	203
Figs. 44-45: Scraper/Spatulate Tools .....	204
Fig. 46: Hinge Components With Two Holes and Two Bands of Parallel Incised Lines .....	205
Figs. 47-49: Hinge Components With Two Holes and One Band of Parallel Incised Lines .....	206
Fig. 50: Hinge Components With One Hole and One Band of Parallel Incised Lines.....	209
Figs. 51-52: Decorated Hinge Fragments .....	210
Figs. 53-57: Hinge Components With One Hole and No Band of Parallel Incised Lines .....	211
Fig. 58: Unfinished Hinge Components or Rings.....	213
Figs. 59-60: Unusual Hinge Components.....	214
Fig. 61: Socket .....	215
Figs. 62-67: Handles .....	216
Fig. 68: Handles or Other Furniture Components .....	218
Fig. 69: Handles Perforated With Metal.....	219
Fig. 70: Decorated Solid Cylinders.....	220
Figs. 71-72: Decorated Hollow Cylinders .....	221

Fig. 73: Furniture Mount or Pyxis .....	223
Fig. 74: Furniture Leg? .....	223
Fig. 75: Sliding Box Component? .....	224
Fig. 76: Decorative Plaques .....	225
Figs. 77-79: Pieces of Veneers.....	226
Figs. 80-83: Finials .....	227
Figs. 84-85: Finials or Possible Beads.....	228
Figs. 86-89: Game Pieces .....	229
Fig. 90: Bull's Head.....	230
Fig. 91: Dionysiac Figure .....	231
Fig. 92: Small Medallion Head.....	232
Fig. 93: Fragment of Head Medallion.....	233
Fig. 94: Miniature Spindle .....	234
Fig. 95: Toggles/Fasteners/Bobbins.....	235
Fig. 96: Component of a Buckle? .....	236
Fig. 97: Unfinished Bead/Decorative Object? .....	237
Fig. 98: Worked Astragolai.....	238
Fig. 99: Various Objects Mounted on Rectangular Plexiglass .....	239
Fig. 100: Various Objects Mounted on Round Plexiglass .....	240
Fig. 101: Map of Ancient Sicily .....	241
Fig. 102: Agora, Morgantina: Third Century B.C. ....	242
 BIBLIOGRAPHY .....	 243

## CHAPTER 1

### **INTRODUCTION, HISTORICAL BACKGROUND AND EXCAVATION HISTORY**

The more than six hundred fifty small bone objects from Morgantina which are the subject of this dissertation were found in the process of excavating the “second city” of Morgantina, which flourished both before and during the Hellenistic period to 211 B.C., when the city was conquered by the Romans.<sup>1</sup> The city continued to exist in a diminished form through the period beyond, to 35 B.C., when the city was again sacked by Romans. During the period from 35 B.C. to the first century after the birth of Christ, the city became diminished further and was eventually abandoned. The bone artifacts under discussion span both the Hellenistic and the Roman periods.<sup>2</sup>

The rise and fall of Morgantina, first as a town, then as a prosperous city during the Hellenistic era, and finally, as a city in decline, has been well-documented by previous scholars in site publications, beginning with multiple preliminary studies published in the *American Journal of Archeology* by Stillwell, Sjöqvist, and Allen,<sup>3</sup> and culminating with *Morgantina I: The Terracottas*, *Morgantina II: The Coins*, *Morgantina V: The Archaic Cemeteries*, and upcoming books in the Morgantina series by Barbara Tsakirgis (Domestic Architecture), Shelley C. Stone (Hellenistic and Roman Tableware), John Dobbins (the Greek Theater), and Sandra Lucre (the North Bath). In view of these publications, an extended historical review of the city itself is unnecessary;

---

<sup>1</sup> Throughout this manuscript the word “bone” includes both bone and ivory objects, unless the object is specifically noted as ivory in the catalog. The bone objects greatly outnumber the few ivory objects.

<sup>2</sup> For the sake of convenience, the period of the bones under study will generally be referred to as “Hellenistic.”

<sup>3</sup> See Sjöqvist 1958, 1959, 1962, and 1966; Stillwell 1957, 1959, 1961, and 1963; Allen 1970 and 1974.

instead, the “history” of the place will be confined to dates which affect the site and excavation history covered in this paper.

### **A Brief History of Morgantina**

The first city of Morgantina was settled in the second quarter of the sixth century B.C., one of several Greek colonial settlements in eastern Sicily, in an area which had been occupied continuously by indigenous Sikels since approximately 1000 B.C.<sup>4</sup> This first city was located on a conical hill known as the Cittadella, which was strategically important because its high elevation overlooked the Catania plain, a vast grain-growing region. In the early fifth century, the town was subjected to military intervention from Gela and it appears that at this time, Morgantina may have been controlled by both Syracuse and Gela. It became a pawn in warring strategies between these two great cities and played a part in Carthaginian intervention in Sicily.<sup>5</sup>

The historian Diodorus Siculus discusses the sack of Morgantina in 459 B.C. by Ducetius, the Sikel leader who destroyed much of the town, still on the Cittadella, by fire in his unsuccessful attempt to unify the Sikels against the Greeks.<sup>6</sup> Ducetius held the city for approximately ten years. Thucydides notes that the town was “sold” to Kamarina by the Syracusans in 424, a sign of its continuing weakness.<sup>7</sup> In 396 B.C., Morgantina was

---

<sup>4</sup> Bell 1981, 5, Finley 1985, 1-37, Lyons 1996, ix-x and 3-8, and Stone 2010, 2-40 give fuller histories of Morgantina from which this brief history is derived. Dr. Malcolm Bell, III, has graciously provided additional history to me in a written communication dated February 7, 2012. Today, Morgantina is located in central Sicily in the Province of Enna, 5 km from the town of Aidone, which is approximately 80 km west of Catania. The nearest modern city is Piazza Armerina, which is approximately 8 km southwest of Aidone. A map of the ancient sites in Sicily is attached as Figure 101.

<sup>5</sup> Bell 1981, 5.

<sup>6</sup> Erim 1958, 87, citing Diodorus at 11.78.5.

<sup>7</sup> Thucydides, 4.65.162; Childs 1979, 378, citing E. Sjöqvist, “Serra Orlando-Morgantina,” *Red Linc* 14 (1959) 43; Erim 1958, 87.

captured by Dionysios of Syracuse and prospered under the influence of Syracuse for the next two centuries.<sup>8</sup>

During the ten years Ducetius held the city or shortly thereafter, the situs of Morgantina migrated from the Cittadella to the adjacent Serra Orlando plateau, where a “new” city was constructed according to an orthogonal plan. This second city was founded in the mid-fifth century B.C. Thereafter, in 317, Morgantina supported the successful return of Agathokles to power in Syracuse.<sup>9</sup> Morgantina reached its greatest prosperity and highest population in the third century B.C. under the great Hieron II of Syracuse, whose long reign was one of prosperity and concomitantly, witnessed a flourishing of the arts. It continued to exist as a Greek city to 211 B.C., when Morgantina was captured, this time by the Romans, in conjunction with the capture and destruction of the Kingdom of Syracuse, of which Morgantina was then a part.<sup>10</sup> The events of 211 brought about major changes in the integrity of the Greek site: the population was either killed or enslaved, the “entire site. . . suffered considerable devastation,” domestic habitation in three areas, III, V, and VI ceased, and small sanctuaries were sacked and permanently abandoned.<sup>11</sup>

The captured city was turned over as booty to the *Hispani*, Spanish mercenaries who had supported the Romans. During the approximate century of occupation by the

---

<sup>8</sup> Diodorus 14.95.2; Bell 1981, 5.

<sup>9</sup> Diodorus, 19:6.2-3.

<sup>10</sup> Bell 2007, 120, notes that no written source describes Morgantina as part of the Kingdom of Sicily, but several other factors support that supposition.

<sup>11</sup> Bell 1981, 6; Bell 2007, 121; Stillwell 1960, 278.

*Hispani*, the domiciles in Area I were reoccupied and altered substantially.<sup>12</sup> This period was accompanied by a decline in urbanization as well as by “markedly lower standards of craftsmanship and taste.”<sup>13</sup> The *Hispani* occupied Morgantina up to approximately 35 B.C., when they sided with Sextus Pompeius against the ultimate victor, Octavian, who punished them. After this, the city was abandoned, but was then partially rebuilt on a smaller scale and subsequently abandoned altogether in the first century A.D.

With the exception of two domiciles, one partially excavated in 1882-1884 by L. Papalardo and another excavated in 1912 by Paolo Orsi<sup>14</sup>, and a medieval church complex and a later farm house built on top of the Citadella, Morgantina lay deserted and buried until 1955, when excavations began. From 1955 to 1967, and again, from 1970 to 1980, excavations were conducted by the Princeton University Archeological Expedition to Sicily. In 1968, excavations were jointly sponsored under the auspices of the University of Illinois-Princeton Morgantina expedition<sup>15</sup> and from 1969 to 1971, by the University of Illinois. Since 1980, the University of Virginia has been responsible for conducting excavations, collaborating with Wesleyan University from 1989 to 2006 and with Duke University from 2007 to the present.

### **Dating**

The onset date of this study coincides with the burning in 459 B.C. and subsequent pacification and resettlement of the area – and much of Sicily – by the tyrant Timoleon of Syracuse in 340. The growth of Hellenistic Morgantina – and in particular,

---

<sup>12</sup> Bell 1981, 6-7.

<sup>13</sup> Bell 1981, 7.

<sup>14</sup> Stillwell 1957, 151-152.

<sup>15</sup> Bell 19891, Introduction by Richard Stillwell.



of the Hellenistic agora – occurred during the reigns of Hieron, and briefly thereafter, of his grandson Hieronymos.<sup>16</sup> The primary Greek connection for Morgantina throughout the period under discussion was the city of Syracuse.

The two critical dates, the burning in 459 by Ducetius on the Cittadella and the devastation and depopulation of the city on the Serra Orlando ridge by the Romans in 211, are evident in the stratigraphy of the archeological site. While the material evidence found between these strata would logically date between 459 B.C. and 211 B.C., we cannot be sure that the bone objects found in the Serra Orlando site fall precisely either within the period 459 B.C. to 340-330 B.C. when the city was reestablished, or within the period from 340 B.C. to 211 B.C. or even thereafter: there was activity in both areas of the city between 459 B.C. and 340-330 B.C. During the last two centuries of its life, the buildings which filled the Agora at the time of its 211 B.C. capture were reused and some were reconstructed, followed by rapid decline and ultimate abandonment.<sup>17</sup>

Given Morgantina's history, dating for many objects must be set in the broad range between 459 B.C. and the first century A.D. Not only do the multiple devastations and resurrections of the city, but also the lack of integrity at the Serra Orlando site itself, create problems in dating all of the material covered in this dissertation: none of the dates given can be considered secure. At best, they are a pastiche of available dating, based on other datable examples. *See* attached Chart of Find Spots and Dating. The dating of objects from the protohistorical period is covered in *Morgantina Studies Vol.*

---

<sup>16</sup> The exact outline of growth and changes in the Hellenistic Agora are outlined in Bell 1988, 337, *et seq.*, with much of it being built during the third century B.C., when Morgantina was an outpost of Hieron II. Bell 1988, 316.

<sup>17</sup> Bell 1988, 316.

VI: *The Protohistorical Settlement on the Cittadella*.<sup>18</sup> The considerable number of coins found throughout Hellenistic Morgantina are discussed in *Morgantina II: The Coins*. In those cases in which the area, trench, and sometimes the stratum coincide with a bone or ivory artifact, the date range for the coin is assigned to that object. In other instances, generalized dates based upon oral and written information, and dating assigned to other nearby objects has been utilized. Finally, with regard to bone objects found in 1955, no dates closer than fourth century B.C. to the first century A.D. can be assigned in most instances.<sup>19</sup>

The problem of dating is compounded by certain caveats and limitations inherent when dealing with bone objects excavated in large part forty to fifty years ago, but never published and implicitly consigned by then-prevalent archeological record keeping to the catch-all category of “minor objects” or “small objects.” While the objects themselves constitute a part of the sum and substance of everyday life, they do not present a complete picture of the ways in which worked bone was used. Like the city from which they were excavated, the bone objects have been subject to physical vicissitudes and wear and tear, not only during their useful lifetime, but also during the excavations themselves and afterward, affecting attempts at dating based upon style. In the Museo Archeologico Regionale di Aidone in Aidone, Sicily, where the materials from Morgantina have been most recently stored, the objects have gone through multiple physical moves involving multiple storage areas, and have been placed into storage together with heavier objects in

---

<sup>18</sup> Leighton 1993.

<sup>19</sup> In this respect, I thank Shelley C. Stone, III, who was most generous in assisting me with general dating. The 2010 version of his forthcoming book on ceramics and his assistance are the bases for much of the dating. Stone 2010, 46-50, 75-78, 98-99. In addition, he discussed with me the problems surrounding dating issues.

less than optimal conditions, which may have damaged them. For example, in recent years, many of the bone objects were stored in a former crypt, one wall of which collapsed, creating damp conditions which fostered the growth of mold on the objects themselves. These artifacts were kept loose in ordinary cardboard boxes with no interior protection, jumbled together with larger, heavier objects; they may have been damaged both by this treatment and during the multiple storage moves.<sup>20</sup> All these factors account in large part for their present day condition. Some of the excavated objects have been lost altogether.<sup>21</sup>

### **Other Issues in Assessing the Objects**

Another problem stems from record keeping. Leighton has commented on this with respect to protohistoric Morgantina: the problems and lack of a multidisciplinary approach which he describes apply also to the record keeping for the period at issue here.<sup>22</sup> The archeological records, which consist of the inventory books kept at Morgantina, and the photographs, descriptions, and day books kept at Princeton and elsewhere, indicate that accurate recordation of bone objects was of secondary concern. From time to time, the day books indicate that bone objects were given short shrift, assigned to less experienced assistants to record, and in some instances, were discarded

---

<sup>20</sup> Between the summers of 2010 and 2011, this particular problem was corrected in conjunction with the relocation of the storage rooms.

<sup>21</sup> Altogether, a substantial number of objects cannot be found. However, the approximately twenty-five artifacts listed in the Catalog as having “no inventory number” doubtless represent certain of the objects listed as “not found.” See attached chart of Find Spots and Dates.

<sup>22</sup> Leighton 1993, 4. These problems were accentuated with regard to protohistoric material: the primary focus of the early excavations beginning in 1955 was the Hellenistic period, which left some protohistorical contents unexplored. Some of the protohistorical material already cataloged by Leighton was mixed in with the material I studied, even though Leighton had previously studied, cataloged and published it.

before they were assigned an inventory number.<sup>23</sup> In other instances, as many as five to sixteen different objects were assigned the same inventory number.<sup>24</sup> In some instances in which two materials were used to create an object, only the bone component remains.

While some material found in the stratigraphic layers would logically be datable between 459 B.C. and 211 B.C., the raw data recorded do not always include the stratum in which each object was found, nor are the strata within one area consistent with those in another. When the data layer was recorded, no dates were given other than the date of excavation, nor are there usable data concerning other types of objects found in conjunction with the bone objects.<sup>25</sup> Trench numbers and sometimes strata are recorded, but the trenches themselves are often large and consequently cut across wide areas and differing contexts.

Yet another issue relates to archeological methodology used in the earliest years of the excavation, between 1955-1958, when many of the bone and some ivory objects were found. During these years, numerous test trenches were dug with devastating results for securely placing and dating “small” or “minor” finds with precision. Not only has this treatment precluded accurate dating, but it has created the possibilities that the objects were removed from the exact spot where they were actually found, which may also have been stripped of its most elementary context; in other words, the find spots

---

<sup>23</sup> For example, Richard Grimm in *II Serra Orlando, 1955*, an unpublished daybook, lists items as “discarded” or “left uncataloged” throughout; Kenan Erim in *I Serra Orlando, 5 April 1956 – 15 May 1956*, 158, describes and draws a bone plaque with five nail holes as “uncataloged.” It was not found at present among the bone objects at Morgantina. Throughout this particular daybook, there are several notations of small items in various materials being “uncataloged.”

<sup>24</sup> See, e.g., 56-290 (five discarded pieces); 59-527; 61-1190. One find of knuckle bones had sixteen pieces under one inventory number. All were unworked, and are therefore not part of this catalog.

<sup>25</sup> A complete catalog of all objects is underway which may yield this information.

listed are themselves unreliable. Advances in archeological practices and methods in later excavations may have prevented some of the issues of storage, curation, find spots, and post-excavation challenges to the site, but like any field of study, one cannot measure what happened in the past by present day standards.

The emphasis placed on the architectural structures in the city itself has inadvertently skewed the archeological analysis of the site in total. The first areas heavily excavated at Morgantina were Area I, which consists of the Agora and residences on the East Hill and part of the West Hill, and the surrounding environment, and Area IV, north of the Agora, consisting of the North Sanctuary and North Sanctuary Annex. The Agora, with its attendant public buildings, such as ekkesiaterion, the stoas, the theater, the granaries, the bouleterion, the fountain house and government buildings, as well as multiple commercial enterprises, was the primary archeological focal point. Figure 102. These areas, with their large mercantile, religious, and civic structures, appear to have been the busiest areas of the Hellenistic city. While the architecture is datable based on the buildings themselves, and sometimes by the sherds and coins found within them;<sup>26</sup> the bone objects present few external dating possibilities, again making secure dating impossible. Over half of the bone objects were found in Area I and may have been made in workshops there, but without the context, no particular location for manufacture or storage of bone can be identified within Areas I and IV.<sup>27</sup>

The building and rebuilding of the Agora, even in ancient times, has disturbed contextual evidence. There existed a practice of “quarrying the bedrock of the

---

<sup>26</sup> Bell 1988, in general.

<sup>27</sup> By contrast, kilns have been located in the Agora and elsewhere, including one in the House of the Official, in Area II. This kiln was not original to the house, but was built after the house had been “subdivided.”

construction site for building materials,”<sup>28</sup> and buildings, such as the bouleterion (in the Agora) and the House of the Official (Area II) were radically altered.<sup>29</sup> In addition, the entire site bears evidence of both ancient and modern looting,<sup>30</sup> such that existing contexts within the most thoroughly excavated areas were disturbed, often long before the archeologists began their work. In addition, the large number of objects found in cisterns and ancient dump areas, themselves secondary contexts, signals the elimination of original context beginning with the second city. Because of their small size, bone artifacts would have been easily transportable within the city itself, or trampled or removed during both peaceful times and the periodic upheavals in the city’s history, such that a complete picture will always remain fugitive.<sup>31</sup> Altogether it appears that the objects under examination have been “decontextualized,” such that a “typological catalogue” is all that can be wrung from them.<sup>32</sup>

The common categorization of an object as a small or minor find reflects a bias commonly applied to bone objects like the ones here in question, the implication being that “small or minor” equates with lack of importance, which has translated heretofore into lack of attention. I intend no negative implication in use of the words “small” and

---

<sup>28</sup> Allen 1974, 365.

<sup>29</sup> Sjöqvist 1964, 140-141 and 144. The kiln appears to date from the later life of this house.

<sup>30</sup> There have been ongoing instances of looting, the Morgantina Silver, recently repatriated to Aidone from the Metropolitan Museum of Art, being the most prominent example. Stillwell 1961, 280, raises the possibility of ancient lootings at Morgantina in his discussion of a probable mosaic emblema from a residence on the West Hill.

<sup>31</sup> Andrianou 2009 at 3-6 discusses the dating and data problem, surrounding so-called minor objects excavated and published before approximately 1950. Bíró notes that the objects she has studied suffer from a “complete lack of known sites,” with details of both the circumstances and accompanying finds being unknown. Bíró 1994, 7.

<sup>32</sup> Allison 2004, 6.

“minor;” as a matter of fact, the objects are indeed comparatively small, but they nevertheless form a salient part in the study of material culture. Identical problems involving lack of data and uncertain dates with regard to small objects is commonplace in other ancient sites and is noted in such publications as Deonna’s site publications of Delos, where dates and exact location are not recorded, and Graham and Robinson’s multiple volume site study of Olynthos, including the 1941 volume on what are labeled “minor objects,” which conveniently belonged largely to a single period of history, 432 B.C. to 348 B.C., with a certain destruction level and no resurrection thereafter. As in the case of Morgantina, the main aim of the Delian and Olynthian studies was to record architecture, with the recordation of artifacts an afterthought, although Robinson 1941 makes an effort to study a “holistic idea of Greek life,”<sup>33</sup> as do more recent publications, such as Andrianou.<sup>34</sup> Other studies, such as Davidson’s 1952 study of Corinth, give only rough approximations of date, extending over a long period of time. The same will be true of this study.

Ultimately, because there is nothing more to compare or contextualize within the site itself, as here, these so-called “small” objects must be compared with other small objects which may be geographically and temporally far separated, but nevertheless are similar, an interesting phenomenon in itself. Accordingly, the objects from Morgantina will be compared with objects of earlier periods from such sites as Olynthus, Corinth, and the Pnyx, from contemporary sites in Macedonia and Ptolemaic Egypt, and from later periods in Rome, Roman Britain and Gaul, Hungary, and elsewhere, and where

---

<sup>33</sup> Andrianou 2009, discussing Robinson 1941, 6.

<sup>34</sup> Andrianou 2009, in general.

applicable and available, with similar objects in different substances such as metal.<sup>35</sup> Such comparisons are apt and feasible because the similarities over the years and across geographical boundaries are so striking. Attempts to categorize certain of the objects are based solely on their visual appearance. Necessarily, reasoned inferences must be drawn as to the function/use of these articles. The inferences I have drawn are my own, usually with guidance from the scholars I have cited.

Within Morgantina, bone appears to have been utilized as a practical, readily available material for quotidian objects which could be discarded when broken. Bone was also used as a material for both decorative and functional pieces. The few ivory objects found share both purposes as well. A characterization as “quotidian” does not denigrate the objects: it simply indicates daily or regular use.<sup>36</sup> None of the caveats and limitations applicable to the Morgantina material diminish its importance as another demonstrable link in the continuum of Greek life and Mediterranean civilization in general as it spread around the Mediterranean basin, and as transformed by the Romans, into northern Europe, largely after the demise of Morgantina.

Although most of the bone materials from Morgantina fall on the humble side of the “type” continuum, some of the found objects are exceptional, elaborately made, or

---

<sup>35</sup> Robinson 1938 and 1941 (Olynthus); Davidson 1952 (Corinth); Davidson 1943 (Pnyx); Marangou 1976 (Ptolemaic Egypt); St. Clair 2003 (Rome); MacGregor 1985 (Roman Britain); Beal 1983 (Roman Gaul); Bíró 1994 (Hungary).

<sup>36</sup> In other media from Morgantina, one can observe a sophisticated appreciation of what is generally considered “high art.” For example, the terracotta sculptures and molded objects in the same material, as well as pottery objects, of which there are many, show the sophistication of the Morgantina population over an extended period of history. The early Greek and Hellenistic periods in Morgantina are replete with sophisticated use of terracotta. *See, e.g.,* Bell 1998 and Kingfield 1994. Upcoming books by Stone, Kenfield, Tsakirgis, Lucore and others amply demonstrate this.



visually striking, finely worked and highly decorative.<sup>37</sup> Both the visually striking objects and those which are less dramatic readily show the connections of Morgantina with other cities within the Greek world and reflect, in miniature, both transformative effects, and transformation of, the Greek *koine* in this inland colony.

---

<sup>37</sup> It is ironic that two such objects (60-1665 and 60-1683), which may have been elaborately worked, are “among the missing.” A substantial number of objects from the 1963, 1981 and 1983-1986 and later excavation seasons could not be located.

## CHAPTER 2

### THE OBJECTS AND THEIR HISTORIES

#### **I. Bone or Ivory?**

The first issue that must be addressed is whether the Morgantina artifacts in question are made of bone or ivory. The overwhelming majority of the objects are bone and thus, notations as to the material have been made only when it appears that the object in question is ivory. Bone was commonly used for small awls and needles, handles, combs, beads, spatulas, and simple points in protohistorical Morgantina, including the Bronze and Iron Ages.<sup>38</sup> In Morgantina, sheep, goat, and pig bones, basically, the waste from butchering,<sup>39</sup> have been identified among the bones excavated on the Cittadella site,<sup>40</sup> and these animals, together with cattle, constitute the sources of bones used in Hellenistic times and later.<sup>41</sup>

A common characteristic of long bone, such as femurs, found in domestic animal appendages in particular is compact solidity surrounding a channel running through the center. When the animal is alive, collagen bundles, blood vessels and connective tissue within this channel are supported by cancellous material.<sup>42</sup> When dried, the cancellous material in this channel hardens. On many of the objects here, demonstrably in the many hinge components, some remnant of this cancellous material remains within the natural

---

<sup>38</sup> Leighton 1993, 88-89.

<sup>39</sup> St. Clair 2003, 2.

<sup>40</sup> Leighton 1993, 88 and Reese 1993, 91-95.

<sup>41</sup> It is outside the purview of this study to delineate exactly what animal was the source of each bone object.

<sup>42</sup> St. Clair 1993, 2.

channel, even when smoothed or otherwise worked. It is also evident on the unfinished side of other pieces. Bone from areas such as that from the scapula does not have channels or has a very narrow channel. Bone, being a hard compact substance when not decomposed, presents a uniform appearance; consequently, it is practical for objects in regular use.

Ivory is made from dentine of elephant, hippopotamus, and narwhal, among others. As it ages, it presents a different surface appearance: fine lines, comprising subsequent layers of dentine laid down over the central pulp cavity, begin to appear as parallel striations as the object is worked from front to back. In longitudinal section ivory “is characterized by a series of [visible] striations,” and in cross section by “beautiful, concentric arcs physiologically related to its grown process.”<sup>43</sup> While as hard as bone, it appears not to have been regularly or commonly available in Morgantina during the time period in question. Only a few pieces, possibly secured from the African elephant trade and probably imported into the city, have surfaced. It is also possible that multiple ivory pieces once existed within the city, but being valuable, were taken in the multiple plunders which marked its existence and its demise.

## **II. Items for Personal Use**

### **Cosmetic or Medicinal Spoons and Spatulas**

Six cosmetic or medicinal spoons with oval ogival bowls, one spoon with an oval bowl and six spoons with round bowls have been recovered from Morgantina.<sup>44</sup> Figs. 1-6; 99. Such spoons, although not numerous at any site, are common finds in the ancient

---

<sup>43</sup> Cutler 1985, 3 and 7. *See, generally*, Cutler 1985, 1-7.

<sup>44</sup> The oval spoons are sometimes called *ligulae* and the round ones, *cochleae*. Rodziewicz 2007, 34; Bíró 1994, 45.

world, and were fashioned of either bone or metal. They are not reported as found objects earlier than the Hellenistic period; in that period, they are found in Alexandria, Corinth and Gordion, among other sites.<sup>45</sup> In her study of “small” objects from Corinth, Davidson notes the spoons having oval bowls were used for “dipping out unguents, powder, rouge and similar cosmetic substances.”<sup>46</sup> The two oval pointed spoons which she cites date to the Hellenistic period. Sheftel comments that spoons were also used for eating, with the pointed end used to crack eggs.<sup>47</sup> Bone, which does not corrode, was used in place of metal in those instances when chemical reaction with metals could occur, such as with ingredients in medicines and unguents, or such substances as vinegar.<sup>48</sup>

The majority of the Morgantina spoons were found in Area I, the Agora, with the rest in Areas IV and II. Two of the complete oval spoons, Inv. No. 57-1145 and 1146,<sup>49</sup> (Fig. 1), were found in Area IV, 2A, the cistern, which has a terminus date of 25 B.C.: one can hypothesize from their completeness that they were deliberately thrown into the cistern, possibly during one of the last plunders of the town. Both the oval and the round

---

<sup>45</sup> Alexandria: Rodziewicz 2007, Cat. 460, Pl. 57.460, 111.3 [Field Inventory No. LUX 01.30051.80 (21); Graeco Roman Mus. Alexandria]. Gordion: Sheftel 1974, 287 and 522, Pl. 43c (Gordion Museum BI251). The majority of the inventory numbers for Rodziewicz are for the Graeco-Roman Museum in Alexandria; all inventory numbers for Sheftel are for the Gordion Museum. As for Corinth, Davidson 1952 is cited throughout this paper. Through an accident in printing, there are no page numbers in Rodziewicz 2007. I have attempted to paginate manually, using the table of contents as a guide.

<sup>46</sup> Davidson 1952, 181, 184 and Pl. 82, 1332-3 (Corinth Museum, Inv. Nos. 4398 and 4399). Davidson sets the Hellenistic period at Corinth at the late fourth century to 146 B.C. Davidson 1952, 7. All inventory numbers for Davidson are for the museum at Corinth.

<sup>47</sup> Sheftel 1974, 289-290; accord, St. Clair 2003, 103.

<sup>48</sup> Bíró 1994, 44.

<sup>49</sup> Henceforward, the phrase “Inv. No.” will be eliminated in the text, and in footnote citations, leaving the two-digit year and the number. In the footnotes, the inventory number is in parenthesis after the catalog number, except where a large number of examples are cited “in general.” When a category of objects is either too small to be statistically significant or is found in several different areas, generally no analysis or conclusions based upon find spot can be made.

spoons have shallow bowls: the thickness varies from slightly over 3 mm to approximately 4.5 mm. Where the handles are complete, they are long, with 13.3 cm being the longest. Given this length, these spoons could be used for cosmetic, unguents, medicine, or eating.<sup>50</sup>

Small spatulas generally have the same uses as spoons. Fig. 7. Those found at Morgantina primarily come from Area III, the Cittadella, but the sample is sufficiently small that no conclusion can be drawn from this. With the exception of 60-138, all are broken and corroded. Margreiter identifies one nearly identical piece from the late sixth century Temple of Apollo at Aegina as a spatula;<sup>51</sup> focusing on the relatively complete pointed end, Davidson identifies as styli bone objects similar to those characterized here as cosmetic spatulas.<sup>52</sup> If the Morgantina spatulae had pointed ends when complete, they too might be classified as styli.

Spoons continue to be regular finds in excavations after the Hellenistic period. St. Clair notes one round spoon from the Palatine East, with a chevron design on the handle from the second half of the second to early third century A.D., observing that examples of this type are documented from the third century B.C. through the Merovingian period.<sup>53</sup> MacGregor demonstrates the variety of forms spoons took in Roman Britain, pointing out

---

<sup>50</sup> As to this last use, St. Clair 2003, 103, states that spoons with a pointed end were used for breaking eggs and eating. Sheftel is the sole reference to their being used for eating before the Roman period. *See* footnote 24. There is no residue presently in these spoons to help determine their use and there exist no records of any residue.

<sup>51</sup> Margreiter 1988, 67 and Taf. 6, 108 (Aegina Museum 93). All inventory numbers for Margreiter are for the Aegina Museum.

<sup>52</sup> Davidson 1952, 185-186 and Pl. 83, 1355-9 (1484, 3632, 7830, 3641, 4689). What she identifies as spatula [Davidson 1952, 181-2 and Pl. 82-83 (1334-1347)], have a much smaller spatulate end relative to the shaft. Davidson 1943, 98-99 (Fig. 44, No. 9) identifies a metal object from the Pnyx, with a spatulate end and a simple rounded end, as a "probe."

<sup>53</sup> St. Clair 2003, 103 and Fig. 36(g) (3144).

that they were the subject of industrial manufacture in Britain during that time, but that after the Roman period, spoons were “comparatively rare.”<sup>54</sup>

The spoons and the small spatulas represent two utilitarian objects which continued to be manufactured and used both before and throughout much of the period covered in this dissertation and well beyond. They changed but little because the form suited the function.

### **Combs**

The combs retrieved from Morgantina are for the most part so fragmentary that little instructive comment can be made about them. Fig. 8, 66-545, appears to be a two-edged comb with different size teeth on each side. Given the large “blank” area shown on 66-545, it is possible that this comb was not completed. The two large teeth, near the left bottom edge of the comb, draw into question whether this object may have been used for some purpose other than cosmetic. Two other pieces of possible combs, one of which has been burned (89-349), are so badly fragmented that it is impossible to speculate on their completed form or whether the fragments belong together; however, the broad teeth on each of these combs are characteristics of combs used for carding.<sup>55</sup> Figs. 9-10. While 55-528 may have been a comb, the two parallel incised lines would have weakened it; it is as likely that it was part of a decorative mount. Fig. 8. All of these combs may date from the Roman period, because during the preceding Greek period, combs were made primarily of wood.<sup>56</sup> MacGregor confirms that combs were

---

<sup>54</sup> MacGregor 1985, 44-45 and 181-183.

<sup>55</sup> Leighton 1993, 89, and Cat. No. 344, 192. The dentation on the comb described by Leighton is similar to the comb fragments here. *See* Leighton 1993, pl. 113, 344.

<sup>56</sup> Davidson 1952, 179.

commonplace in Roman Britain and thereafter, when complex combs made of separate pieces become common.<sup>57</sup>

### **Jewelry**

#### **Amulets**

Two amulets have been found at Morgantina: a phallic representation (57-1752) and a fist (92-661), having a terminus date of 50-40 B.C.,<sup>58</sup> the latter carved in the round. Figs. 11-12. The phallic representation consists of more than the usual phallus: it represents the entire male genitalia, and the phallus itself, also unlike many other representations, such as those seen in Greek herms, is not tumescent. Davidson records two bronze amulets from Corinth, consisting solely of a phallus, from the Roman period, observing that such representations were “not uncommon” for that period, and further observing that pendants as a group were missing from the Greek period.<sup>59</sup> Bíró illustrates a phallus amulet from the Roman period which shows both the phallus, again, not tumescent, and testicles. She characterizes it as a fertility symbol, noting that women wore such amulets “when desiring children.”<sup>60</sup> The Morgantina amulet appears to be *sui generis*, but its subject is not: “[p]halli are among the most widespread of Roman symbols for good fortune,”<sup>61</sup> carrying forward the widespread ancient notions of the

---

<sup>57</sup> MacGregor 1985, 73-97.

<sup>58</sup> There was at least one other item which could have been an amulet (Inv. No. 55-300; Grimm, *I Serra Orlando*, 70) but it is missing.

<sup>59</sup> Davidson 1952, 255, 257 (with citations), Pl. 110, 2056, 2057 (2530, 5736).

<sup>60</sup> Bíró 1994, 65 and Pl. LXXXIV, 848 (132.1872.B). All references to objects in Bíró are from the Hungarian National Museum.

<sup>61</sup> MacGregor 1985, 107.

phallus as apotropaic, protecting against the “Evil Eye,”<sup>62</sup> and as a symbol for fertility and good fortune.

The fist amulet from Morgantina, Fig. 12, appears to be from the Roman period.

According to MacGregor:

One of the principal type [of amulets] to make its appearance in the Roman period is in the form of a “fig hand” carved in the round. . . The “fig hand” in which the fingers are clenched and the tip of the thumb protrudes between the index and second fingers, has maintained its popularity in the Mediterranean world as a protective against the evil eye to the present day.<sup>63</sup>

These apotropaic “fig hands” were pierced laterally through the wrist,<sup>64</sup> much like the amulet from Morgantina, which lacks only the tip of the thumb protruding between the index and second fingers. It is impossible to determine whether amulets such as these were produced in a commercial workshop or in a domestic/residential context.<sup>65</sup>

### **Beads and Plaques**

What might be beads are recorded in Figs. 13-14, or noted elsewhere (*e.g.*, 71-253 in Eyelets, Fig. 27). One is from the Cittadella (terminus date 211 B.C.) and one from the North Sanctuary dump (terminus date 25 B.C.). None of these were found with other similar objects, although groups of naturally fluted shells, graduated in size, were found

---

<sup>62</sup> Holloway 1986, 449.

<sup>63</sup> MacGregor 1985, 106-107, Fig. 61, a-e.

<sup>64</sup> MacGregor 1985, 107.

<sup>65</sup> Unlike the case with ceramics, it was impossible to determine whether commercial workshops existed for working bone production in Morgantina. There could be several alternative explanations: (1) there were no workshops; (2) indicia of workshops, such as concentrations of bone chips or shavings, had decomposed by the time of extensive excavations; (3) the excavators overlooked such deposits.



in groups which appear to have constituted necklaces or bracelets.<sup>66</sup> Ayalon reports that a series of graduated flat oval plaques, like 59-1523, 59-1369 and 58-683, formed portions of the graduated handle of a dagger.<sup>67</sup> Whether that was the use to which these oval plaques were put in Morgantina is impossible to determine. The remainder of the “beads” from Morgantina may not have been used as beads: as small objects with holes, it is a standard use ascribed to them.<sup>68</sup> There is overlap between beads and objects described under the topic Eyelets/Reinforcements, particularly among the smallest of the “eyelets.”

### **Pins**

Both decorative bone and metal pins for clothing and hair have a long history. Davidson describes pins as having “a shaft, pointed at one end, and a decorative head.”<sup>69</sup> Bíró includes within the definition of pins, particularly hair pins, undecorated “piece(s) of bone. . . polished around its whole surface,” with one pointed end, such as those shown in Figs. 15-16. During the Bronze Age, pins were made of the long bone of sheep, goats, and cattle and particularly the metapodials (foot bone) which have thick straight shafts, making them ideal for fashioning into pins or needles. During Mycenaean times, bone

---

<sup>66</sup> Shell material is not included in this catalog, but is present among the finds at Morgantina in both the protohistorical period and the period under discussion. *See, e.g.* 67-656, 69-655, 04-446 and 59-679, and Leighton 1993, Cat. 345, 192 and Pl. 113, 345. The dentilium shell discussed by Leighton, which is naturally fluted and has a central cavity ideal for jewelry, was recorded as a find in Hellenistic Morgantina.

<sup>67</sup> Ayalon 1999, 35 and Fig. 38. Ayalon 1999 gives no dates or inventory numbers for the pieces to which he refers.

<sup>68</sup> *See* citations under the topic Eyelets/Reinforcements.

<sup>69</sup> Davidson 1952, 276.

was the material of choice for pins,<sup>70</sup> a preference which appears to run throughout the period in question in Morgantina.

