

THE BONE AND IVORY OBJECTS FROM GORDION



PHOEBE A. SHEFTEL

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GORDION SPECIAL STUDIES X

The Bone and Ivory Objects from Gordion



Phoebe A. Sheftel

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"In this way a whole crowd of credulous historians, realizing clearly that their work was in fact storytelling, would find the scales falling from their eyes, as I did."

Orhan Palmuk, *Silent House* (2012)



"A narrative of suspense and adventure laid in the drama-filled steppes of the mysterious east; packed with excitement and mystery, every page heaves with the passionate hopes and unbridled desires of archaeologists. The tumultuous conclusions may shock some, but no reader will be able to forget the...magic of this lustily interwoven tapestry."

C. Greenwalt, *Gordion excavation notebook no. 91*.

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Abbreviations

A	Architectural element	Th.	Thickness
Avg.	Average	W	Wood
B	Bronze	W.	Width
BI	Bone/Ivory	YHSS	Yassıhöyük Stratigraphic Sequence
C	Coin		
cyl.	Cylinder		
D.	Diameter		
Est.	Estimated		
Dims.	Dimensions		
G	Glass		
H.	Height		
I	Inscription		
ILS	Iron/Lead/Silver		
Int.	Interior		
J	Jewelry		
L	Lamp		
L.	Length		
MC	Mudbrick/clay		
n.	Note/footnote		
no./#	Number		
NB	Gordion excavation notebook		
P	Pottery		
S	Seal		
SF	Small find		
SS	Stamped seal		
ST	Stone		
T	Terracotta		

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I will always be grateful to Rodney S. Young for first inviting me to Gordion in 1965 and for later entrusting to me the bone and ivory material for my dissertation, which was completed in 1974. That initial phase of research was greatly enhanced by his insights and assistance on historical issues. Ellen L. Kohler, who was thoroughly familiar with each object found in the Young excavations, showed me how a succinct, well-written catalogue entry can capture a clear image of an object. She gave generously of her time and opinions. While we did not always agree on interpretations, her ideas were a valuable stimulus to my own investigations.

In 2007, when G. Kenneth Sams, then Director of the Gordion Archaeological Project, asked that I turn my dissertation into a manuscript for publication in the Gordion series, it seemed a daunting task in light of the vast amount of new material that had been uncovered in Anatolian, North Syrian, Levantine, and Assyrian lands over the intervening 33 years. While this work was initially intended to encompass only the objects found during the Young excavations between 1950 and 1973, it later became apparent that it would be best to include the objects uncovered during the subsequent excavations carried out between 1988 and 2005 by Mary M. Voigt. I am indebted to her for freely sharing her material, fleshing out context information, providing catalogue descriptions, photographs, and drawings, and her thoughtful challenges to my interpretations. Andrew Goldman was also generous in helping solidify the Roman chronology and providing information on objects from his excavation trenches.

Certainly, this publication would not have been possible without Gareth Darbyshire's invaluable assistance and persistence in locating materials in the Gordion archives and working with Ardeth Anderson to

whom I am most grateful for her meticulous work on the layout of the plates and preparation of informative drawings.

Samuel Holzman's willingness to contribute his work on the tortoise shell lyres (823–827, Pls. 148–155) adds an insightful look at a unique and important group of objects in this catalogue. I am indebted to him for adding this significant section to the publication.

My interpretations of the ivory objects from Tumulus A owes much to extended conversations with Elspeth Dusingberre. I am most grateful to her for sharing her drawings and reconstruction of the duck box (120).

Many other people helped along the way. During my initial research in 1974, Robert H. Dyson was kind enough to allow me to examine some of the pertinent material from Hasanlu and share his theories as to the manufacturing methods and uses of several objects. During both phases of this research, I profited from advice on sculptural matters from Brunilde S. Ridgway. Many others were supportive in sharing views and information on various objects and conundrums: Betsy Bryan, Brendan Burke, Kim Codella, Suzanne Ebbinghaus, Nick Eiteljorg, Suzanne Berndt Ersöz, Amy Gansell, Georgina Herrmann, Elizabeth La Duc, Kathleen Lynch, Antonio Sagona, David Schloen, and Irene F. Winter.

Photographs and drawings are derived from multiple sources, including original field photos taken by the Young and Voigt excavation teams, the author in preparing her 1974 dissertation, and Dr. Gebhard Bieg, who has served as the excavation photographer in recent years. I am particularly grateful to Elizabeth Simpson for extended discussions about the finds from Megaron 3 and for allowing me to include her photographs of several important ivory objects (horse

ACKNOWLEDGMENTS

trapping: 2, Pl. 3; inlays from Megaron 3: 128–136, Pls. 28–30, and 138–139, Pls. 30–31; and a palm capital applique: 147, Pl. 33).

Finally, I thank C. Brian Rose for his patience and gentle prodding that kept this project moving toward completion.

Study Methodology

This study first began in the early 1970s with my research for a dissertation (*The Ivory, Bone and Shell Objects from Gordion from the Campaigns of 1950 through 1973*). In the mid-2000s, when Gordion Project Director Ken Sams proposed updating the material for publication, the addition of objects discovered during later excavations carried out by Mary Voigt (1988–2005) and the increased corpus of materials uncovered in excavations in Anatolia and its neighboring cultures to the east and west, led to a thorough reanalysis of the Gordion material for this publication.

I was grateful to be able to spend time at Gordion in 2008 and 2013, which gave me the opportunity to re-examine the Young material and study and photograph the Voigt finds. At the same time, I was able to view the objects from the early excavation years that are housed in the Museum of Anatolian Civilizations in Ankara. There are only a few objects that I was not able to locate and personally inspect.

Following the cataloguing format used in the Athenian Agora, Rodney Young primarily classified objects by their material, in this case designating them “BI” for bone/ivory. This catalogue also includes several pieces that were catalogued with as “ILS” (iron/lead/silver), but that include bone or ivory elements. Stamp seals and inscribed objects were grouped together, regardless of their material, and given an “SS” or “I” number. The entry for each object indicates the excavation notebook (designated “NB”) in which its findspot was recorded.

Under Rodney Young’s supervision, most of the excavation work was directly managed by graduate students which meant that each tended to develop his or her own recording system when documenting the stratigraphy of the trench and the exact location of a feature or artifact. Because the post-Hellenistic

periods of occupation did not extend evenly across the Citadel Mound, this means the layer numbers recorded by the excavator are not always consistently associated with the same time period. When an object was recovered in proximity to datable pottery or coins, these are listed in the catalogue entry to better anchor the bone or ivory object described.

Mary Voigt adopted a different cataloguing system assigning each piece a YH (Yassihöyük) and a small find (SF) number, with no categorization by material or function. To indicate context, each piece was recorded with an operation (trench), locus, and lot number. A locus corresponds to a sub-strata or to a floor, wall, pit, collapse, or exterior surface. A lot represents a stratum, a layer/patch of soil (or stone) differing in one or more physical characteristic from soils around it; in some cases, however, it may be an arbitrary unit created by the excavator. It was through an analysis of the contents of these loci and lots that Voigt has constructed the Yassihöyük Stratigraphic Sequence (YHSS) that is listed in each catalogue entry (see Table 1). In contrast to Young’s more selective approach to cataloguing objects, Voigt’s excavators saved much unworked bone and many pieces that were leftover waste material.

