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

By

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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

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New Brunswick, New Jersey
MAY 2012
ABSTRACT OF THE DISSERTATION

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The purpose of this dissertation is to prepare a publishable catalog of more than six hundred unpublished worked bone and ivory artifacts unearthed in successive archeological excavations of the second city of Morgantina, Sicily, beginning in 1955 and continuing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 to 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.
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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. 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.

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, 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 Lucore (the North Bath). In view of these publications, an extended historical review of the city itself is unnecessary;

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1 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.

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

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. 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.

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. Ducetius held the city for approximately ten years. Thucydides notes that the town was “sold” to Kamerina by the Syracusans in 424, a sign of its continuing weakness. In 396 B.C., Morgantina was

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4 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.

5 Bell 1981, 5.

6 Erim 1958, 87, citing Diodorus at 11.78.5.

captured by Dionysios of Syracuse and prospered under the influence of Syracuse for the next two centuries.\textsuperscript{8}

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.\textsuperscript{9} 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.\textsuperscript{10} 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.\textsuperscript{11}

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

\textsuperscript{8} Diodorus 14.95.2; Bell 1981, 5.

\textsuperscript{9} Diodorus, 19:6.2-3.

\textsuperscript{10} Bell 2007, 120, notes that no written source describes Morgantina as part of the Kingdom of Sicily, but several other factors support that supposition.

\textsuperscript{11} Bell 1981, 6; Bell 2007, 121; Stillwell 1960, 278.
Hispani, the domiciles in Area I were reoccupied and altered substantially.12 This period was accompanied by a decline in urbanization as well as by “markedly lower standards of craftsmanship and taste.”13 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 Orsi14, 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 expedition15 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,

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12 Bell 1981, 6-7.

13 Bell 1981, 7.

14 Stillwell 1957, 151-152.

15 Bell 19891, Introduction by Richard Stillwell.
of the Hellenistic agora – occurred during the reigns of Hieron, and briefly thereafter, of his grandson Hieronymos.\textsuperscript{16} 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.\textsuperscript{17}

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. \textit{See} attached Chart of Find Spots and Dating. The dating of objects from the protohistorical period is covered in \textit{Morgantina Studies Vol.}

\textsuperscript{16} The exact outline of growth and changes in the Hellenistic Agora are outlined in Bell 1988, 337, \textit{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.

\textsuperscript{17} Bell 1988, 316.
VI: *The Protohistorical Settlement on the Cittadella.*¹⁸ 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.¹⁹

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

¹⁸ Leighton 1993.

¹⁹ 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. All these factors account in large part for their present day condition. Some of the excavated objects have been lost altogether.

**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. 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.

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

21 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.

22 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. In other instances, as many as five to sixteen different objects were assigned the same inventory number. 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. 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

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23 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.”

24 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.

25 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-extraction 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 ekkesietion, 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; 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.

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

26 Bell 1988, in general.
27 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,”

28 and buildings, such as the bouleterion (in the Agora) and the House of the Official (Area II) were radically altered. In addition, the entire site bears evidence of both ancient and modern looting, 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. Altogether it appears that the objects under examination have been “decontextualized,” such that a “typological catalogue” is all that can be wrung from them.

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


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

30 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.

31 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.

32 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,” as do more recent publications, such as Andrianou. 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

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33 Andrianou 2009, discussing Robinson 1941, 6.
34 Andrianou 2009, in general.
applicable and available, with similar objects in different substances such as metal.\textsuperscript{35} 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.\textsuperscript{36} 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

\textsuperscript{35} 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).

\textsuperscript{36} 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. \textit{See, e.g.}, Bell 1998 and Kingfield 1994. Upcoming books by Stone, Kenfield, Tsakiris, Lucore and others amply demonstrate this.
visually striking, finely worked and highly decorative. 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.

37 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.³⁸ In Morgantina, sheep, goat, and pig bones, basically, the waste from butchering,³⁹ have been identified among the bones excavated on the Cittadella site,⁴⁰ and these animals, together with cattle, constitute the sources of bones used in Hellenistic times and later.⁴¹

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.⁴² 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

³⁸ Leighton 1993, 88-89.
³⁹ St. Clair 2003, 2.
⁴¹ It is outside the purview of this study to delineate exactly what animal was the source of each bone object.
⁴² 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, its 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.” 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. Figs. 1-6; 99. Such spoons, although not numerous at any site, are common finds in the ancient


44 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. 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.” 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. 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.