Certain other forms found in Morgantina hark back to Mycenaean times: Krzyszkowska reports several pins from Helladic Mycenae surmounted by groove and torus decoration similar to 57-2655 and 58-956, (Fig. 99)<sup>71</sup> one pin with a flattened rounded head similar to those shown in Fig. 99 (58-987), although with a less prominent taper,<sup>72</sup> and one with a sharply indented point similar to those shown in Figs. 38-39, which she labels a spatula.<sup>73</sup> Similar objects were found at the Temple of Apollo in Aegina, dating from the late sixth century B.C.<sup>74</sup> In contrast, no pins are reported among objects from the Pnyx.<sup>75</sup> Robinson notes that during the Archaic period, spectacle and bow fibulae were used to hold clothing together. He dates the fibulae at Olynthus between 600 B.C. and 348 B.C.,<sup>76</sup> concluding that fibulae “were little used in Greece after the destruction of Olynthus in 348 B.C. This assertion is not borne out by the finds at Morgantina: while there are a limited number of fibulae from the Archaic period,

---

<sup>70</sup> Krzyszkowska 2007, 62-63.

<sup>71</sup> Krzyszkowska 2007, 64 and 66, Pl 18, (d)-(h). No inventory numbers are given in this publication. Presumably all the objects shown in this volume are at the museum at Mycenae.

<sup>72</sup> Krzyszkowska 2007, 66, Pl. 18 (i).

<sup>73</sup> Krzyszkowska 2007, 66, Pl. 18 (k).

<sup>74</sup> Margreiter 1988, 67 and Taf. 6, 109-110 (90, 68).

<sup>75</sup> *See, generally*, Davidson 1943, 102-104.

<sup>76</sup> Robinson 1941, 113-114.

including two with bone components, there are several metal fibulae from the Hellenistic period,<sup>77</sup> but none are bone.

Despite the use of the fibula as the predominant fastener during the Geometric, Archaic and Classical periods, pins were also used. Davidson references Corinthian pins made of metal from the Geometric and Classical periods,<sup>78</sup> but points out that a “small number” of pins were found at Olynthus for this period, with the majority of pins dating from the fourth century, and later from the Roman period. She further notes:

Decorative pins of bone and ivory, because of the almost imperishable quality of material, as well as its small value, are found by the hundreds. Despite the quantities of pins, hardly any can be attributed to the Greek period.<sup>79</sup>

The pins she pictures, which she attributes to the Roman period, in their simplest forms (plain, round or oval headed) closely resemble the pins found at Morgantina, except that some of those in Fig. 15 taper dramatically outward from head to point, while those from Corinth have a more gradual taper.<sup>80</sup> Some of these pins have a slightly rounded end; on others the end is pointed.

Made throughout the Graeco-Roman period,<sup>81</sup> the most common pins from Morgantina – and for that matter from any Greek or Roman archeological site – are those with a knobbed head, which may be spherical, oval or cylindrical. Figs. 15-17. Of these,

---

<sup>77</sup> The two fibulae with bone and metal components are cumbersome and badly corroded. They are in the Morgantina Museum in the room containing archaic finds from the Cittadella. *See* Leighton 1993, Cat. Nos. 709 (Inv. 70-34A), 222, and 711 (Inv. 70-35), 223 and plates 58, 162 and 61, 165, respectively.

<sup>78</sup> *See, generally*, Davidson 1952, 276, Pl. 116-117.

<sup>79</sup> Davidson 1952, 277-278.

<sup>80</sup> *See, e.g.*, Davidson 1952, Pls. 118-119 and in particular 2304, 2313, 2321-2329 (2507, 1226, 6944, 3974, 2323, 2535, 1224, 1210, 2508, 1322, 1495).

<sup>81</sup> Rodziewicz 2007, 29.

some have a relatively straight shaft (Fig. 17), while others have a shaft which is thickest just before the point; and still others are thickest around the middle of the shaft.<sup>82</sup> Bell argues that these pins, particularly those which are longer and have a flattened head (for use as an eraser), are in fact styli,<sup>83</sup> contrary to the authors cited above. This scholarly disagreement highlights the difficulty of ascertaining with certainty what function any of the objects found in Morgantina – and in other ancient sites – served: without access to all aspects of the culture, we can never be sure of complete accuracy.

The second most common pins were those with a pear shaped top, dating from the entire Roman period.<sup>84</sup> None of these were among the objects from Morgantina. Another common type were the so-called baluster type, with heads combining bead and reel patterns, said to be common in Roman contexts of the third and fourth centuries.<sup>85</sup> The ones from Morgantina, which use a crude version of bead and reel (Fig. 99, 58-956 and 58-987) cannot, however, be that late.

Davidson observes that Roman pins were lathe-turned, producing a more symmetrical product than hand-carved pins, an observation with which Rodziewicz agrees;<sup>86</sup> some of these had heads which were separately produced.<sup>87</sup> It would appear

---

<sup>82</sup> Compare Bíró 1994 at 31-32 (“Globular Pins”).

<sup>83</sup> Bell 2007, 128-129, and Figure 7, which includes five objects I have categorized as pins and three objects I have labeled “points.” He points out that bone styli for writing in wax were common and that the objects he pictures were found in buildings in the Agora where writing could be a common activity. These particular objects were found in Areas I and IV.

<sup>84</sup> Rodziewicz 2007, 29.

<sup>85</sup> Rodziewicz 2007, 29.

<sup>86</sup> Davidson 1952, 270; Rodziewicz 2007, 30.

<sup>87</sup> See Bíró 1994, 34.

that certain of the Morgantina pins are also lathe-turned,<sup>88</sup> while others are hand carved and constitute a second category. Whether either of these methodologies puts them into the Roman period at Morgantina cannot be established with certainty: the find spots are scattered throughout the site, with the majority coming from areas with terminus *ante quem* of 211 B.C. or 35 B.C. and many of them coming from cistern deposits.

The more unusual pins from Morgantina, such as the three bird pins (Figs. 18, 19), the “arrowhead” (Fig. 21), the seated figure pin (Fig. 20), the “foot” (Fig. 23), which may or may not be an unfinished pin,<sup>89</sup> and the triangular-headed pin (Fig. 22) are all hand carved. For all their simplicity these individualized pins show gifted carvers at work. The “bird pins” reflect the interest of this period in “life-like visualization”; they also reflect the apotropaic role of birds, known from the Bronze Age forward in the Mediterranean area, as well as a popular symbol all over Eurasia.<sup>90</sup> The two birds, 81-55 and the larger similar one with no inventory number, which are three-dimensional and closely resemble a dove or a pigeon, are more naturalistic than the bird pins Bíró reports.<sup>91</sup> Bíró also comments upon an arrow-shaped specimen which is long (15 cm),<sup>92</sup> much like Fig. 21 (14.2 cm). The long pins, such as the “arrowhead” pin, may have had a dedicatory or symbolic meaning based upon length, the longer pins being often used for

---

<sup>88</sup> See, e.g., Fig. 7, upper left.

<sup>89</sup> This “foot” could also be an unfinished leg for an articulated or jointed doll. Elderkin 1930, 456, notes that dolls were made of bone, among other substances, with the earliest bone doll dating to the third century B.C. There is no other bone object in the present finds indicating use of bone for dolls.

<sup>90</sup> Bíró 1994, 34.

<sup>91</sup> Bíró 1994, Pl. XXXV, 376-379 (56.2.14; 104.1891.102; 56.2.13; 46.1907.61). Bíró is the only scholar reporting bird pins, in her case, from the Roman period in Hungary.

<sup>92</sup> Bíró 1994, 34, Pl. XXXIII, 368 (54.66.7).

dedications.<sup>93</sup> Although the total number is small (twelve), all of these unusual pins which had an inventory number were found in Area IV (the North Sanctuary and North Sanctuary dump), which is possibly consistent with a dedicatory purpose.

Production of “plain headed” pins, such as those shown in Figs. 15-17, persisted over a long period, basically from the Helladic period and earlier, on through and after the Roman period, a fact underscored by pins found on Palatine east.<sup>94</sup> MacGregor notes that Roman hair pins are identical in form, whether made of metal (mostly bronze), bone, or some other material. He too gives examples of simple pins which varied little from the simple ones found at Mycenae.<sup>95</sup> These plain pins may have been manufactured by the individual as required: materials were readily available and no complex preparation was necessary, while a highly decorative pin may indicate professional production.<sup>96</sup> The more unusual carved pins from Morgantina, however, as well as those with simple round or oval heads, could have been produced commercially or domestically, on an as-needed basis. Unfortunately, there exists no identifiable site for manufacture of any worked bone objects at Morgantina.

### **III. Objects With Undetermined Functions**

#### **Rings**

Bone rings are another common find at Morgantina. Fig. 24. These circular objects look like finger rings: the central opening is large enough to fit over a finger; they are fashioned with a circular cross section; they are simple, undecorated and

---

<sup>93</sup> Rodziewicz 2007, 29.

<sup>94</sup> *See generally*, St. Clair 2003, Figs. 23-29, Pls. 31-34, and MacGregor 1985, 113-116, and Fig. 64, 8-10.

<sup>95</sup> MacGregor 1985, 113 and Fig. 69, Nos. 2, 8-11 and 13.

<sup>96</sup> MacGregor 1985, 115.

generally finished and polished, with the medullary cavity completely removed. They are roughly the same size, as Fig. 24 demonstrates. Similar objects in both bone and metal are commonly noted among the “small” objects from almost all Classical and Hellenistic excavation sites which have been the subject of extensive study. The earliest examples in bone date back to Mycenaean times,<sup>97</sup> but probably occurred earlier. Robinson notes the many “bronze circlets” found in the excavation of Olynthus, observing that some of these bronze objects were the appropriate size for finger rings, but many were too large and therefore must have served some other purpose requiring a ring-like structure.<sup>98</sup> In general, he treats bronze circlets as handles, stating that they “served some utilitarian purpose, since cotter pins or some other methods of attachment is preserved and affixed”<sup>99</sup>; he notes that circular bands of bronze were used to reinforce keyholes and often had a form of attachment visible.<sup>100</sup> Thompson agrees with this assessment regarding an object found in the Pnyx, citing Robinson.<sup>101</sup> It can be argued that the functions attributable to brass rings can likewise be attributed to bone rings, with the exception of keyhole reinforcements. Unlike some of the objects from Olynthus and the Pnyx, there is no evidence of any method of attachment on any of the Morgantina objects.

---

<sup>97</sup> Yakar 2006, 90 and personal observation of same; Ayalon 1999, 45, who labels nearly identical objects “rings,” without more; interestingly, Krzyszkowska’s study of the bone and ivory from the citadel at Mycenae does not include any such rings.

<sup>98</sup> *See generally*, Robinson 1941, 132; Pl. LXIII.

<sup>99</sup> Robinson 1941, 229.

<sup>100</sup> Robinson 1941, 253, *et seq.*

<sup>101</sup> Thompson 1943, 99, citing Robinson, Olynthus VIII, 260.

In discussing objects from the Athenian Agora, Richter suggests another use for rings, whether of bone or bronze: curtain or drapery hangers.<sup>102</sup> She notes that these objects recur in excavations from the fourth century B.C. to the Roman period,<sup>103</sup> which is consistent with the dating of most of the Morgantina “rings.” Rodziewicz concurs, noting that many of these may have been intended as actual rings, but most were too large for finger rings and too small for bracelets.<sup>104</sup> Curtains and similar hangings were used on beds and couches, as pictured in vase paintings, and as room dividers, demonstrably so in Olynthus, where no pivots for internal doors were found.<sup>105</sup> Depictions on the late Hellenistic Nile mosaic from Praeneste serve as splendid examples of the use of canopies. If the bone rings from Morgantina were used as a method to hang draperies, one can surmise that based upon their size and the tensile strength of bone as compared to metal, their use would have been confined to smaller, lighter draperies, such as those used to cover shelves or sideboards later in the Hellenistic period.<sup>106</sup> But the advantages of bone over metal rings for curtains are apparent: bone was cheaper, more abundant, and more easily worked, and in a damp climate, would not rust. There can be no question that fabric suitable for hanging was available throughout the Classical,

---

<sup>102</sup> Richter 1966, 119, Pl. 600.

<sup>103</sup> Richter 1966, 119; Robinson 1941, 251 (in general, Pl. LXIII, all bronze); Rodziewicz 2007, 34, Pl. 54, Cat. No. 432-434 (DI 96.3246.2.4; DI 96.3035.3.1; DI 96.3837.1.3).

<sup>104</sup> Rodziewicz 2007, 34.

<sup>105</sup> Richter 1966, 119.

<sup>106</sup> Richter 1966, 81-84.



Hellenistic and Roman periods.<sup>107</sup> Andrianou hypothesizes that during the Hellenistic period, “bronze circlets” were also used as decorations on boxes.<sup>108</sup>

One circular bone object from Morgantina, 56-290, stands out among the ring-like objects: a circlet of bone fastened with a bone peg, protruding slightly on both sides and moveable. Fig. 25. It is finished unlike the other bone “rings”: it is highly polished and flattened on the inside and on the sawn sides, but is concave on the outer span, while other rings are circular in section and not similarly finished. Whether it could be an actual finger ring is uncertain: the size is consistent with a finger, but the shape is inconsistent with known finger rings in metal, which are most often flattened on the upper surface, either incised as a seal or as a receptacle for a stone.<sup>109</sup> Indeed, Davidson categorizes several such objects as rings “without settings,” but all are of metal, flattened on the top. She dates these well after the period in question. This shape appears to have been generally consistent from the Archaic period up to, and beyond, the Roman period, with rings with stones preferred in the Hellenistic period.<sup>110</sup> Most finger rings are made of gold, silver, and bronze; bone seems to have been used rarely, if at all.

---

<sup>107</sup> See, e.g., Beckwith 1954, 114.

<sup>108</sup> Andrianou 2009, 73. These bronze circlets were found with the remains of two wooden boxes. She describes them as “possibly part of the decoration.”

<sup>109</sup> See, e.g., Spier 1992, 1-6; Davidson 1952, 229 *et seq.*

<sup>110</sup> Spier 1992, 1.

Whether 56-290 is a ring or an unusual hinge component is the question. 56-290 can be compared to two hinge components, 98-36 and 62-652,<sup>111</sup> both of which have a drilled hole and appear to have been broken through at the location of the hole. Fig. 26. Both 98-36 and 62-652 have been largely cleaned of cancellous material. In both, the interior hole is irregular and follows the natural channel, while 56-290 presents a deliberately cleaned and flattened circular interior, unlike the other “rings” in this catalog. The exterior of all three items has been smoothed, but only 56-290 presents a concave outer span. The purpose or use of this intriguing small object must remain a mystery. It highlights the continuing difficulty of categorizing definitively some of the objects from Morgantina.

### **Eyelets/Reinforcements**

These small round bone objects are distinguishable from their close cousins, the decorated disks and the “rings,” by their relative thickness, their uniform profile, invariably slightly convex on one side and flattened on the other, their plain exterior, and their relatively uniform diameter, which, with the exception of the largest and the smallest, varies from 2.5 cm to 1.5 cm. Figs. 27-29. Their lack of any decoration and consistent shape and size signals a utilitarian purpose.<sup>112</sup> They were found throughout the Morgantina site.

---

<sup>111</sup> The measurements of 98-36 and 62-652 are:

98-36:	L:	1.130
	MDX:	2.484
	MDI:	1.380
62-652:	L:	.763
	MDX:	1.920
	MDI:	.870

<sup>112</sup> As illustrated in Fig. 100, these “eyelets” can also be made of stone.

Similar bone and metal objects have been found in the late sixth century Temple of Apollo in Aigina, the Athenian Agora, Hellenistic Macedonian graves, and elsewhere.<sup>113</sup> The objects from the Temple of Apollo are identified as bone beads.<sup>114</sup> Dorothy Burr Thompson in discussing material from the Pnyx presents an interesting theory regarding these objects: in “The House of Simon the Shoemaker,” she concludes that these are reinforcements or eyelets used in sandal-making.<sup>115</sup> In support of her argument, she records the excavation of a small house near a city gate in the southwest corner of the Athenian Agora, built in approximately 500 B.C.,<sup>116</sup> and destroyed by departing Persians in 479, with everything which could be used dumped into the well.<sup>117</sup> The house was later rebuilt and reoccupied. Its life span altogether was approximately 200 years, derived from the seven different floor levels.<sup>118</sup> Based upon the objects found in the house, including bone rings and a quantity of iron hobnails (short nails with large round heads) found in conjunction with each other, she concludes that the shop belonged to a shoemaker, perhaps the one called Simon by Socrates. This identification is bolstered by a discarded kylix found in the rubble, inscribed “Simon.”<sup>119</sup> In support of her argument that laces on shoes and sandals were sometimes threaded through bone

---

<sup>113</sup> See Andrianou 2009, 75, showing similar objects. From her description at 73, it is not clear whether the objects at the top are bone or metal. See also Davidson, 296, 298-299, Pl. 122, 2514-2517 (6113, 4209, 3836, 2602), which she describes as buttons ranging from the fifth century B.C. to the Hellenistic period.

<sup>114</sup> Margreiter 1988, 66 and Taf. 5, 76 (119).

<sup>115</sup> Thompson 1960, 234-246.

<sup>116</sup> Thompson 1960, 237.

<sup>117</sup> Thompson 1960, 233.

<sup>118</sup> Thompson 1960, 237.

<sup>119</sup> Thompson 1960, 238. Pictures of these objects are at Thompson 1960, 237.

eyelets, Thompson cites a jug from the Roman period in the shape of a boot, with hobnails on the sole, and laces threaded through rings much like those found at Morgantina.<sup>120</sup>

Katherine Morrow, an expert on Greek footwear, underscores the use of such “eyelets” in shoemaking, citing bronze foot fragments from the Hellenistic Antikythera wreck, and the sandal on the foot of Mausolos from Halikarnassos, now in the British Museum,<sup>121</sup> which show such a eyelet as part of a sandal.<sup>122</sup> Lapatin and Morrow also picture an ivory foot fragment from a chryselephantine figure found in the Halos deposit in Delphi, ca. 550 B.C., with eyelets, which in this case may be purely decorative.<sup>123</sup> The Hellenistic figure of Asklepios on the altar to Artemis Leukophryne from Magnesia also shows solid sided leather “shoes” with eyelets, laces, and ankle loops clearly visible.<sup>124</sup> The sandals on the famous marble statue of Demosthenes, now in the Ny Carlsberg Museum in Copenhagen, have laces threaded through eyelets.<sup>125</sup> As Morrow observes, “Not much emphasis can be put on regionalism in this period, as the *koine* of the Hellenistic world extended to footwear fashions.”<sup>126</sup>

Alternatively, these small objects could have been for reinforcement for any article of clothing closed by lacing. No scholar comments on this possibility. One of the

---

<sup>120</sup> Illustration in Thompson 1960, 236.

<sup>121</sup> Morrow 1985, 80, Pl. 60c (British Museum, 26).

<sup>122</sup> Morrow 1985, 115, 126, Pl. 99a and b (National Museum, Athens, 15092).

<sup>123</sup> Morrow 1985, 32, Pl. 23; Lapatin 2001, 147 and Pl. 135 (Delphi Museum, 9946, 9947), *terminus post quem*, 420 B.C. Lapatin 2001, 57-58.

<sup>124</sup> Morrow 1985, 119-120.

<sup>125</sup> Richter 1965, Vol. 2, 219 and Fig. 1400, Pl. 32 (Copenhagen, Ny Carlsburg, 2782).

<sup>126</sup> Morrow 1985, 90.

eyelets from Morgantina (Fig. 27, 71-253) is so small – 1.1 cm – that it may have been a bead in combination with other beads of graduated size.<sup>127</sup> The majority of the eyelets found in Morgantina come from either Area I or Area IV in a variety of trenches and strata within these areas, but they are also found in Areas II, III, V, VI and VIII: because they are not concentrated in one spot, they cannot be attributed to a possible location of manufacture, unlike the situation with the House of Simon. For the most part, they can be dated only with a terminus *ante quem* of 25 B.C. or in fewer instances, with a terminus *ante quem* of 211 B.C.

### **Disks**

Twenty-six decorated round disks, all fashioned on a lathe and probably originally sliced horizontally from a long bone condyle,<sup>128</sup> have been found in Morgantina, with the exception of one undecorated disk (59-430), which is lopsided and may have been either a template that was never finished or a rough token of some sort. Nine disks are decorated on both sides, while twenty-one are decorated on one side. Figs. 30-31; 100. The majority of the disks have a small single central perforation; only three are not perforated. All manner of uses have been advanced for these objects, from components of spindle whorls to covers for the end of furniture components and pyxides, counters (*calculi*), appliqué decoration for clothing/furniture, bottle stoppers and buttons. To the modern eye, these objects closely resemble buttons for clothing, but it is by no means clear that they were used for this purpose or that buttons existed as such at Morgantina;<sup>129</sup>

---

<sup>127</sup> Several similar objects from Tiryns, but of amethyst and amber, are identified as beads in Rudolph 1973.

<sup>128</sup> Krzyszkowska 1990, 54-55.

<sup>129</sup> Elderkin 1928 argues that the perforated objects were buttons; MacGregor states that buttons as such were not used until medieval times. MacGregor 1985, 99-100.

in fact, the purpose/use of these disks is “far from certain” and much debated.<sup>130</sup> Davidson distinguishes among decorated disks such as these as follows: spindle whorls are “large, heavy, often of terracotta and seldom decorated,” while “buttons are smaller and lighter, usually of ivory, bone or steatite, and frequently covered with elaborate incised designs.”<sup>131</sup> Counters usually lack a central hole, are usually of bone and occasionally ivory, and can be in other than discoid shapes.<sup>132</sup>

Sorting these circular bone objects into subcategories is possible but not definitive. Of the decorated disks from Morgantina, the three with no holes can probably be classified as counters for games or commerce,<sup>133</sup> as can nine others, which are decorated on both sides.<sup>134</sup> The decorations themselves can best be described as simple, repetitive variations on the theme of convex/concave concentric circles, with the obverse generally convex overall and the reverse flattened. Only two, 68-381 and 71-558 show additional decoration in the form of paint/paste, and a concentric circle of dots, respectively. Fig. 30.

Whether the remainder are buttons or something else cannot be established with any certainty. First, the difficulty of fastening an object with a single perforation is manifest. Elderkin contends that buttons replaced fibulae and stick pins with the advent

---

<sup>130</sup> Davidson 1952, 296(?). She cites Elderkin 1928 as the authority for her statement that these objects were buttons. *See also* Rodziewicz 2007, 30-31.

<sup>131</sup> Davidson 1952, 296.

<sup>132</sup> Davidson 1952, 217.

<sup>133</sup> Inv. Nos. 57-89, 58-1511, 66-90; Bíró 1994, 54.

<sup>134</sup> Inv. Nos. 71-558, 68-381, 57-97, 56-1021, 59-527, 67-882, 61-1270.

of Ionic dress,<sup>135</sup> at which point Doric dress also came to be fastened with buttons.<sup>136</sup> MacGregor flatly asserts that buttons were not used until the medieval period.<sup>137</sup> The buttons themselves, if they had a central hole, could be fastened by a cord or thin leather thong, running through a bead or something similar at the top, to fix the button,<sup>138</sup> although there was no sign of wear from an attachment on the Morgantina disks. More difficult to discern is the attachment mechanism for a disk with no perforation. Elderkin grapples with this, conceding that these objects may not have been buttons at all.<sup>139</sup> One of the non-perforated disks, Fig. 31, 58-1511, which is made of ivory, could have been a decorative boss of some sort: Lapatin shows such a boss decorating the sandal of an ivory foot of Roman date.<sup>140</sup> Morrow also notes that there is the occasional carved ornament on sandals, usually plain, round “buttons.”<sup>141</sup> Similarly, any one of these decorative disks could have been used to decorate a chest or other furniture. St. Clair describes similar objects as circular mounts, emphasizing their common occurrences and their longevity as a form, dating back at least to Pheidias’ workshop at Olympia.<sup>142</sup>

These objects, whatever they may be, are widely disbursed geographically in the Greek world and cover a wide time span. At Morgantina, they are likewise widely

---

<sup>135</sup> Davidson 1952, 296-298.

<sup>136</sup> Elderkin 1928, 336, *et seq.*

<sup>137</sup> MacGregor 1985, 99-100.

<sup>138</sup> Elderkin 1928, 341. Among the metal finds at Morgantina are numerous examples of two non-perforated disks attached to each other with a metal shaft.

<sup>139</sup> Elderkin 1928, 341-342.

<sup>140</sup> Lapatin 2001, 150, note 8 and Fig. 245 (St. Louis Museum of Art 227:1923).

<sup>141</sup> Morrow 1985, 92, and *see also* 26, 41, 156, and 143.

<sup>142</sup> St. Clair 2003, 79.

disbursed and have terminus *ante quem* of 211 B.C. and 25 B.C. The decorated disks with holes appear to date from the Roman period, although most scholars have noted the difficulty of establishing a chronology for them.

### **Points**

“Point” is the generic name I have assigned to a large group of objects characterized as having at least one “strong, sharp, finely finished”<sup>143</sup> pointed end and a shaft which is generally circular in section, even though the diameter of the section may vary over the length of the shaft. Figs. 32-40. Objects such as these occur regularly in archeological sites from earliest times to well past Roman times, but generally are not categorized in any particular way. They can be distinguished generally from pins by their thicker shaft, their lack of a distinct head at the non-pointed end, and lack of anything indicating an attachment at the non-pointed end; however, it is possible that some in this category could have been used as pins,<sup>144</sup> or at one time had a distinct head, which would also place them into the “pin” category. Davidson makes no distinction among shapes: of the majority of those made of bone all but two are from a later period.<sup>145</sup> Davidson categorizes all objects with a point as pins.<sup>146</sup>

At Morgantina, many of these points, in addition to possibly being either pins and writing implements, could be probes or tools used in ceramic, wood or leather working or weaving, such as awls. While they were tools, their exact function or functions cannot be

---

<sup>143</sup> Rodziewicz 2007, 35.

<sup>144</sup> See Bíró 1994, 31, who categorizes these as undecorated bone hair pins.

<sup>145</sup> Pls. 2291 and 2351. 2291 has a distinct knob and would be classified as a pin in this catalog.

<sup>146</sup> Davidson 1952, 276-287, Pl. 120, 2257-2389. It is interesting to note that in other catalogs I have consulted, what I have labeled as points are presented with little effort made to distinguish among them.



definitively established, although a variety of functions can be suggested. I have categorized the many points found at Morgantina by physical appearance as follows:

1. Stylus (Fig. 32);
2. Simple points at both ends, having no sharp indentation on the pointed ends and bulging slightly in midsection (Fig. 33);
3. Points with beveled or tapered ends (Fig. 34);
4. Simple points having little or no taper in their shaft (Fig. 35);
5. Simple points with a taper from point to end (Fig. 36);
6. Points with elongated tips (Fig. 37);
7. Small slender points (Fig. 40, second group);
8. Points broken at shaft end with:
  - A. Points tapering down sharply from maximum diameter at point end
  - B. Exaggeratedly thick shafts (Fig. 40, first group).
9. Points with indented tips (Figs. 38-39);
10. Points lacking both tips and termini (Fig. 40).

These categories are arbitrary, but represent an attempt to organize the material on the hypothesis that physical appearance may be relevant to use. Points were found, with only a few exceptions, in Areas I and IV.

### **A Stylus and Probable Styli**

The most frequent use attributed to points is as writing implements, including styli. A stylus, usually made of bronze or bone, is generally defined as having two essential components: a point and a flat blunt end for erasure,<sup>147</sup> presumably for use on a wax tablet. The erasing end is often distinct and may look like a spatula.<sup>148</sup> At Morgantina, only one such complete stylus was found, 67-412. Fig. 32. However, of the many points broken at the end opposite the point, some probably were styli, while the

---

<sup>147</sup> Davidson 1952, 185.

<sup>148</sup> See, e.g., Davidson 1952, Pl. 83, 1348-1351 (385, 3041, 798, 1351 – all bronze) and 1355-1357 (1484, 3632, 1357 – bone and ivory) with the latter being identified as bone styli from the Hellenistic period.

remainder were writing implements of some kind.<sup>149</sup> *See* Figs. 35-37. Four of these, 59-2109, 59-750, 59-750 and one with an unknown inventory number are blackened, evidence of heating for melting wax on a wax tablet. Figs. 36, 39. Given this discoloration, it can be suggested that blackened points were in fact used as writing implements and that points similar to these were used in the same way, though not necessarily on wax.<sup>150</sup> Alternatively, some of the objects with a large flattened end earlier characterized either as spatulae for cosmetic use or as pins, may have been styli.<sup>151</sup>

### **Simple Points at Both Ends, Bulging in Midsection**

Bíró and Andrianou have suggested that implements which bulge in the middle with two pointed ends are pin beaters, used in weaving to beat down cross fibers.<sup>152</sup> Figure 33 shows just such a group, having a distinct bulge in the midsection, and varying little in length. Andrianou describes the sword beater as a weaving implement with a broad, flat blade, “slipped into the shed after the weft to beat it home,” suggesting that similar objects such as those here denominated as “simple points, with no sharp indentation on the pointed ends” were in fact used as beaters.<sup>153</sup> Of the points shown in Figure 33, one, 67-27, is flattened, although overall it is oval in section. There is ample

---

<sup>149</sup> *See* Bell 2007, 128-129.

<sup>150</sup> Research has not revealed what kind of writing materials, other than wax, existed in Morgantina at this time. Presumably the few inscriptions on buildings would have been accomplished by sturdier tools.

<sup>151</sup> *See* discussion above re: spatulas.

<sup>152</sup> Bíró 1994, 51 and Pl. LXI, 531-533 [63.21.1; 63.21.3; 63.21.1 (*sic*)]; Andrianou 2005, 2005.

<sup>153</sup> Andrianou 2008, 105.

evidence of weaving in Morgantina, in the form of loom weights, and spindles in other materials.<sup>154</sup>

### **Points With Beveled or Tapered Ends**

Figure 34 shows a group of points with deliberately beveled, slanted ends. The most obvious reason for such an end would be for use as a simple eraser on wax tablets, making these objects another category of stylus. With the exception of one such point found in Area I, all of these were found in Area IV.

### **Points With Indented Tips**

There is a distinct group of points with a shaft which broadens in an exaggerated fashion just before indenting sharply to the tip. Figs. 38-39. These indented points, whether complete or incomplete, were recovered almost exclusively from Areas I and IV, giving them a terminus *ante quem* of 25 B.C. and supporting their use as styli. Davidson identifies one such comparandum from Corinth, a “bone stylus” of “a common type the Roman period,” which were numerous at Delos, but not found in reliable contexts.<sup>155</sup> From these facts, it can be concluded that this particular form is from the Roman period at Morgantina.

### **Points With Elongated Tips**

Two such points, 56-2948 and 62-55, were found at Morgantina. Fig. 37. The elongated point would seem to preclude use as a writing implement: if grasped at the wider end, the elongated point would be more subject to breakage. If grasped in the area of the point, what was the purpose of the thicker part of the shaft? There are no

---

<sup>154</sup> See, e.g., Fig. 50.

<sup>155</sup> Davidson 1952, 185-186 and Pl. 83, 1364.

comparanda from other sites which address the purpose of this form. Speculations could include use as an ear probe, a specialized medical probe, a peg for use in a hinge, or a experimental form, not often repeated.

### **Small Slender Points**

The small, slender dimensions of some of these points make it unlikely that they could practically be used as writing instruments. Fig. 40, second grouping. They could be hair pins, incomplete needles,<sup>156</sup> or delicate probes.

Overall, the numerous Morgantina points are undecorated and probably utilitarian; they range from 14.340 cm (89-250) to approximately 4 cm in length. They could have a variety of uses which are unknown. The vast majority of the points were found in Areas I and IV, where business was conducted, which is where one would expect to find them. They date from the entire life of the site. Those from Area IV were largely found in the North Sanctuary Dump, while those from Area I were found throughout the Agora. One can surmise that materials from sanctuary sites gives an indication, if not evidence, of writing within those locations.

## **IV. Tools**

Chisels, knives, awls, drills, saws and every common category of tool must have been used at Morgantina, but we cannot say with any precision the purposes of each particular tool, nor do the tools fall into any precise dating period other than either pre-211 B.C. or pre-25 B.C.. Like many bone objects, the tools described were cut from the long bone of a domestic animal. Given bone's tensile strength and its ready availability, bone was a good inexpensive choice for fashioning such utilitarian objects. Use of bone as a material for tools extends back to Paleolithic times. Manson singles out bone as used

---

<sup>156</sup> It is interesting to note that unlike other sites, no bone needles with eyes were found at Morgantina.

in “needles, awls, polishers. . . and points,” with the most common bone tool from Starčevo sites being the spatula, carefully made, and well-polished with a flattened surface at only one end, not unlike what we would call styli,<sup>157</sup> apparently used for scraping, smoothing trimming, and decorating ceramic vessels.<sup>158</sup>

### **Tools for Use in Ceramics and Leather Production**

The presence of large numbers of molded terracotta figures,<sup>159</sup> ceramic ware,<sup>160</sup> and molded clay roofing systems at Morgantina suggests that one use for tools may have been in the manufacture of clay objects while in the leather-hard stage, for which the sharpness of a metal knife or tool was not necessary. While it is ultimately speculative to suggest that bone tools were used in forming, shaping, smoothing or otherwise refining clay objects, certain scholars have suggested that bone objects were used for these processes: Hodges notes that a knife (or knife-like object) could be used in fitting, or “tidying up” of pottery, and that tools were likewise used in shaving, turning, burnishing and otherwise improving the appearance of a leather-hard object, observing particularly that bone was used in burnishing, as was “any suitable knife”<sup>161</sup> Pots could be decorated by incision and detail on terracottas could similarly be incised;<sup>162</sup> Jackson confirms that unfired leather-hard pots could be smoothed by burnishing, while decorative effects could

---

<sup>157</sup> Humphrey 2006, 92.

<sup>158</sup> Shepard 1956, 36-39; Manson 1995, 71.

<sup>159</sup> Bell 1981 devotes an entire book to these.

<sup>160</sup> Stone’s 2010 manuscript focuses on ceramic tableware.

<sup>161</sup> Hodges 1981, 30-32

<sup>162</sup> Humphrey 2006, 114.

be achieved by burnishing linear designs into matt zones, and incising designs.<sup>163</sup> One can hypothesize that molded terracotta objects could be subjected to the same treatment. Bone tools themselves were “most commonly shaped” by carving with either stone or metal tools.<sup>164</sup>

There are eight tools which bear physical resemblance to each other: 59-1540, 59-256, 58-394, 67-207, 67-26, 58-1089, 98-105 and 66-281 are candidates for burnishing tools. Fig. 41. These tools have the following characteristics in common: with the exception of 98-105 (*see* Fig. 42), they are broad, flattened on one side; and slightly convex on the other side; both ends are rounded, with one end being spatulate, and the other end being round in section, with the maximum thickness in the middle of the shaft. They have no sharp edges. Davidson categorizes similar objects as bone styli,<sup>165</sup> and more simply, as “bone implements.”<sup>166</sup> Based upon personal observation of modern day tools used in producing ceramics, I would propose that such tools may have had a dual purpose for burnishing leather-hard surfaces (convex side for curved surfaces; flat side for straight surfaces). No scholar explicitly supports this proposal, but the consistent shape of these tools and the great amount of ceramic material at Morgantina suggest that there must have been specific tools used for its production.<sup>167</sup> Alternatively, the objects under discussion could have been styli; their shape, however, with one

---

<sup>163</sup> Jackson 2008, 509.

<sup>164</sup> Hodges 1981, 154.

<sup>165</sup> *See, generally*, Davidson 1952, 197, Plates 83-84.

<sup>166</sup> *See, generally*, Davidson 1952, 196, Pl. 89.

<sup>167</sup> *See, generally*, Bell 1981.

flattened side, would make them awkward to hold. They also could have been beaters used in weaving.

Other scholars have stated categorically that bone tools were used in the processes involved in leather tanning. While there is no archeological record of leather even in a disintegrated form being found in Morgantina, it is logical that leather would have been processed and used there as a byproduct of the slaughter of domestic animals from which the bone material itself was derived. Van Driel-Murray asserts that bone tools were used in the following procedures associated with tanning: dehairing, rinsing and fleshing.<sup>168</sup> She also mentions the use of knives in the tanning process (cutting and stripping hide from the carcass, trimming) without citing the material comprising these knives. The sturdy awl/punches found in Morgantina could have been used in fashioning articles from leather which had been tanned, the obvious example being in shoemaking. No large single deposit of either organic materials or tools made of any material which could have been used for shoemaking or leather-working has been found in Morgantina, hardly surprising given the periodic destruction and renewal of the site and the fragility of leather.

Even though shoemaking, tanning, or other leatherworking during the period of Morgantina's existence appear not to have been the subject of large-scale usage or manufacturing,<sup>169</sup> curing of leather, as an alternative process not involving the equipment and materials necessary for tanning, could have been practiced on an individual basis. Curing is less permanent than tanning and involves smoking or applications of fat or

---

<sup>168</sup> Van Driel-Murray 2008, 486.

<sup>169</sup> Roger Ulrich 2008, 50-51, comments on the lack of large-scale operations depicted in this period, such activities being depicted as being undertaken by single men with single tools or machines.

mineral earth.<sup>170</sup> Tools would have been used for mechanical procedures in the curing process, such as dehairing, washing and scraping, but as Van Driel-Murray notes, the archeological record is barren regarding use of cured or tanned leather for the period in question, with the advent of widespread large scale tanning occurring in the Roman Period.<sup>171</sup> But without doubt, cured or tanned leather was used in Morgantina and tools had to be employed to render it useable. In addition, salted skins may have been an article brought to Morgantina as a staple of trade, to be finished there,<sup>172</sup> but with the presence of domestic animals, curing may have been carried on directly at the site, either at home or commercially at a location where the noxious fumes attendant to the tanning process would be less irksome. Usually leather tanning was conducted in an area way from residents, at the edge of villages.<sup>173</sup>

### **A Probe**

This instrument, 55-1177, measuring 19.5 cm, is the longest piece of bone among the Morgantina objects, and is pictured with what has been denominated an awl for comparative purposes, since both objects were fashioned with the articular end intact, presumably used as a handle. Fig. 43, top. What distinguishes the probe in addition to its length is the long, narrowed and partially smoothed section with the small, spoon-like

---

<sup>170</sup> Van Driel-Murray 2008, 485. Homer describes part of the curing process as he comments upon the fight over the body of Patroclus, “As when some master tanner gives his crew the hide of a huge bull for stretching, the beast’s skin soaked in grease and the men grab hold, bracing round in a broad circle, tugging, stretching hard until the skin’s oils go dripping out as the grease sinks in, so many workers stretch the whole hide tough and taut.” Homer, *The Iliad*, trans. Robert Fagles, 17: New York; Penguin 1991, 17; 389-393.

<sup>171</sup> Van Driel-Murray 2008, 490-492.