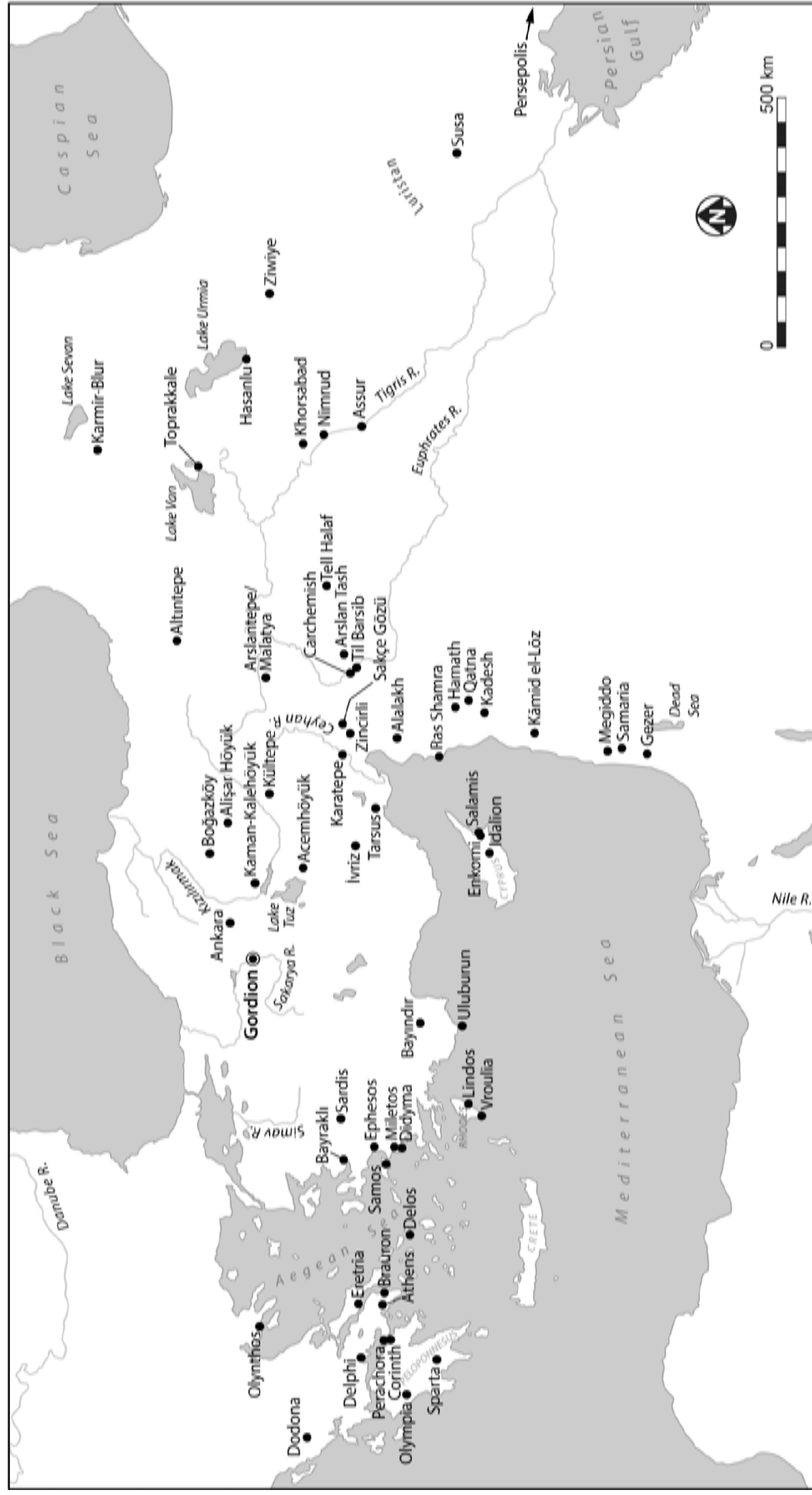
With close to 1,000 objects in this catalogue some structure was required to highlight both the individuality of significant pieces as well as the connections within a group of similar pieces.

Because a great number of items were not recovered from a securely dated context, a chronological arrangement was not suitable. While some objects, particularly those from the Early Phrygian Destruction layer and burials, come from closed contexts, their relationships to other objects would be muted were the catalogue arranged by context. For this reason, the objects are divided by function. These

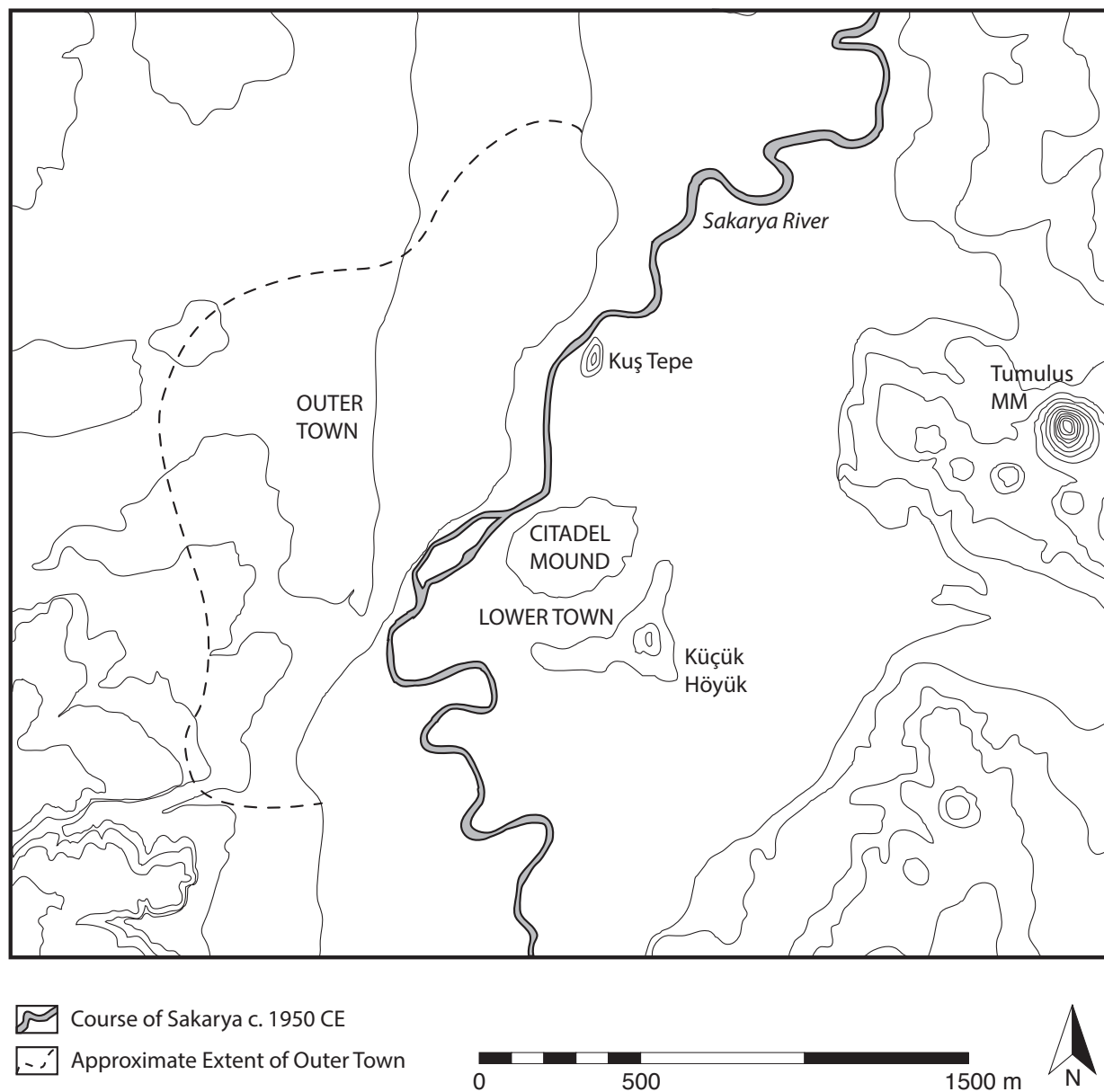
functional categories are intentionally broad to cover objects that range from those with an obvious

purpose to those where the original use is more difficult to discern.