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, (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

45 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.

46 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.


48 Bíró 1994, 44.

49 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.\footnote{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.}

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;\footnote{Margreiter 1988, 67 and Taf. 6, 108 (Aegina Museum 93). All inventory numbers for Margreiter are for the Aegina Museum.} focusing on the relatively complete pointed end, Davidson identifies as styli bone objects similar to those characterized here as cosmetic spatulas.\footnote{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.”} 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.\footnote{St. Clair 2003, 103 and Fig. 36(g) (3144).} MacGregor demonstrates the variety of forms spoons took in Roman Britain, pointing out
that they were the subject of industrial manufacture in Britain during that time, but that after the Roman period, spoons were “comparatively rare.”

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. 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. MacGregor confirms that combs were

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54 MacGregor 1985, 44-45 and 181-183.

55 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.

56 Davidson 1952, 179.
commonplace in Roman Britain and thereafter, when complex combs made of separate pieces become common.\textsuperscript{57}

\textbf{Jewelry}

\textbf{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.,\textsuperscript{58} 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.\textsuperscript{59} 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.”\textsuperscript{60} The Morgantina amulet appears to be \textit{sui generis}, but its subject is not: “[p]halli are among the most widespread of Roman symbols for good fortune,”\textsuperscript{61} carrying forward the widespread ancient notions of the

\textsuperscript{57} MacGregor 1985, 73-97.

\textsuperscript{58} There was at least one other item which could have been an amulet (Inv. No. 55-300; Grimm, \textit{I Serra Orlando}, 70) but it is missing.

\textsuperscript{59} Davidson 1952, 255, 257 (with citations), Pl. 110, 2056, 2057 (2530, 5736).

\textsuperscript{60} Bíró 1994, 65 and Pl. LXXXIV, 848 (132.1872.B). All references to objects in Bíró are from the Hungarian National Museum.

\textsuperscript{61} MacGregor 1985, 107.
phallus as apotropaic, protecting against the “Evil Eye,” 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.63

These apotropaic “fig hands” were pierced laterally through the wrist,64 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.65

**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

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62 Holloway 1986, 449.
63 MacGregor 1985, 106-107, Fig. 61, a-e.
64 MacGregor 1985, 107.
65 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.\textsuperscript{66} 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.\textsuperscript{67} 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.\textsuperscript{68} 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.”\textsuperscript{69} 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

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\textsuperscript{66} 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.

\textsuperscript{67} Ayalon 1999, 35 and Fig. 38. Ayalon 1999 gives no dates or inventory numbers for the pieces to which he refers.

\textsuperscript{68} See citations under the topic Eyelets/Reinforcements.

\textsuperscript{69} Davidson 1952, 276.
was the material of choice for pins,\textsuperscript{70} 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)\textsuperscript{71} one pin with a flattened rounded head similar to those shown in Fig. 99 (58-987), although with a less prominent taper,\textsuperscript{72} and one with a sharply indented point similar to those shown in Figs. 38-39, which she labels a spatula.\textsuperscript{73} Similar objects were found at the Temple of Apollo in Aegina, dating from the late sixth century B.C.\textsuperscript{74} In contrast, no pins are reported among objects from the Pnyx.\textsuperscript{75} 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.,\textsuperscript{76} 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,

\begin{itemize}
\item \textsuperscript{70} Krzyszkowska 2007, 62-63.
\item \textsuperscript{71} 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.
\item \textsuperscript{72} Krzyszkowska 2007, 66, Pl. 18 (i).
\item \textsuperscript{73} Krzyszkowska 2007, 66, Pl. 18 (k).
\item \textsuperscript{74} Margreiter 1988, 67 and Taf. 6, 109-110 (90, 68).
\item \textsuperscript{75} See, generally, Davidson 1943, 102-104.
\item \textsuperscript{76} Robinson 1941, 113-114.
\end{itemize}
including two with bone components, there are several metal fibulae from the Hellenistic period, 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, 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.