<sup>172</sup> Van Driel-Murray 2008, 483-487.

<sup>173</sup> Van Driel-Murray 2008, 488-49. It should be noted that the excavations at Morgantina for the most part do not extend to the edges of the site.



end. Such a design and length would be necessary to probe a long narrow cavity. Although the spoon-like end resembles a ear probe or scoop, of which there are several examples in bone from other sites,<sup>174</sup> the length and “handle” end of 55-1177 would prove awkward and unbalanced if used in the ear canal. Nevertheless, Davidson identifies bone objects as long as 10 cm, as ear spoons.<sup>175</sup> She characterizes similar instruments with longer shafts as spoons for use “in deep vessels such as an unguentarium.”<sup>176</sup> She further notes that bone examples “all have shafts which are circular in section and . . . are rarely decorated,”<sup>177</sup> which describes 55-1177, but her examples do not have an articular end as 55-1177 does. She dates the Corinthian bone examples to the early Roman period (first and second centuries A.D.).<sup>178</sup> While it is possible that 55-1177 is an unguent spoon, I would argue that such a usage is inconsistent with retention of the articular end, the irregular shaft, and the undecorated aspect of this particular object. No scholar has classified a similar object as a surgical instrument, but it is possible that it was used for medical purposes. Whatever its purpose, its size and shape are unusual.

### **Awls/Punches**

Many of the sturdy pointed objects discussed under the rubric of “points” might have been awls or punches, common tools dating back to prehistoric times; in fact, an

---

<sup>174</sup> See, e.g., Robinson 1941, 351, Pl. CXI, 1687, 1688 (31.521, 38.209) (bronze probes); Davidson 1952, Pl. 83, 1343-1347 (2042, 3104, 3753, 5257, 1487) all described as “bone spatulate instruments,” dating from the first-fourth century; St. Clair 2003, 102, Fig. 35, a-f (3454, 3688, 3743, 3998, 3293, 3290) all described as “utensils with spatulate or bowl-shaped terminals” from the late first to second century).

<sup>175</sup> Davidson 1952, 181, 184, 1327 and 1328 (5311, 4450).

<sup>176</sup> Davidson 1952, 181, 184.

<sup>177</sup> Davidson 1952, 181.

<sup>178</sup> Davidson 1952, 181.

identical piece, 63-1260, was found in the protohistoric strata of Morgantina.<sup>179</sup> One object, 58-118, is the likeliest candidate to have served this function. Fig. 43, bottom. This object retains the articular end and has a sturdy shaft ending in a point. The articular end provided not only a handle, but a large surface to strike, desirable to protect the user's hand and to disperse the force of the strike, while the pointed end could be used as a punch for leather, wood and other pliable materials. This tool is not finely finished: it did not need to be.

Three other objects, 67-25, and two objects lacking an inventory number, are curved with a metal protuberance at the smaller end; one has a protuberance at both ends. Fig. 69. Ayalon describes similar objects as awls dating from the Middle Bronze Age I.<sup>180</sup> Davidson also describes a similar object as a knife handle of "natural, curved bone, with a piece of iron set in at one end," found in a well dated to 460-420 B.C.<sup>181</sup> Use as an awl seems consistent with the form of the three Morgantina objects, because the metal protuberances, though what little is left is completely corroded, have a shaft which is round in section.

### **Tools for Scraping**

Two tools, 61-102 and 97-65, appear to have had dual purposes. Figs. 44-45. Both are sturdy and not overly finished. 61-102 predates 211 B.C. It has a spatulate end beveled to an edge and a pointed end, while 97-65, from the House of Eupolemos, predates 35 B.C. and has broken tooth like cuttings on the spatulate end and a blunted

---

<sup>179</sup> Leighton 1993, 88 and 191 (Cat. No. 339).

<sup>180</sup> Ayalon 1999, 25, Fig. 14.

<sup>181</sup> Davidson 1952, 191, Pl. 85, 1402 (5719).

point on the other. While both could have been general scrapers, I suggest that both could have been used in preparing cured leather hides, with the toothed object (97-65) used to loosen hair on a pelt, so that it “stood up,” while the spatulate end of 61-102 could have been used to remove hair, much like a strigil or sharpened blade would do. Too, 61-102 could have been a chisel for use on a softer surface, such as wood, but it is doubtful that the pointed end would or could be used as the striking end. Similarly, the toothed end of 97-65 could have been used as a scribing instrument to incise parallel lines on leather-hard ceramics.<sup>182</sup>

Altogether, the exact purpose of these two objects found at Morgantina must remain speculative. Nothing of significance is discernible from the find spot of these tools.

## **V. Furniture Components and Accessories**

Just as in any other Greek settlement, there was a standard array of furniture in Morgantina in the form of tables, chairs, beds, and chests, likely made primarily of wood which has long since disintegrated. Absent extraordinary conditions, such as low humidity, not present here, those made of commonly used, less expensive materials such as wood, leather and straw, have perished, leaving behind less perishable material such as metal nails, bone hinge components and decorative elements in a variety of materials, often in close proximity.

### **Hinges**

With no closets, chests and containers of varying sizes were used for storage at Morgantina as well as elsewhere in the Classical world. Such containers were

---

<sup>182</sup> MacGregor 1985, 60-61 describes scribing tools with three prongs used to create circle and dot motifs.

commonplace in Classical and Hellenistic households, shops, and other places of business. While containers were made from a range of materials, only a few, largely those made of marble, stone, and metal, have survived. Wherever there existed a portable – or stationary – container with a lid, a receptacle with a door, or indeed, other articles for storage, hinges and their components were integral parts of them. At other sites, hinge components may be metal or bone. Those of bone are present at many archeological sites.<sup>183</sup> Hinge elements, together with points, constitute the two most common bone items found at Morgantina.

Pictorial evidence for boxes that close and thus, use hinges, abound in the Classical period: they are depicted on grave reliefs and vase paintings, and referenced in literary records.<sup>184</sup> Richter and Reeder cite red figure vases and pinakes, which show chests large enough to contain a life-sized Danae and her son Perseus, or small enough to hold jewels or other precious objects, often carried by maid to mistress.<sup>185</sup> In particular, Lissarrague discusses pictorial evidence illustrating a wide variety of sizes for containers.<sup>186</sup> Richter notes that chests from the Archaic period and fifth century were flat, rectangular and opened from the top, with the hinge at the back.<sup>187</sup>

---

<sup>183</sup> Rodziewicz 2007, 35

<sup>184</sup> Andrianou 2009, 64 *et seq.*

<sup>185</sup> See, e.g., Richter 1966, Pl. 384 Danaë Painter (Boston 03.792); Pl. 385 Briesius Painter (Berlin 2300) (King Thoas in a chest); Pinax: Pl. 386 (Reggio, no. inv. number); small chest: Pl. 392 (Boston 13.201); Pl. 393, Shuvalov Painter (New York 41.162.87); Pl. 395 (British Mus. E773); Reeder 1995, Pl. 74, 269-270, Triptolemos Painter (St. Petersburg, Hermitage, Т1602); Pl. 75, 271, Providence Painter (Toledo Museum of Art 69.369); Pl. 77, 274, Danae Painter (Boston 03.792).

<sup>186</sup> Lissarrague 1995, 91-101.

<sup>187</sup> Richter 1966, 73-74.

In their most elementary form, the hinge components – from Morgantina and elsewhere – consist of hollowed sections of the long bone of a domestic animal, primarily cattle metatarsals, sawn across the bone, with each end parallel to the other and with the outside often finished and polished. Figs. 53-57. The medullary cavity is largely cleaned of cancellous material, but not necessarily finished. The resulting cylinder is rounded but not round: the side which is naturally flattened is usually left that way. At a minimum, the resulting object is pierced with at least one, and sometimes two holes.

The individual components were combined in a continuous series, with a rod through the medullary cavity to connect them.<sup>188</sup> If used in combination, they may have been covered by a decorative mount. The elements with holes, like the majority from Morgantina, were “articulated by wooden plugs driven into the medullary cavity and wedged in place.”<sup>189</sup> The hinges were attached alternately to the lid and to the framework of the box by dowels projecting at right angles from the holes drilled in the wall of the cylinder, hiding the groove from view.<sup>190</sup> MacGregor notes that some cylindrical elements had no lateral holes, which explain the cylinders with no holes present at Morgantina: these may have served as spacers.<sup>191</sup> Fig. 58.

As noted, some of hinge components were decorated. Presumably their decoration could be seen from the outside. Decorative finials closed the ends of some hinges. For example, Bíró shows a finial closely resembling 97-180 (Fig. 81) at one end

---

<sup>188</sup> MacGregor 1985 cites a double-doored cupboard from Pompeii in which each door has thirty-six such elements running its entire length. At 203.

<sup>189</sup> MacGregor 1985, 203.

<sup>190</sup> MacGregor 1985, 203.

<sup>191</sup> Bíró 1994, 57, shows diagrams which include spacers.

of a hinge.<sup>192</sup> As in the case of Morgantina, MacGregor observes that as late as the Roman occupation of Britain “decoration is usually confined to incised circumferential lines, either singly or in groups. . . [sometimes] enhanced with inlaid black pigment.”<sup>193</sup> Some hinge components from Morgantina are variously decorated with bands consisting of three to five deeply or faintly incised parallel lines in various combinations, with paste filling some (Figs. 46-49) or in simplest form, with no incised lines at all. The vast majority of the hinge components have only one hole and no decoration. Figs. 53-57. These forms and designs do not change, even over the course of several centuries.

With limited exceptions, hinge components were found almost exclusively in Area I, with a few found in Area II (from the House of the Official and related potter’s dump), Area IV (the North Sanctuary and dump) and Area VII (from the House of Eupolemos, the find spot of the Morgantina silver hoard). Given the commercial and governmental nature of the Morgantina Agora, with a concomitant need for storage, it is not surprising that a large number of caskets, chests, and possibly wax tablets, in Area I would have been useful and necessary, nor is it surprising that most cannot be dated more closely than before 35 B.C. The chests were probably of a utilitarian nature: the hinges were readily available bone, largely undecorated, and even when decorated, decoration was simple. While the overwhelming number of hinges had one hole and were plain, this does not tell us whether the caskets (or other objects using hinges) were large or small,

---

<sup>192</sup> Bíró 1994, 56.

<sup>193</sup> MacGregor 1985, 204. Although writing of a slightly later period, MacGregor, Bíró 1994, 56-58 and Beal 1983 (unnumbered pages) explain hinges and how they function in an understandable manner.

although it is reasonable to assume that the greater number were on the small side. The larger boxes might be assigned the larger decorated hinge components.<sup>194</sup>

The use of hollow cylinders thus fashioned and used as part of a hinge dates back thousands of years in the Classical world and continued in almost identical form well after the objects identified as hinge components from Morgantina. For example, the oldest known diptych for writing dates from approximately 1300 B.C.<sup>195</sup> Found in a pithos carried on what may have been a shipwrecked Egyptian vessel, this wooden object consists of two rectangular wooden leaves, 6.2 cm wide by 9.5 cm high, joined by three stacked pieces of cylindrical ivory hinge. The inner surface of the leaves were recessed; each of the wooden leaves was cross-hatched for retention of wax.<sup>196</sup> Now pieced together from multiple fragments, this diptych shows holes in the cylinder and stacking of the hinge components (two of which survive), held together by a cylindrical rod, in an arrangement apparently already commonplace by the Mycenaean age. This small diptych is visually and physically the best evidence of how a bone hinge was fashioned.<sup>197</sup> It is logical to hypothesize that the many small hinges found in the Morgantina site, such as those shown in Figures 55-57, could have likewise been used to hold together wax tablets with wooden leaves, long since disintegrated. When such a possibility is considered in conjunction with the many points found at Morgantina, regular pursuit of writing can be inferred.

---

<sup>194</sup> See footnote 185.

<sup>195</sup> Muhly 1977, 353. This also was the oldest example of a similar hinge that I was able to find.

<sup>196</sup> See in general Bass 1989. The existence of blackened points at Morgantina leads to the surmise that wax was in use there.

<sup>197</sup> For a fuller description of the Uluburan Wreck as it is called, see Bass 1985 and Yakar 2006, 88-93. I saw this object in December 2010 in the Bodrum Archeological Museum.

Sheftel and Davidson report hinge components found at Gordion and Corinth from the periods earlier than the second city of Morgantina.<sup>198</sup> Finds from Hellenistic Macedonia also include bone hinge components: Andrianou includes a photograph of a series of one-hole hinges, not unlike those contained in Figs. 53-57.<sup>199</sup> While many of the hinge components Andrianou discusses came from the closed context of the grave, the find spots of the comparanda she discusses with regard to them range across the contemporary Greek world. A smattering of intact boxes, usually metal, and a score of “remains of a wooden box,” are likewise identified by Andrianou as bone and include carved bone revetments of varying complexity and refinement, bone hinge components, bone disks, and bone plaques. Hinge elements virtually identical to those found at Morgantina continued to be used widely over the next several hundred years, as attested by similar finds recorded in excavations of the Roman period in France, Great Britain and what is now Hungary.<sup>200</sup>

Hinge components may have taken forms other than the familiar, plain one hole form. 60-768 is probably a variation on a hinge component. Fig. 59. From the East Granary and dated before 50 B.C., it has a comparatively large carved rectangular hole, and an adjacent obliquely drilled hole. This can be explained as a hinge for a specialized but unknown purpose: perhaps a larger rectangular peg was inserted into it, which would

---

<sup>198</sup> Davidson 1952, 128-129 and Pl. 64, 872-875 (4230, 1780, 2502, and 1197, respectively), quotes Deonna on the working of the hinge; Sheftel 1974, 84, characterizes the use of the objects as hinges as “bizarre” but reports wax diptychs with hinges from Sargon II, dating from 707-705 B.C. (at 296-297), and bone hinge plates (at 439).

<sup>199</sup> Andrianou 2009, 73-75.

<sup>200</sup> Beal 1983, 8 *et seq.* and Bíró 1994, 57-58, with corresponding images, including images of how the hinges worked. Again, the hinges have incised parallel lines near one end and some have disks covering the ends. MacGregor 1985, 203.



have been sturdier than the smaller round peg, with a round peg inserted in the oblique hole. What is also mysterious about this piece is the use of a drill bit to create two partial but distinct holes on the opposite wall of the interior, and the five straight cuttings about (or below) them. Little can be surmised about this piece, other than it was a hinge or joint construction for a dedicated purpose. Davidson describes a similar piece with both a rectangular and round holes as a bone furniture joint “probably for the insertion of struts of metal or wood,” dating from the Roman period.<sup>201</sup>

The second unusual hinge is 97-233, which has two adjacent, non-parallel holes. Fig. 60. This could be little more than a mistake, one hole being drilled in the wrong place and the second hole being drilled to compensate, or this could have been a “practice” piece. We will probably never know.

### **Socket**

66-167, from the area of the House of the Arched Cistern, appears to be an ivory socket or a swivel. Fig. 61. It is a round, thick, solid disk with a square knife-carved cavity with a central hole on both sides which does not perforate the disk. There are curved cracks on either side, possibly resulting from wear or age. Krzyszkowska records a similar object as a pommel for a sword, dagger, or knife.<sup>202</sup> Robinson notes the presence of many such objects in bronze, where the configuration is reversed: the object is square with a rounded cavity. He categorizes these as “swivels or sockets of some sort,” adding that “it is, however, impossible even to suggest their exact use.”<sup>203</sup> All of

---

<sup>201</sup> Davidson 1952, 128 and Pl. 64, 866 (2795).

<sup>202</sup> Krzyszkowska 2007, 29-30, Pl. 6, 1-17, 1-18.

<sup>203</sup> Robinson 1941, 296-298 and Pl. LXXXV, in general (various examples of bronze pivot sockets).

the similar objects are approximately half the size of the object from Morgantina. Andrianou records a table from Vergina which has a square protrusion on the underside which could fit into a similar type socket, presumably a single table leg in this instance.<sup>204</sup> We can only guess at the purpose of the socket from Morgantina, but it is interesting to note that miniature furniture was known in the Hellenistic world and may provide a possible answer as to usage.<sup>205</sup>

### **Handles**

While both rings and certain of the solid cylinders, discussed below, could be classified as handles or handle components, a common characteristic of most of the objects discussed in this section is a “collar” carved into the object for insertion into something else. Figs. 62-67. The objects into which these various handles fit – or which fit into them – apparently varied considerably in size and function.<sup>206</sup> Davidson describes a bone object similar to 62-684 (Fig. 63) as a bone knob of the Hellenistic period, without assigning a definite function.<sup>207</sup> An analogous handle, but with a groove over the length, is described by St. Clair as a handle for a folding knife.<sup>208</sup> Knife handles would be an obvious guess for all of these handles except 62-247 (Fig. 64), which would be too slender to withstand this usage; similarly, tool handles – probably for an awl – is an

---

<sup>204</sup> Andrianou 2009, 53-59 and Fig. 15b.

<sup>205</sup> *See, e.g.,* Andrianou 2007.

<sup>206</sup> Compare, *e.g.,* 62-249 and 05-222.

<sup>207</sup> Davidson 1952, 190 and 195 and Pl. 89, 1483 (4368). 1483 is 3.2 cm long, while 62-684 is 5.6 cm long, but both are broken.

<sup>208</sup> St. Clair 2003, 106 and Pl. 47a (1748).

educated guess for the three bone objects with metal protuberances (Fig. 69; 67-25 and two related objects without inventory numbers) discussed in Awls/Punches above.

Given the elongated shape of 62-247, it can be hypothesized that a pointed metal tip was meant to be attached, although there is no stain on the handle that might indicate this; it can also be hypothesized that the whole object was a writing or incising implement. Ultimately, with all of these objects we can only speculate as to what was to be affixed to each handle.

### **Furniture Mounts and Decorative Accessories**

Pictorial evidence indicates that a limited number of bone furniture mounts and appliqué decorated caskets, boxes and other containers. Among the extant pieces, there is no unfinished detritus which would evidentially indicate the manufacture of containers within Morgantina itself.<sup>209</sup> Whether these containers were home-manufactured is impossible to ascertain: nothing other than small parts of boxes is now extant.

### **Decorated Worked Cylinders**

One category of decoration consisted of solid and hollow incised cylinders, all lathe-worked, and found primarily in Area I, although the sample is small. The seven solid cylinders are uniformly smaller than the hollow ones. Figs. 70-72. Objects similar to 61-1421 illustrate a paradigm which applies in general to most of the objects from Morgantina: the decorative pattern of the object, bead-and-reel, can be traced far back and far forward of dates of the second city. A similar bead-and-reel piece was found at

---

<sup>209</sup> That is not to say that there was no manufacturing, just that there is no evidence of it, unlike what was present, for example, at Sparta, Olympia, Alexandria and Palatine East. St. Clair 2003, 18-32; 34-37. As to Sparta, *see also* Carter 1985; as to Alexandria *see, generally*, Marangou 1976 and Rodziewicz 2007.

the Temple of Apollo in Aegina.<sup>210</sup> Davidson describes a solid cylinder, patterned almost identically to the Morgantina cylinder lacking an inventory number, as a bone handle, possibly for “very small knives” or finials for furniture, acknowledging that “it is impossible to reconstruct their use.”<sup>211</sup> She attributes this cylinder to the Late Roman period;<sup>212</sup> those from Morgantina primarily date from 211 B.C. to 35 B.C. Ayalon shows an identical piece from the late Byzantine period in Caesarea Maritima, which he describes as a furniture mount.<sup>213</sup> We can tentatively conclude that the lathe pattern had a life of at least one thousand years (sixth century B.C. through sixth-seventh century A.D.) and that a form of lathe was used at least as early as the sixth century B.C.

The uses of these solid cylinders are not certain: certain of them (Fig. 70, 57-243, 62-716, 61-1421 and 56-2731) may be components of handles, attached at either end, while 68-381 and 56-1898, both of which are slightly tapered and intricately decorated, one with paste, and the other with intricate, non-symmetrical lathe work, may have had a strictly decorative function. Rodziewicz identifies similar objects from Alexandria, which are decorated with horizontal grooves, circular rings and profiled surfaces, as furniture joints, balusters, or decorations.<sup>214</sup>

On 68-381, 62-716, 56-1898 and 61-1421, there is a small dowel or peg-like object for attachment; on the remaining three solid cylinders, the breakage at the end also

---

<sup>210</sup> Margreiter 1988, 17 and Taf. 2, 52 (34). The material is not indicated, but yet another similar piece from the same site is ivory. Margreiter 1988, 20 and Taf. 6, 105 (98).

<sup>211</sup> Davidson 1952, 189, 192 and Pl. 86, 1427 (3711).

<sup>212</sup> Davidson 1952, 192. The cylinder she sites, which has traces of iron inside, unlike the similar Morgantina object, is 5.3 cm, which the Morgantina object is 7.0 cm long.

<sup>213</sup> Ayalon 2005, 105 and Fig. 46, 433 (no dates or inventory numbers are given).

<sup>214</sup> Rodziewicz 2007, 36.

indicates there may have been an attachment at one or both points. 67-716 has two such intact pegs as well as two holes, drilled through, and equidistant from both ends, also ostensibly for attachment. The pegs could have been for attachment to furniture; none of these pieces show any discoloration or perforation which could indicate it was attached to a metal object serving as another part of a handle. In addition, each object is relatively long and slender: handles are usually sturdier. Robinson identifies three metal cylinders decorated with similar grooving as handles for vessels, with some having holes at the ends into which points of moveable handles were fixed,<sup>215</sup> somewhat like 62-716. Ayalon identifies three similar objects, and one object with a lathe pattern identical to 57-243 as a “[f]ine item used to decorate boxes or furniture, fashioned from thin, crude rods using a lathe.” He asserts the two of these objects, which had end protuberances similar to the protuberances cited above, were used to attach them to the lathe and their presence indicates that “they were never used.”<sup>216</sup> Given the finished nature of the protuberances on the objects from Morgantina, it is hard, however, to conclude that these protuberances were waste material. A similar object in bronze with rounded protuberances at both ends is described by Robinson as a handle component.<sup>217</sup> St. Clair identifies similar fragments as columnar furniture mounts.<sup>218</sup> The disparity in possible uses may be a function of the material used (metal vs. bone).

---

<sup>215</sup> Robinson 1941, 243-244, Pl. LXIV, 966 and 967 (38.53, 34.189, both bronze) and Pl. LXV, 968 (31.461, bronze).

<sup>216</sup> Ayalon 1999, 15, Fig. 2.

<sup>217</sup> Robinson 1941, 243-244, Pl. LXIV, 966 (38.53, bronze).

<sup>218</sup> St. Clair 2003, 75 and Pl. 25(d) and Fig. 13(b) (1825).

The hollow lathe-worked partial cylinders are larger overall than the dainty solid cylinders, and with the exception of 57-2652, are incomplete. Figs. 68, 71-74. These decorated hollow cylinders cover a range of sizes, from 14.3 cm (56-2884) in length, to 5.250 cm (56-2943) in length. They range from semi-circular in shape (56-2884) to a slightly bent shape (56-2943) and vary considerably in diameter. It is possible that the large hollow cylinders were not made “in the round,” but consisted solely of a semicircle, which may have been used as cover for the hinge mechanism itself. 56-2943, 56-2884, 62-1559, 92-980 and 58-303 are fragments, but clearly carved, and could be decorated covers (in a half cylinder form) for a core of hinges, thus obscuring a stack of plain hinges and spacers.<sup>219</sup> 56-1579 may fall into this category, but so little remains that it is impossible to conclude definitively that it was once part of a cylinder or alternatively, part of a molding with a slight curve. 57-2652, the sole complete hollow cylinder, is decorated with two bands of two parallel incised lines alternating with three lines consisting of dots. Fig. 68.

One hollow cylinder, 66-441, is decorated like hinge components, with two bands of four parallel incised lines at one end and two bands of three parallel bands at the other, with the circle and dot motif positioned between each set of bands. Fig. 72. Based on its decoration, this could be a hinge component, a cover for a series of plain hinge components, or probably a decorated mount. With the exception of 66-441, 56-2943 and 58-1431 (Fig. 73), the remainder of these cylinders are worked with either a horizontal or vertical uniform pattern. 56-2943 and 58-1431 may be parts of pyxides,<sup>220</sup> while 56-1579

---

<sup>219</sup> St. Clair 2003, 77, describes similar objects as cylindrical mounts.

<sup>220</sup> Marangou 1976, 126, Pl. 64g and h (Benaki Museum 10347 and 10346); St. Clair 2003, 79 and Pl. 26a (2154).

may be a fragment of molding.<sup>221</sup> Figs. 71, 73. Davidson and Marangou both provide different parallels for 56-2943 and 58-1431: Davidson describes similar objects of roughly the same size (approximately 4-5 cm in length) as “bone furniture joints” of the Roman period, for which she suggests no more precise use.<sup>222</sup> Marangou opines that similar objects, also intricately lathe-worked, are pyxides.<sup>223</sup> Another possible use for these objects might be as small furniture legs. One can hypothesize that these pieces are Roman, judging from the above publications which discuss similar pieces.

### **Other Furniture Components**

56-1970 is one of the most intricately carved and lathed items from Morgantina;<sup>224</sup> it has a terminus date of 50-40 B.C. Fig. 74. The object appears complete and finished with the exception of one side. I suggest that this is an ornamental miniature furniture “leg” or column which was placed or glued over a core. The “bottom” part, which consists of two similar tori separated by a narrow squared off indentation, as well as the two bands above and the top band, appear lathe made,<sup>225</sup> while the unusual band resembling drapery or acanthos, is knife carved. Probably the whole piece was initially lathe-made, with the maker carving the incised band down from a bulbous lathe-finished

---

<sup>221</sup> See St. Clair 2003, Pl. 17 and 1, in general.

<sup>222</sup> Davidson 1952, 128 and Pl. 64, 870-871 (7848, 1738).

<sup>223</sup> Marangou 1976, 62, 126 and 132, Cat. No. 217, Pl. 64g and h (Benaki Museum, 10347 and 10346) and Pl. 67a-e (Benaki Museum 18720, 18726, 18712, 18713, 18725).

<sup>224</sup> There were other finely carved items from the site, in the form of decorated disks. Unfortunately, these items are missing.

<sup>225</sup> It cannot be determined which is the top and which is the bottom of this piece. I present the piece as though the two larger plain tori are at the bottom.

area. No comparandum could be found for this piece other than dissimilar intricate lathe-made pieces.<sup>226</sup>

61-5 is a long, relatively thick piece of bone, probably from a scapula. Fig. 75. It has been carefully made with a bevel at each short end and two parallel grooves on each long side. Given the two deep grooves, one of which appears more worn, it could be the top of a sliding box; alternatively, the grooves may have fitted over something else, or it could have been a molding, although its thickness would argue against this use.<sup>227</sup>

### **Furniture Appliqués and Veneers**

In discussing containers, Reeder and Richter refer to depictions on Greek vases showing miscellaneous appliqués as external decorations on chests, caskets and similar receptacles. More particularly, the depictions of Danae and Perseus as they prepare for their sea voyage show chests with individual plaques, not of a uniform design, affixed to the side of a box-like container.<sup>228</sup> Three such pieces, 57-798, 58-2363, 59-1896, and possibly 62-420, resemble the kinds of plaques used for decoration as pictured on vases. Figs. 76, 86. Andrianou summarizes the available evidence for bone and bronze materials being used for decoration on boxes in the late Classical and Hellenistic period in both domestic and funerary contexts, reporting that literary and visual evidence is plentiful, but the archeological evidence is limited.<sup>229</sup> Even so, she discusses single objects from Delos, Samos, and many sites in Macedonia and the Peloponnese.

---

<sup>226</sup> Stern 2007, 46-47, discusses an extensive pictorial panel in a room in Kencheai, which contains fragments of draperies fashioned with incisions from a late Roman context.

<sup>227</sup> Cf. St. Clair 2003, 72 and Pl. 18(g) (2256).

<sup>228</sup> See footnote 185.

<sup>229</sup> Andrianou 2009, 65; and *see generally* 63-81.



The “palmette” ornament, 57-798, has multiple comparanda in metal, ivory and bone materials: as a design, the palmette and its many variants were second only to the circle and dot motif in the ancient world.<sup>230</sup> Robinson reports on bronze palmettes from Olynthus in sufficient numbers to allow a survey of palmette development. The Olynthian palmettes cover a period from the second half of the sixth century to circa 375 B.C.<sup>231</sup> Later in this period, the leaves were separated and bent, with less incision. This form is consistent with the sole bone palmette found at Morgantina.

Davidson gives examples of bone and ivory pieces, used for decoration, which she dates to the Roman period and later.<sup>232</sup> Of these pieces, at least six bear some relationship to 62-420, insofar as they use the circle and dot motif, although at least four of them have holes for attachment,<sup>233</sup> while 62-420 does not. Fig. 86. It may in fact be a gaming piece of some sort. The undulations on 59-1896 form a series of rounded bulges and narrowings; the object begins with a flattened end and terminates in a point. Fig. 76. Given the point it could be argued that the object is a stylus, but its flatness and thickness is such that use as a decorative appliqué is more likely, because it would be difficult to hold as a stylus. St. Clair reports a comparandum for 59-1896 in the form of strip with wave-like long sides, parallel to each other.<sup>234</sup>

---

<sup>230</sup> See, e.g. Davidson 1952, Pl. 62, 845 (4790).

<sup>231</sup> See, generally, Robinson 1941, generally, 50-52 and Pl. VI, 26-37 (various examples of bronze palmettes).

<sup>232</sup> Davidson 1952, 135-136 and Pl. 69, 944-957 (4079, 845, 3943, 5606, 1741, 7037, 3944, 4080, 5617, 6353, 1824, 4384, 2616, 964).

<sup>233</sup> Davidson 1952, Pl. 69, 953 (6353), 954 (1824), 955 (4348) and 956 (2616).

<sup>234</sup> St. Clair 2003, 69 and Pl. 16, 158(b) (103).

The “whirligig,” a spiral-shaped ornament, 58-2363, dated between 211 B.C. and first century B.C., has contemporaneous comparanda from among the bone objects found at Gordion, Turkey. Fig. 76. Sheftel describes almost identical objects as “spiral inlays” belonging to the last two phases of the Phrygian city, dating from 250 B.C. and later.<sup>235</sup> The Morgantina whirligig has a hole for attachment, such that its use as a decoration is likely; the Gordion example and the other three Morgantina objects have no hole for attachment. If they were in fact used for decoration, they would have been glued on.

The second group of decorative articles are best categorized as pieces of finished veneer (57-2667, 62-540 and 98-68a) and unfinished pieces of roughly rectangular, thicker bone which may have been blanks for veneer, or something similar (58-117, 57-2521). Figs. 77-79. Pieces such as these merit limited discussion: they were used to cover boxes made of less durable material and have a long history, coinciding with the history of containers themselves. 62-540 (Fig. 77) shows decorative intention with its circular terminus; while this terminus may have been merely decorative, it also could have fit into another piece as an inlay. In frontal view, it resembles two gaming pieces (57-10 and 58-67), but it is approximately twice as long and considerably thinner than the gaming pieces. Figs. 77 and 89.

### **Finials**

Finials constitute a third group of decorative components. Figs 80-85. Two relatively small objects, knife carved 92-875 and lathe-turned 97-180, are good examples. Figs. 80-81. Both have round bases for attachment. 92-875, the finial consisting of four

---

<sup>235</sup> Sheftel 1974, 116, 144, Pl. 20a, 499, 184 (BI399) and 85 (BI316). Sheftel describes the chronology of the first and second layer, where the “whirligigs” were found, as dating from 250 B.C. and later. Sheftel, 24-25.

petals, is highly decorative; I could find no comparandum. Davidson records two objects similar to 97-180, both of the Roman period, as possible handles of very small knives or finials for furniture, but is unable definitively to give their purpose.<sup>236</sup> Both 92-875 and 97-180 are approximately half the length of the objects she cites (approximately 4.5 cm), and based upon this, I would argue that the Morgantina objects are too small to be handles, and that they must be finials. In any event, 92-875 could not have been used as a handle: the leaves are carved in such a way – with interior space separating them – that would render the object too fragile for that use.

Three other pieces, 57-1835, 71-377, and 70-574 could be handles, knobs, or finials. Figs. 82-83. All three are similarly decorated with narrow bands of incised lines partially filled with paste and lines of dots. I could find no comparanda for this system of decoration or for the objects themselves, which were either handles or meant for some decorative purpose.<sup>237</sup>

Two remaining pieces, 56-2472 and 67-938, could also be finials or large beads. Figs. 84-85. 56-2472 has a complex repetitive tongue and dot decorative pattern, while 67-938, of approximately the same dimension, is plain and may be unfinished. The obvious place for attachment in both is the central cavity. 67-938 has a foramen near one end.

---

<sup>236</sup> Davidson 1952, 189, 192, Pl. 86, 1424 and 1425 (4081, 5579).

<sup>237</sup> Bíró 1994, 10, writes of “punched decoration” as being one of the three common techniques of surface decoration. Her description does not coincide with the decorations on these three pieces. Two of these objects are also listed in the “handle” section (57-1835 and 71-377).

## VI. Miscellaneous

### Gaming Pieces

57-10 and 58-67 are related in form and probably in function: both bear Roman numerals on their long rectangular portion. Fig. 89. Davidson identifies such a piece, of approximately the same dimensions, as “pieces [which] may have been used in the Roman game called ‘the game of soldiers’ (*ludus latruncularum*)”<sup>238</sup> Bíró identifies these objects, which “can. . . be found in any Roman settlement,” variously as counters, tags and labels, relics of trade and commercial life, and as pieces used in games. She notes that one such object bears the names of consuls in office on one side and the name of a discharged gladiator on the other.<sup>239</sup> Identical finds from other sites in Sicily, bearing Roman numerals on one side and letters on the other, are described as “tessere gladiatorie” or “tessere luxorie” – gladiatorial or game tokens.<sup>240</sup> A similar partial piece has also been described as a decorative plaque.<sup>241</sup> The Morgantina objects date from the Roman period after 211 B.C., given the Roman numerals carved on them.

56-2251 is a die, with numbers indicated by the circle and dot motif. Fig. 87. In Roman times, the numbers on opposite sides always added up to seven, but earlier, this was not necessarily the case. Whether of the Greek or Roman period cannot be

---

<sup>238</sup> Davidson 1952, 222 (quoting from British Museum Guide to Greek and Roman Life, 3d ed., 204, Fig. 223) and Pl. 100, 1761 (2955).

<sup>239</sup> Bíró 1994, 54-55.

<sup>240</sup> *Notizie degli Scavi* 1912, 320 and *Notizie degli Scavi* 1889, 396.

<sup>241</sup> Oliveri 2009, Fig. 13, 393.

ascertained; since Greek dice “are sometimes of the type common in later times”<sup>242</sup> Because this die, which may be ivory, is missing one side, it is impossible to hazard a guess as to its date.

Two other pieces, 62-420 and 55-14 might be game pieces (just as 62-420 may be a decorative plaque). Figs. 86, 88. Davidson displays comparanda for both.<sup>243</sup> As to 55-14 (Fig. 88), if there was a purpose behind the straight edge on one side and the chipped protuberance perpendicular to the straight edge, this would probably make identification more secure.

Disks, which may also have been counters, are discussed in the section entitled Disks.<sup>244</sup> Those which have decorations on both sides or had no perforations were probably counters used in a variety of ancient games. The astragaloi (knuckle bones) found in abundance at Morgantina in both worked and unworked form were also game pieces, sometimes taking the place of dice, particularly in the Greek world.<sup>245</sup> Those astragaloi in worked form appear only to have been cut and smoothed. Fig. 98.

### **Sculptural Pieces**

The striking hand carved bull’s head (56-2931) constitutes a clever use of an articular knob. Fig. 90. Whether it was meant to stand alone or as an ornament glued

---

<sup>242</sup> Davidson 1952, 218 (quoting Robinson 1941, 504). Bíró 1994, 61. Each set of opposite sides of the Morgantina die adds up to 7, making the die probably Roman. Davidson distinguishes the Greek die, in general, as having nine points on the face which is expected to have six.

<sup>243</sup> As to 62-240, *see* Davidson 1952, 136, Pl. 69, 956 (2616) (bone plaque of the Byzantine period); as to 55-14, *see* Davidson 1952, 191, Pl. 84, 1401 (5566) (“spoon-like receptacle”).

<sup>244</sup> Bíró 1994, 62, identifies some 165 disks as game counters only. It would seem that disks surely had more than one use.

<sup>245</sup> Rodziewicz 2007, 33.

onto something else is impossible to ascertain: there is no hole to affix it to a flat piece or to hang it as an amulet. It could be unfinished.

The ivory miniature of a draped woman carrying round objects, probably outsized grapes (97-236), on the other hand, is mysterious by virtue of the two methods it presents for fixing it to another object: a frontal hole through the pedestal on which she stands, and another long slit, carved sideways through the pedestal. Fig. 91. Either way it appears that this miniature was meant to be secured on top of something, or alternatively, was an elaborate small handle. The signage at the Aidone Museum categorizes this statuette as a Dionysiac figure, and ascribes to it a date of end of the fourth century to later third century B.C.<sup>246</sup>

A partial sculptured medallion of what appears to be a female face (56-2683) probably was an ornament to be affixed to furniture. Fig. 93. With suitably snake-like hair protruding from her head to the edge of the medallion, the face stares straight ahead (and there the medallion breaks). She may be a Hellenistic Medusa head, which is consistent with Syracusan ties and with the examples of Hellenized Medusa heads from Morgantina in the form of antefixes, described by Kenfield.<sup>247</sup> In particular, the hair on the medallion resembles Inv. No. 80-401 and 60-1298, while the eye area, with the eyes “deeply set in the orbital cavity,” resembles 60-1298.<sup>248</sup> Kenfield concludes that the Medusa antefixes, which are clearly related to the medallion, “show once again that in

---

<sup>246</sup> Based on her dress, I would place this piece at a later date, possibly Roman.

<sup>247</sup> Kenfield 1994, 275-281 and associated figures.

<sup>248</sup> Kenfield 1994, 278 and 282, Pl. 85e and f.

spite of Morgantina's remote position. . . Morgantina remained very much in touch with the latest stylistic development of the sculpture of the Hellenic world."<sup>249</sup>

60-1324 is another medallion of a head. Fig. 92. Blackened and with indistinct features, it could depict either a male or female, most likely a male. His wavy hair is pulled over a filet and also waved back in the cheek area. This head lacks the "demented" aspect noted in the Hellenistic antefixes<sup>250</sup> and probably is not a representation of Medusa.