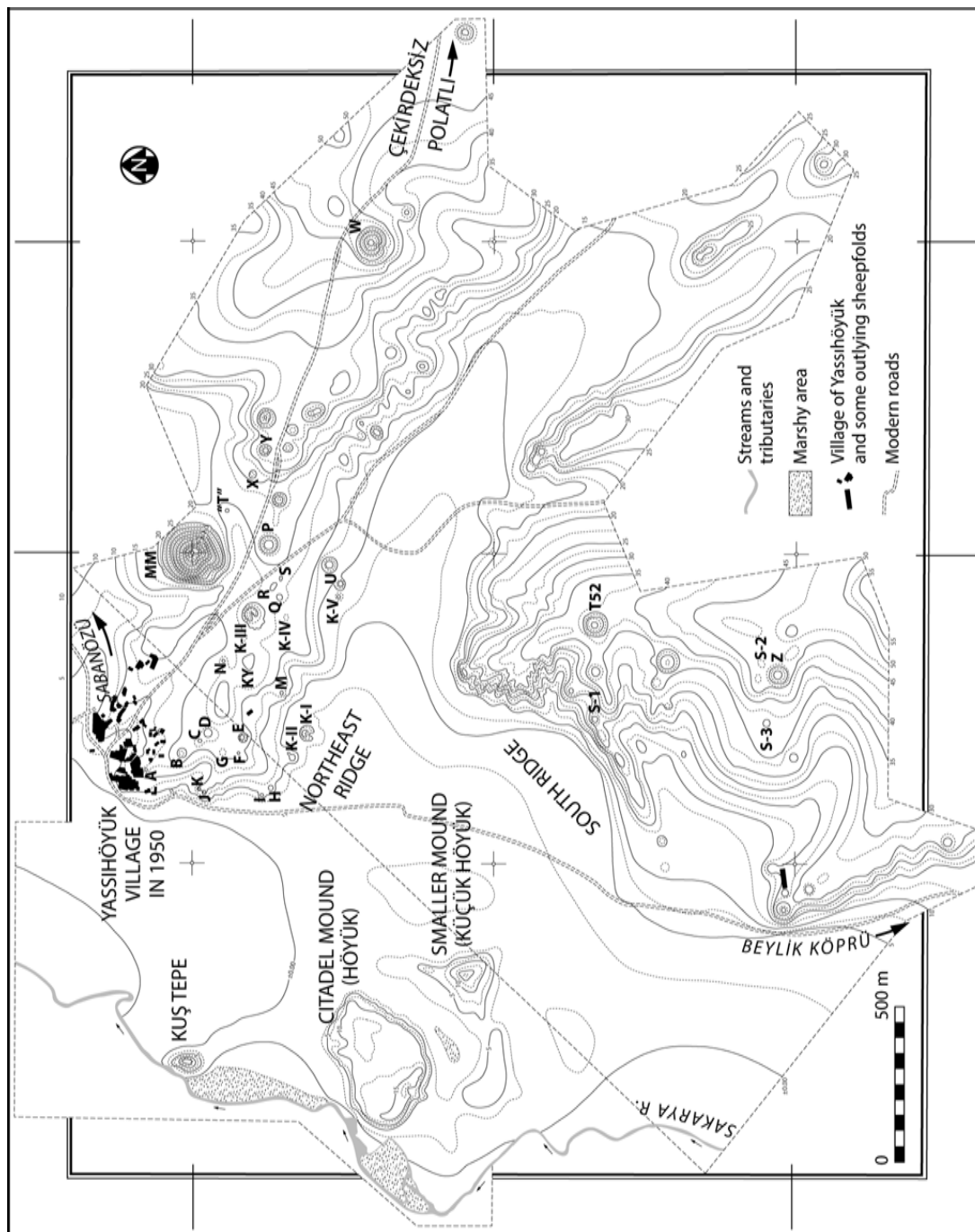
Maps and Plans



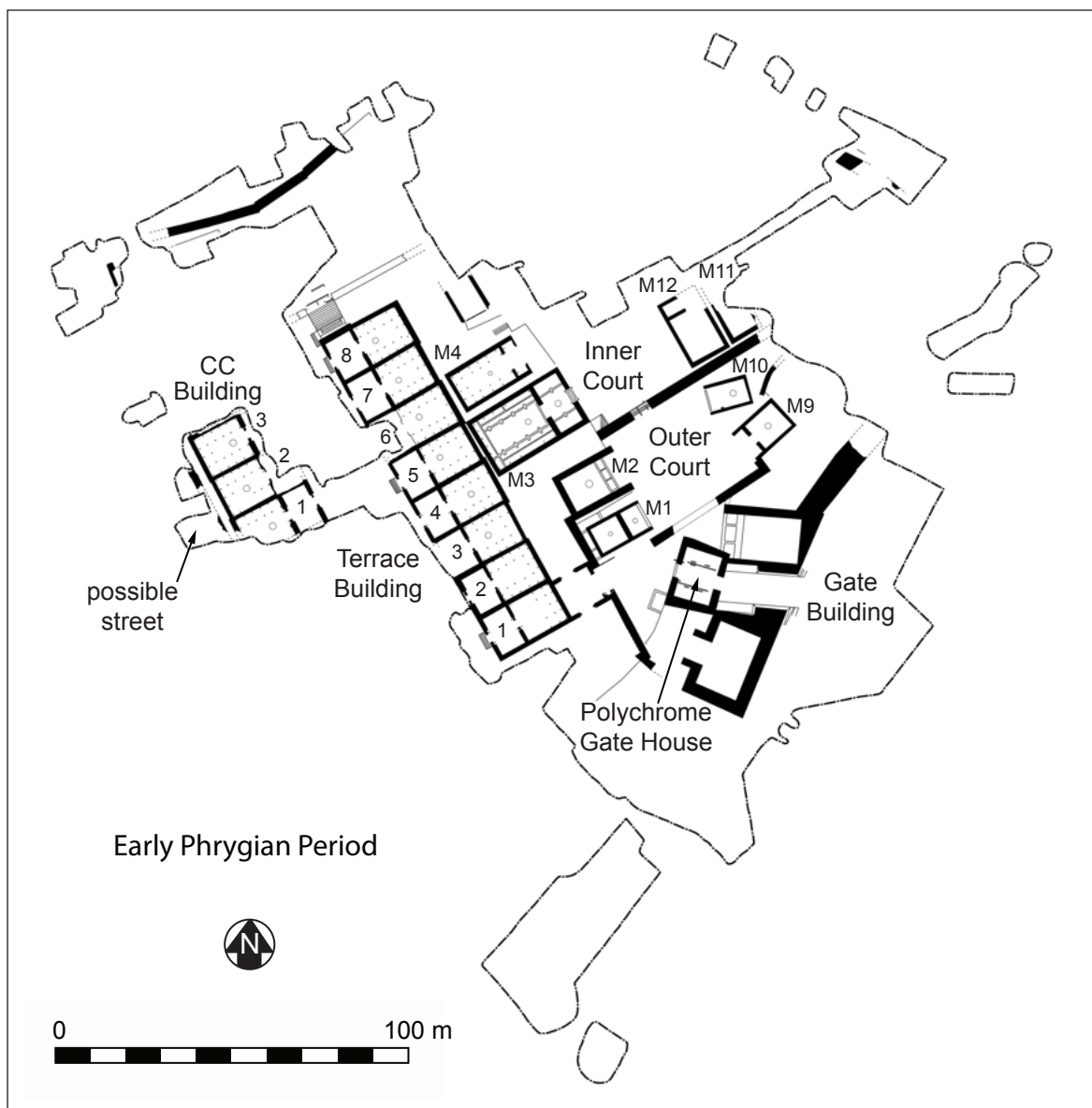
Map 1 Map of primary sites mentioned in text. (Map by Ardeth Anderson and Gareth Darbyshire)