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. Some of these pins have a slightly rounded end; on others the end is pointed.

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

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77 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.

78 See, generally, Davidson 1952, 276, Pl. 116-117.

79 Davidson 1952, 277-278.

80 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).

81 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. Bell argues that these pins, particularly those which are longer and have a flattened head (for use as an eraser), are in fact styli, 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. 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. 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; some of these had heads which were separately produced. It would appear

82 Compare Bíró 1994 at 31-32 (“Globular Pins”).
83 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.
84 Rodziewicz 2007, 29.
85 Rodziewicz 2007, 29.
86 Davidson 1952, 270; Rodziewicz 2007, 30.
87 See Bíró 1994, 34.
that certain of the Morgantina pins are also lathe-turned,\textsuperscript{88} 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,\textsuperscript{89} 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.\textsuperscript{90} 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.\textsuperscript{91} Bíró also comments upon an arrow-shaped specimen which is long (15 cm),\textsuperscript{92} 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

\textsuperscript{88} See, e.g., Fig. 7, upper left.

\textsuperscript{89} 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.

\textsuperscript{90} Bíró 1994, 34.

\textsuperscript{91} 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.

\textsuperscript{92} Bíró 1994, 34, Pl. XXXIII, 368 (54.66.7).
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. 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. 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. 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

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93 Rodziewicz 2007, 29.

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

95 MacGregor 1985, 113 and Fig. 69, Nos. 2, 8-11 and 13.

96 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, 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. 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”; he notes that circular bands of bronze were used to reinforce keyholes and often had a form of attachment visible. Thompson agrees with this assessment regarding an object found in the Pnyx, citing Robinson. 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.

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97 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.

98 See generally, Robinson 1941, 132; Pl. LXIII.

99 Robinson 1941, 229.

100 Robinson 1941, 253, et seq.

In discussing objects from the Athenian Agora, Richter suggests another use for rings, whether of bone or bronze: curtain or drapery hangers. She notes that these objects recur in excavations from the fourth century B.C. to the Roman period, 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. 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. 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. 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.

102 Richter 1966, 119, Pl. 600.

103 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).

104 Rodziewicz 2007, 34.


106 Richter 1966, 81-84.
Hellenistic and Roman periods. Andrianou hypothesizes that during the Hellenistic period, “bronze circlets” were also used as decorations on boxes.

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. 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. Most finger rings are made of gold, silver, and bronze; bone seems to have been used rarely, if at all.


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

109 See, e.g., Spier 1992, 1-6; Davidson 1952, 229 et seq.

110 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, 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. They were found throughout the Morgantina site.

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**111** 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

**112** 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. The objects from the Temple of Apollo are identified as bone beads. 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. 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., and destroyed by departing Persians in 479, with everything which could be used dumped into the well. The house was later rebuilt and reoccupied. Its life span altogether was approximately 200 years, derived from the seven different floor levels. 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.” In support of her argument that laces on shoes and sandals were sometimes threaded through bone

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113 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.

114 Margreiter 1988, 66 and Taf. 5, 76 (119).

115 Thompson 1960, 234-246.

116 Thompson 1960, 237.


118 Thompson 1960, 237.

119 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.\(^{120}\)

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,\(^ {121}\) which show such an eyelet as part of a sandal.\(^ {122}\) 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.\(^ {123}\) 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.\(^ {124}\) The sandals on the famous marble statue of Demothenes, now in the Ny Carlsberg Museum in Copenhagen, have laces threaded through eyelets.\(^ {125}\) 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.”\(^ {126}\)

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

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\(^{120}\) Illustration in Thompson 1960, 236.

\(^{121}\) Morrow 1985, 80, Pl. 60c (British Museum,. 26).


\(^{124}\) Morrow 1985, 119-120.

\(^{125}\) Richter 1965, Vol. 2, 219 and Fig. 1400, Pl. 32 (Copenhagen, Ny Carlsburg, 2782).