There were in the original inventory two additional sculptural pieces also consisting of carved medallions, which are now missing: 60-1665 is described as a "oval shaped piece of bone," with an Eros or satyr figure "carved on a flat surface which is set into the convex side," while 60-1683 is also described as an oval shaped piece of bone carved with an Eros or satyr.<sup>251</sup> One of these objects was found in the Cittadella area (Area III), with a terminus *ante quem* of 211 B.C., while the other was found in the West Stoa (Area I), which has a terminus date of 25 B.C.<sup>252</sup> Had these pieces not been missing, they might have contributed to a further discussion of sculptural pieces among the objects found in Morgantina, and their relationship, if any, to stylistic trends in the greater Greek world.

### **A Miniature Spindle Whorl**

The elegantly executed miniature spindle whorl (61-708), probably of one piece, is from a Hellenistic grave context on the Cittadella, dating prior to 211 B.C., and was not

---

<sup>249</sup> Kenfield 1994, 280.

<sup>250</sup> Kenfield 1994, 280.

<sup>251</sup> These descriptions come from the unpublished records at Princeton University.

<sup>252</sup> Inventory cards for 60-1324, 60-1665, and 60-1683.

meant for use except by the deceased in the afterworld.<sup>253</sup> Fig. 94. A little masterpiece of precision lathe work intricately drilled with black and white colored paste decoration, it is an object of rare and delicate beauty.

### **Toggles/Bobbins**

Among the unknown objects are five lathe turned pieces of approximately the same size, ranging from 2.868 cm. to 2.112 cm. Fig. 95. The similarity among them is striking. Andrianou and Richter point out that containers were fastened with string.<sup>254</sup> These objects could have been used for that purpose: a piece of leather or metal could have fastened the narrow concave middle space to the container with the string used to close the box wrapped alternately around each end. Sheftel describes several similar objects from Gordion as toggles,<sup>255</sup> noting that they were among the “more common objects found throughout the various periods at Gordion,” the earliest of which belong to the sixth century.<sup>256</sup> Davidson, on the other hand, describes similar objects, but with a much expanded midsection, as spools for winding threads, but concedes that this may not be their purpose.<sup>257</sup> Lyons identifies as a bobbin a similar object in bronze but with much attenuated sides on either side of the groove and knobs at each end, as a bobbin found in

---

<sup>253</sup> This piece was glued on Plexiglass, so a close examination to ascertain whether the whorl was made separately from the spindle was not possible.

<sup>254</sup> Andrianou 2009, 64; Richter 2006, 75. The hydria in New York by the Shuvalov Painter, cited in footnote 146, shows the string. Richter 1966, 75-76.

<sup>255</sup> Scheftel 1974, 394-399, Pl. 58, a-d (BI 275, BI 537, BI 527, BI 474, BI 467, BI 269, BI 208, BI 419, BI 230).

<sup>256</sup> Sheftel 1974, 398. She notes that Schliemann reported a similar ivory specimen from the Third City at Troy.

<sup>257</sup> Davidson 1952, 174, 178 and Pl. 79, 1276-1277 (828, 2221). *See also* Ayalon 1999, 29, identifying a similar object as a button/fastener. *See also* Davidson 1952, 298, Pl. 124, 2589 (715) of the Byzantine period.



a Morgantina grave complex in association with spindle whorls and needles.<sup>258</sup> However, the five Morgantina pieces in bone are so small that they could not function effectively as bobbins. Perhaps they were miniatures. While we never know what their true use was, the form of the objects indicates use as a fastener.

### **Unknown**

Comparanda to 55-1980 have a broad spectrum of possible uses, with Davidson describing an almost identical piece as a spoon-like receptacle of two parts, with three holes, and a hinged lid.<sup>259</sup> Fig. 96. Deonna notes similar items,<sup>260</sup> stating their purpose is unknown, while Ayalon describes similar objects from the City of David as parts of sealing boxes of the Hellenistic or Early Roman period.<sup>261</sup> The museum at Gela denominates similar articles as buckles.<sup>262</sup>

Finally, a small object, 61-87, decorated with four circles alternating with four sets of two curved lines, all knife-cut, may be an ornament of some sort or an unfinished bead (it has no perforation). Fig. 97.

---

<sup>258</sup> Lyons 1996. 113 and Cat. No. 17-175, 193 and Pl. 53.

<sup>259</sup> Davidson 1952, 191, Pl. 84, 1400 (6415).

<sup>260</sup> Davidson, 191, citing Deonna, Délos, XVIII, 239, Pl. LXXXVII, 637, 1-4.

<sup>261</sup> Ayalon 1999, 66, Fig. 96.

<sup>262</sup> Personal observation, Gela Museo Archeologico, July 2010.

## CHAPTER 3

### WHAT THE OBJECTS TELL US

Caution must be exercised in making any generalizations and drawing any conclusions about the bone and ivory objects from Morgantina, largely because the body of these objects is incomplete. In addition, many questions remain about find spots and provenience which could give contextual clues to the probable function of the bone objects.

Many of the items from Morgantina transcend their fundamental purpose through use of proportion and embellishment. The ogival spoons, for example, were manufactured to produce a balanced form. Figs. 1-4. 57-483 is complete and has a fine point at both ends, pronounced symmetry in the spoon area, and delineation between shaft and spoon where these two elements meet. Fig. 2. Some of the round spoons are decorated on the back. Fig. 6. Certain of the beads are beveled rather than straight-sided, creating a more interesting form. Fig. 13. The two bird pins shown in Fig. 18, particularly the larger one, reflect an awareness of, and interest in, natural proportions. The “seated figure” pin uses a combination of abstractions to create the “idea” of a man or a similar figure. Fig. 20. The larger hinge components contain decorative interest, which is unnecessary to their function, but more pleasing to the eye. Figs. 46-52. Lavish attention is paid to creating complicated lathing in decorative objects, as in the small solid cylinders, some of the hollow ones, and the furniture leg; the strictly decorative objects, such as the palmette/lotus appliqué, are carefully carved. Figs. 70-74; 76. Small finials are carefully crafted and balanced, with an eye towards decorative beauty. Figs. 80-85. The circle and dot motif is finely tooled on counters (Figs. 86, 88); while a small

spindle, made for the grave, is painstakingly decorated. Fig. 94. All these details suggest that these objects had value beyond the functional.

The sculptural pieces show awareness of artistic trends of the time as well as one-of-a-kind artistic solutions. With a few well-placed knife strokes, and effectively using natural contours of an appendicular knob, the carver of the bull's head created an evocative portrait of something the carver probably saw every day. Fig. 90. The same can be said of the phallic amulet and the clenched fist amulet. Figs. 11-12. What they represent is immediately apparent. The Dionysiac figure reflects her classical heritage in tiny miniature: she is proportionately correct; she stands in contrapposto; her knees show through her drapery, which pools over her feet. Fig. 91. Only what she holds – probably grapes – is exaggerated in proportion, probably deliberately so, given her characterization as Dionysiac. The two disks with faces carved on them reflect the Hellenistic artistic tradition of a Medusa with handsome, rather than horrific, features. Figs. 92-93. In the broadest sense, all of these objects are reflective of the wide-spread nature of Hellenistic Greek artistic culture. All these objects reflect an artistic awareness of form, proportion, symmetry, and balance which exceeds the purely functional. It can be hypothesized that had Morgantina not been subjected to repeated deprivations, that which was taken or lost would have reflected more amply the artistry evident in these pieces.

Unfortunately, *ab initio*, we cannot know the full range of bone or ivory objects present at the site either before, during or after its heyday. We have at best an incomplete picture that may be skewed by selective removal or destruction. We know, for example, that a minimum number of ivory objects have been recovered. This raises fundamental questions as to whether ivory was ever used in larger quantities, and if it was, what

happened to these objects. Because so few ivory objects exist at this point in time, we can conclude nothing as to trade or import from elsewhere in the Greek world, or as to local production, even though we know in general terms that the Hellenistic period had important centers of ivory production and usage, such that at Alexandria. There exists no evidence that ivory was an important commodity in Morgantina.

Second, we can draw no conclusions about manufacture of bone objects: there are insufficient numbers of any category of objects to constitute a statistically significant mass. True, there are large numbers of hinge components and points, but nothing indicates that either of these categories was the product of a systematic technological process, such as existed for ceramic products, for which kilns were necessary and present at the site. While small bone objects may have required little more than a lathe, a drill and a knife for their creation, we have only scattered evidence of the existence and the use of these common tools and this evidence cannot be tied specifically to manufacture of bone objects. Similarly, no waste materials have been unearthed to indicate systematized manufacture, such as the workshop of Pheidias at Olympia, or the debris on the Palatine. While theoretically such detritus may have existed at Morgantina – and may have existed even up to the early excavations – it was not collected and is fugitive at this point in time. Ultimately we can only speculate that bone production was done either in small workshops or less likely, domestically. The ambiguous evidence for small workshops exists in the fine finishing on some items: smoothing tools, some of which would not have been common household items, produced these finished pieces.<sup>263</sup>

---

<sup>263</sup> I ran statistical comparisons of object/find spot for the most numerous of the categories, but with the exception of the indented points (almost all found in the North Sanctuary Dump), these comparisons yielded no meaningful correlations, except as noted in this dissertation.

Third, the problem of how various objects were used cannot be definitely ascertained. Many different possible usages have been suggested for most of the bone items unearthed; only hinge components, styli, spoons, certain game pieces, and amulets can be assigned obvious functions. Other objects may have had multiple usages as has been suggested throughout this paper and accompanying catalog.

Fourth, except in limited isolated instances, trends in style, an elusive term *ab initio*, cannot be identified: the difficult question of dating the objects cannot be resolved. We cannot even conclude that certain items are more or less prevalent at certain points in time: dates stated in the Find Spots and Dating chart attached at best cover a broad span in time and are estimates only.

Unlike other categories of objects found in Morgantina, the bone objects do not reflect a local Sikeli influence, which only emphasizes that Morgantina was a Greek city during the period covered in this study. In addition, at Morgantina the bone objects, unlike the terracotta and ceramic objects,<sup>264</sup> show no evidence of efflorescence before, during or after the Hellenistic period: the objects continued to be made in much the same way throughout the period under discussion. In this, Morgantina is identical to other Greek cities: the templates for both utilitarian and decorative objects remained the same across many centuries over a broad geographical area, not necessarily confined to the Greek world surrounding the Mediterranean Sea, but extending far beyond it. The bone objects reflect a more extensive Mediterranean influence, taken from Greek *koine* and usually identified with it.

---

<sup>264</sup> Bell 1981, 6, for example, points out that after 211 B.C., Morgantina's "flourishing terracotta production came to a full stop."

The continuing consistency, utility, and vitality of these forms caused them to spread to northern Europe, largely through Roman influence. Overall, this discussion and the resulting catalog show that bone was a readily available, practical and durable material, commonly used for relatively small quotidian objects – but critically important – which were disposed of when no longer of use, as witnessed by the extensive deposits in the cisterns throughout the Morgantina site.<sup>265</sup> One can conclude that those objects deliberately thrown away had no extrinsic value for those disposing of them, whether owner or plunderer.

Metal finds from Morgantina reflect the interchangeability of metal and bone for certain small objects. Metal finds include rings, handle components, cosmetic tools, tools for manufacture, toggles, disks, and spoons; in fact, metal parallels reflect a wider variety of implements, and a wider variety of shapes within categories than is present in the bone objects. This may, however, be the result of earlier tendencies to overlook bone objects, but it should be noted that small metal objects may have likewise been overlooked or survived in a relatively more damaged condition.

Altogether, the bone and ivory finds from Morgantina represent a finite body of objects that are representative of their time or place, and thus contribute both to our understanding of that time and place and to the larger time and place of which they were a link in the continuum. These artifacts also demonstrate the durability, flexibility and tenacity of Greek artistry and forms in the smallest of worked goods. Morgantina itself is still relatively unplumbed: a large area has never been excavated and with advancement of archeological methods, this site has the potential to yield greater understanding of all aspects of the Greek city and its place within the larger orbit of Greek material culture.

---

<sup>265</sup> The cistern deposits also reflect periods of plunder, during which objects were thrown into them.

## CATALOG

Abbreviations Used:

L = total length

T = thickness

D = diameter

W = width

H = hole

I = interior

X = exterior

M = indicates maximum (in those instances where measurements vary considerably. Not being machine made products, there is some variation in all objects)

Fig = Image

All dimensions are given in centimeters.

**I. ITEMS FOR PERSONAL USE**

**A. Ogival and Oval Cosmetic or Medicinal Spoons**

Both the oval and round spoons have the following characteristics: the handles are circular in section; the bowls are shallow. The shaft of the ogival spoon tapers outward slightly to its thickest point where the handle joins the bowl; the shafts of the round spoons do not taper.

57-483 Spoon, ogival pointed (Figs. 2, 3)

L: 13.313

L Handle: 10.310

L Bowl: 3.023

MW (bowl): 1.512

MD Handle: .426

H: .317

T Bowl: .317

Complete. Shallow ogival bowl tapers to a point. Slight ridge down the center of the back of the bowl.

57-1145\*<sup>266</sup> Spoon, ogival pointed (Fig. 99)

L: 11.229

L Handle: 8.650

L Bowl: 2.639

W Bowl: 1.252

---

<sup>266</sup> “\*” denotes objects permanently fastened for display, as to which all dimensions could not be retrieved. See Figs. 99 and 100. Most are in Display Case 21, Nos. 12-14 (Fig. 99). “\*\*\*” denotes Exhibit Case 21, No. 15 (Fig. 100). In some cases, the number is permanently affixed to the plexiglass, as with 57-1145 and 57-1146.



Incomplete. Shallow ogival bowl tapers to a point where it joins bowl in back. Slight ridge down the center of the back of the bowl. Could not measure thickness or diameter (from Display Case 21, No. 12; top).

57-1146\* Spoon, ogival pointed (Fig. 99)

L: 11.910  
L Handle: 9.051  
L Bowl: 2.791  
W Bowl: 1.214

Complete. Description identical to 57-483 and 57-1145. Could not measure thickness or diameter (from Display Case 21, No. 12; bottom).

55-2247 Spoon, ogival pointed (Figs. 2, 4)

L: 7.552  
L Handle: 4.228  
ML Bowl: 3.230  
MW Bowl: 1.672  
MD Handle .480  
MT Bowl .324

Incomplete; handle broken. Shallow ogival bowl, tapers to a point where it joins the bowl in back.

56-2886 Spoon, oval (Fig. 5)

ML: 6.558  
L Handle: 4.380  
ML Bowl: 3.387  
MW Bowl: 1.850  
MD Handle: .416  
T Bowl: .372

Incomplete; upper portion of handle is broken. Shallow ogival bowl chipped along one side.

Reverse of the bowl lightly incised with two parallel V-shaped incisions running from the handle to terminus of bowl.

**B. Round Cosmetic Spoons (Fig. 6)**

57-177 ML: 9.234  
L Handle: 6.864  
D Handle: .476  
MD Bowl: 2.442  
T Bowl: .462

Incomplete; handle broken. Complete circular shallow bowl, back of bowl incised with two parallel V-shaped incisions running from the handle to terminus of bowl.

60-1417 ML: 8.997  
ML Handle: 6.503  
MD Handle: .437  
MD Bowl: 2.401  
T Bowl: .369

Incomplete; handle broken. Complete circular shallow bowl; back of bowl incised as in 57-177.

55-2075 ML: 6.585  
ML Handle: 4.911  
MD Handle: .355  
MD Bowl: 1.108 (one half of bowl)  
T Bowl: .247

Incomplete, handle and circular shallow bowl both broken, bowl approximately in half.

62-620a<sup>267</sup> ML: 6.098  
ML Handle: 3.599  
MD Handle: .415  
MD Bowl: 2.420  
T Bowl: .349

Incomplete; handle broken. Complete circular shallow bowl; slight brown discoloration around one edge.

---

<sup>267</sup> Part b has been lost, and inventory number is unclear.

- 56-1595      ML: 3.918  
                  ML Handle: 1.562  
                  MD Handle: 4.14  
                  MD Bowl: 2.406  
                  T Bowl: .405
- Incomplete; handle broken close to bowl. Complete slightly ovoid shallow bowl.
- 62-248      ML: 3.432  
                  ML Handle: 1.218  
                  MD Handle: .643  
                  MD Bowl: 2.187  
                  T Bowl: .433
- Incomplete; handle broken close to bowl. Complete circular shallow bowl; back of bowl incised with a double V-shaped incision as in 57-177, much worn. V cut incision on the upper side of the handle.

C.      **Small Cosmetic Spatulas** (Fig. 7)

These objects are not identical in shape, but all have a flattened terminus.

- 57-2996      L: 8.290  
                  W: 1.365  
                  T: .610
- Incomplete: both ends broken. Each of four sides is flattened and slightly smoothed. This spatula-like object may be unfinished: the spatulate end is not smoothed to a narrow dimension and flares slightly outward.
- 67-433      ML: 7.041  
                  MW: 1.035  
                  MT: .520
- Incomplete; handle broken. Same description as 57-2996, except the spatulate end tapers inward.
- 60-138      L: 5.722  
                  MW: .889  
                  T: .379
- Appears complete. Handle end is rounded and tapers to midpoint; the scoop end is flattened with parallel sides, terminating in a beveled straight edge.

61-563 ML: 5.221  
W: 1.789  
T: .359

Incomplete; handle broken; spatula end slightly chipped, flaring out to maximum width at the straight-edged terminus.

59-1218 L: 4.726  
W: 1.229  
T: .359

Incomplete; broken at handle end. Spatulate end flares from handle, which is slightly tapered, into symmetrical curves on either side, and then forms a trapezoid shape, with a straight tapering edge.

#### **D. Combs**

55-528 Maximum present dimensions: 3.571 x 3.376<sup>268</sup> (Fig. 8)  
MT: .172

Incomplete; broken irregularly on all sides. Fragment consists of 11 incisions on one side for teeth and 12 corresponding stubs of teeth, not cut through. A decorative incision runs across the area of teeth stubs; above the incision and teeth is an indented square channel, followed by a higher smoothed area and another indented square channel. Knife carved. May be a decorative plaque.

66-545 Maximum present dimensions: 6.730 x 4.360 (Fig. 8)  
MT: .084

Incomplete; fragmented, two sided comb broken on all sides. One side has finely incised teeth of varying length approximately .3 cm at maximum with a blank area which appears to be a modern repair. The other side has courser teeth broken jaggedly, the maximum incomplete tooth having a length of .327 cm.

89-349 Largest Fragment (Fig. 9)

4.395 x 3.415  
MT: .552

Second Fragment (below left)  
3.456 x 2.284  
MT: .488

---

<sup>268</sup> Because the fragments of all the combs are incomplete, the dimensions are not designated by width and length.

Third Fragment

3.477 x 2.622

MT: .463

Incomplete: three fragments of a burned comb. The largest fragment has the stub ends of four teeth.

89-213 Piece showing this to be a comb: (Fig. 10)

5.753 x 2.369

MT: .359

Two additional pieces:

Left: 5.465 x 2.923

MPT: .725

Right: 4.860 x 3.041

MPT: .387

Incomplete; broken on all sides of all fragments. Remaining pieces consist of four larger fragments and six smaller fragments with no clear relation to the whole. The largest piece has six teeth, all of which are broken.

**E. Amulets**

57-1752 Miniature phallus (Fig. 11)

L: 3.044

W: 2.406

Largely complete. Irregularly knife-carved apotropaic amulet of a phallus, with scrotum behind it; chipped around edge. Phallus is in three sections – shaft, foreskin and tip. Above the phallus is a rectangular area with carved incisions representing either “XYN” or pubic hair. A hole for suspension is drilled sideways through this area and is not visible from the front. Flat on back.

92-661 Miniature fist (Fig. 12)

L: 2.300

W: 1.061

Complete. Three-dimensional knife carved representation of a clenched fist and wrist area; both front and back incised to represent fingers. Incision above the knuckle area. Modeling of the thumb area does not show the thumb to be opposable. A hole, drilled sideways, runs across the wrist area and is not visible from the front.

## F. Beads and Plaques

These objects are grouped together because they may have had similar uses. All have holes.

59-1720      Bead

ML: 1.958

MD: 1.230

MDI: .661

Complete. Round hollow cylinder, smoothed and polished. Sawn ends are not parallel. Possibly a hinge component or spacer for hinge.

67-905      Bead (Fig. 14)

L: 1.4

D: 1.1 by 1.3

Complete. Round hollow cylinder, cut across bone. Ends are not parallel. Smoothed and polished on outside and at sawn ends; partially smoothed on interior. Near one end, a small incised line encircles object, parallel with that end, but not the other end.

97-36      Bead

MD: 1.1

Complete. Small round hollow cylinder, smoothed and polished. Interior hole too small to measure. May be a small eyelet or ring, but size is inconsistent with eyelets.

71-253      Bead (Fig. 27, object with metallic label)

MDX: 1.064

MDI: .523

MT: .349

Complete. Small round hollow cylinder. This and the following entry could be small eyelets, but size is inconsistent with eyelets.

07-79      Bead

MDX: 1.011

MDI: .535

MT: .399

Complete. Small round hollow cylinder; outside scored with incised line at midpoint. Discolored; could be ivory.

59-1523 Flat oval plaque, possibly bead (Fig. 13)

ML: 2.652  
MW: 1.45  
MDH: .306  
MT: .307

Complete: Oval plaque with drilled hole slightly off center, which may indicate this was a bead to be conjoined with other beads. One side smoothed; slightly rough on the other. On three sides, thickness beveled to the smooth side; one side is straight.

59-1369 Flat oval plaque, possibly bead (Fig. 13)

ML: 1.862  
MW: 1.380  
MDH: .284  
MT: .249

Complete. Oval plaque with hole on one long edge. One side smoothed; other rough but clean of cancellous material. Sides are straight, except for the side nearest the hole, which is slightly beveled.

58-683\*\* Flat oval plaque, possibly bead (Fig. 100)

L: 3.330  
MW: 1.843

Complete. Oval plaque with small drilled hole near one end. The other end has a raised square protrudance (.482 x .504) with a hole drilled through. Thickness could not be measured.

59-430 Flat slightly oval plaque

ML: 1.855  
MW: 1.627  
MT: .210

Complete: Irregular circle. Object has no hole; appears to be a blank that has been mended. Both sides are roughly smoothed; sides are straight. It could be a blank for a small bead, disk or token.

## G. Pins

A pin is defined as any object with a relatively long narrow shaft bearing a discernible enlargement or carving at one end, such as a rounded or oval ball. Of the objects recovered from Morgantina, some have such delicate shafts that they could only be used in the hair for decoration; others are so short that they could not be used as a garment pin. Some of the broken items recorded in the "Points" category, if whole, probably would have fallen in the "Pins" category.

### 1. Complete or Nearly Complete Round-Headed Pins (in descending size)

All of these complete objects consist of a solid shaft, circular in section, topped by what appears to be a rounded head (the "head"), although in fact, some are slightly ovoid. The shaft gradually tapers outward from the smallest dimension at the head end to the largest dimension shortly before the other terminus, where it tapers inward to a sharp point (the "point"). Where such a taper exists, the greatest dimension is given.

59-177\*      L: 14.792 (Fig. 99)  
                  L shaft: 12.757  
                  L point: 1.082  
                  L finial: .731  
                  D shaft: .600  
                  D head: .911

Small portion of tip missing, but otherwise complete.

59-255\*      L: 11.499 (Fig. 99)  
                  L shaft: 10.054  
                  L point: .887  
                  L head: .433  
                  D shaft: .677  
                  D head: .666

58-1042      L: 11.375 (Fig. 15)  
                  L shaft: 9.207  
                  L point: 1.317  
                  D shaft: .837  
                  D head: .690

66-511      L: 11.226 (Fig. 15)  
                  L shaft: 9.007  
                  L point: 1.315  
                  D shaft: .870  
                  D head: 1.088



58-181\* L: 10.913 (Fig. 99)  
 L point: 2.092  
 L shaft: 8.391  
 L head: .542  
 D shaft: .911  
 D head: .918

57-2562\* L: 10.889 (Fig. 99)  
 L shaft: 8.790  
 L point: 1.205  
 L head: .773  
 D shaft: .499  
 D head: .945

67-414 L: 10.711 (Fig. 15)  
 L shaft: 8.838  
 L point: 1.068  
 D shaft: .676  
 D head: .941

Discolored to a gray-brown

81-63 L: 10.327 (Fig. 15)  
 L shaft: 8.720  
 L point: 1.066  
 D shaft: .713  
 D head: .693

55-2390 L: 10.00 cm (Fig. 15)  
 L shaft: 8.32  
 L point: .990  
 D shaft: .751  
 D head: 8.52

The top of this pin is ovoid from the side view but rounded when viewed from the top.

67-411 L: 9.695 (Fig. 15)  
 L shaft: 7.516  
 L point: 1.644  
 D shaft: .657  
 D head: .963

Discolored to a gray-brown

61-114	L: 9.302 (Fig. 15) L shaft: 7.351 L point: 1.178 D shaft: .798 D head: .806  Corroded on head and shaft
57-1129*	L: 8.97 (Fig. 99) L shaft: 6.615 L point: .820 D shaft: .454 D head: .447
57-971*	L: 8.340 (Fig. 99) L shaft: 6.681 D shaft: .553 D head: .585
58-1138	L: 6.084 (Fig. 15) L shaft: 4.693 L point: .716 D shaft: .635 D head: .812
59-50	L: 6.040 (Fig. 15) L shaft: 4.638 L point: .716 D shaft: .627 D head: .813

## 2. Oval-Headed Pins, Largely Complete

The description of all of these is similar to that of round-headed pins, except the head is ovoid.

66-422	L: 14.953 (Fig. 16) L shaft: 8.337 L point: 5.257 L head: 1.178 D shaft: .856 W head: .853
--------	---

Incomplete; slight chip on one side of the head. This pin has an uncharacteristically long point, which starts about two-thirds down the shaft from the head and gradually tapers to a sharp point. The purpose of this is unclear.

60-304 L: 11.834 (Fig. 16)  
 L shaft: 9.859  
 L point: 1.213  
 L head: .615  
 D shaft: .604  
 W head: .810

Complete

67-163 L: 9.535 (Fig. 16)  
 L shaft: 7.942  
 L point: .511  
 L head: .847  
 D shaft: .324  
 W head: .245

Complete. Ovoid head blends gradually into shaft. Pointed end is flattened with dot incised in middle of point.

62-860 L: 9.420 (Fig. 16)  
 L shaft: 8.100  
 L point: gradual taper starting with .667  
 L head: 1.145  
 D shaft: .667  
 W head: .797

Incomplete; there is minimal chipping on point end. The point on this object tapers down gradually from the maximum diameter. The oval head has a flat round torus with a dot incised in the middle.

58-991\* L: 7.073 (Fig. 99)  
 L shaft: 9.051  
 L point: .986  
 L head: .903  
 D shaft: .671  
 D head: ??

Complete. The point is indented; the ovoid head noticeably tapers.

60-342 L: 5.493 (Fig. 16)  
 L shaft: 4.247  
 L point: .687  
 MD shaft: .552  
 MW head: .515  
 L head: .563

Complete. The shaft, circular in section, is not tapered. Diameter of the oval head tapers inward before joining shaft and is slightly smaller than the maximum diameter of the shaft.

### 3. Round and Oval-Headed Pins, Incomplete

With the exception of 60-520 and 59-5 these pins have straight shafts, circular in section.

60-520 L: 9.306 (Fig. 17)  
 L shaft: 7.952  
 L head: .368  
 D shaft: .540  
 D head: .452

Incomplete. This round headed pin is missing only its tip. Shaft circular in section, tapering outward from head to point.

61-1382 L: 8.809  
 L shaft: 8.029  
 L head: .627  
 D shaft: .520  
 D head: .765

Shaft broken. Mended.

58-277 L: 6.773 (Fig. 17)  
 L shaft: 5.521  
 L head: 1.244  
 D shaft: .550  
 D head: .78

Incomplete; shaft broken. Ovoid head.

No Inventory L: 5.456 (Fig. 17)

# L shaft: 4.379  
L head: 1.082  
D shaft: .452  
D head: 1.061

Incomplete; shaft broken. Rounded head, flattened at top.

60-522 L: 5.000  
L shaft: 4.535  
L head: .505  
D shaft: .396  
D head: .584

Incomplete; shaft broken. Rounded head, flattened at top.

67-253 L: 4.818 (Fig. 17)  
L shaft: 4.045  
L head: .796  
D shaft: .490  
D head: .904

Incomplete; shaft broken. Rounded head, flattened at top.

97-46 L: 4.597 (Fig. 17)  
L shaft: 3.926  
L head: .666  
D shaft: .463  
D head: .767

Incomplete; shaft broken and corroded. Part of the rounded head is missing, but has been smoothed off. Discolored to a gray-brown.

59-5 L: 3.946 (Fig. 17)  
L shaft: 3.564  
L head: .282  
D shaft: .432  
D head: .642

Incomplete; shaft broken and corroded; appears to have been polygonal in section. This pin is crudely made and seems to reverse the standard, with the part of the shaft nearest the incomplete head being the largest diameter; discolored.

60-521 L: 2.362 (Fig. 17)  
 L shaft: 1.902  
 L head: .425  
 D shaft: .337  
 D head: .599

Incomplete; shaft broken and corroded. Rounded, flattened head.

#### 4. Pins With Decorated Finials, Complete and Incomplete

Among these pins are several one-of-a-kind pins with short shafts and individually carved finials, only two of which are alike.

59-749 Pin-like object, with a foot (Fig. 23)

L: 8.154  
 L finial: 4.650  
 L shaft: 6.420

This object is incomplete and appears to be an unfinished pin. Irregular triangle in unfinished section; one end depicts a booted foot.

No Inventory # Pin with bird finial (Fig. 18)

L: 6.923  
 L total finial: 2.399  
 L bird (head to tail): 1.874  
 L shaft: 4.548  
 MD pin shaft: .483

Complete. Carved with a knife; shaft circular in section; tapers to a point. Finely wrought and proportionally correct. Bird with a forked tail sits on top of two pedestals, both with terminal tori bracketing a concave space. It is three dimensional and resembles a pigeon or dove.

81-55 Pin with bird finial (Fig. 18)

L: 5.216  
 L total finial: 1.9  
 L bird bead: 1.4  
 L shaft: 3.2

Complete. The description is similar to the above description except that the dimensions are smaller, the shaft does not taper to the point and the pedestals are more compressed. This pin and the pin described immediately prior appear to be from the same hand.

## 58-1747 “Bird” pin (Fig. 19)

L: 4.592

MW: 1.912

Incomplete; flattened unfinished piece, broken at all extremities and heavily scored on both sides. Shaft rectangular in section, tapering slightly to the broken point. Finial appears to be an incipient bird pin in flattened profile, but different in conception than the two pins described immediately above. It is irregularly scored horizontally across in what would have been the pin section and diagonally across what would have been the bird section.

## 59-1150 Pin with small sitting figure finial (Fig. 20)

L: 6.115

MT: .653

Incomplete; hand carved; shaft circular in section tapering slightly and broken. What appears to be a small person sits atop a series of three pedestals. The lowest of the pedestals is decorated with an incised triangular shaped pattern of incisions, the second is a slight bulge, the third is a flat round pedestal. The figure's arms/hands are folded across the body. From side view the figure has a jutting jaw and pointed head. There was another piece, containing the inventory number, found with this piece, which may be the broken end.

## 56-289 Hair pin with “arrowhead” point (Fig. 21)

L: 14.262

D: .343

Complete. Long slender solid shaft, circular in section, bulging in midsection; finished both ends, one end rounded; the other end carved into a delicate V-shaped point, which resembles a tiny arrowhead. This pin is so delicate that it could only be for hair. This is the thinnest – and one of the longest – of all the ornamental pins.

## 58-956\* Pin with four spheres as finial (Fig. 99)

L: 8.286

L shaft: 5.660

L finial: 1.459

MD shaft: .618

Complete. The finial consists of four irregularly carved but worn flattened spheres of roughly diminishing dimension atop each other. The shaft, circular in section, is relatively uniform over its length.

- 58-987\* Pin with flattened disk finial (Fig. 99)
- L: 12.274  
 L shaft: 11.524  
 L finial: .730  
 MD shaft: 7.61 (larger where roughly carved)
- Incomplete; shaft and finial broken. Finial consists of two flattened disks separated by two incised lines .730 in height, smoothly carved in circular fashion at top of shaft, but roughly smoothed into four planes on the shaft. May not have been finished.
- 59-674\* Pin (Fig. 99)
- L: 7.881  
 L tip: 1.161  
 MD shaft: .902
- Incomplete; broken partial finial consists of a small knob; could be classified as an indented point.
- 57-2655\* Pin (Fig. 99)
- L: 8.765  
 L finial: .277  
 MD: .482
- Incomplete; broken finial, probably triangular. Unlike other pins, maximum diameter at top of shaft; no separated discernible point; gradually tapers to a narrow point.
- 58-1040 L: 7.236 (Fig. 22)  
 L finial: .783  
 MD shaft: .587  
 MD head: .790
- Complete. Tapers very slightly downward from finial to tip. The irregular finial, carved with a knife, approximating a triangle, proceeds from an irregularly worked circular shaft.
- No Inventory L: 5.835  
 # L shaft: 4.352  
 L finial: .917  
 L tip: .555  
 D shaft: .323 to .580



Complete. This little pin is topped with a finial, the shape of which is difficult to ascertain. It appears to be a worn spiral.

## II. **OBJECTS WITH UNDETERMINED FUNCTIONS**

### A. **Bone Ring-Like Objects** (Fig. 24)

#### 1. **Complete**

All are complete and finished. Thin undecorated objects, smoothed and rounded on the exterior and smoothed flat on the interior with a large central hole, much like a finger ring or ring for hanging curtains. Gisela Richter opines that the latter may be how they were utilized. They are approximately of the same size and dimensions, with largest measuring 2.221 cm in diameter and the smallest measuring 1.810. This minimal size range suggest a particular use.

66-776; 58-1132; 62-555; 56-1589; 57-753; 69-1011; 58-397; 62-653; 56-1816; 97-76; 61-1105; 59-528; 59-320; No Inventory #; 67-35

#### 2. **Finished Ring or Hinge** (Fig. 25)

56-290

Bone ring  
MDX: 2.537  
MDI: 1.764  
MT: .649

Complete. This finely made circlet is concave on its exterior diameter and flat on its interior diameter. It is the only object can be categorized as a possible finger ring, based upon its different and careful workmanship. At one point, the ring is cut through in a straight line and fastened together with a bone peg which protrudes on both sides. It is slightly discolored in the area of the cut. One of five disparate pieces recorded under the same inventory number. It may be a small hinge which broke when the peg (also bone) pierced it, but it is not finished like other small hinges.

#### 3. **Ring Fragments**

There are three ring fragments. The only one numbered is 57-2268.

### B. **Eyelets/Reinforcements**

All of these ring-like objects are circular when viewed from above and slightly convex in profile on one side. They consist of a thick outer ring with a relatively small central hole as compared to the ring-like object above. They are undecorated, but smoothed on both sides. Their function is unknown, but from their plainness and the size

of the perforation, it seems utilitarian. They could not be worn as “rings.” With the exception of one large “eyelet” (55-2307, MDX 3.509 cm) and one small ring (71-253, MDX 1.081), all fall within the range of 2.252 cm to 1.531 cm in diameter. None are completely uniform in any dimension. Except where noted, central perforations are drilled at a 180° angle, and except where noted, the object is complete.

55-2307 MDX: 3.509 (Fig. 27, large ring at left)  
MDI: 1.651  
MT: .617

Lopsided in profile; does not lie flat on either side. It is the largest of this type.

58-548\*\* MDX: 2.576 (Fig. 100)  
MDI: .681

Incomplete. Chipped on one side.

60-1380 MDX: 2.525 (Fig. 28)  
MDI: .683  
MT: .600

Perforation is drilled slightly obliquely.

58-1176 MDX: 2.519 (Fig. 28)  
MDI: .744  
MT: .657

58-419 MDX: 2.499 (Fig. 28)  
MDI: .602  
MT: .673

Lopsided in profile; neither side is flat.

59-526 MDX: 2.484 (Fig. 28)  
MDI: .777  
MT: .661

Incomplete: chipped(?) on one side.

58-549\*\* MDX: 2.453 (Fig. 100)  
MDI: .710

62-64	MDX: 2.446 (Fig. 28) MDI: .907 MT: .558
	Incomplete: broken on one side
57-1445(3)(?) <sup>*</sup>	MDX: 2.437 (Fig. 100) MDI: .662
71-376	MDX: 2.406 (Fig. 28) MDI: .674 MT: .693
66-158	MDX: 2.389 (Fig. 28) MDI: .657 MT: .507
59-751	MDX: 2.378 (Fig. 28) MDI: .683 MT: .615
04-443(9?)	MDX: 2.276 (Fig. 28) MDI: .572 MT: .553
57-2512	MDX: 2.251 (Fig. 28) MDI: .700 MT: .539
57-1241 <sup>*</sup>	MDX: 2.223 (Fig. 100) MDI: .572
58-420 <sup>**</sup> (check)	MDX: 2.447 (Fig. 100) MDI: .695
59-1721	MDX: 2.206 (Fig. 29) MDI: .632 MT: .459
58-682	MDX: 2.206 (Fig. 29) MDI: .699 MT: .631
	Hole slightly oblique.

55-882	MDX: 2.206 (Fig. 29) MDI: .658 MT: .518  Incomplete: partly chipped on one side
60-1284	MDX: 2.174 (Fig. 29) MDI: .630 MT: .568  Gray in color
04-487	MDX: 2.161 (Fig. 29) MDI: .641 MT: .476
57-772(?)	MDX: 2.134 MDI: .589 MT: .500
58-1061	MDX: 2.119 (Fig. 29) MDI: .808 MT: .584
68-427	MDX: 2.106 (Fig. 29) MDI: .688 MT: .692
57-1846	MDX: 2.072 (fig. 29) MDI: .748 MT: .482
03-95A	MDX: 2.038 (Fig. 29) MDI: .716 MT: .535
57-961	MDX: 2.030 (Fig. 29) MDI: .574 MT: .498
55-385	MDX: 2.020 (Fig. 29) MDI: .678 MT: .552

60-1325	MDX: 2.006 (Fig. 29) MDI: .664 MT: .597
92-760	MDX: 1.992 MDI: .729 MT: .487
92-837	MDX: 1.974 MDI: .670 MT: .351
	Repaired
No. Inventory #	MDX: 1.958 MDI: .705 MT: .641
57-541	MDX: 1.895 MDI: .612 MT: .599
55-2308	MDX: 1.882 MDI: .803 MT: .363
03-100	MDX: 1.858 MDI: .645 MT: .566
	Chipped one side.
58-418**	MDX: 1.801 (Fig. 100) MDI: .614
	Complete.
57-2493**	MDX: 1.835 (Fig. 100) MDI: .602
	Incomplete; chipped.