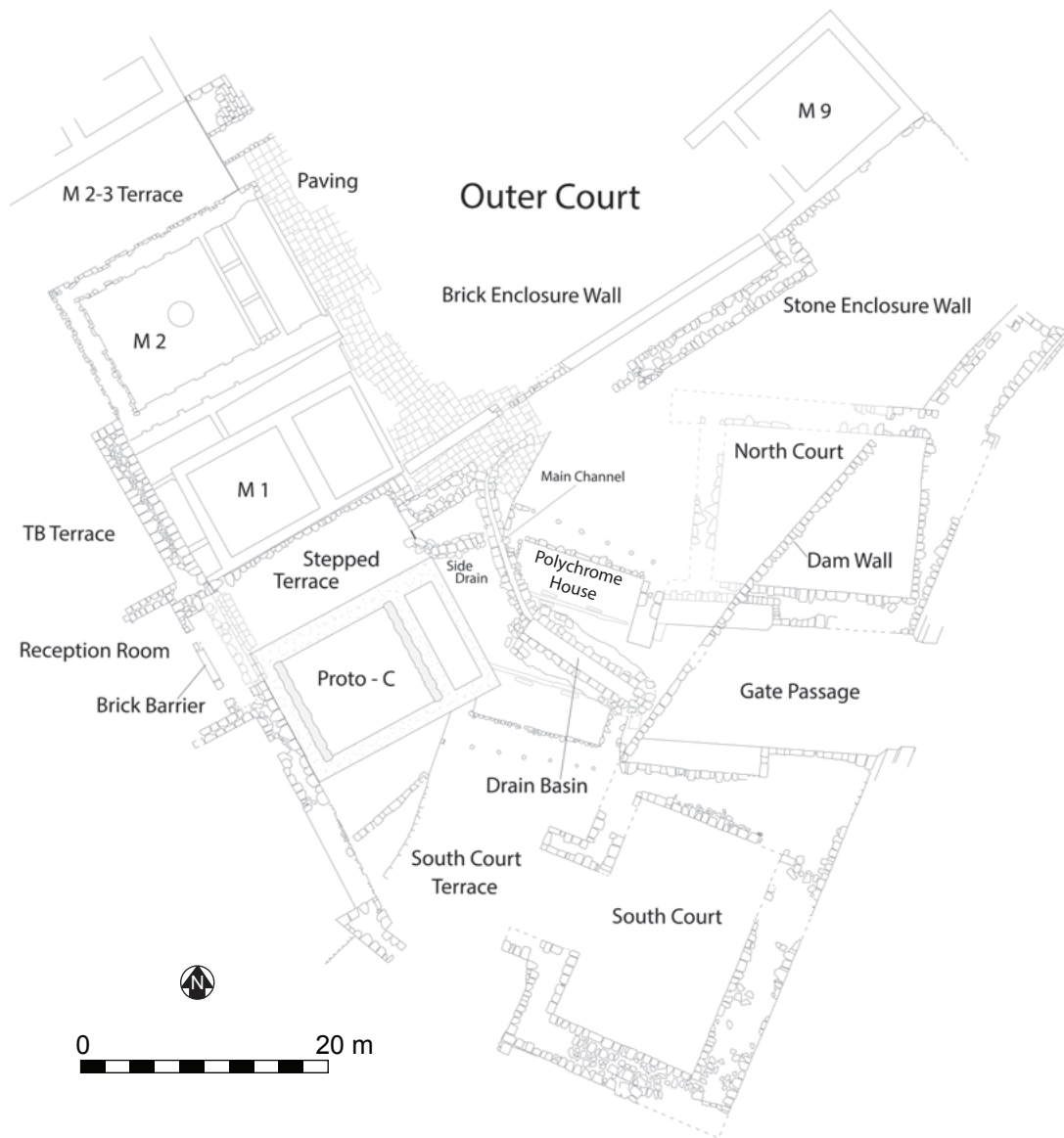
Map 2 Gordion site map. (Drawn by John M. Marston after Voigt and Young 1999:194)



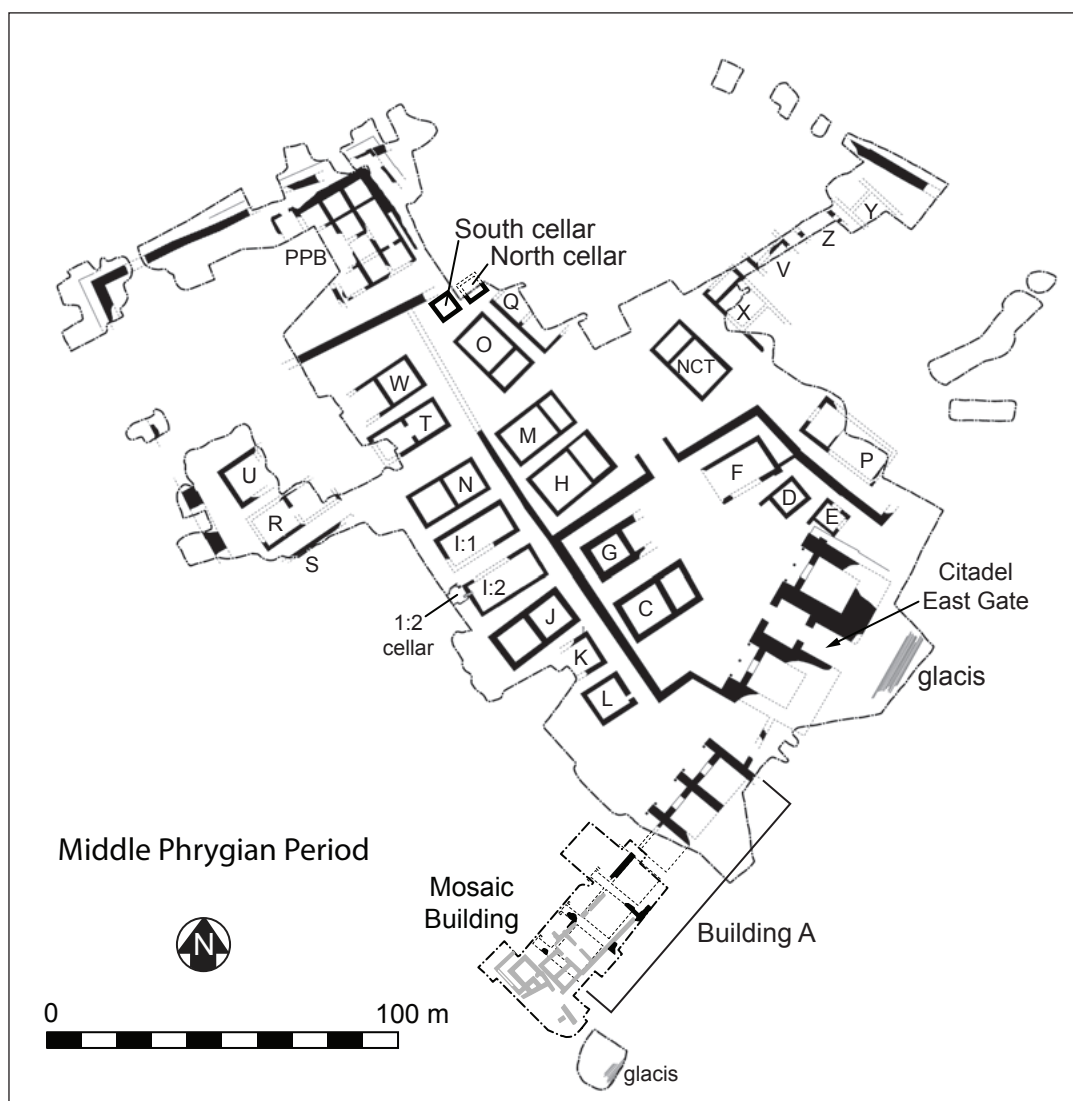
Map 3 Locations of Gordion tumuli. Solid contour interval: 5 m. (Courtesy of the Gordion Archive)



Plan 1 Citadel Mound: Early Phrygian period. (Courtesy of the Gordion Archive)



Plan 2 Citadel Mound: Destruction Layer period. (Courtesy of Mary M. Voigt)



Plan 3 Citadel Mound: Middle Phrygian period. (Courtesy of the Gordion Archive)

Chronological Framework and Context

Gordion is a significant site at the crossroads of trade routes that connected it to the peoples of the Near Eastern, Greek, and Roman worlds (Map 1). It was first discovered when engineers working nearby on the Berlin-Baghdad Railroad in 1893 reported the remains of a pre-Greek period. Alfred Körte soon visited and determined that the large mound was promising enough to excavate. In 1900, he and his brother Gustav undertook an exploration of both the mound and five surrounding tumuli. Alfred Körte determined that the site was Gordion based on ancient writers' descriptions of Gordion as lying on the banks of the Sangarios River (the modern Sakarya; Map 2) (Strabo 12, 567/8, Curtius, *hist. Alex.*, III 1,12–13; Arrian, *exped. Alex.*, I 29, 5). The specific location was linked with Livy's description of the westward route taken by Manlius Vulso in 183 BCE in his pursuit of the Galatians, a path that brought him to bridge the Sangarios and arrive next at Gordion. Livy describes Gordion as an unexpectedly busy and prosperous commercial center (38, 18, 11).

Following the Körtes' explorations, it was another half century before Rodney Young launched an excavation project in 1950 that lasted over 23 years, until his untimely death in 1974. Young's reports on each excavation season appeared regularly, with several seasons supervised and documented by G. Roger Edwards. In 1974, Keith DeVries became the Project Director, followed in 1988 by G. Kenneth Sams who took on primary responsibility for conservation and publication of the material found between 1950 and 1973. In the same year, Mary Voigt was appointed director for new field research; she undertook a thorough re-examination of the site's stratigraphy. Starting in 2007, C. Brian Rose was appointed as Co-Director of the Gordion Project, later becoming Director in 2013.¹

Gordion sits in the heart of the central Anatolian plateau. The Citadel Mound (Map 2) rises roughly 16 m above the level of the plain and covers approximately 12 to 13 ha (Marsh 1999:163). Today it is flanked on the west by the modern channel of the Sakarya River, but in the past the river ran along the eastern side of the mound.² The Lower Town residential district embraced the south, east, and north sides of the Citadel Mound. A defensive wall enclosed the area and incorporated one fortress to the southeast, known as Küçük Höyük, and a second, Kuş Tepe, to the north. To the west lay the Outer Town, an equally large settlement area protected by a large fort and fortification walls fronted by a ditch (Rose 2021:40, fig. 4).