\(^{126}\) 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.\textsuperscript{127} 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 \textit{ante quem} of 25 B.C. or in fewer instances, with a terminus \textit{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,\textsuperscript{128} 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 (\textit{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;\textsuperscript{129}

\textsuperscript{127} Several similar objects from Tiryns, but of amethyst and amber, are identified as beads in Rudolph 1973.

\textsuperscript{128} Krzyszowska 1990, 54-55.

\textsuperscript{129} 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.
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.” Counters usually lack a central hole, are usually of bone and occasionally ivory, and can be in other than discoid shapes.

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, as can nine others, which are decorated on both sides. 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

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

131 Davidson 1952, 296.

132 Davidson 1952, 217.


of Ionic dress, at which point Doric dress also came to be fastened with buttons. MacGregor flatly asserts that buttons were not used until the medieval period. 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, 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. 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. Morrow also notes that there is the occasional carved ornament on sandals, usually plain, round “buttons.” 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.

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

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135 Davidson 1952, 296-298.
136 Elderkin 1928, 336, et seq.
137 MacGregor 1985, 99-100.
138 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.
139 Elderkin 1928, 341-342.
140 Lapatin 2001, 150, note 8 and Fig. 245 (St. Louis Museum of Art 227:1923).
141 Morrow 1985, 92, and see also 26, 41, 156, and 143.
142 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”\(^{143}\) 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,\(^{144}\) 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.\(^{145}\) Davidson categorizes all objects with a point as pins.\(^{146}\)

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

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\(^{143}\) Rodziewicz 2007, 35.

\(^{144}\) See Bíró 1994, 31, who categorizes these as undecorated bone hair pins.

\(^{145}\) Pls. 2291 and 2351. 2291 has a distinct knob and would be classified as a pin in this catalog.

\(^{146}\) 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, presumably for use on a wax tablet. The erasing end is often distinct and may look like a spatula. 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

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147 Davidson 1952, 185.

148 *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.\textsuperscript{149} 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.\textsuperscript{150} 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.\textsuperscript{151}

\textbf{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.\textsuperscript{152} 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.\textsuperscript{153} Of the points shown in Figure 33, one, 67-27, is flattened, although overall it is oval in section. There is ample

\textsuperscript{149} See Bell 2007, 128-129.

\textsuperscript{150} 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.

\textsuperscript{151} See discussion above re: spatulas.

\textsuperscript{152} Bíró 1994, 51 and Pl. LXI, 531-533 [63.21.1; 63.21.3; 63.21.1 (\textit{sic})]; Andrianou 2005, 2005.

\textsuperscript{153} Andrianou 2008, 105.
evidence of weaving in Morgantina, in the form of loom weights, and spindles in other materials.  

**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. 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

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154 See, *e.g.*, Fig. 50.

155 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,¹⁵⁶ 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

¹⁵⁶ 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,\footnote{Humphrey 2006, 92.} apparently used for scraping, smoothing trimming, and decorating ceramic vessels.\footnote{Shepard 1956, 36-39; Manson 1995, 71.}

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

The presence of large numbers of molded terracotta figures,\footnote{Bell 1981 devotes an entire book to these.} ceramic ware,\footnote{Stone’s 2010 manuscript focuses on ceramic tableware.} 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”\footnote{Hodges 1981, 30-32} Pots could be decorated by incision and detail on terracottas could similarly be incised;\footnote{Humphrey 2006, 114.} Jackson confirms that unfired leather-hard pots could be smoothed by burnishing, while decorative effects could

\footnote{Hodges 1981, 30-32}
be achieved by burnishing linear designs into matt zones, and incising designs.\textsuperscript{163} 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.\textsuperscript{164}

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,\textsuperscript{165} and more simply, as “bone implements.”\textsuperscript{166} 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.\textsuperscript{167} Alternatively, the objects under discussion could have been styli; their shape, however, with one

\textsuperscript{163} Jackson 2008, 509.

\textsuperscript{164} Hodges 1981, 154.

\textsuperscript{165} See, generally, Davidson 1952, 197, Plates 83-84.

\textsuperscript{166} See, generally, Davidson 1952, 196, Pl. 89.

\textsuperscript{167} 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.\textsuperscript{168} 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,\textsuperscript{169} 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

\textsuperscript{168} Van Driel-Murray 2008, 486.