No Inventory MDX: 1.796  
# MDI: .584  
MT: .530

Chipped on side.

57-803(?) MDX: 1.752  
MDI: .570  
MT: .482

Greenish color.

60-1192 MDX: 1.705  
MDI: .619  
MT: .595

62-419 MDX: 1.702  
MDI: .639  
MT: .539

57-627 MDX: 1.671  
MDI: .708  
MT: .587

This is the only disk of this type that shows deliberate flattening on both sides and an attempt to otherwise smooth the object.

97-36 MDX: 1.540  
MDI: .523  
MT: .356

56-2853 MDX: 1.531  
MDI: .588  
MT: .541

71-253 There is a hole, drilled obliquely, on one side.  
MDX: 1.081  
MDI: .343  
MT: .524

# **1. Partial Eyelets**

59-254 MDX: 1.873  
MDI: .693  
MT: .288

98-22 MDX: 1.875 (more than half missing)  
MDI: cannot be accurately measured  
MT: .433

## **2. An Unusual Eyelet**

60-480 MDX: 2.545 (Fig. 58, third row, third object)  
MDI: .719  
MT: 1.152

Complete. Unusual thickness. An irregular raised line surrounds this object in the thickness dimension. It appears that this is a discard.

## **C. Disks**

### **1. Decorated Both Sides**

This group of disks is decorated on both sides. All are round when viewed from the top, but not perfectly so; most are flattened on one side and slightly convex on the other. They are perforated with a small hole in the center, possibly for a peg or another fastener to affix the disk to another object, such as a piece of furniture or a box. Some of them appear to be game counters. Others may have been used to sit atop a cylindrical hinge component or pyxis, as they fit several of the hollow cylindrical hinge components. These objects are complete unless otherwise noted. All descriptions start with the outermost perimeter. The term "DI," where applicable, indicates the diameter of the interior perforation. Figure 30a shows these disks from the convex side; Fig. 30b shows them from the flattened side.

71-558 DX: 3.092 (Fig. 30)  
DI: .572  
T: .357

Incomplete. Object is chipped in multiple places around the perimeter. On one side, the flattened perimeter surrounds a plain, raised, flattened circular interior. On the other side a series of fine concentric lines is followed by two incised concentric circles, a circle consisting of dots joined by an incised line, a concave circle, and two concentric circles around the drilled perforation. Discoloration to a light brown.

68-381 DX: 2.746 (Fig. 30)  
DI: .530  
T: .345

One side has a broad band around the perimeter, followed by four incised concentric circles and the perforation. The outermost concentric circle bears traces of black paint or paste. The other side has a broad concentric

circle followed by six incised concentric circles. On this side the outermost and innermost concentric circles bear traces of black paint or paste.

59-1242\*\*

MDX: 2.682 (Fig. 100)  
MDI: .553

Flat disk decorated with four incised concentric circles on one side and three on the other side.

56-1021

DX: 2.571 (Fig. 30)  
DI: .402  
T: .471

On the convex side, the design consists of four incised concentric circles in varying widths rising to the perforation, which is depressed; on the flattened side, the design consists of four incised concentric circles, including the depression which surrounds the perforation.

57-97

DX: 2.477 (Fig. 30)  
DI: .472  
T: .472

On the greenish convex side, there are three incised circles. The flat side has five incised concentric circles.

57-2412

DX: 2.456 (Fig. 30)  
DI: .434  
T: .378

On one side, a beveled edge rises to a flat concentric circle. Around the perforation on this side is a raised ring. On the other side, a broad flat band surrounds the perimeter. Within is a slightly raised concentric circle.

59-527

MDX: 2.418 (Fig. 30)  
MDI: .657  
MT: .418

Incomplete; badly corroded and chipped; designs on both sides are obscured. The slightly convex side has three incised concentric circles rising to the perforation. The flat side has three concentric circles of varying sizes.

67-882

MDX: 2.355 (Fig. 30)  
MDI: .547  
MT: .269



Incomplete; badly corroded and chipped; designs on both sides are obscured. The convex side consists of two concentric circles, with the interior one rising to the perforation. The flat side has remnants of at least three incised concentric circles with the one around the perforation raised above the other. The outermost perimeter shows incisions of additional concentric circles.

61-1270 DX: 2.098 (Fig. 30)  
DI: .481  
T: .731

The convex side is well smoothed and rises to a dome, with two tiny holes which do not perforate the disk. On the other side are two concentric circles with one raised above the other and surrounding a drilled, non perforating hole.

## **2. Decorated on One Side**

These are complete unless otherwise noted.

57-89 D: 4.656 (Fig. 31)  
T: .470

A band with a shallow concentric incision circles the perimeter, followed by a wide, slightly convex concentric band, another narrow convex band, and a concentric circle. Drilled hole does not perforate the disk in the center. Back is heavily scored.

60-709 DX: 3.814 (Fig. 31)  
DI: .642  
T: .583

Incomplete; chipped, cracked, and broken on one side and around perforation. A flat, narrow band circles perimeter. Rising from it, the remainder of the disk is convex. Circular interior perforation is probably drilled, but is now corroded. Back is roughly finished.

59-896\*\* MDX: 3.335 (Fig. 100)  
MDI: .531

Incomplete. Approximately one third broken. Flat band circles perimeter followed by two incised circles, rising to a convex circle.

57-232 DX: 3.292 (Fig. 31)  
DI: .633  
T: .707

Complete. Flat band circles perimeter, followed by a thinner raised band. Center area is convex and perforated by a drilled hole. The back is roughly finished.

57-2560\*\* MDX: 3.258(?) (Fig. 100)  
MDI: .621

Same design as 59-896.

59-670\*\* MDX: 3.008 (Fig. 100)  
MDI: .537

Same design as 59-896 and 57-2560.

60-252 DX: 2.950 (Fig. 31)  
DI: .434  
T: .494

Incomplete; broken on one side. Flat band circles the perimeter, followed by a small slightly raised band rising convexly to the drilled perforation in the center. Back is flat and smooth.

66-90 DX: 2.878 (Fig. 31)  
T: .272

Incomplete; chipped on one side. Two narrow incised concentric bands circle the perimeter followed by a broader concentric circle, two more narrow concentric circles, and a convex wider circle culminating in a raised center circle with a drilled hole, which does not perforate the disk, although there is another partial central hole on the roughly polished flat side.

62-421 DX: 2.546 (Fig. 31)  
DI: .214  
T: .625

Narrow incised concentric bands circle the perimeter. The profile rises sharply toward the center perforation, which is surrounded by a concave concentric circle adjacent to the perforation. Back is flat and smooth.

57-514 MDX: 2.531 (Fig. 31)  
MDI: .305  
MT: .365

Incomplete; chipped on two sides. Two flat concentric circles, each raised than the previous once, precede the raised flat central circle. The perforation appears to be drilled. Back is flat and roughly smoothed.

5-192<sup>269+</sup>

MDX: 2.236

MDI: .506

T: .459

Incomplete, chipped in two areas of perimeter. A flat band encircles the perimeter; a concentric incision and another flat band follow, at which point the disk rises convexly to a flattened top, pierced by the hole.

04-427

MDX: 2.197

MDI: Incomplete, cannot be measured accurately

T: .465

Incomplete. Flattened outer perimeter with scored with multiple concentric circles. Interior rises convexly.

62-1394

MDX: 2.073 (Fig. 31)

MDI: .409

MT: .331

Incomplete; chipped in two places on perimeter. A flattened rim surrounds perimeter, which consists of a single convex circle surrounding the perforation. Back is flat and smooth.

57-2944

MDX: 1.948 (Fig. 31)

MDI: .474

MT: .397

A flat concentric band circles the perimeter, followed by a concentric convex circle which in turn surrounds a concave circle containing the center perforation. Back is flat and roughly smoothed.

57-1754

DX: 1.786 (Fig. 31)

DI: .377

T: .255

Two concentric circles with the interior circle containing the perforation raised above the outer circle. The other side is flat and roughly smoothed.

---

<sup>269</sup> This object is in the treasury of the museum in the first floor North Bath room (object 20, unnumbered case), denoted “+”.

55-438 DX: 1.778 (Fig. 31)  
DI: .372  
T: .334

Same description as 57-1754.

58-1511 DX: 1.712 (Fig. 31)  
T: .605

Incomplete; chipped. Probably ivory. Thin incised band circles perimeter. From this, the disk rises convexly to another incised band, which circles a depression of .456 in the center from which a circular knob rises to the total thickness of the disk. There is no perforation. Back is flat and roughly smoothed. This may be a decorative boss.

71-582 DX: 1.711 (Fig. 31)  
DI: .287  
T: .357

Incomplete; chipped on one side. A flat concentric band circles the perimeter; from this band, the surface then rises convexly to the perforation. The back is flat and smooth.

58-634 DX: 1.675 (Fig. 31)  
DI: .457  
T: .299

Same description as 71-582.

04-445 DX: 1.656 (Fig. 31)  
DI: .536  
T: .250

Same description as 71-582 and 58-634.

57-1663 DX: 1.446 (Fig. 31)  
DI: .296  
T: .421

Same description as 71-582, 58-634 and 04-445.

## D. Points

Numerous “points” – approximately ninety -- are among the bone objects found at Morgantina. The term “point” is used deliberately: it is impossible, except in rare instances, to ascertain the exact functions of these objects, although various functions can be attributed to them. A common denominator is that they end in a point. If the shaft is sturdy, thick, flattened, and ends in a blunt or rounded point, the object has been classified as a tool; if the shaft is narrower and circular or oval in section, such that it could easily be grasped in the fingers, it has been denominated a “point.” Scholars do not agree as to the function of these objects: some of them may have been pins (which they closely resemble) and doubtless some of them were styli, which I define as pointed objects with a spatulate end; others of these objects have been classified as awls or punches, which could have been used in working softer materials, such as leather, despite the relative fragility of the bone material. The possibility that those in Fig. 33 are pin beaters used in weaving has also been suggested. Leather was worked at Morgantina; similarly, wool was woven, given the large number of loom weights found.

Insofar as possible and for the sake of convenience, I have broken down “points” into categories based on physical appearance, which may or may not correspond to usage.

### 1. Complete or Nearly Complete Simple/Plain Points (Fig. 16)

#### a. Stylus (Fig. 32)

67-412 Stylus: Point with spatulate end.  
L: 9.157  
MD: .688 (at point end)  
Tip: .991  
MW .954 (at spatulate end)

Complete. This is the only intact point with a complete spatulate end, such that it can be securely labeled a stylus. The shaft, circular in section, leads to the point, and flattens at the other end.

#### b. Points with Swelling in Midsection and Points on Both Ends

These points have the following common characteristics: no sharp indentation on pointed ends; circular in section with maximum diameter in midsection or near points, tapering in both ends to a pointed end and a rounded end.

67-27 L: 13.818 (Fig. 33)  
.564

Complete. Long plain point, gradual but irregular taper to tip; oval one end, corroded surface; slightly flattened

67-477 L: 9.778 (Fig. 33)  
MD: .831

Incomplete; broken one end.  
61-97 L: 9.255 (Fig. 33)  
MD: .813

Incomplete; small chips both ends.

63-923 (924?) L: 7.296 (Fig. 33)  
MD: .794  
LTip: gradual

Incomplete; a hole in shaft end with a V cut, possibly for an attachment.

98-136 L: 6.495  
L point: .352  
MD shaft: .535

## 2. Complete Points with Tapered or Beveled Ends

There are comparatively few points which are complete. These are complete or may have a tiny chip at one end. The pointed end resembles a modern day pencil; the other end (the "terminus") of the majority is beveled, possibly for use as an eraser on wax. Most have their maximum diameter either at midsection, at the junction of tip and shaft, which is circular in section, or slightly below this junction.

57-328 L: 12.416 (Fig. 34)  
MD: .584 (at midsection)  
L tip: 1.186  
L. shaft: 11.184

Beveled terminus.

57-1475 L: 11.472 (Fig. 34)  
MD: .715 (junction of shaft and point)  
L tip: 1.695  
L. shaft: 9.626

Sharp point, slightly indented; beveled terminus. Based upon the Princeton inventory card, this object was found with the point running through the hole of a bead, now fugitive.

- 58-954 L: 10.499 (Fig. 34)  
MD: .497 (below junction of shaft and point)  
L tip: 1.292  
L shaft: 9.174  
  
Beveled terminus.
- 60-521 L: 9.089 (Fig. 34)  
MD: .587 (below junction of shaft and point)  
L shaft: 7.955  
L tip: 1.140  
  
Sharp point. Beveled terminus.
- 59-672 L: 7.626 (Fig. 34)  
MD: .708 (junction of shaft and point)  
L shaft: 6.270  
L. tip: 1.531  
  
A pointed knob, created by incision, at terminus.
- 59-1259 L: 7.578 (Fig. 34)  
MD: .616 (junction of shaft and point)  
L shaft: 6.387  
L tip: 1.048
- 58-1038 L: 7.418 (Fig. 34)  
MD: .720 (junction of shaft and point)  
L shaft: 6.389  
L tip: .899
- 58-273 L: 7.462 (Fig. 34)  
MD: .708 (junction of shaft at point)  
L shaft: 6.369  
L. tip: 1.025  
  
Beveled terminus.
- 58-44 L: 7.365 (Fig. 34)  
MD: .721 (junction of shaft and point)  
L shaft: 6.493  
L tip: .829  
  
Beveled terminus.

59-671 L: 7.191 (Fig. 34)  
 MD: .589 (junction of shaft and point)  
 L shaft: 6.290  
 L tip: 1.082

Rounded terminus.

### 3. Incomplete Points with Gradual Taper on Shaft

62-703 L: 10.767 (Fig. 35)  
 MD: .539  
 L tip: gradual: tapers inward

59-319 ML: 9.710 (Fig. 35)  
 MD: .542  
 L tip: .56

Gradual taper outward.

59-669 L: 7.115 (Fig. 35)  
 D: .455  
 L tip: .632

Gradual taper inward.

58-999 L: 6.771 (Fig. 35)  
 MD: .639  
 L tip: 1.190

58-989 L: 6.596 (Fig. 35)  
 MD: .549  
 L tip: .814

59-752 L: 6.560 (Fig. 35)  
 MD: .607  
 L tip: .746

59-1219 L: 6.423 (Fig. 35)  
 MD: .544

Gradually tapers toward point, leaving no defined point.

59-676 L: 5.991 (Fig. 35)  
 MD: .592  
 L tip: .828



59-1078 L: 5.197 (Fig. 35)  
MD: .483  
LTip: gradual tapering

59-668 L: 5.081 (Fig. 35)  
MD: .613  
L tip: .810

Tip irregularly executed.

59-677 L: 4.743 (Fig. 35)  
MD: .559  
L tip: .564

Tip appears not to have been finished.

57-317 L: 4.546 (Fig. 35)  
MD: .435  
LTip: .579

61-97 L: 3.966 (Fig. 35)  
MD: .595  
LTip: .902

#### **4. Incomplete Points**

##### **a. Simple Incomplete Points (Fig. 36)**

Inventory Numbers 89-250 (indented tip); 60-522; 57-329; 59-528 (wrong inv. #, is it 58-529?); 58-129; 67-164; 58-14; 81-27 (blackened); 57-2433; 63-132; 59-750 (blackened); 57-2129; 67-527; 59-897; 92-5; 67-541; 58-1929; 59-849; 59-1335. Not pictured: 61-280.

Range:

Largest:	89-250	L: 14.340 MD: .787 (at junction of shaft and point) L shaft: 12.591 L tip: .957
----------	--------	--

Missing only a point of its terminus which is set off by an incised line.

To

Smallest: 59-1335 L: 5.560  
 MD: .720  
 L shaft: 4.348  
 L point: 1.229

Badly corroded and discolored.

**b. Points With Elongated Tips (Fig. 37)**

56-2948 L: 10.772  
 MD: .654  
 L tip: 3.649

Tip attenuated. Some evidence at the non-tip end that there may have been a knob.

62-55 L: 9.368  
 MD: .682  
 L tip: 3.880

Tip attenuated. Object swells in the middle of its present length and gradually moves to point. The fine tip appears indented

**c. Points With Slender Shafts and Tips (incomplete)**

No Inventory  
 # L: 8.631  
 D: .332

Incomplete. Irregularly carved shaft, taper to sharp intact point. Inventory number is illegible.

03-456 L: 4.188  
 D: .473

Incomplete. Irregularly carved shaft tapering to sharp intact point.

**5. Indented Points**

All points in this group have an indented tip. In general, the shaft is comparatively thick.

**a. Complete Indented Points (Fig. 38)**

- 58-489      L: 10.759  
               MD: .650 (at midsection)  
               L shaft: 9.601  
               L. tip: 1.219
- Tip finely carved and indented; beveled terminus.
- 61-1420      L: 9.869  
               MD: .819 (at junction of shaft and point)  
               L shaft: 8.749  
               L tip: 1.027
- Corroded. Tip finely carved and indented. Terminus is indented by incised line and beveled.
- 58-119      L: 6.949  
               MD: .655 (at juncture of shaft and point)  
               L shaft: 6.016  
               L tip: 1.072
- Tip is carved to indent gradually; indentation is not uniform. Beveled terminus.
- 58-96      L: 6.804  
               MD: .952 (at junction of shaft and point)  
               L shaft: 5.652  
               L tip: 1.154
- Point indented but not defined; terminus is pointed.
- 58-1411      L: 6.027  
               MD: .532 (at junction of shaft and point)  
               L shaft: 4.907  
               L tip: 1.233
- Tip well defined; terminus ends in a knob. Could be a pin.
- 58-86      L: 4.782  
               MD: .706 (at junction of shaft and point)  
               L shaft: 3.881  
               L tip: 1.105
- Discolored. Terminus has an incised dot in the cross-section.

**b. Incomplete Indented Points** (Fig. 39)

59-2109; 58-1962; no inventory #; 59-1116; 57-2102; 58-395; 63-1093; 61-115;  
no inventory #

Range:

Largest	59-2109	L: 10.212 MD: .891 L shaft: 9.302 L tip: .840
---------	---------	--

Discolored from burning or hot wax; point carved into marked indentation.

To

Smallest	No Inventory #	L: 5.982 MD: .657 (at junction of shaft and point) L shaft: .4971 L tip: .965
----------	----------------	--

Tip carefully carved. Discolored to brown.

**6. Miscellaneous Points, Primarily Lacking Both Termini**

**a. Tapering and Slightly Tapering Shafts**

Inventory Nos.: 60-174; 61-1333; 59-251; 59-673; 58-992; 58-993' (note incised terminus); 58-321; 58-1041; 81-71; 59-319b; 59-678; 58-1039; 56-1020; 62-77; 59-1150 (part of seated figure pin).

Largest:	60-174	L: 12.669 D: .592
----------	--------	----------------------

To

Smallest:	59-1150	L: 4.018 D: .455
-----------	---------	---------------------

**b. Bulging Shafts** (Fig. 40, first group)

Inventory Nos. 63-1119; 58-204

c. **Slender Shafts** (Fig. 40, second group)

Inventory Nos. 58-996; 55-2122

d. **Possible Styli** (Fig. 40, third group)

Inventory Nos. 81-108; 61-236. Both have shaft which is flattened in cross section.

e. **Small Pieces** (Fig. 40, fourth group)

Inventory Nos. 63-905; no inventory #; 63-1093; 61-563b

### III. **TOOLS**

As a class, most of these objects are sturdy and relatively thick, with a blunted point. None bear any decoration. They may have been tools used in ceramic or leather production, awls, or chisels for use on soft objects, such as terracotta, but no definite use can be established. While some of these tools were doubtless used in manufacture of several different categories of objects, they are placed together in this section for convenience.

#### A. **Tools Possibly Used in Ceramic or Leather Production**

59-1540 L: 14.644 (Fig. 41)  
MW: 1.396  
MT: .682

Incomplete; chipped on rounded end. Flattened at its broad end, with this end having rounded corners on an otherwise straight terminus. In approximate midsection the width swells and tapers to a rounded section, possibly ending in a rounded point.

59-256 L: 14:164 (Fig. 41)  
MW: 1.727  
MT: .831

Complete. The point is rounded; otherwise the description of this tool is the same as 59-1540.

58-394 L: 11.823 (Fig. 41)  
MW: 1.610  
MT: .782

Complete. The description of this tool is the same as 59-1540 and 59-256.

67-207 L: 11.404 (Fig. 41)  
MPW: 2.216  
MT: .842

Incomplete. The description of this tool is the same as the previous three tools.

67-26 L: 10.515 (Fig. 41)  
MW: 1.116  
MT: 7.87

Incomplete; broken at both ends. Oval in section. The surface is corroded; the object may be unfinished.

58-1089 L: 10.294 (Fig. 41)  
MW: 1.083  
MT: .859

Incomplete. Solid, roughly rounded cylinder swelling in midsection and tapering to a point at one end; flattening at the other; both ends broken. It may have been unfinished.

98-105 L: 7.061 (Figs. 41, 42)  
W: 1.323

Incomplete. This object appears to have been worked from one half of a long bone into a point. The bone cavity, cleaned of cancellous material remains. It could be a scraper.

66-821 L: 6.821 (Fig. 41)  
MW: 1.434  
MT: .641

Incomplete. Worn/corroded tool with point at one end and some breakage at other end. Some cancellous material on one side.

## **B. A Bone Probe**

55-1177 Bone tool with oval spatulate end (Fig. 43, top)

L: 19.51  
MW: 3.055 (at joint)

Incomplete; oval end chipped. Roughly finished bone with retained joint minimally smoothed, and oval spatulate tip. Given its length and the oval spatulate end, this may have been a medicinal probe.

### C. Awls/Punches

58-118 L: 14.696 cm (Fig. 43. bottom)  
MW: 3.020 (at joint)

Complete. Roughly finished with retained joint, slightly smoothed at end. Possibly an awl.

67-25 and Fig. 69  
Two items These three items, bone with metal protrusions, discussed in the Handles  
with no Inv. # section, this Catalog, *infra*, may be awls.

### D. Scraper/Spatulate Tools

61-102 L: 12.639 (Fig. 44)  
MW: 2.201  
MT: .807

Complete. Pointed at one end; squared off and narrowed at the other end, resembling a scraper, and may have been used as such. The tool narrows at midpoint, and then broadens to the pointed end. Discolored to a medium brown.

97-65 L: 11.916 (Fig. 45)  
MPW: 2.00  
MT: .853

Incomplete. Roughly finished tool, flattened unevenly on one side to a point at one end. The other end is spatulate, and ends in seven short incomplete cuttings, like teeth, all broken. May have been a scraper. Discolored to a medium brown.

## IV. FURNITURE COMPONENTS AND ACCESSORIES

### A. Hinge Components

Hinge components are among the most numerous bone items from Morgantina. They come in several sizes and variations; some are decorated, and meant to be seen; others – the most numerous – are plain and consist solely of a hollowed length of long bone with a single hole. Given their size, it would appear that these were used primarily for small boxes or caskets which opened at the top or side. The rest of the box was probably made of wood or possibly leather. No traces of doors or sides has been found in conjunction with them.

The most frequently encountered decoration consists of a band of three to five parallel incised lines, created with a parallel saw, at one or both ends of the hollow

cylinder. The objects which I have classified as part of a hinge also have one or two parallel holes drilled in one side of the cylinder. The maximum diameter of these holes is recorded but often varies, as some holes are drilled obliquely, and others have been worked with a knife.

Of the complete cylinders, most are rounded on one side and flattened on the other side, consistent with the bone from which the object is derived. The interior diameters vary widely and are not recorded. They follow the natural dimensions of the interior cancellous material, which has been largely removed.

Those cylindrical objects which have no holes are categorized as spacers.

All of these objects have been neatly sawn crosswise, and smoothed and polished to varying degrees. They are discussed in categories relating to decoration, and within these in descending order of length.

### **1. Hinge Components with Two Holes and Two or More Bands of Parallel Incised Lines (Fig. 46)**

---

66-580

L: 10.789  
DX: 3.536  
MD hole 1: .777  
MD hole 2: .748

Incomplete; chipped at one end and slightly corroded. Two bands of five parallel incised lines, one at each end about .780 from the end, bearing traces of black paste or paint. Two holes perforate one side of the cylinder, and are roughly parallel with each other. On one section the lines are chipped and worn. On the side having no holes, the bands are worn and largely devoid of paste.

55-471

MPL: 8.783  
MDX: 3.211  
MD hole 1: .564 (obliquely drilled)  
MD hole 2: .366

Incomplete; chipped on one end and broken on one side. A band of four parallel incised lines at each end, one set .793 from the end, the other .534 from the other end, both sets showing traces of black paint or paste.

On the rounded side, there are two parallel holes 1.819 from the end; the other 1.554 from the other end. Adjacent to one hole is a nutrient foramen.



56-1014 L: 7.808  
MDX: 2.406  
MD hole 1: .544 (1.641 from one end)  
MD hole 2: .527 (1.711 from other end)

Complete. Two bands of five parallel faintly incised lines each end. One band of incised lines is interrupted by natural flattening of bone. Two drilled holes on side with a natural notch. Clean, polished, and smooth outside and within.

56-2722 MPL: 4.596  
MDX: 2.069  
MD hole 1: .419  
MD hole 2: .400

Incomplete. Two bands of three parallel incised lines. Cracked, mended and small pieces missing. Two obliquely drilled holes intersect both bands.

One group of incisions is .748 from one end; the other group is .994 from other end. Smoothly polished interior and exterior.

No Inventory  
#

L: 4.588  
DX: 2.510  
D hole 1: .420  
D hole 2: .340

Complete. Two bands of three parallel faintly incised lines interrupted by natural flattening of bone. Two holes on flattened side. Multiple natural foramina in one section.

## **2. Hinge Components With Two Holes and One Band of Parallel Incised Lines**

---

55-1070 ML: 9.176 (Fig. 47)  
MDX: 3.117  
MD hole 1: .956  
MD hole 2: .993

Incomplete; chipped on one end. Cylinder is lopsided: the sawn ends are not parallel to each other. One band of three parallel incised lines, .850 from one end. Below this are two irregular parallel holes through one side of the cylinder which appear to have been fashioned with a knife.

58-1543 L: 9.251 (Fig. 47)  
 DX: 2.949  
 D hole 1: .676  
 D hole 2: .677

Incomplete; chipped and cracked where holes are drilled and cracked longitudinally on the other side. Band of three parallel incised lines.

66-867 L: 9.125 (Fig. 47)  
 MDX: 2.645  
 MD hole 1: .491 (near incision)  
 MD hole 2: .557

Complete. Band of three parallel incised lines, stained brown, 1.059 from one end. In the naturally flattened part of the cylinder, there are no bands, but two roughly parallel holes, 1.172 from the end and 4.603 from the same end.

55-244 L: 8.910  
 MDX: 2.024  
 MD hole 1: .442  
 MD hole 2: .390

Complete, but corroded and cracked longitudinally. Band of three parallel incised lines, .658 from one end. These lines are interrupted by the hole .442 in diameter and .999 from one end. Below that hole is a hole .390 D and 3.909 from the same end. Discolored to tan.

No Inventory  
 #

L: 8.879 (Fig. 47)  
 DX: 2.036  
 MD hole 1: .400  
 MD hole 2: .384

Incomplete; minimal chipping where cracked longitudinally. Band of three parallel incised lines.

56-2624 L: 8.868 (Fig. 47)  
 MDX: 2.398  
 MD hole 1: .718 (near incision)  
 MD hole 2: .604

Complete. Band of four parallel incised lines, 1.205 from one end. On the naturally flattened part of the cylinder, there are no incisions but two roughly parallel holes, one 1.583 from one end, 5.848 from the same end. Smoothly polished interior and exterior.

- 55-1279 L: 7.149 (Fig. 48)  
DX: 3.038  
MD hole 1: .720  
MD hole 2: .698  
  
Incomplete; chipped along one edge. Band of four parallel incised lines.
- 56-2256 L: 6.863 (Fig. 48)  
D: 2.259  
MD hole 1: .408  
MD hole 2: .526  
  
Incomplete; chipped along one edge. Band of three parallel incised lines.
- 60-1737 L: 6.540 (Fig. 48)  
DX: 2.543  
MD hole 1: .581  
MD hole 2: .571  
  
Complete. Cracked. Band of four parallel incised lines.
- 56-2035 L: 6.349 (Fig. 48)  
MDX: 2.450  
MD hole 1: .442  
MD hole 2: .398  
  
Complete. Band of four parallel incised lines .712 from one end, not present on flat side. Two holes obliquely drilled on flattened side. Cleaned of cancellous material.
- 61-1190a L: 5.517 (Fig. 48)  
MDX: 2.795  
MD hole 1: .587  
MD hole 2: .585  
  
Complete. Band of three parallel incised lines 1.024 from one end, not present on flat side. Holes obliquely drilled on flattened side. Interior polished.
- No Inventory L: 5.379 (Fig. 49)  
# MDX: 2.111  
MD hole 1: .461  
MD hole 2: .419

Complete. Band of three parallel incised lines with blackish stain .778 from one end. Holes obliquely drilled on flattened side. Smoothly polished interior and exterior.

55-1997 L: 4.407 (Fig. 49)  
MDX: 2.513  
MD hole 1: .459  
MD hole 2: .439

Incomplete; chipped. Band of three parallel incised lines, with blackish stain, beginning 1.050 from one end, intersected by Hole 1. Holes obliquely drilled on flattened side. Smoothly polished interior and exterior.

63-237 L: 3.918 (Fig. 49)  
MDX: 2.035  
MD hole 1: .496  
MD hole 2: .530

Complete. Band of three parallel incised lines, with reddish stain, beginning .609 from one end, intersected by Hole 1 and disappearing on flat side. Holes drilled obliquely on flattened side.

No Inventory L: 3.010 (Fig. 49)  
# MDX: 2.503  
MD hole 1: .600  
MD hole 2: Incomplete

Incomplete; cracked through entire length. Band of three parallel incised lines .322 from one end and intersected by Hole 1. May not have been completed; drill appears to have slipped in hole. Rough cancellous material evident.

### **3. Hinge Components With One Hole and One Band of Parallel Incised Lines (Fig. 50)**

---

57-1433 L: 3.424  
MDX: 2.152  
MD hole: .560

Incomplete; chipped along edges. Band of four parallel incised lines starting 1.106 from one end and intersected by drilled hole on rounded side. Smoothly polished interior and exterior.

61-526 L: 3.027  
MDX: 2.458  
MDHole: .483

Incomplete; chipped along edges. Band of three parallel incised lines, starting .468 from one end, showing traces of paint or paste and intersected by drilled hole. Lopsided.

55-526 L: 2.642  
MDX: 2.616  
MDHole: .437

Incomplete; cracked and approximately one fifth of the diameter missing. Band of three parallel incised lines, starting .645 from one end, showing traces of coloration. Drilled hole on rounded side.

#### **4. Decorated Fragments**

65-27 Fragment (Fig. 52)  
ML: 10.526  
MW: 2.000

Incomplete; on one end, this fragment has a band of five parallel incised lines consisting of two evenly spaced lines, followed by three more narrowly spaced lines on one end. On the other end are four parallel incised lines, evenly spaced. No exterior hole. The interior of this piece contains a drill hole which does not perforate. It is possible this is not a hinge component, but rather, a decorative cylinder; however, the decoration is consistent with hinge decoration. The breakage makes it appear that the fragment is bulbous between the two bands of parallel incised lines; it is not, however, bulbous.

55-219 ML: 8.632 (Fig. 51)  
MW: 2.838

Incomplete; band of three parallel deeply incised lines beginning 1.669 from one end. There is one exterior hole, still plugged with a piece of iron which has discolored the area around it. Two partial drilled holes in the interior.

63-216 Fragment  
ML: 7.932  
MW<sup>270</sup>: 3.072

---

<sup>270</sup>Maximum Present Width, used when diameter could not be measured.

Incomplete; band of five parallel incised lines, with traces of reddish coloration.

58-278 ML: 7.103 (Fig. 51)  
MW: 3.389

Incomplete; band of five parallel shallowly incised lines beginning .896 from smooth end. A hole of .360 below lines.

97-8 ML: 4.711 (Fig. 51)  
MW: 2.376

Two bands of parallel incised lines, one with one line, the other with three lines. Both the single line and the three lines show evidence of dark paint or paste. Partial hole intersects the one incised lines. Another band of three parallel lines is intersected by the second partial hole. A nutrient foramer is below the single line, in the area of natural flattening.

## 5. Hinge Components/One Hole/Undecorated

The greatest number of hinge components belong in this category. All are plain with no bands of parallel incised lines. The single hole is usually drilled unless otherwise noted and sits approximately in the center of one side of the length. These components vary in width and length and like decorated cylinders, the internal dimensions vary markedly, following the natural cavity. Unless otherwise noted, all are complete.

### a. Measured, One Hole, Undecorated

56-2020 L: 5.189 (Fig. 53)  
MDX: 2.795  
MD hole: .732

Complete; cracked longitudinally. Hole drilled.

60-694: L: 4.629 (Fig. 53)  
MDX: 2.703  
MD hole: .838

Complete; cracked longitudinally. Hole carved and irregular

56-2198 ML: 3.898 (Fig. 53)  
MDX: 3.295  
Hole : .981

Complete. Hole drilled obliquely, partially perforating inside wall of other side of cylinder. Cancellous material present.

57-169 L: 3.686 (Fig. 53)  
MDX: 2.837  
MD hole: .720

Complete. Hole drilled obliquely

63-192 L: 3.668 (Fig. 53)  
MDX: 2.719  
MD hole: .890

Complete. Hole drilled obliquely

No Inventory L: 3.460 (Fig. 53)  
# MDX: 3.292  
MD hole: .692

Incomplete; chipped by hole. Hole drilled obliquely; rough interior; cancellous material present

No Inventory  
# L: 3.444  
MDX: 3.461  
MD hole: .695

57-242 L: 3.371 (Fig. 53)  
MDX: 2.928  
MD hole: .926

Complete. Hole drilled and partially perforating inside wall of other side. Cancellous material present.

57-1536 L: 3.252  
DX: 2.820  
D hole: .722

Complete. Hole drilled slightly obliquely through area of natural exterior depression. Three pieces under this inventory number.

66-523 L: 3.147 (Fig. 53)  
MDX: 3.068  
MD hole: .786

Incomplete; minimal chipping. Discolored dark brown. Hole through flat wall.

- 60-1307      L: 3.378      (Fig. 54)  
                  MDX: 2.938  
                  MD hole: 1.037  
                  Complete. Hole drilled obliquely through flat wall, partially perforating inside wall of other side in two different places.
- 66-285      L: 3.177      (Fig. 54)  
                  MDX: 2.868  
                  MD hole: .913  
                  Complete; cracked longitudinally.
- 63-8      L: 2.969  
                  MDX: 2.516
- 55-950      L: 2.893      (Fig. 54)  
                  MDX: 2.672  
                  MD hole: .689  
                  Complete; cracked longitudinally. Cancellous material present.
- 55-301      L: 2.834      (Fig. 54)  
                  MDX: 2.987  
                  MD hole: .866  
                  Complete. Hole drilled through flat wall. Corroded and chipped.
- 67-512      L: 2.968      (Fig. 54)  
                  MDX: 2.587  
                  MD hole: .565  
                  Complete. Hole obliquely drilled
- 67-511      L: 2.867      (Fig. 54)  
                  MDX: 3.127  
                  MD hole: .764  
                  Complete. Hole drilled through flat wall
- 61-1419b    L: 2.746      (Fig. 54)  
                  MDX: 2.479  
                  MD hole: .630 (Oblique)  
                  Complete. Hole drilled and partially perforating inside wall of other side of cylinder.



- 60-1378 L: 2.822 (Fig. 54)  
MDX: 2.630  
MD hole: .731 (Oblique)  
  
Complete. Hole through flat wall drilled obliquely and partially perforating inside of other wall.
- 59-1796 L: 1.968 1.982  
MDX: 2.41  
MD hole: 1.676  
  
Complete. Smoothly polished exterior; interior roughly finished with one area of cancellous material remaining. One obliquely drilled hole .470 in diameter .705 from one end and .819 from the other.
- 55-588 L: 1.729  
DX: 2.134  
D hole: .467  
  
Incomplete. Hole drilled obliquely; on appositive side of hole the drill appears to partially penetrate the wall, causing chipping.
- 62-833 L: 1.542  
MDX: 1.993  
MD hole: .460  
  
Complete. Hole drilled slightly obliquely
- 82-206 L: .913  
MDX: 2.206  
MD hole: .443  
  
Complete. Hole drilled obliquely
- 57-2576\*\* ML: Could not be measured  
MDX: 2.246  
MDT: 1.215  
MD Hole: ~.465 (oblique)  
  
Hole drilled obliquely on naturally flat side

**b. Unmeasured, One Hole, Undecorated Cylinders**

The following hinge components have not been measured. All have a single hole. Inventory numbers have been recorded in order of descending length and unless otherwise noted, have been photographed. The division between this group and the prior group is arbitrary, but all in this category have a maximum length less than those previously measured and described.

Fig. 55

57-1429, 61-1418, 63-199, 61-1471  
59-2107, 63-61, 60-1532, No Inventory Number,  
59-1798, 92-43, 97-270, 60-1495

Lengths range from 2.730 cm (57-1429) to 1.975 cm (60-1495)

Fig. 56

04-440, 59-1796, 63-43, 55-1557  
98-??  
66-685, 55-1981, 59-1797, 56-290  
58-792, 59-2108, 67-513, 63-63

Lengths range from 1.921 cm (04-440) to 1.388 cm (63-63)

Fig. 57

57-1755, 97-56, 57-1753, 67-302, 98-36  
97-234, 67-540, 60-303, 57-1815  
61-1190, 60-1418, 62-652, 67-597

Lengths range from 1.585 cm (57-1755) to .699 (67-597)

Another such one hole, undecorated cylinder, 57-2576\*, is shown in Fig. 100.

**6. Sawn, Unfinished Rings/Hinges/Spacers With Central Cavities; No Hole**

These are all sawn straight across the bone. This could be either unfinished hinge components or spacers to be used with other hinge components. Their thickness, ranging from 1.348 cm (62-507) to .819 cm (55-386) renders them too large to be “ring” templates. As can be seen in the photograph, some still contain cancellous material; others have been cleaned. The diameter of these objects ranges from 4.144cm (62-507b) (Fig. 58, first object) to 2.536 cm (60-480) (bottom row, third object).