During the period of the most substantial development on the Citadel Mound, a monumental gate in the defensive wall of the Lower Town led eastward to a bridge connecting to a road system extending toward the area of the tumuli (Edwards 1959:264, pl. 64, 4; Marsh 1999:170), while a second gate to the west led toward the recently discovered South Gate on the Citadel Mound (Rose 2017:144–147, figs. 9–10). The ridge about a kilometer northeast of the Citadel Mound was dominated by an impressive tumulus now known as MM (Midas Mound). Originally over 53 m tall, it formed a striking marker on the ancient landscape, as it does today. Ranged along the ridge and around the surrounding area were over 126 tumuli of various sizes, 45 of which have been excavated as of 2022.³ (Map 3)

This catalogue documents 989 objects fashioned out of a variety of materials: bone (713), ivory (183), antler (41), horn (21), shell (15), tusks (5), tortoise shell (5), teeth (3), and ostrich egg shell (3). They include intricately carved items that stood on their own or were attached to objects fashioned in other materials, such as wooden furniture. Many were mundane

everyday tools, simple beads, or even waste from the manufacturing process. A relatively small number were found in a burial context (65), and while many of the rest were discovered in an identifiable domestic or public context, a substantial number were recovered from fill unassociated with a structure or floor. All together they convey a picture of the commerce and culture of the area's inhabitants from the Bronze Age through medieval times. Some pieces are done in Phrygian styles and use motifs echoed in locally made wood, bronze, or clay objects, while other pieces appear to be either direct imports or heavily influenced by styles of more distant cultures.

To get a sense of the setting in which the objects were made and used, this chapter briefly outlines Gordion's chronological framework and the site's evolving built environment, with reference to the structures where the catalogued items were found.

Anchoring the Chronological Framework

Throughout its history Gordion experienced growth and decline, friendly and hostile encounters with outside cultures, and the changes in the natural environment that can lead a society to modify its economic base and traditional practices.

During the early years of the excavations, the Körte brothers and Rodney Young adhered to the then traditional practice of attaching specific dates to material remains by linking them to datable events described in ancient literary references and inscriptions memorializing royal achievements. Relying on such evidence, along with subjectively observed similarities noted in everything from large-scale architectural layouts to the shape of the ear on a miniature carved lion, was the accepted way of constructing a sensible chronology for a newly excavated site. Difficulties arise from the fact that ancient authors were often writing at some remove from the events they recorded, that kings may have memorialized their diplomatic and military exploits for purposes other than accuracy, and that opinions about when and how new ideas and styles were transferred among peoples are often subject to personal perceptions about the chronological conclusions that can be deduced from perceived similarities.

The art of dating from literary and historical records, coupled with judgments about stylistic matters, still plays an important role in developing the chronology for a site. But since the 1950s archaeology has increasingly embraced the scientific side of the discipline. This approach has had a significant impact on the understanding of the Gordion chronology. Pivotal for understanding Gordion chronology and its role in the history of the Phrygian kingdom in central Anatolia was the dating of the major destruction layer found on the Citadel Mound. Young linked the destruction layer to an attack by the Kimmerians in the late 8th century BCE. This association was brought into question with the development of a new Yassıhöyük stratigraphic sequence in 1988 (see Table 1), radiocarbon dating done in 2000, and a re-examination of the textual record and the recovered artifacts. These new studies clarified that this crucial anchor in the Gordion chronology—the Destruction Level that separates the Early and Middle Phrygian periods—should be dated to the late 9th century BCE (Rose and Darbyshire 2011).

From the time of the Körte brothers' initial excavations and for most of the 20th century, it was assumed that literary and inscriptional evidence provided accurate chronological reference points for King Midas, and, by extension, the flourishing and destruction of his city. Strabo (1.3.21), writing in the late 1st century BCE, claimed Midas' reign had been cut short by a suicidal quaff of bull's blood after his power was gravely diminished by the invading Kimmerians in the early 7th century BCE. Evidence for Midas' regnal years is provided by inscriptions of Sargon II (*r.* 721–709 BCE) that document various diplomatic arrangements between Mita of Mushki (assumed to be the legendary Midas) and city-states in Tyana, Tabal, Urartu, and North Syria (Berndt-Ersöz 2008). The records show Midas made initial efforts either to defend against or placate the Assyrian power, only to be defeated later by Sargon II in 715 BCE after he came to the assistance of Carchemish, a city in revolt against Assyrian hegemony (Frame 2021:1: 72, 125, 199, 207, 446, 452; 2: 231, 429, 432; 4: 14; 17: 31, 150, 152; 8: 16; 9: 24; 13: 37; 43: 24; 74: iv 51, v 22, 34, 50; 76: 16, 82; vii 5'; 105: i' 17'; 109: 4'; 116: 22; Fuchs 1994: Ann. 120 and 2001:756; Young 1955:16; Postgate 1973:21–34; Roller 1983:300, n. 5; Crespín 1999:67; Collins 2007:83–84). Centuries later Eusebios, a 4th

century CE bishop, fixed Midas' regnal years between 738 and 696 BCE in his *Chronicles*.⁴

The arrival of the Kimmerians at the start of the 7th century BCE and their reported devastation of a weakened Phrygia was initially taken to account for the significant burned layer on the Citadel Mound, signaling the destruction of the city and the end the Phrygian period. Although the largest tumulus (MM) was assumed to belong to a mighty personage, Young realized it was difficult to link it with Midas himself, if he were presumed to have perished or been substantially reduced in power by the Kimmerians.

A review of the area around the Early Phrygian Gate (Plan 2), initiated by Keith DeVries (1990:387–388) and subsequently expanded by Mary Voigt (2012a), shows that the Destruction Level was not the consequence of an external attack, as had long been assumed, but more likely the result of an accidental fire consuming the administrative core of the Citadel Mound and interrupting building plans already underway.⁵ A reconfiguration of the main Early Phrygian Gate, Outer Court, and a terrace supporting an early version of Building C had been initiated during a time of relative peace toward the end of the 9th century BCE. But the combination of closely packed buildings, construction using large amounts of wood and reed, and the presence of open hearths and ovens used for large-scale food processing and manufacturing in many buildings meant that any fire, once ignited would spread quickly and disastrously.

Undaunted by this calamity, after a brief hiatus, the Phrygians continued with renewed energy to haul in massive quantities of rubble to fill in the Early Phrygian Gate passageway and spread over the burned ruins a great layer of clay, at least partly harvested from an area that had been occupied during the Hittite period. In the administrative core they largely replicated the placement and design of the Early Phrygian buildings but provided greater spacing to mitigate the potential for fire to spread. (Plan 3) At the same time, they rebuilt the separate, more domestic quarter in the western part of the Citadel Mound (Voigt 2005:32, 2009:229).⁶

In 2003, the Gordion team announced that a radiocarbon analysis of barley, lentil, and flax seeds retrieved from pots found in situ in the Early Phrygian Terrace Building 2A gave dates of 827–807 BCE for its destruction (Voigt and DeVries 2011:46). Later

testing of additional samples and down-dating because of “the Eastern Mediterranean regional offset in radiocarbon dating” yielded an estimated destruction date of ca. 800 BCE (DeVries 2007:79–81). Since these seeds were destroyed in the fire that created the Destruction Level and were presumably not more than a year or two old at the time, they provide clear evidence for the date. Additional radiocarbon dating of reeds from the roof of the same room indicated that they had been installed a decade or two earlier, so would not be less determinative of the moment of destruction.

Dendrochronological analyses of the room's structural timbers give a felling date of at least 80 years earlier. The wood did not include any bark and may have been reused from an earlier structure; thus, it does not help to pinpoint the date of the destruction but only gives post-quem date.