\textsuperscript{169} 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.¹⁷⁰ 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.¹⁷¹ 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,¹⁷² 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.¹⁷³

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

¹⁷⁰ 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.

¹⁷¹ Van Driel-Murray 2008, 490-492.

¹⁷² Van Driel-Murray 2008, 483-487.

¹⁷³ 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, 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. She characterizes similar instruments with longer shafts as spoons for use “in deep vessels such as an unguentarium.” She further notes that bone examples “all have shafts which are circular in section and . . . are rarely decorated,” 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.). 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

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174 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).

175 Davidson 1952, 181, 184, 1327 and 1328 (5311, 4450).

176 Davidson 1952, 181, 184.

177 Davidson 1952, 181.

178 Davidson 1952, 181.
identical piece, 63-1260, was found in the protohistoric strata of Morgantina.\textsuperscript{179} 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.\textsuperscript{180} 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.\textsuperscript{181} 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.

\textbf{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

\textsuperscript{179} Leighton 1993, 88 and 191 (Cat. No. 339).

\textsuperscript{180} Ayalon 1999, 25, Fig. 14.

\textsuperscript{181} 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.\footnote{MacGregor 1985, 60-61 describes scribing tools with three prongs used to create circle and dot motifs.}

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. \textbf{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.

\textbf{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
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. 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. 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. In particular, Lissarrague discusses pictorial evidence illustrating a wide variety of sizes for containers. 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.

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183 Rodziewicz 2007, 35
184 Andrianou 2009, 64 et seq.
185 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).
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. 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.” 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. 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. 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

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

189 MacGregor 1985, 203.

190 MacGregor 1985, 203.

191 Bíró 1994, 57, shows diagrams which include spacers.
of a hinge.\textsuperscript{192} 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.”\textsuperscript{193} 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,

\textsuperscript{192} Bíró 1994, 56.

\textsuperscript{193} 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.  

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. 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. 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. 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.

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194 See footnote 185.

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

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

197 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.\footnote{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).} 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.\footnote{Andrianou 2009, 73-75.} 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.\footnote{Beal 1983, 8 \textit{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.}

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
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.201

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.202 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.”203 All of

201 Davidson 1952, 128 and Pl. 64, 866 (2795).
202 Krzyszkowska 2007, 29-30, Pl. 6, 1-17, 1-18.
203 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. 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.

**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. Davidson describes a bone object similar to 62-684 (Fig. 63) as a bone knob of the Hellenistic period, without assigning a definite function. An analogous handle, but with a groove over the length, is described by St. Clair as a handle for a folding knife. 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

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204 Andrianou 2009, 53-59 and Fig. 15b.


206 Compare, e.g., 62-249 and 05-222.

207 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.

208 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 appliqués 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. 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

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209 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. 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.”

She attributes this cylinder to the Late Roman period; those from Morgantina primarily date from 211 B.C. to 35 B.C. Ayallon shows an identical piece from the late Byzantine period in Caesarea Maritima, which he describes as a furniture mount. 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.

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

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210 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).

211 Davidson 1952, 189, 192 and Pl. 86, 1427 (3711).

212 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.

213 Ayallon 2005, 105 and Fig. 46, 433 (no dates or inventory numbers are given).

214 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, 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.” 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. St. Clair identifies similar fragments as columnar furniture mounts. The disparity in possible uses may be a function of the material used (metal vs. bone).

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

216 Ayalon 1999, 15, Fig. 2.

217 Robinson 1941, 243-244, Pl. LXIV, 966 (38.53, bronze).

218 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.219 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,220 while 56-1579

219 St. Clair 2003, 77, describes similar objects as cylindrical mounts.

220 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. 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. Marangou opines that similar objects, also intricately lathe-worked, are pyxides. 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; it has a terminus date of 50-40 B.C. 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, 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

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221 See St. Clair 2003, Pl. 17 and 1, in general.

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

223 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).

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

225 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.226

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.227

**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.228 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.229 Even so, she discusses single objects from Delos, Samos, and many sites in Macedonia and the Peloponnese.

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226 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.