62-507b, 55-458, 55-386  
 57-1536, 57-297, 83-43  
 56-290, 63-62, 60-480

61-1419a, 59-1720, 63-8 (not pictured)

59-525<sup>\*\*</sup>

ML: Could not be measured (Fig. 100)  
 MDX: 2.152  
 MD Hole: 1.076 (?)

Incomplete; chipped. There also is a hole inside which could not be measured.

Other Spacers Not Pictured But Measured:

60-1361

Small piece of worked bone

ML: 1.437  
 MW: 2.634

Sawn both ends; interior and exterior smoothed

63-8

L: 2.980  
 MDX: 2.503

**7. Hinge Fragments With Hole**

These are all incomplete fragments. 55-1186; 55-1716; no inventory number; 83-92; 66-574.

**8. Fragments of Sawn Bone**

68-75

Partial hollow cylinder

ML: 11.493  
 MDX: 2.521

Sawn both ends; interior not entirely cleaned; may have split while being worked

83-228

Hollow cylinder

ML: 3.431  
 Hole: .771  
 MW: 2.574

57-2283 MPL: 4.535  
MD: 1.899

One end is sawn; the other is broken. The diameter of the cylinder gradually proceeds from 1.682 cm at the sawn end to the maximum diameter of 1.417 at the broken length.

### **9. Nineteen Worked Incomplete Fragments**

Largest is 4.101 in partial diameter, smallest is 3.020. Cancellous material present in some. Ten are breakages of hinge fragments (55-1186; 55-1716; 66-574; 83-228; 83-43; 56-290; and four with no inventory numbers, show signs of recent breakage in the form of light color at the breakage site). Five other pieces (60-1808; no inventory #; 55-245; 56-290<sup>271</sup>; no inventory #) appear to be broken sawn rings.

### **10. Unusual Possible Hinge Components**

60-768 Hollow cylinder (Fig. 59)

ML: 3.656  
MDX: 2.969  
Rectangular hole: 1.505 x .683  
Oblique hole which runs through to opposite side of rectangle .392

Complete; smooth and polished, with carved rectangular hole and obliquely drilled hole piercing but not perforating the interior of the cylinder on the other side. Through this oblique hole, the pierce caused by the drill on the opposite side is readily visible. The configuration of this object is unlike any other found. Viewing the opposite wall of the cylinder through the rectangle, two partial holes drilled in the interior and five straight carved cuttings above these partial holes are visible, and coincide roughly with the rectangle; indicating the rectangle was cut after interior had been cleaned and smoothed.

97-233 Hinge component (Fig. 60)

ML: 1.224  
MDX: 2.467  
Hole 1: .429  
Hole 2: .360

Complete. Two adjacent holes, one larger than the other. Smoothed and polished.

---

<sup>271</sup> The two labeled 56-290 do not fit together. There are five pieces under this inventory number.

**B. Socket (Fig. 61)**

66-167 MD: 3.529  
ML: 2.228

Complete. Flares slightly from end with square hole to other end. This is a piece of ivory into which a square hole has been carved with a knife or similar object to a depth of 1.125 cm. In the floor of this approximately square hole (1.625 x 1.36) is an irregular hole of .546, partially perforating the object. The perforation at the other end is round with two smaller round holes drilled immediately adjacent. The bottom has circular markings. It could be a socket for a miniature table top.

**C. Handles****1. Handles With Collars for Insertion**

62-247 Handle with oval shaped finial (Fig. 64)

ML: 11.058  
ML finial: .469  
End: 1.285 [?]  
D shaft: .268 to .615

Complete. This piece resembles a point, but ends with a clear indentation from the remainder of the shaft, presumably so the shaft can be inserted into something, like a metal point. It could have been either a point or a pin, depending on what it was inserted into.

59-1050 ML: 10.767 (Fig. 62)  
MD: 1.950

Incomplete; broken one end. Hollowed and finished inside and out. 1.996 of the length is finely made and finished, consisting of a recessed round hollow tube with parallel sides, probably where another piece was fitted over it. The remainder of the tube has larger dimensions. This larger section flares slightly to the bulbous maximum diameter and then narrows and again flares to the broken end, where there is an interior "step" for something to be inserted into this piece.

05-222<sup>+</sup> Handle (Fig. 66)

MPL: 5.966  
MPD: 1.677  
Lower Portion: 1.286

Incomplete. Approximately one third of a cylinder remaining; broken both ends, slightly raised lip one end. Consists of a smoothed polished slightly tapering portion with two incised lines approximately .343 cm and above where it joins a slightly smaller portion, roughly cross hatched, probably for insertion into something else. Where the two sections “join,” there are two parallel incised lines under the lip.

58-489\* : MPL: 7.066 (Fig. 68)  
MPD: 1.782  
MPD (insertion area): 1.337

Incomplete; ends broken, chipped. A corroded hollow cylinder or handle which is stepped to fit into another object. There is also an interior step in the longer section for something to be inserted.

03-157 ML: 4.238 (Fig. 65)  
MD: 3.089  
MD Insertion: 2.537 (approx.)

Incomplete; approximately one third of diameter remains. Broken both ends. Part of a flaring larger portion with a smaller finished area for insertion.

62-684 Lathe turned handle (Fig. 63)  
  
L: 5.567  
MD: 1.168

Complete. Tapering object which could also be a finial. Larger end is bulbous, flattened at the terminus, and bordered by a thin ring. The next part is slightly concave, followed by a bulbous band, shelf banded by slightly concave band, another thin ring and a slightly convex terminus. There is a shallow hole in this narrower end.

57-2283 Fragment of a handle (Fig. 67)  
  
ML: 4.523  
MD: 1.858

Incomplete. Included in handles based upon resemblance to 59-1050. Finely finished hollow tube with bulbous portion.

NOTE: 57-1835 and 71-377. These two objects are described under Finials, but they may be handles.

## 2. Three Bone Handles Perforated With Metal (Fig. 69)

67-25      MPL: 2.800      Iron Pin  
              MW: 1.169      MPL: .703  
              MT: .871

Incomplete. A bone cylinder, flaring slightly to maximum width and thickness at one end, which has a hole. This thicker end is pierced with a corroded metal object of approximately .703 cm. Both ends cleanly cut, round at smaller end, oval at larger end. One end is smooth; the other shows cancellous material.

No Inventory      MPL: 2.163  
 #                   MW: .94  
                      MT: .647

Incomplete. Description is similar to 67-25 above. In this object, a corroded metal object protrudes from both ends. Cleanly cut at larger end; smaller end corroded. Discolored from metal or burning.

No Inventory      MPL: 2.378  
 #                   MPW: .831  
                      MPT: .719

Incomplete. Like 67-25 and Unknown 1, but more fragmentary and more corroded. Shows that hole may have pierced entirety of cylinder. Stub of metal protrudes from smaller end. Discolored from metal or burning.

## D. Decorative Worked Cylinders

### 1. Decorated Lathe-Worked Solid Cylinders/Furniture Mounts (Fig. 70)

These cylinders are small, delicate, finely worked solid cylinders. All are lathe-produced. They are smaller overall than the decorated hollow cylinders discussed *infra*. Their purpose is unclear, but given the ways they are worked, they must have served a decorative function, probably as furniture mounts.

56-2731      L: 10.259  
              MD: .739

Incomplete. Solid ornamental cylinder, consisting of two series of approximately equal lathe-made grooved bands, one of approximately 23 and the other of approximately 27 grooves, separated by two larger grooved sections approximately 1.111 in length.

56-1898 L: 8.919  
MD: 1.110

Incomplete. A round solid cylinder of varying diameter. The smaller end has a peg for insertion. Adjacent to the peg is a plain band and then, an indentation, followed by a long shaft (6.103 cm) consisting of vertical flutes. At the other end is a series of four tori of varying width, followed by an indented convex form, topped by two tori. Capping this was another component (according to Princeton records), now missing.

61-1421 ML: 7.007  
MD: 6.26

Incomplete. Solid cylinder carved in a variant of this bead and reel pattern; with the beginning of narrow shaft at smaller end, probably for insertion.

62-716 L: 6.769  
MD: .755

Complete. At each end are plain bands of material, measuring .998 and .973. A small peg issues from the center of each end. Between the two end bands are 16 uniformly cut incisions forming 15 tori of approximately the same size. There is a hole drilled between the first and second tori at each end.

56-2578 PL: 4.385 (Fig. 39)  
MD: 1.248

Incomplete; broken at one end. Lathe worked; cylinder pierced (in each end) with a hole .340 in diameter which does not go through the entire cylinder. At either end, the outer diameter of the cylinder narrows. One end consists of one flat groove, and three convex grooves, narrowing down to .744 and appears to be structured for a fitting; the other end consists of one band following by a decrease to .719 in diameter. Between these ends are approximately 21 even, small horizontal grooved bands.

57-243 L: 4.338  
D: .782

Incomplete; broken at one end. Lathe worked in facsimile of bead and reel pattern, with alternating series of two small tori separated by an egg-shaped torus.



68-381 L: 3.377  
D: .722

Incomplete. Small solid cylinder, broken at both ends; may be a handle, as there is a slightly tapering area at one end, suitable for insertion. The rest of the object consists of a broad undecorated area, followed by a series of lathe cut incisions, beginning with one band with black paint remaining, followed by eight incisions of varying depth and length with tori between them. There is evidence of paste in one additional band.

## 2. Decorated Lathe-Worked Hollow Cylinders/Furniture Mounts

These objects are the remains of lathe-worked hollow cylinders or partial cylinders. They are probably furniture mounts. No holes are present, so these cannot be classified as hinge components, although it is possible that there were holes presents on the missing portions. However, the decorative elements are diverse and do not coincide with the decorations on known hinges components. The lengths of some are consistent with known pyxides. None show a lip for retention of a lid; however, several of the decorated disks, *infra*, could fit into these cylinders.

56-2884 L: 14.315 (Fig. 71)  
MW: 2.446

Incomplete. Approximately one half of a hollow cylinder. 17 rounded flutes on the longitudinal axis.

66-441 L: 11.255 (Fig. 72)  
MDX: 3.589  
MD hole 1: .309  
MD hole 2: .368  
MD hole 3: .412 (the last is an oblique hole)

Incomplete; broken longitudinally with approximately one half cylinder remaining. This fragment is highly decorated; in some respects, the decoration is similar to that found on decorated hinge components. One end has two bands consisting of four parallel incised lines; the other end has two bands of three parallel incised lines: the first band of lines at each end begins approximately equidistant (.65 cm) from the sawn end.

Between each of the two bands of incised lines are two repetitions of the familiar circle/dot motif consisting of two drilled concentric circles surrounding a dot, created by a drill bit. Two small drilled holes interrupt the outermost bands of incised lines. There is a nutrient foramen interrupting one band of incised lines. On one broken side, there is evidence of a third drilled hole parallel with one of the holes and the nutrient foramen.

The interior is smoothed, and has “steps” approximately equidistant from each end, indicating something may have been fitted into either end.

62-1559 L: 8.740 (Fig. 71)  
W: 2.460

Incomplete. Irregular fragment, broken at both ends. One end has a broad horizontal band followed by two incised lines. Below that is a series of finely incised vertical flutes.

92-980 L: 7.710 (Fig. 24) (Fig. 71)  
MW: 2.021

Incomplete. Approximately one third of cylinder. A uniform pattern consisting of a small incision between two small tori, followed by a concave torus, repeated. Altogether there are nine concave tori bracketed by ten small incisions with two surrounding tori.

58-303 L: 7.100 (Fig. 71)  
MW: 2.420

Incomplete. Approximately one half of a cylinder. There is an shallowly indented groove at both ends. Between these grooves are eight narrow grooves, followed by a deeper groove, a broad band, three narrow grooves, and two broad bands. The object appears to be unfinished, given the shallow working.

56-1579 L: 6.339 (Fig. 71)  
W: 1.455

Incomplete. Approximately one fifth a cylinder broken at one end and at both sides. Part of a hollow cylinder or half cylinder decorated with five rounded flutes, on the longitudinal axis. Cancellous material evident on what was the interior.

58-1431 L: 5.558 (Fig. 73)  
MD: 2.227

Incomplete; large chip one side, but otherwise a full cylinder with smoothed interior hole. Starting at one end, there are four incisions and four flattened tori gradually increasing in diameter, followed by two narrow incisions; at this point the piece broadens to a wide band with a flattened torus, followed three broad pointed tori, a flattened torus, two narrow bands, a flattened band, a wider band, three small incised lines, another broader band, another band and a pointed torus with an indentation that may have fit into another object. One end appears

finished, possibly for attachment. Three large longitudinal cracks. Possibly a pyxis or a miniature furniture leg.

57-2652\* L: 5.531 (Figs. 68, 99)  
D: 2.150  
MDHole: 1.363

Complete. The cylinder is decorated with a band of two parallel incised lines abutting one end, separated by two parallel rows of dots. At the other end is a band of two parallel incised lines which do not abut the end, separated by a row of dots. There are two small non-parallel holes, much smaller than the usual holes in hinges: one small hole is on one side and the other is parallel to this hole on the opposite side. There is a crack line on either side of this hole. The holes appear to be for attachment.

56-2943 L: 5.2302 (Fig. 71)  
MW: 2.531

Incomplete. Approximately one quarter of a cylinder. An area of eight evenly separated incisions and eight rounded tori, is followed by a torus of smaller diameter and two wide convex bands, separated by a torus. Could be part of a pyxis or a miniature furniture leg.

#### **E. Other Furniture Components**

56-1970 Miniature furniture leg? (Fig. 74)

L: 3.842  
W: 2.758

Incomplete. Elaborately decorated piece with two identical tori at one end consisting of a broad convex band bulging at one end topped by a narrow indented band and above that a slightly concave groove.

Above the second repetition of this torus are two bands and above that, leaves or "curtains" topped by another concave groove and two bands. It is not possible to determine which is the top and which is the bottom of this piece.

61-5 Furniture or box component

L: 6.085 (Fig. 75)

MW: 1.243

T: .672

Incomplete. Chipped at one end. The object is a long smoothly worked rectangle, beveled uniformly at each end. Along the length are two deep parallel grooves adjacent to the two longer edges: one long side is broken. It may be a component of a sliding box. Possibly ivory.

## **F. Furniture Decorations: Appliqués, Veneers and Finials**

### **1. Decorative Ornaments, Possibly for Chest or Other Furniture** (Fig. 76)

57-798 ML: 4.973  
MW: 3.572  
T: .379

Incomplete. Plaque is finely carved and slightly convex on finished side, incised and carved at bottom, forming a calyx lily. From the calyx sprouts an incised and concavely carved lotus blossom. Within the lotus blossom is a palmette. Flat and lightly scored on the underside.

58-2363 ML: 2.418  
MW: 2.058  
T: .188

Incomplete. A spiral "whirligig" in shape consisting of a flat band of irregular size, coiling around itself until it reaches the center, where it culminates in an oval shape with a hole.

59-1896 L: 6.443  
MW: .952  
T: .223

Complete. Consists of strip, flat on one end and pointed on the other. Between, the sides proceed in four roughly symmetrical outward and inward curves.

### **2. Pieces of Veneer**

57-2667 ML: 14.950 (Fig. 77)  
W: 2.179  
T: .296

Incomplete. Strip of uniform width, irregularly broken at one end and broken, but with shaping, on the other end, finished on both sides

62-540 ML: 9.947 (Fig. 77)  
MW: 3.110  
T: .434

Incomplete. The object consists of a rectangle, 8.283 x 3.110, surmounted on one end with a circle of the same thickness as the rest of the piece. One side is smooth; the other side is smoothed, but with cancellous material visible around the area of the circle (of MD: 1.840?); on this side, the bone is separated into two layers.

98-68a ML: 7.949 (Fig. 77)  
MW: 2.321  
T: .397

Incomplete. A strip, slightly convex in section, broken irregularly at both ends. Both long sides finished.

58-117 Trapezoidal plaque of worked bone. (Fig. 78)  
  
Dimension: 6.308 x 5.845 x 5.480 x 5.931  
T: .386

Incomplete. Possibly unfinished; plain, but smoothed. A shallow small partial rectangular incision and an incised partial curve along one side. Modern repair along one dimension. Possibly ivory.

57-2521 Trapezoidal plaque of worked bone (Fig. 79)  
  
Dimension: 5.431 x 4.409 x 4.496 x 3.875  
T: .947

Incomplete. Unfinished. One side has jagged broken protrusions. The other side has natural markings consistent with ivory.

### **3. Three Dimensional Decorative Pieces, Possibly Finials**

57-1835 ML: 8.213 (Fig. 82)  
MD: 1.576

Incomplete. Broken at both ends and badly corroded. Solid cylinder of varying diameters, punctuated with multiple decorative bands of parallel incised lines and dots, sometimes joined by shallow lines. The incised decorations show traces of paint or paste.

71-377 ML: 4.713 (Fig. 82)  
MD: 1.083

Incomplete. Broken both ends and corroded. Solid cylinder of varying diameters consists of decorative bands with two or three incised parallel lines, alternating with a band of dots connected with an incised line. The maximum diameter decreases to a band consisting of two black painted lines, between which is a line of dots. There are traces of paint or paste throughout. The object is discolored. The decorative scheme resembles 57-1835.

56-2472 L: 4.062 (Fig. 84)  
MW: 2.992

Complete, hollow ovoid shaped ornament. The narrower end consists of a band separated from the body by a grooved incision. Above this is a section, approximately 3.019 wide, consisting of a tongue pattern repeated fifteen times, each containing an incised straight line with a rounded head containing an incised dot. Adjacent to this is a plain inward sloping band, possibly for insertion. This may be a large bead.

97-180 MPL: 2.377 (Fig. 81)  
D: 1.062

Incomplete. Broken protrusion on the bottom. Solid, smoothly polished object stands on a round base, 1.062 in MD and consisting of three bands, slightly convex in profile. Above the base is a vase-like object, swelling at the bottom and rising as it narrows to a lid-like structure. It appears to be a finial or knob for a cylindrical object.

70-574 Decorative knob (Fig. 83)  
  
D: 2.541  
H: 2.486

Incomplete; chipped one end. Hollow cylinder with maximum diameter at one end, narrowing at the broken end. Decorated throughout with a series of parallel incised lines, alternating with bands of small dots. Traces of paint or paste. Decorations similar to 57-1835 and 71-377 above.

92-875 MPL: 2.475 (Fig. 80)  
MPW: 1.121

Incomplete. Polished, carved hollow cylinder. Base is round and seen from the side, consists of a band incised with a single line. Above the base are four carved petals, flaring at the base and the top, where the petals narrow to a point. There is an incised line between each petal; from bottom to top, each petal flares outward and is incised in the middle with two roughly parallel lines. Two or three diagonal incisions issue from these lines, to represent veins of the leaves. Slight green discoloration at base.

67-938 ML: 2.981 (Fig. 85)  
MDX: 2.350

Incomplete. Approximately one half of a hollow cylinder. Corroded and slightly rounded at both ends. Pierced by a nutrient foramen. There is a step for insertion on the interior.

## V. MISCELLANEOUS

### A. Gaming Pieces (Fig. 89)

57-10 L: 5.129  
W: .983  
MT: .549

Complete. Long polished rectangle, surmounted by a circle at one end. At each end of the rectangle are two parallel incisions. At the end with the circle there is a deeply cut incision. Circular part contains a partially drilled central dot surrounded by two concentric drilled circles, the familiar circle and dot motif. At the base of the circle a hole is drilled sideways through the thickness of the piece. One long side of the rectangle is inscribed "II \_A\_". The piece is finished identically on both sides with the exception of the inscription.

58-67 L: 4.60 (Fig. 89)  
W: .900  
MT: .682

Complete. A long rectangle surmounted by a circle at one end. At each end of the rectangle, there is a single incision. The circular part contains a partially drilled center surrounded by three concentric circles (circle and dot motif). At the base of the circle, a hole is drilled through the thickness of the piece. The rectangle is inscribed "XV" on one side; the other side is

inscribed “ARG [or C] VT [ or I] E” probably “ARGVTE.” (*See Notizie degli Scavi* 1889, 396). Similar to 57-10 above.

62-420 ML: 2.990 (Fig. 86)  
MW: 1.793  
T: 1.83

Incomplete; one corner broken off. Probably originally rectangular. Decorated with two parallel circle and dot motifs consisting of two concentric circles around a central deeper dot incision. Flat with diagonal scoring marks on bottom. Possibly a counter or gaming piece, but could be an ornamental plaque.

55-14 ML: 2.538 (Fig. 88)  
MW: 1.968  
T: .298

Incomplete; broken one side. A flat plaque, rounded at one end, which contains three drilled circles and dot motif in one/two placement; next to these are three incised lines; below the lines are two complete and two partial circle and dot motifs. Adjacent to the incomplete end is a squared-off section. On the back, this section is thickened and cut into a square. This could be a gaming piece.

56-2251 Die (Fig. 87)  
M each side: 1.425 cm

Cubic die with number 2 side missing. No. 1 is opposite No. 6; No. 3 is opposite No. 4; No. 5 is opposite missing No. 2. Numbers are indicated by the circle and dot motif.

## **B. Carved Bull's Head (Fig. 90)**

56-2931 ML: 5.079  
MW (across diameter): 4.131  
MT: 1.796

Complete. Polished, carved head of a bull, from approximately one half of joint bone, split lengthwise. Cancellous material evident on back, which has been flattened. An incised line runs down the middle of the piece. Incised “hair” is at top of piece, followed by forehead, and eyes. Below eyes, head narrows into bull’s snout with several nostril openings at the base. Discolored to variations of dark brown. Could have been an ornament of some sort.



**C. Miniature of a Woman Carrying Round Objects (Fig. 91)**

97-236<sup>272</sup>

L: 5.675

MW: 1.989 across shoulder area

Incomplete; chipped in several places. A woman in a long gown holds round objects (possibly a bunch of grapes) in her right hand. Her left lower arm and hand are missing, as is her face. She stands in a contrapposto pose, with her left knee bent and visible though her drapery, which pools over her feet. She stands on a pedestal with a .293 frontal hole in it. Viewed from the side, the back is flat and unfinished except from shoulder to waist. In the pedestal, there is also a side slit, which may have been to affix the object to a handle. Ivory.

**D. Two Carved Medallions**

56-2683

Portion of a carved medallion (Fig. 93)

Dimension: 4.158 x 2.753, but varying

Incomplete; chipped and worn throughout. Less than half survives. A circular medallion of a woman's head, showing a portion of nose, eyes, forehead and an abundance of snake like hair. Possibly a Medusa head. Back smoothed; could have been a decorative mount for furniture.

60-1324

Medallion (Fig. 92)

D: 2.851

Incomplete; broken and mended along the right side; chipped around edges. Circular medallion of a head, whether male or female cannot be determined. Two or three indistinct lines, high in the forehead, may be a file; waving hair falls over it and behind it, framing the face to the mid cheek area. The cheeks are round; the nostrils and lips well-carved. Back smoothed; could have been a decorative mount for furniture. Discolored to dark gray.

**E. Miniature Spindle Wheel (Fig. 94)**

61-708<sup>273\*+</sup>

L: 12.560

LFinial: 2.396

DFinial: 2.212 ("umbrella" portion)

LShaft: 10.21

MDShaft: .566

---

<sup>272</sup> Object now exhibited in room with Treasure of Eupolemos.

<sup>273</sup> "\*" denotes objects found in Exhibit Case 25, Item 9 from Necropolis III, Tomb 42.

Complete. Delicate object resembling a miniature spindle whorl, found in a tomb. The shaft flares in the middle, tapering at both ends.

The broad part of the “umbrella shaped” finial is triangular in profile. What would be the apex is surmounted by a cylinder with two small raised lines which move inward. This is surmounted by two outward tori. A slender point tops the finial.

The underside of the “umbrella” portion of the finial consists of nine concentric circles, three of which are painted, and the fifth of which is a series of black dots connected by a black line.

The top of the “umbrella” has eleven concentric circles, three of which are painted. (Exhibit case 25, Item 9, from Necropolis III, Tomb 42.)

There is no spindle hook. The shaft end tapers to a point.

#### **F. Five Similar Pieces (Fig. 95)**

Each of these objects, all of which measure between 2.1 and 2.9 cms, is distinguished a narrow, concave midsection, with two identical lathe-worked ends. Each is carefully worked; all but one have a “dot” at each end, where the piece may have been held as it was formed. These may have been toggles or fasteners for boxes or bobbins.

56-80      L: 2.127  
             MD: .627

Complete. Each terminal ends in a slight flattened dome, with a flat underside. Adjacent to each dome the cylinder flares toward midsection. A central concave groove with an incised band at each end connects the two ends of the cylinder.

62-1323    L: 2.737  
             MD: .720 (?)

Complete. Description the same as 56-80.

92-264      L: 2.417  
             MD: .702

Complete. Description the same as 56-80 and 62-1323.

58-95        L: 2.868  
             MD: .695

Complete. Adjacent to each end, the cylinder flares to a vase-like configuration. Otherwise same as 63-1323.

71-585 ML: 2.112  
MD: .615

Incomplete. One end missing. Like 58-95, adjacent to each end, the cylinder flares to a vase-like configuration, ending in an incision.

### **G. Unknown Objects**

55-1980 Unknown Object: Part of a Buckle? (Fig. 96)

L: 3.5  
W: 2.5

Complete, presumably one half of an unknown object, possibly a fastener or small buckle; shaped like half of an elongated oval. One edge is curved; the other is straight with a rectangular indentation approximately .736 across and .65 deep. The object rises to a flattened dome, also oval, with the dimensions of the flattened area parallel to the outside dimensions. Within the flattened area are three small holes in an evenly spaced one/two pattern. On each side along the outer rim are two triangular cuttings, parallel to each other.

Each side of the object is beveled to the edge; two holes, parallel to each other lie in front of one edge.

58-683\*\* Paddle shaped plaque with rectangular protrusion (Fig. 100)

L: 3.325  
W: 1.196  
T: .507 (at protrusion end)

Complete. Oval plaque of varying thickness with a rectangular protrusion partially pierced by a hole in the side and a hole at the other end. Maximum thickness is at protrusion end.

61-87 Solid decorative cylinder of uncertain use (Fig. 97)

ML: 1.035  
MD: 1.458  
MT: 1.035

Complete. This small cylinder is concave in mid section with four irregular knife carved circles alternating with four sets of two incised lines. There is an irregular indentation on one circular side.

62-317 Length of bone

MPL: 7.973

MW: 1.241

MPT: .362

MDH: .254

A length of bone, broken diagonally at one end and flattened throughout. Other end is slightly rounded on one side, broken on the other side. A round hole pierces this end. Could be a tool.

58-670\* Length of bone (Fig. 68)

MPL: 11.198

MPW: 1.947

MDHole 1: .645

Incomplete; chipped at one end, broken at the other end. Hollow cylinder from a long bone which flares at one end consistent with the articular end of a bone. Contains one drilled hole and what appears to be a portion of another hole at the broken end which could not be measured. Smoothed.

#### H. Astragaloi (Fig. 98)

There are numerous worked and unworked astragaloi in the inventories. Only worked astragaloi are included in this catalogue. They are listed in descending size order, based on maximum length. The working on the astragaloi consists of a hole, or a flattening on one or more dimensions. The drilled holes are in all instances drilled between the upper and lower surfaces of the vertebra. All are complete.

62-492 ML: 4.808  
MW: 2.618  
MDep: 2.902  
MDHole: .789

70-534 ML: 4.502  
MW: 2.197  
MDep: 2.501  
MDHole: .635

04-414 ML: 4.426  
MW: 2.199  
MD: 2.714  
MDHole: .502

04-420 ML: 4.375  
MW: 2.327  
MDHole: .984

63-403 ML: 3.224 (not pictured)  
MW: 1.383  
MDep: 1.936

Flattened on top and bottom.

66-168 ML: 3.216  
MW: 1.490  
MDep: 1.607  
MDHole 1: .358  
MDHole 2: .356

Two holes which do not perforate object. Flattened on upper and lower surface.

63-739 ML: 3.144  
MW: 1.851  
MDHole: .833

A hole; flattened on upper and lower surface.

62-1430 ML: 2.906  
MW: 1.605  
MDep: 1.976  
MDHole: .307

63-1000 ML: 2.889  
MW: 1.517  
MDep: 1.535

This astragalos has been flattened on both the upper and lower surface. There is no hole.

#### **I. Other Minimally Worked Bone Objects**

98-164 ML: 4.862  
MW: 4.856

Complete piece of knucklebone and part of bone leading to knucklebone, sawn and smoothed, both ends

- 03-217 Piece of worked bone  
ML: 11.404  
MW: 3.015  
Ends sawn; cancellous interior not removed
- 03-177 Piece of worked bone  
ML: 6.966  
MW: 2.692  
Ends sawn; interior cleaned
- 63-1093 A pointed object  
ML: 2.247  
MD: .624  
Probably the end of a point.
- 60-302 Tip of a horn, worked  
MPL: 4.904  
MW: 2.456  
Sawn one end, other end broken; drilled on one end, but not perforating. Two small rectangular indentations in larger end; oval shaped at larger end.
- 05-209 Antler?  
ML: 23.5 cm  
MW: 2.314 cm  
Only minimal working – sawn at one end. Otherwise rough and unworked  
Crack near tip
- 03-357 Worked bone(?)  
MPL: 7.422  
MPL: 2.211  
There are faint scoring marks at one end, there appears to be a drill hole, but it may be natural.

89-285      Curved horn/tusk

MPL: 9.380

MP W/D: 1.507

Exterior of horn has been smoothed; there appear to be 3-4 scoring marks, which may be recent. Appears to be a boar tusk.

## Find Spot and Dating

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	55 - 14	1 <sup>275</sup>	5--0.60-0.90 m			<i>See footnote 243</i> <sup>276</sup>
	55 - 27	1	4		2	211 B.C. to late 1st century B.C.
	55 - 214					
X	55 - 219	1	11-B			
X	55 - 244	1	11-B			
X	55 - 245	1	11-B			
	55 - 300	1				
X	55 - 301	1	11-B, level 2			
X	55 - 385	1	2-C			211 B.C. to late 1st century B.C.
X	55 - 386	1	4-B		3	
X	55 - 438	1	4-A		5	
X	55 - 458	1				Pre 211 B.C.
X	55 - 471	1		14,w.corn		
X	55 - 526	1		14		
X	55 - 528	1		14		
X	55 - 588	1	3-C		5	
X	55 - 882	1	18			
X	55 - 950	1	3-D		4	
X	55 - 1070	1	11-B	16		211 B.C. - Roman Empire
X	55 - 1177	1	11-B			

<sup>274</sup> The phrase "Found?" indicates whether the object could be located. An "X" mark denotes that the object was located; a blank indicates it would not be located.

<sup>275</sup> The area, trench, zone and stratum are not given consistent nomenclature. I have used the terms used on inventory cards, when available, and in the inventory books, when not available.

<sup>276</sup> Dr. Stone indicates that any dating of objects found in 1955 in Area I can only be securely dated from the fourth century B.C. to the mid first century A.D. Any more specific date is problematic.



Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
XX <sup>277</sup>	55 - 1186	1	18-B	16	2	Roman Empire
X	55 - 1279	1		16,nw3	2	
X	55 - 1557	1	17-H		2	211 B.C. to late 1st century B.C.
XX	55 - 1716	1		16	2	
X	55 - 1980	1		16		
X	55 - 1981	1	25sw		3	
X	55 - 1997	1	25		3	
X	55 - 2075	1	24		2c	
X	55 - 2122	1	24		2c	
X	55 - 2247	1	23-A			
X	55 - 2307	1	26		3	
X	55 - 2308	1	26		3	
X	55 - 2390	1	3-D		4	
X	56 - 80	1 (?)	17-M		3	2 11 B.C. to late 1st century B.C.
	56 - 101	1 (?)	27		1	
	56 - 121	1 (?)	29		2	
X	56 - 289	1 (?)	27-A		2	
XXXXX	56 - 290	1 (?)	27-A	5 pieces	2	
	56 - 811	1 (?)	28		2	
X	56 - 1014	1	33-C		3	Pre 211 B.C.
X	56 - 1020	1	28		2	
X	56 - 1021	1	34-C		1	
	56 - 1379	1				Pre 211 B.C.
X	56 - 1579	1	33-B		2	Pre 211 B.C.
	56 - 1583	1	3-Q		1	Pre 211 B.C.

<sup>277</sup> Multiple "Xs" signify multiple objects under the same inventory number.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	56 - 1589	1	28		2	
X	56 - 1595	1	33-C		3	Pre 211 B.C.
X	56 - 1816	1	33-B		3	Pre 211 B.C.
X	56 - 1898	1	34-C		3	Pre 211 B.C.
X	56 - 1970	1	34-C	rm 5	3	Pre 211 B.C.
X	56 - 2020	1	34-C	rm 5	3	Pre 211 B.C.
X	56 - 2035	1	34-C	rm 5	3	Pre 211 B.C.
	56 - 2127	1				
X	56 - 2198	1				
X	56 - 2251	1	33-D		2	Pre 211 B.C.
X	56 - 2256	1	33-D		2	Pre 211 B.C.
X	56 - 2472	1	33-F		2	Pre 211 B.C.
X	56 - 2578	1	33-F		2	Pre 211 B.C.
X	56 - 2624	1	33-F		2	Pre 211 B.C.
X	56 - 2683	1	33-G		2	Pre 211 B.C.
X	56 - 2722	1	stray find			
X	56 - 2731	1	27-B			
X	56 - 2853	1	3X		1	
X	56 - 2884	1	33D		2	Pre 211 B.C.
X	56 - 2886	1	33-H		2	Pre 211 B.C.
X	56 - 2931	1	27-B		1	
X	56 - 2943	1	27-B		1	
X	56 - 2948	1	27-B		2	
X	56 - 2948	1	27-B		2	
	56 - 108a	1	27		1	
X	57 - 10	1	33-J			Pre 211 B.C.
	57 - 67	1	33J	A	2	Pre 211 B.C.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	57 - 89	1	15A			
X	57 - 97	1	33J	A	1	Pre 211 B.C.
X	57 - 98	1	33J	B	surface	Pre 211 B.C.
	57 - 119	1	33J	A	1	Pre 211 B.C.
X	57 - 169	1				
X	57 - 177	1	33K	C	surface	Pre 211 B.C.
X	57 - 204					
X	57 - 232	1	42B		3	
X	57 - 242	1	33K	A	2	Pre 211 B.C.
X	57 - 243	1	33K	A	3	Pre 211 B.C.
	57 - 244	1	33K	A	2	Pre 211 B.C.
X	57 - 297	1	33H		dike 56	Pre 211 B.C.
X	57 - 317	IV	7			
X	57 - 328	1	33K	B		Pre 211 B.C.
X	57 - 329	1	33K	B		Pre 211 B.C.
X	57 - 483	II	2		2	
X	57 - 514	IV	2			Pre 211 B.C.
X	57 - 541	1	36F		2	
X	57 - 627	1	15B	2	3	
X	57 - 753	1	49		1	
X	57 - 772	IV	2a			Pre 211 B.C.
X	57 - 798	IV	2a			Pre 211 B.C.
	57 - 927	1	15B	3	3	Probably 1st century B.C.
X	57 - 961	1	31E			Pre 211 B.C.
X	57 - 971	IV	2b		surface	Pre 211 B.C.
	57 - 1106	II	2E		CisternA	
X	57 - 1129	IV	2A		cistern	Pre 211 B.C.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	57 - 1145	IV	2A		cistern	Pre 211 B.C.
X	57 - 1146	IV	2A		cistern	Pre 211 B.C.
	57 - 1149	IV	2a		cistern	Pre 211 B.C.
X	57 - 1241					
	57 - 1253	I	34H		2	Pre 211 B.C.
X	57 - 1429	I	33		dike	Pre 211 B.C.
X	57 - 1433	I	33g		dike	Pre 211 B.C.
X	57 - 1445					
X	57 - 1475	IV	2		cistern	Pre 211 B.C.
XX	57 - 1536	I	33M		1	Pre 211 B.C.
X	57 - 1663	I	15C	2	3	
	57 - 1698					
X	57 - 1752	I	34J		2	Pre 211 B.C.
X	57 - 1753	I	34J		2	Pre 211 B.C.
X	57 - 1754	I	34		2	Pre 211 B.C.
X	57 - 1755	I	34J		2	Pre 211 B.C.
	57 - 1769	I	33M		1	Pre 211 B.C.
X	57 - 1815	I	34J		2	Pre 211 B.C.
X	57 - 1835	III	3B		2	
X	57 - 1846	I	34J		3	Pre 211 B.C.
X	57 - 2102	I	39A		3	
X	57 - 2129	IV	2J		1	Pre 211 B.C.
	57 - 2215	IV	2K			Pre 211 B.C.
X	57 - 2268	I or IV	35c		2	Pre 211 B.C.
XX	57 - 2283	IV	2K			Pre 211 B.C.
X	57 - 2412	IV	2L		1	Pre 211 B.C.
X	57 - 2433	I	39A		4	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	57 - 2493	IV	2I			Pre 211 B.C.
X	57 - 2512	IV	2L		3	Pre 211 B.C.
X	57 - 2521	IV	2(i)			Pre 211 B.C.
X	57 - 2560	IV	2K			Pre 211 B.C.
X	57 - 2562	I	39A		4	
X	57 - 2576	IV	2L		3	Pre 211 B.C.
X	57 - 2652	IV	2L		3	Pre 211 B.C.
X	57 - 2655	IV	2L		3	Pre 211 B.C.
X	57 - 2667	IV	2I			Pre 211 B.C.
	57 - 2799	III	10	2	3	
	57 - 2912	III	nek 2,tb4			
X	57 - 2944	I	29A		5	
	57 - 2956	III	nek 2,tb4			
	57 - 2963	III	Neck2,tb4			
X	57 - 2996	III	10	4	3	
	57 - 3020	III	6A		substrata	
	57 - 3021	III	6A			
	57 - 1520?					
	57 - 169 a,b	III				
	57 - 204(?) <sup>278</sup>					
	57 - 677(?)					
X	58 - 14	IV	6		1	Pre 211 B.C.
X	58 - 44	IV	6		2	Pre 211 B.C.
XX	58 - 67	IV	6		2	Pre 211 B.C.
	58 - 75					
X	58 - 86	IV	6		2	Pre 211 B.C.