Not all scholars have been convinced of this new dating for the Destruction Level, especially as it disturbs earlier carefully constructed arguments for dating objects based on comparisons to similar materials and anchored by chronological conclusions derived from the literary and epigraphic records. Objections have been raised by Oscar W. Muscarella (2003, 2008a, 2008b, 2012) and D.J. Keenan (2004). The points of dispute circle around the reliability of historical writings, the accuracy of C¹⁴ calibrations and dating, the usefulness of dendrochronological dating when bark is lacking, the chronological implications of stylistic developments in certain artifact types (notably fibulae, pottery, arrowheads, and carved orthostats), and the certainty of their purported findspots either above or below the Destruction Level. The evidence and conclusions about the new dating is presented in the 2011 publication of *The New Chronology of Iron Age Gordion*, edited by C. Brian Rose and Gareth Darbyshire.⁷

The new Yassihöyük Stratigraphic Sequence identifies ten distinct periods, designated successively from YHSS 10 (Middle Bronze Age) to YHSS 1 (Medieval) (Sams and Voigt 1990, 1991; Voigt 1994, 2011; Rose and Darbyshire 2011). This is the chronological framework adopted in this catalogue. The following section describes the setting where the catalogued objects were recovered and highlights the key role that imported Greek pottery plays in untangling the more complex sequence of building, modification

and abandonment that particularly characterizes the Middle and Late Phrygian periods. (Plan 3)

Context of Objects in the Built Environment

During the Young excavations, evidence of occupation in the Early Bronze Age was found on the Citadel Mound and in a cemetery on the ridge to the northeast.⁸ Soundings carried out by Mary Voigt in the Early Phrygian Outer Court during 1988 and 1989 documented a stratigraphic sequence commencing in the Middle Bronze Age YHSS 11 (Sams and Voigt 1990, 1991; Voigt 1994, 2005, 2011). During the Middle and Late Bronze Age, the area was under strong influence of the Hittite Empire to the east, judging by the presence of pithos burials in the cemetery, pottery types, and a scattering of seals (Mellink 1956; Güterbock 1980; Gunter 1991; Henrickson 1995; Voigt 2011:1075). Bone objects first appear at this time. Two collections of astragals (828–829) were found in Middle Bronze Age pithos

graves (YHSS 10). On the Citadel Mound, a cellar-like, Late Bronze Age (YHSS 8) structure called the CBH Building,⁹ yielded numerous well-made, lathe-turned bone knobs and beads (436–438, 467–468, 470–471), as well as early examples of tools fashioned from antler (778–779). The settlement appears to have been abandoned peacefully around 1100 BCE (Gunter 2012:801).

It has long been proposed that perhaps as early as the late 12th century BCE, but certainly by the early 1st millennium BCE, a new people, whose language was probably an early form of Phrygian, arrived from southeastern Thrace and the Balkans (Sams 1994:20, 2011b:607; Vassileva 2005:228, fig. 1a–b (P 3568); Voigt and Hendrickson 2000:43; Roller 2011:560–561; Aslan and Günata 2016; Rose 2021:30).¹⁰ With their center located at Gordion, they eventually expanded their control over a large part of central Anatolia.

The change in pottery wares that signal the beginning of the Early Iron Age (YHSS 7) suggests the arrival of new people and the possible departure of some of the previous residents (Voigt 2011:1076; Gunter

Table 1 Chronological Periods

YHSS Phase	Period Name	Approximate Date
1	Medieval	ca. 13th–14th cent. CE
2	Roman	ca. 1st–5th cent. CE
3A	Late Hellenistic	ca. 250–1st cent. BCE
3B	Early Hellenistic	ca. 330–ca. 250 BCE
4	Late Phrygian	540–330 BCE
5	Middle Phrygian	ca. 800–540 BCE
6A	Early Phrygian Destruction Level	ca. 800 BCE
6B	Early Phrygian	ca. 950–800 BCE
7	Early Iron Age	ca. 1200–950 BCE
8	Late Bronze Age: Late	ca. 1300–1200 BCE
9	Late Bronze Age: Middle	ca. 1400–1300 BCE
10	Late Bronze Age: Early	ca. 1600–1400 BCE
11	Middle Bronze Age	ca. 2000–1600 BCE
12	Early Bronze Age	ca. 2300–2000 BCE

(Rose 2021: table 1)

2012:801). By the end of the 2nd millennium BCE, the Phrygians had started to build on what would become the Citadel Mound (Voigt and Hendrickson 2000:46, fig. 3). Remains of this period include domestic structures of mud-plastered wood and reed walls set atop a stone base; some contained storage pits, ovens, and bins. Most of the bone objects from this period are astragals, such as a cache of 22, some of which were drilled (830), but other materials are increasingly used—ivory (360), bone (656, 765), antler (780) and shell (480, 483).

By the late 10th or the early 9th century BCE, the Phrygians began the creation of the Citadel Mound (Plan 1) as an impressive display of power and wealth (YHSS 6B). Earlier houses were replaced by a packed earth court and more substantial public buildings, some of which functioned as parts of the fortification system. Initially, entry to the settled area was partially controlled by a long narrow gate structure, the Early Phrygian Building,¹¹ located at the northeast corner of the built-up area. At some later date, the thick defensive wall stretching to the south was pierced by a new gate known as the Polychrome Gate House,¹² built with an open rectangular layout that was perhaps inspired by similar gates found at eastern locations such as Zincirli and Carchemish (Voigt and Hendrickson 2000:50; Orthman 1975: figs. 129A, 133). Carved orthostats and other decorative architectural pieces from the late 10th or early 9th century BCE were associated with a major building near the entrance, possibly the gate itself, and may have provided an apotropaic function akin to the fierce sculptures flanking the gates at Zincirli and Carchemish (Sams 1989: pl. XX; DeVries 1990:377; Voigt 2005:29; Gilbert 2011: Carchemish 2–12, 52–61, Zincirli 1–51, 59–62; Rose and Darbyshire 2011:28–30; Morgan 2018:140–142).

Around 850 BCE a formalized Outer Court area was defined by the massive Early Phrygian Gate¹³ attached to the Polychrome Gate House, an inner dividing wall on the north side of the court and pairs of large buildings on the east (Megarons 9 and 10)¹⁴ and west sides (Megarons 1 and 2),¹⁵ several of which contained bone and ivory objects (162, 300, 476, 570, 631).

An Inner Court to the northwest was dominated by the large Megaron 3.¹⁶ Its contents included an important series of ivory inlays carved with human

figures, animals, and fantastic beasts (128–138). Alongside the imposing Megaron 3 was the smaller Megaron 4,¹⁷ later inserted on a higher platform; it contained two significant ivory figured pieces (13, 150). Across the Inner Court a street led northeast toward the outer defensive walls. This passage was bordered on its east side by a line of buildings, including Megaron 11,¹⁸ where the arm of a late 9th century BCE ivory figurine (14) was found in a small, burned area on the floor.¹⁹

Stretched out on a raised terrace to the southwest was the monumental Terrace Building²⁰ formed of eight identical, conjoined megaron units on a platform raised 1.5 to 3.5 m above the earlier level. They faced a wide street and a mirror-image structure, the CC Building,²¹ three units of which have been exposed. Together, the buildings housed industrial scale operations, primarily focused on food production (including brewing beer) and textile manufacturing. Here were found many bone and ivory tools: handles (569, 571–574), shuttles (626–630), and pointed implements (639, 641–642, 758). The inner room of the Terrace Building's second unit was unusual. While there was evidence of weaving in the anteroom and large number of loom weights in the inner chamber, along with a great quantity of coarse pottery, the space lacked any installations for grain preparation and instead served as a repository for a unique collection of luxury objects, including ivory horse trappings (1–12) and openwork elements from furniture (20).

The area around the administrative and domestic center of Gordion was punctuated by large and small tumuli that contained imported and locally produced items. (Map 3) Curiously, compared to the number of bone and ivory objects found in the Early Phrygian level on the Citadel Mound, only a single specimen has been recovered from a contemporary tumulus—an ivory pendant (375) found in mid-9th century BCE Tumulus W,²² the earliest of the excavated tumuli.²³

At some point in the late 9th century BCE the Phrygians felt secure enough to undertake an ambitious rebuilding of the eastern part of the Citadel Mound (Voigt 2007:318–324, 2012a). But disaster struck and fire put a temporary halt to this ongoing construction. It consumed many of the buildings in the heart of the palace and administrative complex. Some structures, particularly in the northeast area (Megarons 9–12), appear to have escaped damage.