227 Cf. St. Clair 2003, 72 and Pl. 18(g) (2256).

228 See footnote 185.

229 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. 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. 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. 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, 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.

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230 See, e.g. Davidson 1952, Pl. 62, 845 (4790).

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

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

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

234 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 Phyrigian city, dating from 250 B.C. and later.\(^{\text{235}}\) The Morgantina whirligig has a hole for attachment, such that its use as a decoration is likely; the Gordian 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

\(^{\text{235}}\) 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.\textsuperscript{236} 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.\textsuperscript{237}

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.

\textsuperscript{236} Davidson 1952, 189, 192, Pl. 86, 1424 and 1425 (4081, 5579).

\textsuperscript{237} 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 latrunculorum)”238 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.239 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.240 A similar partial piece has also been described as a decorative plaque.241 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

238 Davidson 1952, 222 (quoting from British Museum Guide to Greek and Roman Life, 3d ed., 204, Fig. 223) and Pl. 100, 1761 (2955).
239 Bíró 1994, 54-55.
240 Notizie degli Scavi 1912, 320 and Notizie degli Scavi 1889, 396.
241 Oliveri 2009, Fig. 13, 393.
ascertained; since Greek dice “are sometimes of the type common in later times”\textsuperscript{242} 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.\textsuperscript{243} 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.\textsuperscript{244} 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.\textsuperscript{245} 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

\textsuperscript{242} 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.

\textsuperscript{243} 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”).

\textsuperscript{244} Bíró 1994, 62, identifies some 165 disks as game counters only. It would seem that disks surely had more than one use.

\textsuperscript{245} 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.\textsuperscript{246}

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.\textsuperscript{247} 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.\textsuperscript{248} Kenfield concludes that the Medusa antefixes, which are clearly related to the medallion, “show once again that in

\textsuperscript{246} Based on her dress, I would place this piece at a later date, possibly Roman.

\textsuperscript{247} Kenfield 1994, 275-281 and associated figures.

\textsuperscript{248} 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.”

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 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. 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. 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

249 Kenfield 1994, 280.


251 These descriptions come from the unpublished records at Princeton University.

252 Inventory cards for 60-1324, 60-1665, and 60-1683.
meant for use except by the deceased in the afterworld. 253  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. 254 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, 255 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. 256 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. 257 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

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

254 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.

255 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).

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

257 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. 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. Davidson notes similar items, 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. The museum at Gela denominates similar articles as buckles.

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.

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258 Lyons 1996. 113 and Cat. No. 17-175, 193 and Pl. 53.

259 Davidson 1952, 191, Pl. 84, 1400 (6415).

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

261 Ayalon 1999, 66, Fig. 96.

262 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.263

263 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 Sikel 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, 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.

\[264\] 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.\textsuperscript{265} 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.

\textsuperscript{265} 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*266 Spoon, ogival pointed (Fig. 99)
L: 11.229
L Handle: 8.650
L Bowl: 2.639
W Bowl: 1.252

266 *“*” 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\(^{267}\)

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.

\(^{267}\) 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\(^{268}\) (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

\(^{268}\) 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  Right: 4.860 x 3.041
MPT: .725  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.

<table>
<thead>
<tr>
<th>Object</th>
<th>Length (mm)</th>
<th>Shaft Diameter (mm)</th>
<th>Head Diameter (mm)</th>
<th>Finial Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>59-177</td>
<td>14.792 (Fig. 99)</td>
<td>12.757</td>
<td>0.911</td>
<td>0.600</td>
</tr>
<tr>
<td>59-255</td>
<td>11.499 (Fig. 99)</td>
<td>10.054</td>
<td>0.666</td>
<td>0.433</td>
</tr>
<tr>
<td>58-1042</td>
<td>11.375 (Fig. 15)</td>
<td>9.207</td>
<td>0.837</td>
<td>0.690</td>
</tr>
<tr>
<td>66-511</td>
<td>11.226 (Fig. 15)</td>
<td>9.007</td>
<td>1.088</td>
<td>0.870</td>
</tr>
</tbody>
</table>

Small portion of tip missing, but otherwise complete.
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.
“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.

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.

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.