<sup>278</sup> A question mark indicates an unclear inventory number on the object.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	58 - 95	II	4A		2	Pre 211 B.C.
X	58 - 96	II	4A		2	Pre 211 B.C.
X	58 - 117	IV	6		1	Pre 211 B.C.
X	58 - 118	IV	6		2	Pre 211 B.C.
X	58 - 119	IV	6A		1	Pre 211 B.C.
X	58 - 129	IV	6		1	Pre 211 B.C.
X	58 - 181	IV	6		2	Pre 211 B.C.
	58 - 204	IV	6B		1	Pre 211 B.C.
	58 - 219					Pre 211 B.C.
X	58 - 273	IV	6B		1	Pre 211 B.C.
X	58 - 277	IV	6		2	Pre 211 B.C.
X	58 - 278	IV	6		2	Pre 211 B.C.
X	58 - 303	IV	6B		1	Pre 211 B.C.
X	58 - 321	IV	6B		1	Pre 211 B.C.
X	58 - 394	IV	6B		2	Pre 211 B.C.
X	58 - 395	IV	6B		1	Pre 211 B.C.
X	58 - 397	IV	6B		2	Pre 211 B.C.
	58 - 403	IV	6B		2	Pre 211 B.C.
	58 - 416	IV	6B		2	Pre 211 B.C.
X	58 - 418	IV	6B		2	Pre 211 B.C.
X	58 - 419	IV	6B		2	Pre 211 B.C.
X	58 - 420	IV	6B		2	Pre 211 B.C.
XX	58 - 489	IV	6B		2	Pre 211 B.C.
	58 - 521					Pre 211 B.C.
X	58 - 548	IV	6B		2	Pre 211 B.C.
X	58 - 549	IV	6B		2	Pre 211 B.C.
X	58 - 634	IV	8		2	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	58 - 670	IV	6C		2	Pre 211 B.C.
X	58 - 682	IV	6C		2	Pre 211 B.C.
X	58 - 683	IV	6		?	Pre 211 B.C.
X	58 - 792	IV	6C		2	Pre 211 B.C.
X	58 - 954	IV	10		1	Pre 211 B.C.
X	58 - 956	IV	10		2	Pre 211 B.C.
X	58 - 987	IV	10		2	Pre 211 B.C.
	58 - 988	IV	10		2	Pre 211 B.C.
X	58 - 989	IV	10		2	Pre 211 B.C.
X	58 - 990	IV	10		2	Pre 211 B.C.
X	58 - 991	IV	10		2	Pre 211 B.C.
X	58 - 992	IV	10		2	Pre 211 B.C.
X	58 - 993	IV	10		1	Pre 211 B.C.
X	58 - 999	IV	10		2	Pre 211 B.C.
X	58 - 1038	IV	10		3	Pre 211 B.C.
X	58 - 1039	IV	10		3	Pre 211 B.C.
X	58 - 1040	IV	10		3	Pre 211 B.C.
X	58 - 1041	IV	10		2	Pre 211 B.C.
X	58 - 1042	IV	10		3	Pre 211 B.C.
X	58 - 1061	II	4N		2	Pre 211 B.C.
X	58 - 1089	ii	5		2	
X	58 - 1132	IV	10		?	Pre 211 B.C.
X	58 - 1138	II	5		2	Pre 211 B.C.
X	58 - 1176	IV				
X	58 - 1411	II	5		2	
X	58 - 1431	I	3J		1	Pre 211 B.C.
X	58 - 1511	II	6		2	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	58 - 1543	I	51		1	
X	58 - 1747	II	4H-K		2	Pre 211 B.C.
	58 - 1924					
X	58 - 1929	II	4Q		2	Pre 211 B.C.
	58 - 1959	III	13B	1	2	
X	58 - 1962	II	4Q		2	Pre 211 B.C.
	58 - 2047	I	56		2	Pre 211 B.C.
	59 - 2107					
X	58 - 2363	III	13B	1	1	
X	59 - 5	II	4-B			Pre 211 B.C.
	59 - 39	II	4-B		1	Pre 211 B.C.
X	59 - 50	II	4-B		3	Pre 211 B.C.
	59 - 109	I	44-C		1	
X	59 - 177	IV	11	1	3	289 - 211 B.C.
	59 - 178	IV	11	1	3	289 - 211 B.C.
X	59 - 251	IV	11	1	4	289 - 211 B.C.
X	59 - 252	IV	12	1	3	289 - 211 B.C.
X	59 - 253	IV	12	1	3	289 - 211 B.C.
X	59 - 254	IV	12	1	3	289 - 211 B.C.
X	59 - 255	IV	12	1	3	289 - 211 B.C.
X	59 - 256	IV	12	1	3	
XX	59 - 319	IV	12	1	3-a	289 - 211 B.C.
X	59 - 320	IV	12	1	3-a	289 - 211 B.C.
	59 - 334	IV	12	1	3	289 - 211 B.C.
X	59 - 430	IV	12	1	?	289 - 211 B.C.
XX	59 - 525	IV	11	2	3	289 - 211 B.C.
X	59 - 526	IV	11	2	3	289 - 211 B.C.



Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	59 - 527	I	35-E		1	
X	59 - 528	IV	11	2	3	289 - 211 B.C.
	59 - 529	IV	12	2	1	289 - 211 B.C.
X	59 - 668	IV	12	2	3	289 - 211 B.C.
X	59 - 669	IV	12	2	3	289 - 211 B.C.
X	59 - 670	IV	11	2	3	289 - 211 B.C.
X	59 - 671	IV	12	2	3	289 - 211 B.C.
X	59 - 672	IV	12	2	1	289 - 211 B.C.
X	59 - 673	IV	12	2	3	289 - 211 B.C.
X	59 - 674	IV	12	2	3	289 - 211 B.C.
	59 - 675	IV	12	2	3	289 - 211 B.C.
X	59 - 676	IV	12	2	3	289 - 211 B.C.
X	59 - 677	IV	12	2	3	289 - 211 B.C.
X	59 - 678	IV	12	2	3	289 - 211 B.C.
X	59 - 749	IV	12	2	3	289 - 211 B.C.
X	59 - 750	IV	12	2	3	289 - 211 B.C.
X	59 - 751	IV	12	2	3	289 - 211 B.C.
X	59 - 752	IV	11	2	3	289 - 211 B.C.
X	59 - 849	IV	11	2	3	289 - 211 B.C.
	59 - 850	IV	11	2	3	289 - 211 B.C.
	59 - 851	IV	12	2	3	289 - 211 B.C.
X	59 - 896	IV	12	2	3	289 - 211 B.C.
X	59 - 897	IV	11	2	3	289 - 211 B.C.
	59 - 898	IV	11	2	3	289 - 211 B.C.
X	59 - 1050	I	35-I			289 - 211 B.C.
X	59 - 1078	IV	12	2	?	289 - 211 B.C.
	59 - 1079	IV	12	2	?	289 - 211 B.C.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	59 - 1116	IV	12	2	3	289 - 211 B.C.
XX	59 - 1150	IV	12	2	3	289 - 211 B.C.
X	59 - 1218	III	7	C	1	289 - 211 B.C.
X	59 - 1219	IV	12	2		289 - 211 B.C.
	59 - 1241	IV	12	2	3	289 - 211 B.C.
X	59 - 1242	IV	12	2	3	289 - 211 B.C.
X	59 - 1259	IV	12	2	?	289 - 211 B.C.
X	59 - 1335	IV	12	3	1	289 - 211 B.C.
X	59 - 1369	III	7	C	2	
	59 - 1522	III	7	A-rmA	4	
X	59 - 1523	III	K?		2	
	59 - 1539	III	7	A-rmA	4	
X	59 - 1540	III	7	A-rmA	4	
XX	59 - 1720					
X	59 - 1721	I	60	D	2	
X	59 - 1796	I	60	D	2	
X	59 - 1797	I	60	D	2	
X	59 - 1798	I	60	D	2	
	59 - 1890	III	21		5	
X	59 - 1896	I	60		A	
X	59 - 2107	I		complx61	2	
	59 - 2108	I		complx61	2	
X	59 - 2109	I			2	
	59 - ?					
	59 - 257(4?)					
	59 - 2667(?)					
	59 - 4??					

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	59 - 420(?)					
X	60 - 138	I	65		2	
X	60 - 174	I	64		2	
X	60 - 252	I	44E		2	
X	60 - 302	I			2	
X	60 - 303	I			2	
	60 - 304	I			1	
X	60 - 342	I	64			
X	60 - 480					
X	60 - 490	I	44D		2	
X	60 - 520	I	64			
X	60 - 521	I	64			
X	60 - 522	I	64			
X	60 - 694	I	44F		2	
X	60 - 709	I	66			
	60 - 738					
X	60 - 768	I			2	
X	60 - 1192	III	8B	A	3	
X	60 - 1284	III	14A		2	
	60 - 1303	I	69		1	
X	60 - 1307	I	70		1	
X	60 - 1324	III	14A	2	2	
X	60 - 1325	III	14A	2	2	
	60 - 1347	I	44B (?)		2	
X	60 - 1361	I	70		2	
X	60 - 1378	I	69			
XX	60 - 1380	I	70		1	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	60 - 1417	I	70		1	
X	60 - 1418	I	69			
XX	61 - 1419a, b	I	Complex C			
X	60 - 1495	I	66/3		2	
X	60 - 1532	I	66/3		2	
	60 - 1665	I	60A		2	
	60 - 1682	I	44F		2	
	60 - 1683	I	44F		2	
X	60 - 1737	I	69			
	60 - 507b					
X	61 - 5	!	72		1	
X	61 - 87	I	69		2	
XX	61 - 97	I	60c		4a	
X	61 - 102	II	necrIII			211 B.C. to early 1st century B.C.
X	61 - 114	II	necrIII		3	211 B.C. to early 1st century B.C.
X	61 - 115	I	17			211 B.C. to early 1st century B.C.
	61 - 139	I	17		2	211 B.C. to early 1st century B.C.
	61 - 147					
X	61 - 236	I	17		2	211 B.C. to early 1st century B.C.
X	61 - 280	I	71			1st century B.C. to 35 B.C.
X	61 - 526					
XX	61 - 563	3 (III?)	15			
X	61 - 708	II	necrIII			
X	61 - 1105	I		14A		

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	61 - 1135	I	18e			Augustus - Tiberius
XX	61 - 1190	I	18e		4	Augustus - Tiberius
X	61 - 1270	I	53		4	
	61 - 1291	5	3		9	Pre 250 B.C.
	61 - 1298	5	3		7	Pre 250 B.C.
X	61 - 1333	I			2	
X	61 - 1382	5	6		3	
X	61 - 1418	I	61		2	211 B.C. to early 1st century B.C. or 35 B.C.
XX	61 - 1419a,b	I				
X	61 - 1420	I	61		2	211 B.C. to early 1st century B.C. or 35 B.C.
X	61 - 1421	I				
X	61 - 1471	I	61		2	211 B.C. to early 1st century B.C. or 35 B.C.
X	62 - 55	I	71B		?	1st century B.C. to 27 B.C.
X	62 - 64	I	71B		3	1st century B.C. to 27 B.C.
X	62 - 77	II	4S			Pre 211 B.C.
X	62 - 247	I	71C		2	1st century B.C. to 27 B.C.
X	62 - 248	I	71C		2	1st century B.C. to 27 B.C.
X	62 - 317	II	4T		1	Pre 211 B.C.
X	62 - 419	II	4U		2	Pre 211 B.C.
X	62 - 420	II	4T			Pre 211 B.C.
X	62 - 421	II	4U		2	Pre 211 B.C.
	62 - 422	I	71D		2	1st century B.C. to

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
						- 35 B.C.
X	62 - 492	II	4T			Pre 211 B.C.
X	62 - 507	I	4T			1st century B.C. to - 35 B.C.
X	62 - 540	II	4T		2	Pre 211 B.C.
X	62 - 555	I	71E		2	1st century B.C. to 35 B.C.
X	62-620 a,b	II	4T			
X	62 - 652	II	4V		3	Pre 211 B.C.
X	62 - 653	II	4V		3	Pre 211 B.C.
X	62 - 684	II	4W		1	Pre 211 B.C.
X	62 - 703	5	8		2	Pre 250 B.C.
X	62 - 716	II	4U		3	
X	62 - 833	I	53		1B	
X	62 - 860	II	4W		2	Pre 211 B.C.
X	62 - 1323	I	37B		1	211 B.C. - Roman Empire
X	62 - 1394	2				
X	62 - 1430	3	21-1		2	211 B.C. - Roman Empire
X	62 - 1559	I				
	62 - 26(?)					
	62 - 507b	I	71D		2	
	62 - 620a,b	II	4T			Pre 211 B.C.
	62 -	I	71D		2	1st century B.C. to 27 B.C.
XXX	63 - 8	I	3N		1	
X	63 - 43	2	4x		1	Pre 211 B.C.
X	63 - 61	2	4x		2	Pre 211 B.C.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	63 - 62	2	4x		2	Pre 211 B.C.
X	63 - 63	2	4x		2	Pre 211 B.C.
X	63 - 132	2	4x		3	Pre 211 B.C.
X	63 - 192	2	4y		1	Pre 211 B.C.
X	63 - 199	I	37C			211 B.C. - Roman Empire
X	63 - 216					
X	63 - 237	2	4y		3	Pre 211 B.C.
	63 - 357	I	3NA		2A	3d century B.C. - 211 B.C.
X	63 - 403	I	3NA		2A	3d century B.C. - 211 B.C.
X	63 - 739	I	3RA		3	3d century B.C. - 211 B.C.
	63 - 818	V	7 thru 9		7	Pre 250 B.C.
X	63 - 905	V	7 thru 9		9	Pre 250 B.C.
X	63 - 923					
	63 - 924	I		B	2	211 B.C. - Roman Empire
X	63 - 1000	V	12		2	
XXX	63 - 1093	I		Bgymzon	2?	
	63 - 1118	I	37C			211 B.C. - Roman Empire
X	63 - 1119	I		B		211 B.C. - Roman Empire
	63 - 1213	III	29		6	
	63 - 1214	3	29		6	
	63 - 1260	3	29		4	
	63 - 1333	3	29		4	
	63 - 1336	3	29		5	
	63 - 1337	3	29		6	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	63 - 1346	3	29		6	
	63 - 1350	3	29		6	
	63 - 1353	3	29		6	
	63 - 216(?)					
X	65 - 27					
	65 - 580					
X	66 - 90	II	10			
	66 - 138	I	69B3		3	Pre 211 B.C.
X	66 - 158	I	69B3		?	Pre 211 B.C.
X	66 - 167	I	69B3		4	Pre 211 B.C.
X	66 - 168	I	69B1		6	
	66 - 179	II	10-B			
	66 - 212	I	69B1		6	
X	66 - 285	I	69A2		4	
X	66 - 422					
X	66 - 441	II	10			
X	66 - 511	I	70X		2	Pre 211 B.C.
X	66 - 523	II	10		3	
X	66 - 545	II	10A		2	
XX	66 - 574	II	10		2	
X	66 - 580	II	10C		1	
X	66 - 685	I	70 omega		2	
X	66 - 776	II	10C			
X	66 - 821	I	70-X E		3	Pre 211 B.C.
X	66 - 867	I	70-X E		2	Pre 211 B.C.
XX	67 - 25	III			1	
X	67 - 26	III	2		3	



Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	67 - 27	III	2		3	
X	67 - 35	I	70XYZ		2	Pre 211 B.C.
X	67 - 163	I	70-1967B		3	
X	67 - 164	I	70-1967B		3	
X	67 - 207	I	70XYZ			Pre 211 B.C.
X	67 - 253	I	70-1967B		3	
X	67 - 302	I	70-1967C		2	
X	67 - 411	I	70-1967C			
XX	67 - 412	I	70-1967C			
X	67 - 414	I	70-1967C			
X	67 - 433	III	2N		3	
X	67 - 477	I	1967		2	
	67 - 477	I	1967		1	
X	67 - 477					
X	67 - 511	I	1967		3	
X	67 - 512	I	1967		3	
X	67 - 513		1967		3	
X	67 - 527	I	70-1967C		2	
X	67 - 540	I	1967		3	
X	67 - 541	I	1967		4	
X	67 - 597	I	70-1967C			
	67 - 655	III	33		2	
	67 - 708					
X	67 - 882	III	2F		2	
X	67 - 905	III	29-1967			
	67 - 906	III	29-1967		6	
	67 - 909	III	29-1967		6	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	67 - 938	III	2E		2A	
	67 - 245?					
	67 - 27?					
X	68 - 75	III	2		VI	
	68 - 98	III	31G		illegible	
XX	68 - 381	V	20		2	
X	68 - 427	V	20		3	
	69 - 1011	V	26		2	
	69 - ???					
	69 - ??04					
	69 - 670					
	70 - 34					
X	70 - 534	VI	trench 11-3		1	
X	70 - 574	VI	11		1	Pre 211 B.C.
X	71 - 253	VI	11		6F	Pre 211 B.C.
X	71 - 376	VI	16		4	
X	71 - 377	VI	16		2	
X	71 - 558	VI	14,rm2		2A	Pre 211 B.C.
	71 - 559	VI	14.1		5	Pre 211 B.C.
X	71 - 582	VI	14		2A	Pre 211 B.C.
X	71 - 585	VI	14.2		2	Pre 211 B.C.
	71 - 590	VI	12.2		5N	Pre 211 B.C.
	80 - 402	I	90B		3A	Pre 211 B.C.
	80 - 427	I	90		2	
	80 - 402 a,b	I	90B		3A	Pre 211 B.C.
	81 - 19	I	90C		3A	Pre 211 B.C.
X	81 - 27	I	90C		3A	Pre 211 B.C.

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	81 - 31	I	90C		3A/B	Pre 211 B.C.
	81 - 41	I	9A		2	
	81 - 45	I	90C		2	
X	81 - 55	I	90C		3A	Pre 211 B.C.
	81 - 58	I	90C	B	3A	Pre 211 B.C.
X	81 - 63	I	90C	B	3A	Pre 211 B.C.
X	81 - 71	I	90C	3	3A	Pre 211 B.C.
X	81 - 108	I	90C		3A	Pre 211 B.C.
	82 - 1	I	93		11*	
X	82 - 206	I	95		15	
X	83 - 43		53		1	
	83 - 68	I	95		15	
	83 - 74	I	94		3	
X	83 - 92	I	95		15	
	83 - 154	I	98		6	
	83 - 171	I	95		15	
	83 - 216	I	95		27	
XX	83 - 228	I	95		27	
	83 - 321	I	100		6	
	84 - 21	I	110		4	
	84 - 56	I	95		17	
	85 - 10	I				
	85 - 17	I	122		26	
	85 - 59	I	122		26	
	85 - 140	I	complex 3		36	
	86 - 8				surface	
	86 - 10				surface	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	86 - 34	I	6613			
	86 - 35	II	5			
	86 - 49				surface	
X	89 - 213	III	16W		31	
X	89 - 250	I	132		1	
	89 - 280	I	122H		12	
	89 - 283	I	122H		17	
X	89 - 285	I	122H		28	
	89 - 340	III	16w		9	
X	89 - 349	III	16w		42	
	89 - 391	III	16w		19	
X	92 - 5	I	3P		92.8	
X	92 - 43	I	127		3	
X	92 - 264	I	3P		92	Pre 211 B.C.
	92 - 561	I	3p/92		36	
	92 - 562	I	3p/92		36	
X	92 - 661	III	12,B.92		6	
X	92 - 760	III	92		5[probe]	
X	92 - 837	I	137		16	
	92 - 841	I	139		15	
	92 - 842	I	122J		72	
	92 - 843	I	122J		72	
X	92 - 875	I	140		11	
	92 - 883	I	122J		72	
X	92 - 980	I	138B		4	
X	97 - 8	I	II-B			
	97 - 27					

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
X	97 - 36			stray		
X	97 - 46	VII	4		17	
X	97 - 56	VII	4		24	
X	97 - 65	VII	4		21	
X	97 - 76	VII	1		1	
	97 - 120	VII	4		31	
X	97 - 170	VII	1		1(rm3)	
X	97 - 180	VII	1		1(rm6)	
X	97 - 233	VII	1		1(ct3)	
X	97 - 234	VII	1		1(ct3)	
X	97 - 236	VII	1		1	
X	97 - 270	VII	1		1(rm3A)	
	97 - 286					
	97 - 314	VII				
X	98 - 22	VII	1		1	
	98 - 33	VII	1		1	
	98 - 35	VII	1		1	
X	98 - 36	VII	1		75(rm1)	
X	98 - 68	VII	1		1	
	98 - 85					
X	98 - 105	VII	1		83	
	98 - 115	VII	1		87(rm7)	
X	98 - 136	VII	4F (?)			
	98 - 146	VII	4		e	
X	98 - 164	VII	4		5	
	98 - 191	VII	1		1	
	98 - 212	II	4N			

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	98 - 215	VII	1		100	
	98 - 216	VII	1		100	
	99 - 391	III	16w		19	
	3 - 20	VII	1		76	
	3 - 22	VII	4		18	
X	3 - 95a,b	I	43.03		18	
X	3 - 100	I	43.03		24	
X	3 - 157	I	141		9	
X	3 - 177	VI				
	3 - 192					
X	3 - 217	VI	25 ext A		37	
	3 - 262	I		16(rm5)	2	
	3 - 279	III	16w			
X	3 - 357	VI	27			
X	3-456					
	4 - 17	I	146		2	
	4 - 33	I	145 (b?6?)		3	
	4 - 34	I	145		8	
	4 - 35	I	145		14	
	4 - 72					
	4 - 205	VI	27a		29	
X	4 - 414	VI	31		10	
X	4 - 420	II	13		4	
X	4 - 427	VI	27		71	
	4 - 429	VI	27		71	
X	4 - 440	VI	29C		53	
X	4 - 445	VI	28		64	

Found ? <sup>274</sup>	Inventory #	Area	Trench	Zone	Stratum	Date
	4 - 446	VI	28		64	
X	4 - 449	VI	28		85	
X	4 - 487	VII	6		8	
X	5 - 192	VI	31		41	
X	5 - 209	VI	31		49	
	5 - 217	VI	31		41	
X	5 - 222	VI	31		41	
	6 - 3	VI	27		2	
	6 - 6	VI	27		2	
	7 - 52	VI	27		21	
	7 - 55	VI?	27		21	
X	7 - 79	VI	27		35	
	7 - 80	VI	27		27	
	? <sup>279</sup>					

<sup>279</sup> There are several objects with no inventory number which are included in the catalog and which doubtless originally had the inventory number listed in this Chart.

## **FIGURES**



Items for Personal Use  
Ogival Cosmetic or Medicinal Spoons

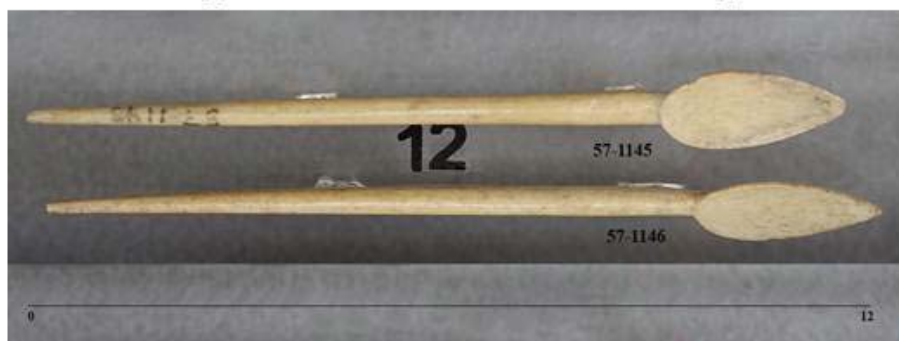


Figure 1



Reverse, 57-483

Figure 2



Reverse, 55-2247

Figure 3



Figure 4

Oval Cosmetic or Medicinal Spoon



Figure 5 a and b

# Round Cosmetic or Medicinal Spoons



Figure 6 a and b



## Cosmetic or Medicinal Spatulas



Figure 7

## Combs



Figure 8



Figure 9



Figure 10

Amulets  
Phallic Representation



Figure 11

Fist



Figure 12

## Beads/Plaques

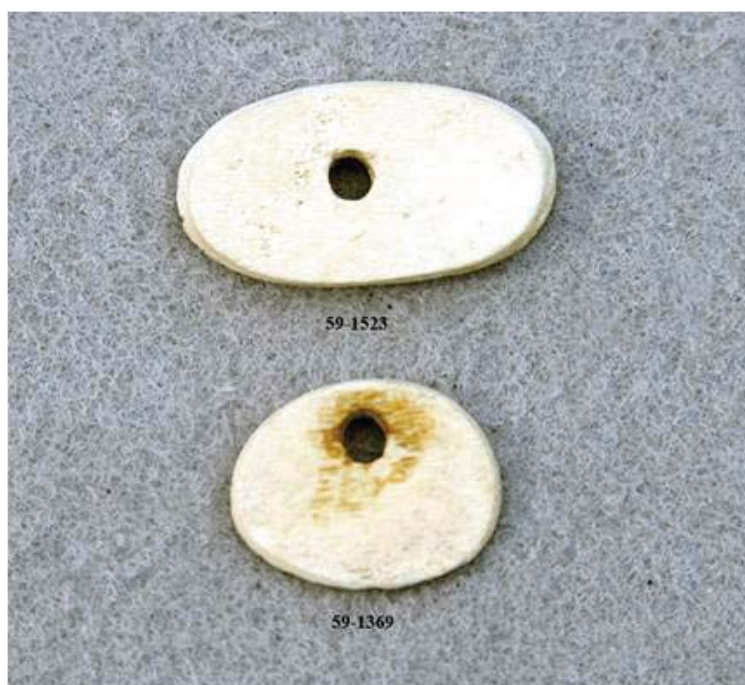


Figure 13



Figure 14



## Pins

## Round-Headed Pins, Complete



Figure 15



### Oval-headed Pins, Complete



Figure 16

### Incomplete Round and Oval Headed Pins



Figure 17

## Pins With Decorated Finials.

## Bird Finials



Figure 18



Figure 19

Seated Figure



Figure 20 a and b

"Arrowhead"