Table 2 Relative Sequence and Dates of Tumuli

Early Phrygian	
860–840 BCE	W, G
840–820 BCE	X, Y
Middle Phrygian	
820–800 BCE	Q
800–780 BCE	S
780–770 BCE	KY, K-III
760 BCE	P
ca. 745 BCE	K-IV, MM
730 BCE	N
ca. 700? BCE	Z, S-1
650–640 BCE	H
640–630 BCE	S-2
625–610 BCE	F
600 BCE	I
600–590 BCE	J, K
575–550? BCE	K-I
600–550? BCE	U, K-II
580–575 BCE	B
560 BCE	K-V, D
Late Phrygian	
530–525 BCE	C, A, E

Adapted from Sams and Voigt 2011: fig. 7-10, with dating on Middle Phrygian Tumuli provided by Kohler and Dusingberre (2023)

Undaunted, the Phrygians quickly laid in a substantial layer of clay, several meters thick, over the destroyed parts of the citadel and restarted construction of Building C. New Middle Phrygian (YHSS 5) structures were largely built of stone, in contrast to the Early Phrygian preference for mudbrick walls, strengthened with wooden beams, resting on a socle of stone. It was during the subsequent Middle and Late Phrygian periods (YHSS 5–4) that bone and ivory production flourished at Gordion. (Plan 3)

Because most Middle Phrygian buildings were occupied and modified over several centuries and never suffered the sudden destruction that preserved the contents of some Early Phrygian buildings, there are

only a few objects that can be directly attributed to specific buildings; their dating frequently relies on associated imported Greek pottery.

During the late 7th and early 6th centuries BCE Gordion came under the control of the Lydians (Rose forthcoming a, Roller 2011:564; Sams 2011b:613–614). Alterations and rebuilding took place on the Citadel Mound during this period, and some major structures, including the fortification system, remained in use after the conquest of Gordion by a Persian army around 540 BCE.²⁴ Other stone buildings were demolished, sometimes down into their rubble foundations, and replaced by domestic structures (Voigt 1994; Fields 2010). Advances have been made in untangling the progression of building during the Middle and Late Phrygian periods on the Citadel Mound as a result of excavation since 1988 and a re-analysis of the Young material using Attic imports (Fields 2010; Rose 2021; Rose forthcoming b).²⁵ Nevertheless, there are only a limited number of archaeological contexts that can be confidently assigned to the Middle Phrygian period.

The new City Gate constructed in the Middle Phrygian period²⁶ retained the basic design of its predecessor—a broad central passageway flanked by two rooms with thick walls. The structure remained in use at least through the Late Phrygian period. Several ivory and bone decorative pieces (183, 275, 330), as well as what may have been a necklace of boar's tusks and bone beads (385, 390, 477) were found in various parts of the gate building. At some point, perhaps early in the Middle Phrygian period, Building A,²⁷ a long, multi-unit structure, was built adjacent to the defensive wall stretching southwest from the gate; on the original floor of one room (Unit 4) was found a delicate, à jour ivory plaque carved with a palmette (146) dating stylistically to the mid-8th century BCE. Another closely matched plaque (147) was found in a later deep cellar dug into Building P (for context, see Young 1962:155). The building was later extended with the addition of the Mosaic Building in the first half of the 6th century BCE.²⁸ The use of colonnaded rooms with meander-patterned mosaic floors suggests the building may have served as a palace for the ruler located close to the City Gate. The complex was destroyed when the Persians attacked in the mid-6th century BCE.

Flanking the north court of the City Gate sat Building E,²⁹ a small and unusual structure that seems

to have been a center of ritual activity over an extended period. Its first phase dates to the 8th century BCE; it was modified three times throughout the Late Phrygian period (Fields 2010:50–52). The first rebuilding took place during the second half of the 8th century BCE, at the same time as Buildings C in the Outer Court was being rebuilt (Rose forthcoming b). During its second phase Building E it became the resting place of an intriguing ivory seal (985).

The Outer Court contained four new buildings: D and F (source of a bone bolster, 166) at the north; C, with its Painted House annex added later in the first half of the 5th century BCE; and G on the south side (location of an inlay decorated with a lotus and palmette chain, 238).³⁰ The Inner Court was dominated by two large buildings (H and M) rising above the ruins of the earlier Megarons 3 and 4. Building M was in use over an uncertain period of time, but its destruction and subsequent dismantling for building materials can be placed after the time of the Persian attack, partly based on the discovery of an Attic black-figure hydria (P 2074), dated ca. 575 BCE, found on the floor along one wall (Edwards 1959:965, pl. 65, fig. 8; DeVries 2005:47; Fields 2010:64, fig. 32). The building held several decorative ivory items, including a hawk's beak that was likely part of a large figure made of wood (17) and two strips with engaged cylinders (175, 176).³¹ A street running northeast off the Inner Court was lined with buildings on both sides, including Buildings X, Y, and Z.³²

On the raised terrace west of the main courts sat opposing rows of buildings distinguished from their predecessors, the Terrace and CC Buildings, by their separation into free-standing structures, perhaps designed to avoid another rapidly spreading fire. A number of these (Buildings L, N, R, T, and U)³³ held tools (582, 751, 867) and decorative pieces, most notably two pairs of bone ornaments vividly decorated with hawks carrying off hares (83), as well as more examples of strips with engaged cylinders (184, 190).

At some point after the initial Middle Phrygian building phase, perhaps late in the 8th or early in the 7th century BCE, a large structure, the South Cellar,³⁴ was sunk into the area immediately west of Building O. The earliest pottery from fill over the floor includes a Corinthian Late Geometric kotyle (P 3696), dated 735–720 BCE, and a pre-720 BCE Alishar IV krater (DeVries 2005:37, 40, fig. 4-1, top). Several later

modifications raised the floor level, with the upper fill dated by an Attic red-figure sherd (P 3470) of the early 4th century BCE (DeVries 2005:40). The cellar held an array of objects spanning a considerable time; among them were several ivory and bone decorative pieces (27, 106, 229, 306); a miniature ivory female figurine, likely from the 7th century BCE (15); and an ivory seal (986).

Between the western end of the terrace platform and the northern defensive bastion, PPB (originally called the Persian-Phrygian Building) was first built during the Middle Phrygian period with at least four rows of four rooms, each 6 m square.³⁵ During its final phase these rooms served as a subterranean storage facility and held two of the more finely carved ivory inlay plaques recovered on the Citadel Mound, both of which date within the 8th century BCE: one shows a man leading a bull (140) and the other a goat standing at a palm bush (141).

In the western sector of the Citadel Mound, beyond the enclosed palace/administrative complex and separated from it by a street that bisected the mound, are remains of Middle Phrygian structures. A building with rubble foundations set in a deep layer of fill was constructed in the Northwest Zone early in this period; although no trace of the wall proper was found, it was presumably constructed of ashlar blocks, like the Middle Phrygian buildings to the east. Later in the period, well-built walls and pebble floors indicate that residential areas with houses for wealthy occupants were built in both the Northwest and Southwest Zones. The scant remains from this period include decorative items (36, 90, 384, 413).

The Middle Phrygian period was a time of expansion beyond the Citadel Mound, with the development of both the Lower Town to the north, east, and south, and the Outer Town to the west. Study of the floral and faunal remains suggest this growth may be attributed to a shift in the economic base. Despite living in an environment more naturally favorable to pastoral activity, the Phrygians greatly increased agricultural production during this time (Miller et al. 2009:921). The ground level in the southern Lower Town was eventually raised and terraced to receive both monumental ashlar buildings, as well as more modest mudbrick domestic structures. It was later destroyed during the Persians' attack on the Küçük Höyük fortifications in the third quarter of the 6th

century BCE (Voigt and Young 1999:211–214, figs. 15–19; Voigt 2005:35). A small group of bone and ivory functional and decorative pieces were found in the Lower Town, the most significant of which are an ivory inlay incised with the figure of a running warrior (142), a thick ivory openwork plaque carved with the figure of a horse (152), and a miniature seal topped by the figure of a monkey (989). The Outer Town remains largely unexcavated; only one bone knob (35) associated with a late 5th century BCE Attic sherd comes from this area.