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)(?)*  
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*  
MDX: 2.223 (Fig. 100)  
MDI: .572

58-420**  
(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

<table>
<thead>
<tr>
<th>No.</th>
<th>Inventory #</th>
<th>MDX</th>
<th>MDI</th>
<th>MT</th>
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<tbody>
<tr>
<td>57-541</td>
<td>1.958</td>
<td>.705</td>
<td>.641</td>
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<tr>
<td>55-2308</td>
<td>1.895</td>
<td>.612</td>
<td>.599</td>
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<tr>
<td>03-100</td>
<td>1.882</td>
<td>.803</td>
<td>.363</td>
<td></td>
</tr>
</tbody>
</table>

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

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<tr>
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<th>MDX: 1.796</th>
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<tr>
<td>#</td>
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</table>

Chipped on side.

57-803(?)

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<tr>
<th></th>
<th>MDX: 1.752</th>
<th>MDI: .570</th>
<th>MT: .482</th>
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</thead>
</table>

Greenish color.

60-1192

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<tr>
<th></th>
<th>MDX: 1.705</th>
<th>MDI: .619</th>
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62-419

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<tr>
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<th>MDI: .639</th>
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57-627

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<tr>
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<th>MDX: 1.671</th>
<th>MDI: .708</th>
<th>MT: .587</th>
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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

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<tr>
<th></th>
<th>MDX: 1.540</th>
<th>MDI: .523</th>
<th>MT: .356</th>
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56-2853

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<tr>
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<th>MDX: 1.531</th>
<th>MDI: .588</th>
<th>MT: .541</th>
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</table>

There is a hole, drilled obliquely, on one side.

71-253

<table>
<thead>
<tr>
<th></th>
<th>MDX: 1.081</th>
<th>MDI: .343</th>
<th>MT: .524</th>
</tr>
</thead>
</table>

1. **Partial Eyelets**

59-254

<table>
<thead>
<tr>
<th></th>
<th>MDX: 1.873</th>
<th>MDI: .693</th>
<th>MT: .288</th>
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</table>
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\textsuperscript{269+}  
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.

\textsuperscript{269} 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.
<table>
<thead>
<tr>
<th>MRN</th>
<th>Length (mm)</th>
<th>MD (mm)</th>
<th>Shaft Length (mm)</th>
<th>Tip Width (mm)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>59-672</td>
<td>7.626</td>
<td>.708</td>
<td>6.270</td>
<td>1.531</td>
<td>A pointed knob, created by incision, at terminus.</td>
</tr>
<tr>
<td>59-1259</td>
<td>7.578</td>
<td>.616</td>
<td>6.387</td>
<td>1.048</td>
<td></td>
</tr>
<tr>
<td>58-1038</td>
<td>7.418</td>
<td>.720</td>
<td>6.389</td>
<td>.899</td>
<td></td>
</tr>
</tbody>
</table>
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

Gradually tapers toward point, leaving no defined point.

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

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.
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

<table>
<thead>
<tr>
<th>#</th>
<th>L:</th>
<th>D:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.631</td>
<td>.332</td>
</tr>
</tbody>
</table>

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.
<table>
<thead>
<tr>
<th>Inventory</th>
<th>L:</th>
<th>DX:</th>
<th>MD hole 1</th>
<th>MD hole 2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-1279</td>
<td>7.149 (Fig. 48)</td>
<td>3.038</td>
<td>.720</td>
<td>.698</td>
<td>Incomplete; chipped along one edge. Band of four parallel incised lines.</td>
</tr>
<tr>
<td>56-2256</td>
<td>6.863 (Fig. 48)</td>
<td>2.259</td>
<td>.408</td>
<td>.526</td>
<td>Incomplete; chipped along one edge. Band of three parallel incised lines.</td>
</tr>
<tr>
<td>60-1737</td>
<td>6.540 (Fig. 48)</td>
<td>2.543</td>
<td>.581</td>
<td>.571</td>
<td>Complete. Cracked. Band of four parallel incised lines.</td>
</tr>
<tr>
<td>56-2035</td>
<td>6.349 (Fig. 48)</td>
<td>2.450</td>
<td>.442</td>
<td>.398</td>
<td>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.</td>
</tr>
<tr>
<td>61-1190a</td>
<td>5.517 (Fig. 48)</td>
<td>2.795</td>
<td>.587</td>
<td>.585</td>
<td>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.</td>
</tr>
<tr>
<td>No Inventory</td>
<td>L: 5.379 (Fig. 49)</td>
<td>MDX: 2.111</td>
<td>MD hole 1</td>
<td>MD hole 2</td>
<td></td>
</tr>
</tbody>
</table>
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\(^{270}\): 3.072  

\(^{270}\)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)  
Complete. 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-??
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 4.144 cm (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**
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
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; 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.