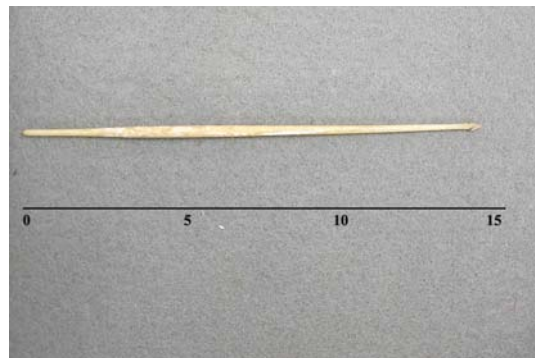


Figure 21 a and b



Rounded  
Triangle



Figure 22

Foot



Figure 23 a and b

## Objects with Undetermined Functions

### Ring-Like Objects



Figure 24

Finished Ring or Hinge

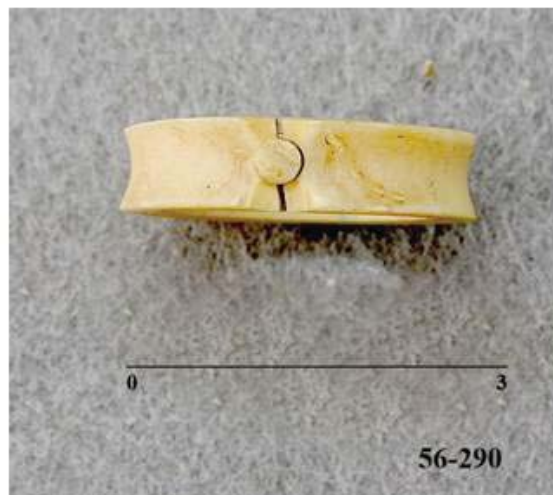


Figure 25 a and b

### Comparison of 56-290 with Two Hinge Components

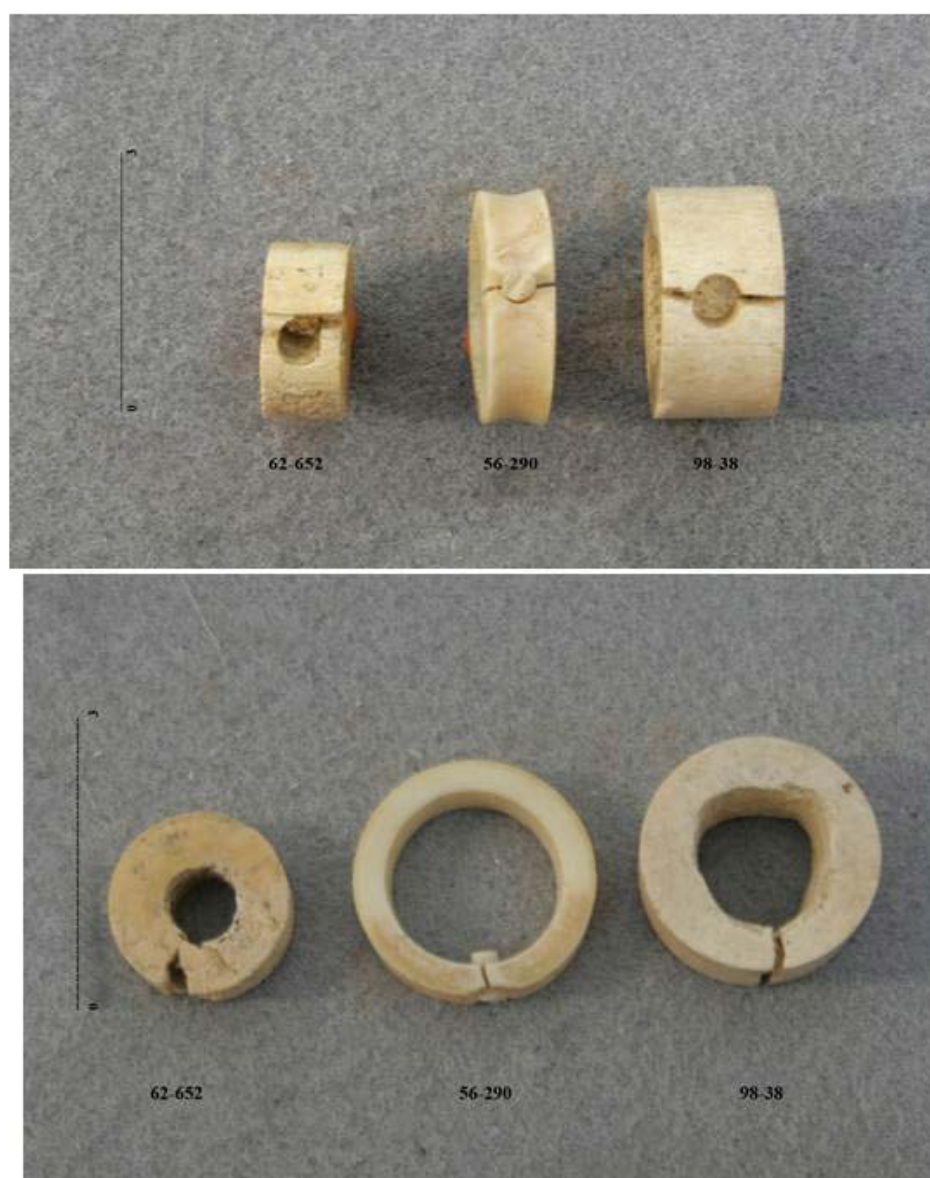


Figure 26 a and b



## Eyelets/Reinforcements



Figure 27

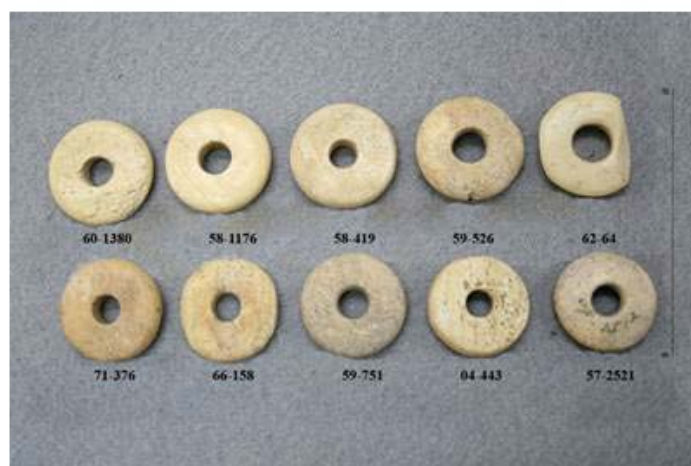


Figure 28



Figure 29

# Disks Decorated on Both Sides

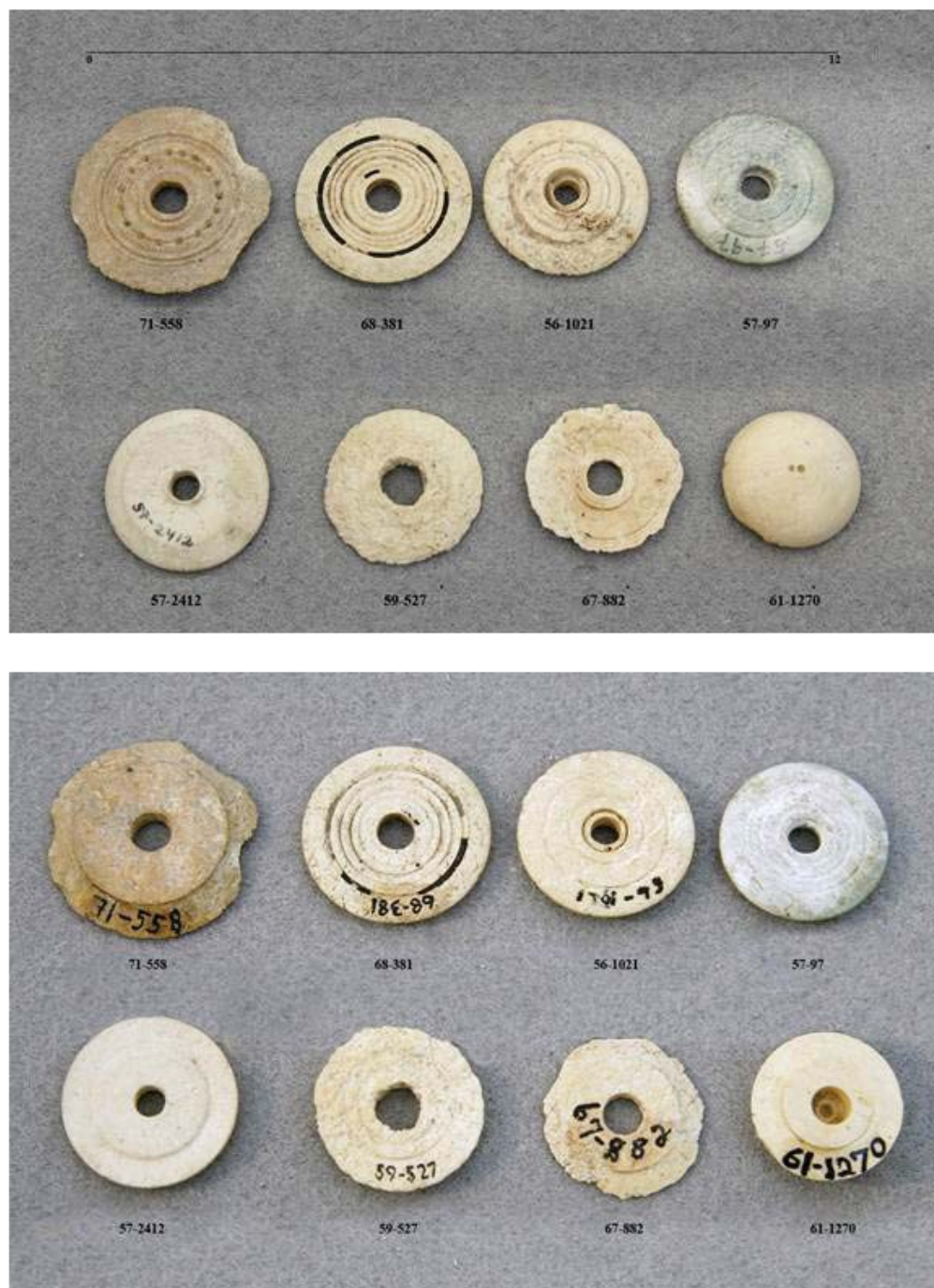


Figure 30 a and b

### Disks Decorated on One Side



Figure 31

## Points

## Stylus



Figure 32



Points with Swelling in Midsection and Points on Both Ends



Figure 33

### Points With Beveled or Tapered Ends



Figure 34

Incomplete Points with  
Gradual Taper on Shaft



Figure 35

### Simple Incomplete Points



Figure 36



Points with  
Elongated Tips



Figure 37

Complete or Nearly Complete Indented  
Points



Figure 38

### Incomplete Indented Points



Figure 39

Miscellaneous Points, Primarily Lacking Both  
Termini



Figure 40



## Tools

### Tools Possibly Used in Ceramic or Leather Production



Figure 41

### Obverse and Reverse of Hollowed Tool



Figure 42

# Probe and Awl



Figure 43

### Scraper/Spatulate Tools



Figure 44



Figure 45



## Hinge Components

Components with Two Holes and Two Bands of Parallel Incised Lines



Figure 46 a and b

Hinge Components with Two Holes and One Band of  
Parallel Incised Lines



Figure 47 a and b



Figure 48 a and b



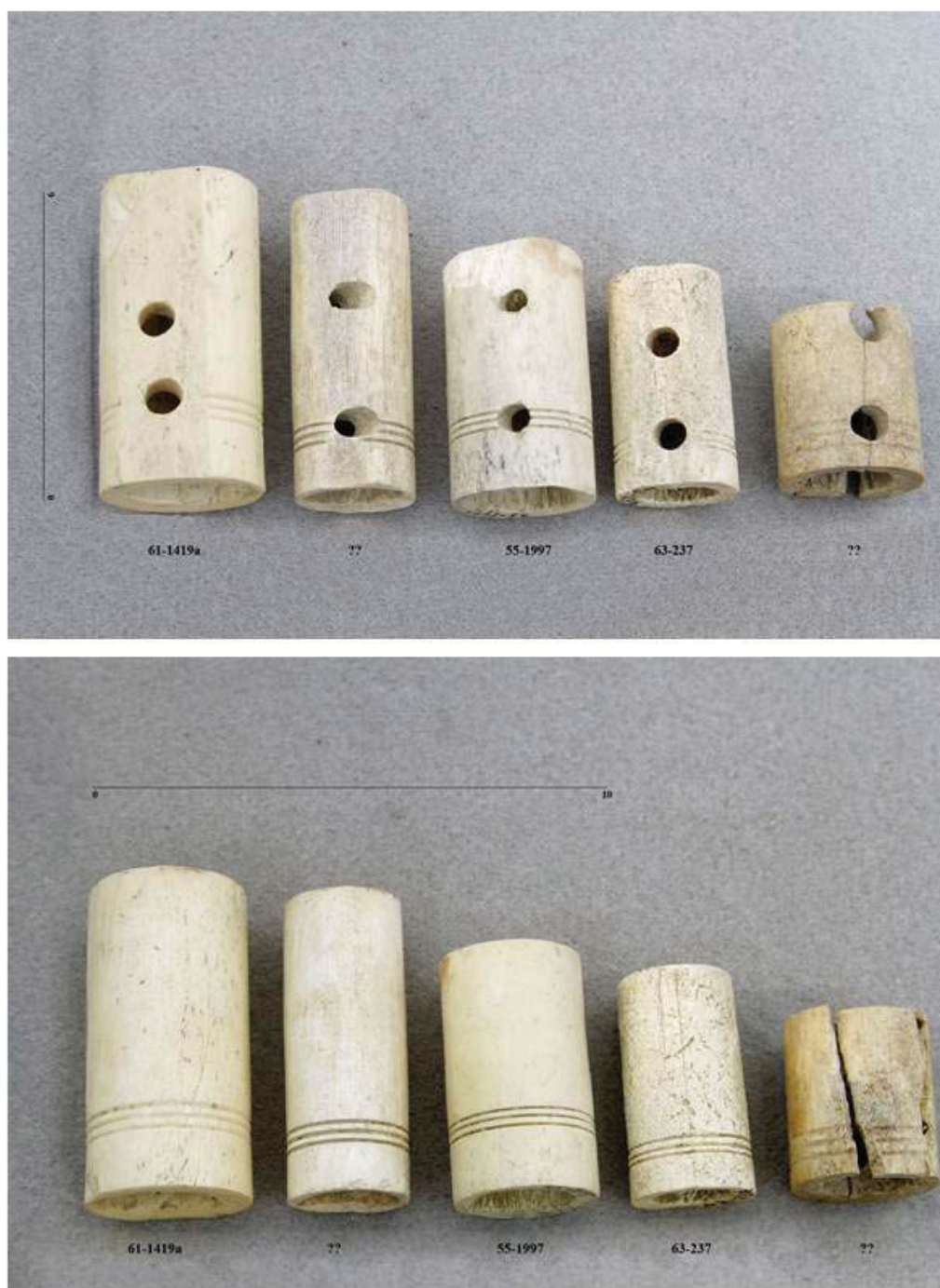


Figure 49 a and b

Hinge Components with One Hole and One Band of  
Parallel Incised Lines



Figure 50 a and b

## Decorated Hinge Fragments



Figure 51



Figure 52 a and b





### Hinge Components with One Hole and No Band of Parallel Incised Lines

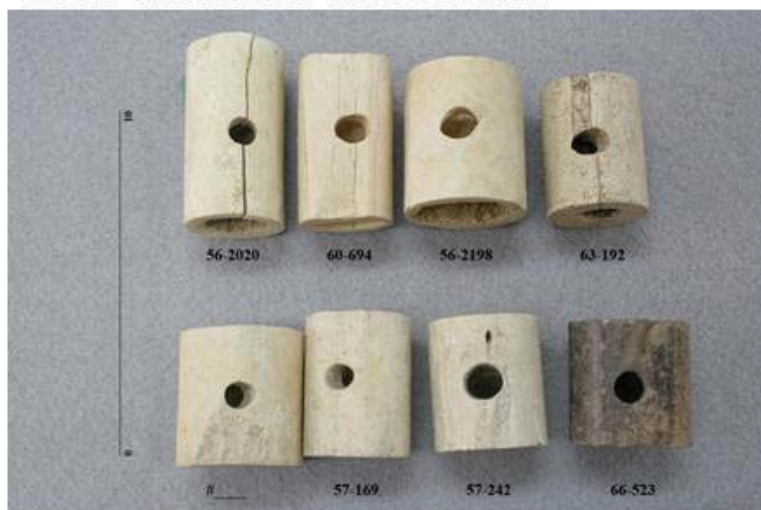


Figure 53



Figure 54

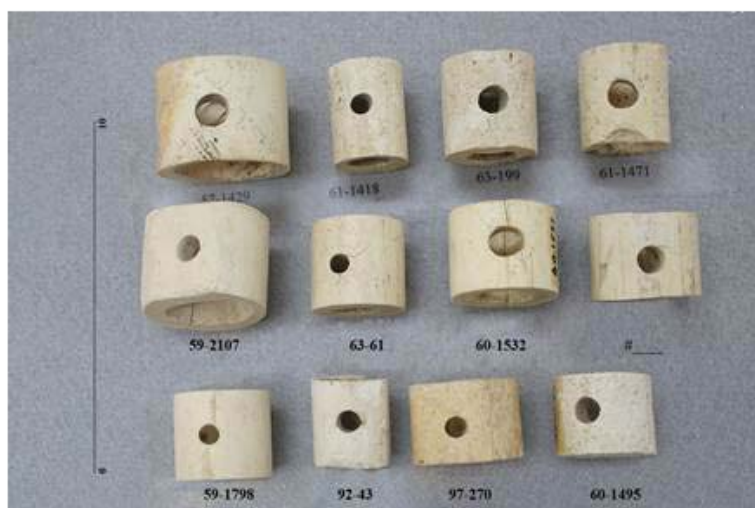


Figure 55

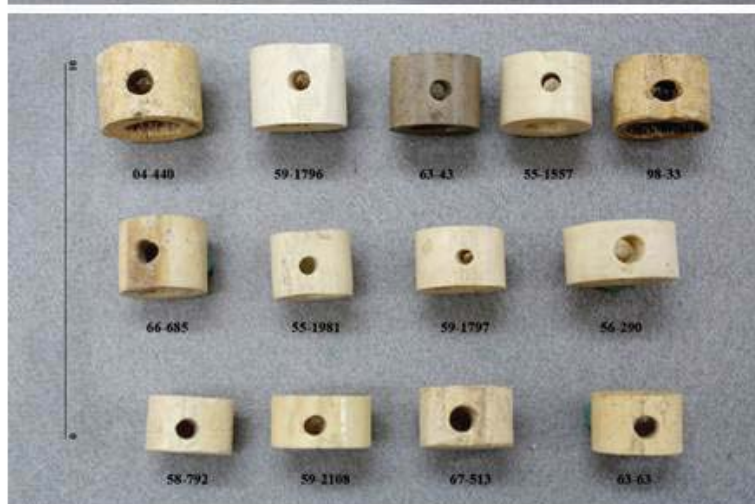


Figure 56



Figure 57



# Unfinished Hinge Components or Rings

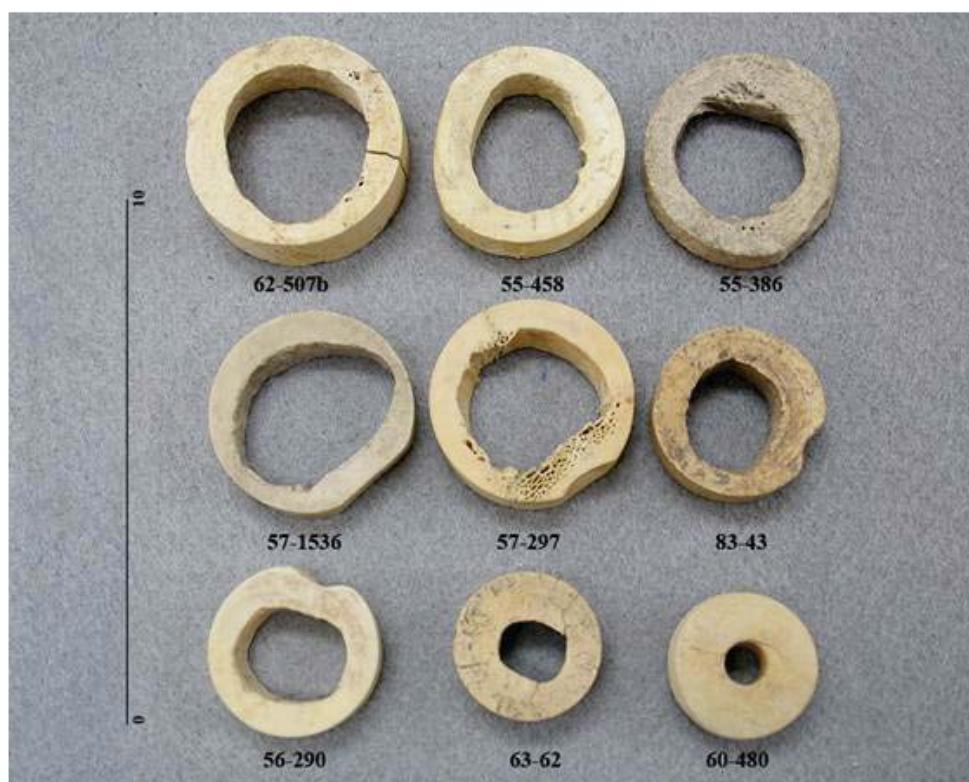


Figure 58

## Unusual Hinge Components



Figure 59

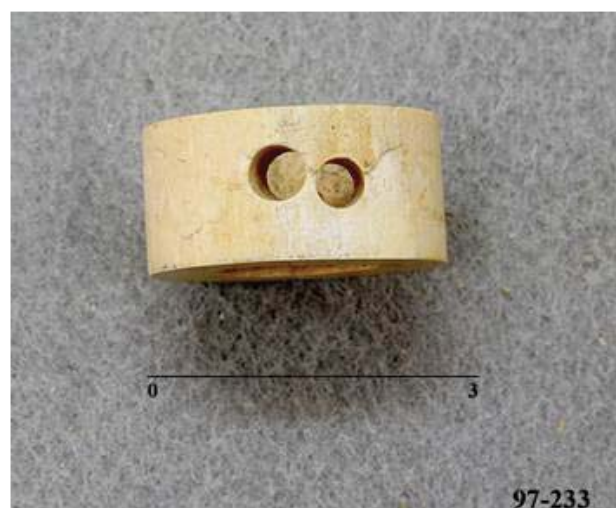


Figure 60

Socket



Figure 61 a and b

## Handles



Figure 62



Figure 63



Figure 64



Figure 65



Figure 66



Figure 67



# Handles or Other Furniture Components



Figure 68

# Handles Perforated with Metal



Figure 69

## Decorated Worked Cylinders

## Decorated Solid Cylinders



Figure 70



## Decorated Hollow Cylinders



Figure 71



Figure 72 a, b, and c

## Furniture Mounts

### Furniture Mount or Pyxis



Figure 73

### Furniture Leg?

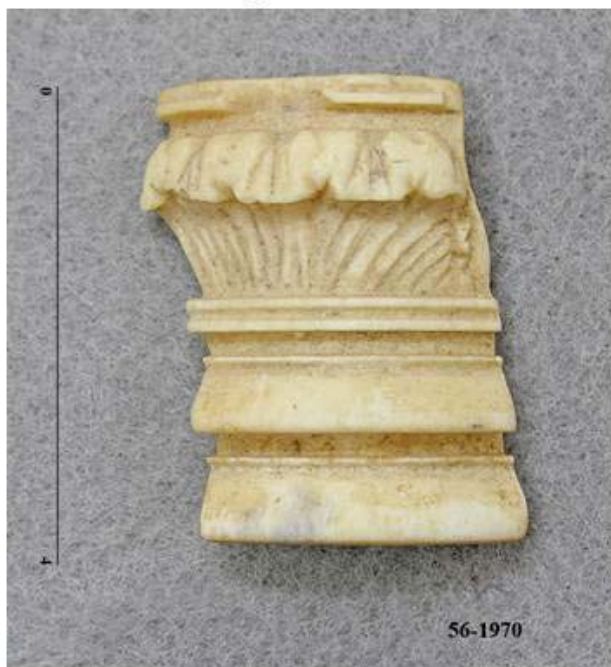


Figure 74 a and b

Sliding box Component?



Figure 75 a and b



## Decorative Plaques.



Figure 76 a, b, and c

## Veneers

### Finished Pieces of Veneer



Figure 77

### Unfinished Pieces of Veneer



Figure 78



Figure 79

# Finials



Figure 80



Figure 81



Figure 82



Figure 83



### Finials or Possible Beads



Figure 84



Figure 85



# Miscellaneous Objects

## Game Pieces



Figure 86

## Die



Figure 87



Figure 88  
a and b



Figure 89 a and b

## Sculptural Pieces

Bull's Head



Figure 90

Dionysiac Figure



Figure 91 a, b and c



Small Medallion Head



Figure 92

Fragment of Head Medallion



Figure 93

### Miniature Spindle

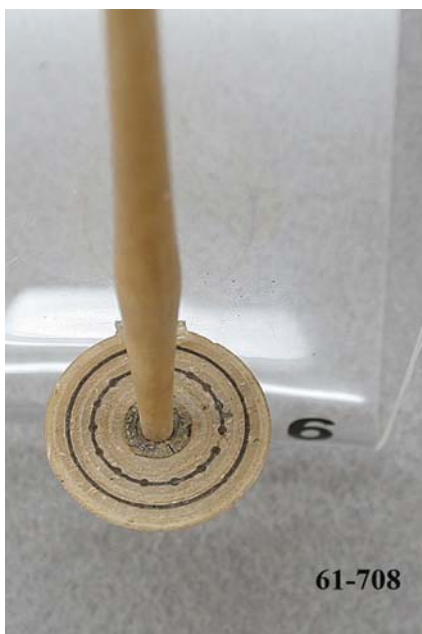


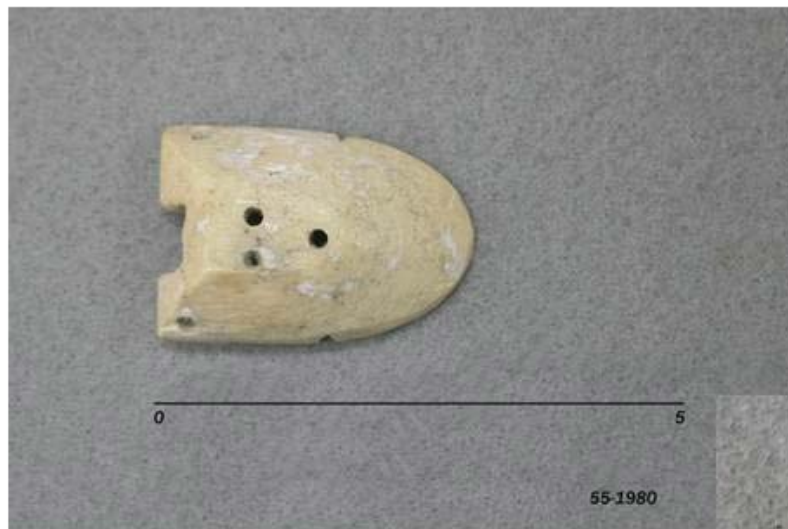
Figure 94a,  
b, c, and d

Toggles/ Fasteners/Bobbins



Figure 95

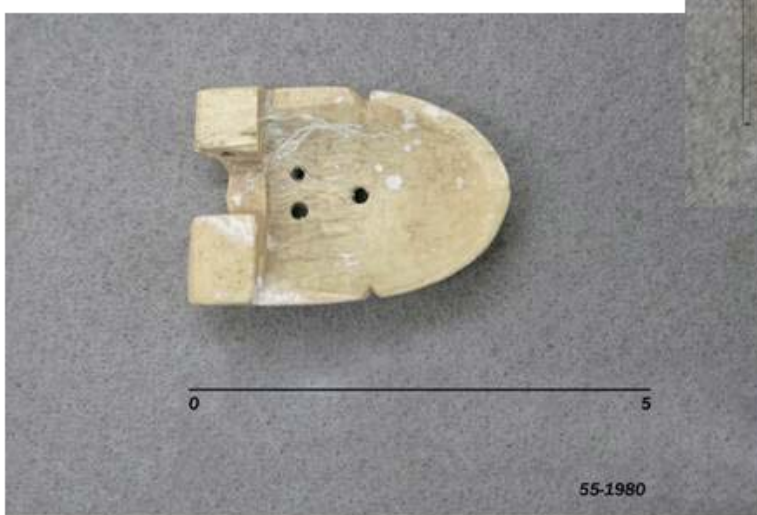
Component of a Buckle?



top



side



bottom

Figure 96 a, b, and c



Unfinished Bead/Decorative Object ?



Figure 97

### Worked Astragolai



Figure 98 a and b

# Various Objects Mounted on Rectangular Plexiglass



Figure 99

# Various Objects Mounted on Round Plexiglass



Figure 100

## Map of Ancient Sicily

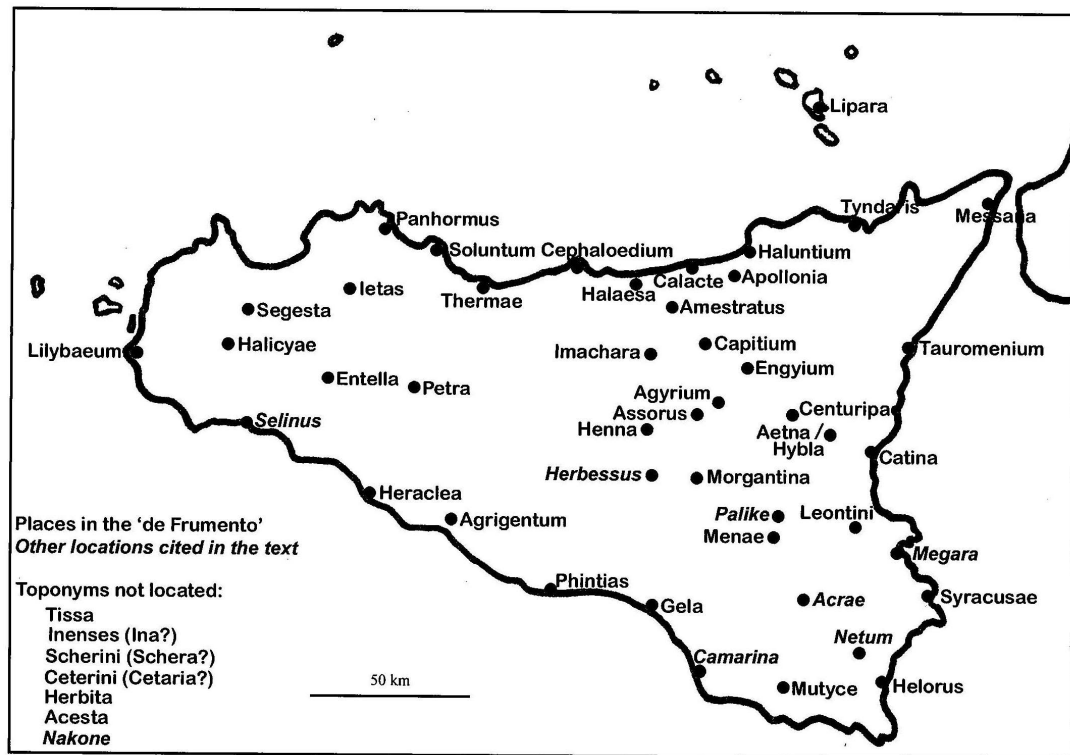
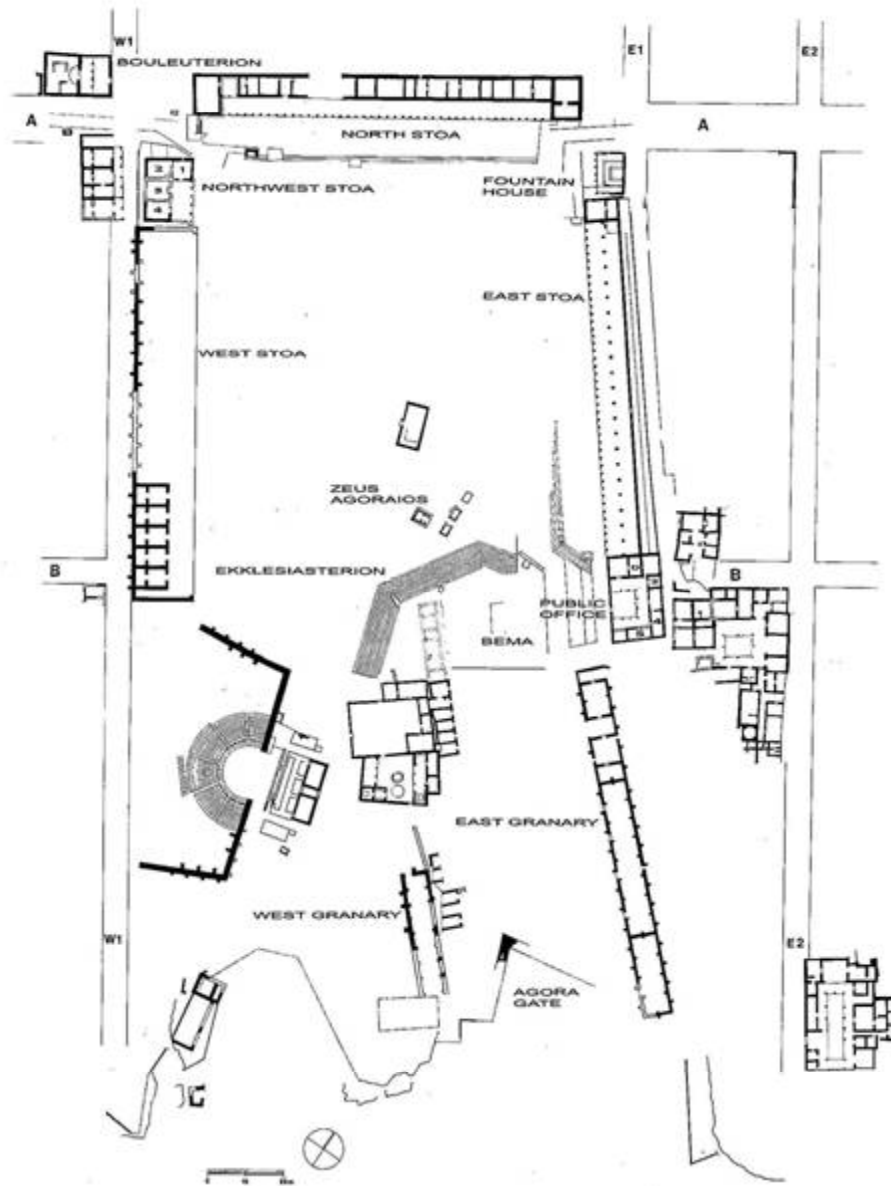


Figure 101

Source: Prag 2007, ix

## Agora, Morgantina: Third Century B.C.



Plan of the agora at Morgantina, third century BC.

Figure 102

Source: Bell 2007, Figure 1, 119.



## BIBLIOGRAPHY

- Accademia Nazionale dei Lincei 1920, *Notizie degli Scavi di Antichita*. Roma, 319-329.
- Accademia Nazionale dei Lincei 1889, *Notizie degli Scavi di Antichita*. Roma, 369.
- Carlo Albizzati 1916. "Two Ivory Fragments of a Statue of Athena," *JHS* 36, 373-40.
- Hubert Allen 1974. "Excavations at Morgantina, 1970-1972," *AJA* 78:361-\_\_\_\_.
- \_\_\_\_\_. 1970. "Excavations at Morgantina (Serra Orlando): 1967-1969," *AJA* 74:359-383.
- Penelope M. Allison 2004. *Pompeian Households: An Analysis of Material Culture*. Los Angeles: U. Cal Press.
- Dimitra Andrianou 2009. *The Furniture and Furnishings of Ancient Greek Houses and Tombs*. Cambridge: Cambridge U. Press.
- \_\_\_\_\_. 2007. "A World in Miniature: Greek Hellenistic Miniature Furniture in Context," *BA Besch* 82:41-50.
- \_\_\_\_\_. 2006. "Late Classical and Hellenistic Furniture and Furnishings in the Epigraphics Record," *Hesperia* 75, 561-584.
- \_\_\_\_\_. 2006. "Chairs, Beds and Tables: Evidence for Furnished Interiors in Hellenistic Greek," *Hesperia* 75, 219-266.
- Manolis Andronikos 1978. *The Royal Graves at Vergina*. Athens: K. Mihalas A.E.
- Bradley Ault and Lisa Nevett 2002 ("Ault"). *Ancient Greek Houses and Households*. Philadelphia: U. Penn. Press.
- Etan Ayalon 2005, *The Assemblage of Bone and Ivory Artifacts from Caesarea Maritima, Israel: 1<sup>st</sup> – 13<sup>th</sup> Centuries CE*. Oxford, UK: Basingstoke Press.
- \_\_\_\_\_. and Chagit Sorek 1999. *Bare Bones: Ancient Artifacts from Animal Bones*. Tel Aviv: Eretz Israel Museum.
- R.D. Barnett 1982. *Ancient Ivories in the Middle East and Adjacent Countries*. Jerusalem: Institute of Archeology, The Hebrew Institute of Jerusalem.
- \_\_\_\_\_. 1948. "Early Greek and Oriental Ivories," *JHS* 68, 1-25.
- Geroge F. Bass, Cemal Pulak, Dominique Collon, and James Weinstein 1989. "The Bronze Age Shipwreck at Ulu Burun: 1986 Campaign," *AJA* 93: 1-29.

Jean Claude Beal 1983. *Catalogue des Objects de Tabletterie du Museo de la Civilisation Gallo- Romaine de Lyon*. Lyon: L'Université Jean Moulin.

John Beckwith 1954. "Textile Fragments from Classical Antiquity." *Illustrated London News* (Jan. 23, 1954): 114-115.

Malcolm Bell III, 2007. "Apronius in the Agora: Sicilian Civil Architecture and the Lex Hieronica" in J. Prag, ed. *Sicilia Nutrix Plebis Romanae*. London: Institute of Classical Studies, University of London, 117-134.

\_\_\_\_\_ 1988. "Excavations at Morgantina, 1980-1985; Preliminary Report XII," *AJA* 92, 313-342.

\_\_\_\_\_ 1981. *Morgantina Studies I: The Terracottas*. Princeton: Princeton U. Press.

Mária T. Bíró 1994. *The Bone Objects of the Roman Collection* (Catalogi Musei Nationalis Hungarici Series Archaeologica II). Budapest: Hungarian National Museum.

John Boardman 1980. *The Greeks Overseas*. London: Thames & Hudson

Theodore V. Buttrey, Kenan T. Erim, Thomas Groves, and R. Ross Holloway 1989. *Morgantina Studies II: The Coins*. Princeton: Princeton U. Press.

Nicholas Cahill 2005. "Household Industry in Greek Anatolia" in *Ancient Greek Houses and Households*, in Ault, 54-66.

\_\_\_\_\_ 2002. *Household and City Organization at Olynthus*. New Haven: Yale U. Press.

Jane Burr Carter 1985. *Greek Ivory Carving in the Orientalizing and Archaic Periods*. New York.

\_\_\_\_\_ 1989. "The Chests of Periander," *AJA* 93:355-378.

William A.P. Childs 1979. "Morgantina, Past and Future," *AJA* 83:377-379.

Carolyn Connor 1998. *The Color of Ivory*. Princeton: Princeton U. Press.

Anthony Cutler 1998. *Late Antiquity and Byzantine Ivory Carving*. Alderstat, Hampshire, U.K: Variorum.

\_\_\_\_\_ 1985. *The Craft of Ivory*. Washington, D.C.: Dumbarton Oaks.



- Gladys R. Davidson 1952. *Corinth: Vol. XII: The Minor Objects*. Blackstadt: J.J. Augustine.
- Gladys R. Davidson and Dorothy Burr Thompson 1943. *Small Objects from the Pnyx: I*. Athens: American School of Classical Studies.
- Waldemar Deonna 1948. *La vie privée des Déliens*. Paris: E de Boccard.
- Kate McK. Elderkin 1930. "Jointed Dolls in Antiquity," *AJA* 34:455-479.
- \_\_\_\_\_ 1928. "Buttons and their Use on Greek garments," *AJA* 32:333-345
- W.D. Evelyn 1992. "Towards An Education of the Ivory-Worker's Tool-Kit in Neo-Palatial Crete," in *Fitton* 1992, 7-16.
- Kenan Erim 1958. "Morgantina," *AJA* 62:79-90.
- \_\_\_\_\_ 1956. I, II, III *Serra Orlando*. Field Books: Unpublished.
- M.I. Finley, Denis Mack Smith and Christopher Duggan 1986. *A History of Sicily*. London: Chatto de Windus.
- J. Lesley Fitton, ed. 1992. *Ivory in Greece and the Eastern Mediterranean from the Bronze Age to the Hellenistic Period* ("Fitton"). British Museum Occasional Paper 85 (London).
- Richard Grimm 1955. I, II, III *Serra Orlando*. Field Book. Unpublished.
- Edward C. Harris 1979. *Principles of Archeological Stratigraphy*. New York: Academic Press.
- Dorothy Kent Hill 1963. "Ivory Ornaments of Hellenistic Couches," *Hesperia* 32:293-300.
- Henry Hodges 1981. *Artifacts: An Introduction to Early Materials and Technology* 2d Ed. London: John Baker Pub., Ltd.
- R. Ross Holloway 1986. "The Bulls in the Tomb of the Bulls of Tarquinia," *AJA* 90:447-452.
- John W. Humphrey. *Ancient Technology*. Westport, Conn: Greenwood Press, 2006.
- \_\_\_\_\_, John P. Oleson, and Andrew N. Sherwood 1998. *Greek and Roman Technology: A Sourcebook*. London: Routledge.

- Mark Jackson and Kevin Greene, "Ceramic Production," in *Oxford Handbook of Engineering and Technology in the Classical World*, John P. Oleson, ed. 2008 ("Oxford"). Oxford: Oxford U. Press, 496-519.
- John Kenfield 1994. "High Classical and High Baroque in the Architectural Terracottas of Morgantina," *Hesperia Supp.* 27: 275-281.
- Ryne Killingstad and Erik Sjöqvist 1965. "Hellenistic Doorways and Thresholds from Morgantina," *ACTA II*: 23-34.
- W.D. Kingery, ed. 1985. *Ancient Technology to Modern Science: Vol I.: Ceramics and Civilization*. Columbus, Ohio: The American Ceramic Society, Inc.
- Olga H. Krzyszkowska 2007. *Well Built Mycenae Fascicule 24: The Ivories and Objects of Bone, Antler and Boars Tusk*. Oxford: Oxbow Books.
- \_\_\_\_\_ 1999. "Aegean Ivory Carving: Towards an Evaluation of Late Bronze Age Workshop Material" in *Fitton* 1994, 25-35.
- \_\_\_\_\_ 1990. *Ivory and Related Materials*. London: Institute of Classical Studies.
- Kenneth D.S. Lapatin 2001. *Chryselephantine Statuary in the Ancient Mediterranean World*. Oxford: Oxford U. Press.
- Robert Leighton 1993. *Morgantina Studies, Vol. VI: The Protohistoric Settlement on the Cittadella*. Princeton: Princeton U. Press.
- François Lissarrague 1995. "Women, Boxes, Containers: Some Signs and Metaphors," in *Pandora: Women in Classical Greece*. Ed. Ellen Reeder, 198-199. Baltimore: the Walters Art gallery.
- Margaret Longhurst 1927. *Catalogue of Carvings in Ivory, Part I*. London: Board of Education.
- Claire J. Lyons 1996. *Morgantina Studies V: The Archaic Cemeteries*. Princeton: Princeton U. Press.
- Arthur MacGregor 1985. *Bone, Antler, Ivory & Horn: The Technology of Skeletal Materials Since the Roman Period*. London: Groom Helm.
- Lila Marangou 1976. *Bone Carvings from Egypt: I. Graeco – Roman Period*. Tübingen: Ernst Wasomath Pub.
- Ingrid Margreiter 1988. *Die Kleinfunde aus dem Appolon-Heiligtum (Alt-Ägina)*. Mainz: Verlag Philipp von Zabern.

- Peter R.S. Moorey 1994. *Ancient Mesopotamian Materials and Industry: The Archeological Evidence*. New York: Clarendon Press Oxford.
- Georgianna Moraitou 1983. *Structure, Deterioration and Identification of Bone, Antler, Horn, and Ivory*. London: University of London.
- Kathleen Morrow 1985. *Greek Footwear and the Dating of Sculpture*. Madison: U. Wisc. Press.
- James Muhly, Tamara Stech Wheeler and Robert Madden 1977. "The Cape Gelidonya Shipwreck and the Bronze Age Metals Trade in the Eastern Mediterranean." *Jour Feld Arch* 4, 353-362
- Lisa C. Nevett 1999. *House and Society in the Ancient Greek World*. Cambridge UK: Cambridge U. Press.
- Francesca Oliveri 2009. "Le iscrizioni latine," in *Il Museo Regionale "A Pepoli" di Trapani*, ed. Maria Luisa Famà, 385-396. Bari: EdiPuglia.
- Michael Pfrommer 1987. "The Emperor's Shoes: Footwear in Roman Times." *Bulletin of the Cleveland Museum of Art*, 74, 124-129.
- J.R.W. Prag 2007. *Sicilian Nutrix Plebis Romanae: Rhetoric Law & Taxation in Cicero's Verrines*. London: Institute of Classical Studies, University of London.
- Ellen D. Reeder 1995. "Containers and Textiles as Metaphors for Women," in Ellen Reeder, ed. *Pandora Box: Women in Classical Greece*. Baltimore: Walters Art Gallery and Princeton: Princeton U. Press, 195-297.
- David S. Reese 1993. "Animal Bones" in Leighton 1993, 91-95.
- Gisela Richter 1966. *The Furniture of the Greeks, Etruscans and Romans*. London: Aberdeen U. Press.
- \_\_\_\_\_ 1965. *The Portraits of the Greeks*, Vols. 1-3. London: Phaidon Press.
- David M. Robinson 1938. *Excavations at Olynthus Part VIII: The Hellenic House*. Baltimore: Johns Hopkins Press.
- \_\_\_\_\_ 1941. *Excavations at Olynthus Part X: Metal and Minor Miscellaneous Finds*. Baltimore: Johns Hopkins Press.
- Elizbeta Rodziewicz 1971. "Greek Ivories of the Hellenistic Period," *Etudes et travaux* 5: 72-89.

- \_\_\_\_\_. 2007. *Bone and Ivory Carvings from Alexandria: French Excavations from 1992-2004*. Cairo: Institut Français D'Archéologie Orientale.
- Wolf Rudolph 1973. "Die Nekropole am Prophitis Elias bei Tiryns" in *Tiryns: Forschungen und Berichte Band VI* ("Tiryns"). Mainz: Verlag Philipp von Zabern, 22-126.
- Archer St. Clair 2003. *Carving as Craft*. Baltimore: Johns Hopkins U. Press.
- \_\_\_\_\_. 1996. "Imperial Virtue: Questions of Form and Function in the Case of Four Late Antique Statuettes," *Dumbarton Oaks Papers* 50, 147-162.
- \_\_\_\_\_, and Elizabeth Parker McLachlan eds. 1989. *The Carver's Art*. New Brunswick: Zimmedi Art Museum.
- Phoebe Aldrich Sheftel 1974. *The Ivory, Bone and Shell Objects from Gordion from the Campaigns of 1950 through 1973*. Doctoral Dissertation, University of Pennsylvania.
- Anne O. Shepard 1956. *Ceramics for the Archeologist*. Washington, D.C.: Carnegie Institution of Washington.
- Heinrich Siedentopf et al. 1973. *Tiryns: Forschungen und Berichte*. Mainz: Verlag Philipp von Zabern.
- Erik Sjöqvist 1973. *Sicily and the Greeks: Studies in the Interrelationship Between the Indigenous Population and the Greek Colonists*. Ann Arbor: U. Mich. Press
- \_\_\_\_\_. 1958. "Excavations at Serra Orlando (Morgantina): Preliminary Report II." *AJA* 62: 155-164.
- \_\_\_\_\_. 1963. "Excavations at Morgantina (Serra Orlando) 1963 Preliminary Report VIII." *AJA* 68: 137-147.
- \_\_\_\_\_. 1962. "Excavations at Morgantina (Serra Orlando) 1961 Preliminary Report VI." *AJA* 66: 135-143.
- \_\_\_\_\_. 1959. "Excavations at Morgantina (Serra Orlando) 1959 Preliminary Report VI." *AJA* 64: 125-135.
- Jeffrey Spier 1992. *Ancient Gems and Finger Rings: Catalogue of the Collection*. Malibu, Calif.: J. Paul Getty Museum.
- Richard Stillwell 1963. "Excavations at Serra Orlando (Morgantina): Preliminary Report VII." *AJA* 67: 163-171.

- \_\_\_\_\_. 1961. "Excavations at Serra Orlando (Morgantina): Preliminary Report V." *AJA* 65: 277-281.
- \_\_\_\_\_ and Erik Sjöqvist. "Excavations at Serra Orlando (Morgantina): Preliminary Report I." *AJA* 61:151-159.
- W.O. Stern and Danae Thimme 2007. *Kenchreai: Eastern Port of Corinth: VI. Ivory, Bone and Related Wood Finds*. Boston: Brill.
- Shelley C. Stone, III. *Morgantina Studies VI: The Hellenistic and Roman Fine and Tableware from the Fourth Century BC to the Mid-First Century CE* 210. Unpublished Manuscript. 2010; forthcoming.
- Birgit Tang 2005. *Delos, Carthage, Ampurias*. Rome: Bretschneider.
- Barbara Tsakirgis 1984. *The Domestic Architecture of Morgantina in the Hellenistic and Roman Periods*. Ph.D. Dissertation: Princeton University.
- \_\_\_\_\_. 2005. "Living and Working Around the Athenian Agora: A Preliminary Case Study of Three Houses," in Ault and Nevitt 2005, 67-82.
- Dorothy Burr Thompson 1960. "The House of Simon the Shoemaker," *Archaeology* 13:234-246.
- Roger Ulrich 2008. "Representations of Technical Process" in *Oxford*, 35-61.
- Carol van Driel-Murray 2008. "Tanning and Leather" in *Oxford*, 483-495.
- Walter Voigtländer 1973. "Zur chronologie der Spätmykenischen Burgen" in *Tiryns*," 241-264.
- Serap Yakar and Gürsans Uzala 2006. *Bodrum Underwater Archaeology Museum*. Trans. Bodrum Consulting and Translation. Bodrum, Turkey.