---

271 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+  
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)

<table>
<thead>
<tr>
<th>Code</th>
<th>MPL</th>
<th>MW</th>
<th>MT</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-25</td>
<td>2.800</td>
<td>1.169</td>
<td>.871</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Code</th>
<th>L</th>
<th>MD</th>
</tr>
</thead>
<tbody>
<tr>
<td>56-2731</td>
<td>10.259</td>
<td>.739</td>
</tr>
</tbody>
</table>

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 present 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\(^{272}\)

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 filet; 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\(^{273*+}\)

L: 12.560  
LFinial: 2.396  
DFinial: 2.212 ("umbrella” portion)  
LShaft: 10.21  
MDShaft: .566

---

\(^{272}\) Object now exhibited in room with Treasure of Eupolemos.

\(^{273*+}\) "\(\ast\)" 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.
Length of bone

62-317

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
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<th>Code</th>
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<th>ML</th>
<th>MW</th>
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<td>Piece of worked bone</td>
<td>11.404</td>
<td>3.015</td>
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<td>Ends sawn; cancellous interior not removed</td>
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<td>Piece of worked bone</td>
<td>6.966</td>
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<td></td>
<td>Ends sawn; interior cleaned</td>
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<tr>
<td>63-1093</td>
<td>A pointed object</td>
<td>2.247</td>
<td>.624</td>
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<tr>
<td></td>
<td>Probably the end of a point.</td>
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<tr>
<td>60-302</td>
<td>Tip of a horn, worked</td>
<td>4.904</td>
<td>2.456</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
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<tr>
<td>05-209</td>
<td>Antler?</td>
<td>23.5 cm</td>
<td>2.314 cm</td>
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<tr>
<td></td>
<td>Only minimal working – sawn at one end. Otherwise rough and unworked</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Crack near tip</td>
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<tr>
<td>03-357</td>
<td>Worked bone(?)</td>
<td>7.422</td>
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<td>There are faint scoring marks at one end, there appears to be a drill hole, but it may be natural.</td>
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</table>
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

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<th>Trench</th>
<th>Zone</th>
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274. 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.

275. 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.

276. 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.
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277 Multiple “Xs” signify multiple objects under the same inventory number.
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<th>Inventory #</th>
<th>Area</th>
<th>Trench</th>
<th>Zone</th>
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<td>4 - 445</td>
<td>VI</td>
<td>28</td>
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</table>
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
Figure 22

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
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Figure 38
Incomplete Indented Points

Figure 39
Miscellaneous Points, Primarily Lacking Both Termini
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Tools Possibly Used in Ceramic or Leather Production

Figure 41
Obverse and Reverse of Hollowed Tool

Figure 42
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Figure 43
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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
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
Unfinished Hinge Components or Rings

Figure 58
Unusual Hinge Components

Figure 59

Figure 60
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Figure 61 a and b
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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
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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
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Finished Pieces of Veneer

Figure 77

Unfinished Pieces of Veneer

Figure 78

Figure 79
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Figure 80

Figure 81

Figure 82

Figure 83
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Figure 84

Figure 85
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Figure 86

Figure 87

Figure 88 a and b

Figure 89 a and b
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Bull’s Head

Figure 90
Dionysiac Figure

Figure 91 a, b and c
Small Medallion Head

Figure 92
Fragment of Head Medallion

Figure 93
Figure 94a, b, c, and d
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Figure 95
Component of a Buckle?

Figure 96 a, b, and c
Unfinished Bead/Decorative Object?

Figure 97
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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.

Figure 102

Source: Bell 2007, Figure 1, 119.
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