During the early years of the Middle Phrygian period, bone and ivory objects continued to be largely unrepresented among the grave gifts. The early 8th century Tumuli KY and P³⁶ each contained only a small collection of astragals (834–835). By far the greatest number of bone and ivory objects found in burials come from the clusters of tumuli dating to the latter part of the 7th century (F, H, and I),³⁷ the early 6th century (K),³⁸ and those falling in the second and third quarters of the 6th century (A–E).³⁹ Tumulus F produced the largest collection of ivory pieces in the earlier group, all inlays that would have been arranged in decorative designs on furniture or a container (see, for example triangles [311] and petals [341]). Approximately one hundred years later the cremation remains found in Tumulus A show an interest in ivory for an imaginative small box in the shape of a duck (120) and a delicate kore figurine (16). The inhumation burials in Tumuli B and C held few bone or ivory objects: a delicate pin with a ram's head finial (396) and an inlay with a finely incised lotus and palmette chain (239). Tumulus D, another cremation, preserved more of the familiar ivory decorative inlays, such as triangles (313) and petals (342).

The transition from the Middle Phrygian to the Late Phrygian (YHSS 4) period was precipitated in part by the Persian conquest in the 540s BCE. The most direct evidence of this event is apparent in the destruction of the Küçük Höyük (Young 1958a:140–141; Glendinning 1996:111) and the abandonment of houses in the southern Lower Town (Voigt and Young 1999:214). On the eastern half of the Citadel Mound the Phrygians refurbished some of the old buildings, while others went out of use. The Painted House, set between Buildings C and G, was built during the first half of the 5th century, perhaps under Achaemenid influence, as reflected in its departure from the traditional

megaron form (Voigt and Young 1999:220–221; Fields 2010:44–45, 76). Smaller, more irregular buildings with a square or rectangular plan signaled a shift to an architectural style more useful for diffuse administrative or industrial activities. The structures nevertheless indicate a still vital and growing urbanized area. Eventually, a bronze foundry covered the remains of Buildings C (location of a bone die [969]) and G, while a stone-working facility occupied the area above Building H, and a structure with a kiln or large oven overlay Building M (Fields 2010:78). On the southwest corner of the Western Mound, excavators recovered a dump of materials, perhaps the remains of the destruction occasioned by the arrival of the Persians. It is well dated to the middle decade of the 6th century based on an Attic cup by Sondros (Sams and Voigt 1998: photo 8; DeVries 2005:47, figs. 4-10, 4-11) and a black-figure krater by Lydos (DeVries 2005: fig. 4-12). Included in the dump were some bone and antler pieces used in furniture (69, 86), an object of personal adornment (460), and various tools (551, 649, 782).

Facing a street leading northeast out of the Inner Court was a large structure, Building X, that was originally built in the late 8th century BCE and bedded in the clay covering most of the Early Phrygian Citadel Mound. In the mid-5th century BCE, it underwent a final rebuilding and expansion. This dating is based on the discovery of a black-figured lekythos (P 3916) dated ca. 475 BCE, just beneath the final pebble floor (Fields 2011:72, fig. 37). Early in the 4th century BCE, an earthquake caused significant damage to this and other buildings in both the eastern quarter on the Citadel Mound and the northwest zone (DeVries 1990:400; Rose 2017:170).⁴⁰ Found among the fallen reeds and roof tiles were several fine ivory pieces: the carved lid of a box (121), which may have been handed down from the 6th century BCE, and five examples of strip attachments with engaged cylinders (185–189), similar examples of which have been found in other Middle and Late Phrygian contexts.

In 333 BCE, on route to his conquest of the Persian Empire, Alexander the Great worked his way down the western coast of Anatolia, capturing Lydia and Lycia before heading to Gordion in the heartland of the Phrygians. There he famously undid the Gordion knot, an action that was said to hold the key to conquering Asia.⁴¹ The residents of Gordion, a population that probably included many Greeks as well

as Phrygians, pursued an ambitious reshaping of the Citadel Mound during the Early Hellenistic period (YHSS 3B). The wall behind Middle Phrygian Buildings R and U was dismantled and earth brought in to fill the valley that had long divided the palace and administrative complex on the northeast from the more residential area to the west and south (DeVries 1990:401). What had been two distinct mounds or sectors were now linked into a single expanse at a relatively uniform level. The walls around the Citadel Mound were built over by houses (Wells 2012).

A fondness for all things Greek swept the town; the inhabitants imported and copied Greek pottery, both fine wares (Stewart 2010) and wine amphoras (Lawall forthcoming), while local craftspeople produced credible copies of Greek metalwork (DeVries 1990:401). Among the products of bone and ivory workshops, three decorative attachments in the shape of a duck's head (**159–161**) point toward western inspiration.

The proliferation of Greek inscriptions has prompted debate as to whether a Greek immigrant community can be detected at Gordion.⁴² Letters in Greek script appeared at Gordion in the first half of 4th century BCE but may represent only convenient symbols used to mark objects, rather than evidence of any real knowledge and use of the Greek language (Roller 1987a:105). By the later part of the 3rd century BCE the Greek alphabet dominated, although there was a high degree of overlap between Phrygian and Greek scripts. Consequently, for many very short texts, it is unclear whether the text was written by a Greek or a Phrygian speaker. A series of astragals from this period bearing Greek letters and mythical names reflects the increasing dominance of the Greek language at Gordion (**942–965**), although it is unclear whether they were written by Greek immigrants to the site or by native Phrygians now using Greek as their principal language.

Located at the vortex of major east-west and north-south routes through Anatolia, it is not surprising that Gordion was in the Galatians' path in the early to mid-3rd century BCE. Tradition has it that these Celtic peoples moved from the Upper Danube regions down through Greece and Anatolia in the 4th and 3rd centuries BCE and settled in Gordion in the third quarter of the 3rd century BCE (F. Winter 1988:64; Darbyshire et al. 2000:79).

Their arrival marks the beginning of the Middle Hellenistic period (YHSS 3A:1–2) and may have occasioned a short period of abandonment on the Citadel Mound;⁴³ but by the middle of the 3rd century BCE there are large houses on the Citadel Mound and to the west a new type of tomb that combined an ashlar-lined dromos with a corbelled roof in the burial chamber (Darbyshire et al. 2000:94; F. Winter 1988: figs. 4–5). Utilitarian bone implements predominate (e.g., **510, 623, 663, 728**) during this period, with a few ivory decorative objects (e.g., **156, 179, 181, 359**).

A major break during the Middle Hellenistic period was caused by Gn. Manlius Vulso's attack in 189 BCE as retribution for the Galatian tribe's support of Antiochus II at the Battle of Magnesia. Livy reported that though the town was not large (38.18.11–14), it stood at a significant trading crossroad. Nearly 100 years later the site was reoccupied for a short time, during a newly recognized period now called Late Hellenistic (YHSS 3A:3).

In 25 BCE, Augustus took over the greater part of central Anatolia, creating the province of Galatia (Goldman 2005:56; Bennett and Goldman 2009:1607). The foundation of a Roman military installation at Gordion took place in the mid-1st century BCE (Goldman 2007a). In documentary sources, Roman Gordion (YHSS 2) was dismissed as a small village (Strabo 12.5.3), a far cry from its zenith of power in the 9th and 8th centuries BCE. Not much was known about this period in Gordion until the Voigt team excavated at the northern and western edges of the Citadel Mound (Voigt 2005: fig. 3-5; Sams and Goldman 2005:43–56; Sams, Burke, and Goldman 2006:373–380; Bennett and Goldman 2009). Based on new evidence, Gordion is now considered to be “the first Roman military site of early imperial date” in Anatolia (Bennett and Goldman 2009:1605). Growing from a small town, the settlement peaked in the last quarter of the 1st and early years of the 2nd centuries CE (YHSS 2:2) when several large houses, one with an interior peristyle court, ranged along a wide cobbled street, bordered on each side by stone colonnades topped with wooden architraves (Goldman 2005:61, fig. 5-2; Bennett and Goldman 2009:1606). Continuing a pattern previously noted, most of the objects from the Roman period are utilitarian pieces made of bone (e.g., **182, 411, 667, 721, 763**). There

appears to have been an earthquake in 110 CE, which led to a significant rebuilding during YHSS 2:3, although it may have been related to Trajan's Parthian War (113–117 CE) (Goldman, pers. comm.).

Occupation continued, but the settlement was in constant decline until the 5th century CE, by which time (YHSS 2:5) a large pit house was in use in the southern area of the mound (location of **718** and **939**) and cist graves began to be placed in previously occupied areas of the Western Mound (Sams and Goldman 2005:48; Sams, Burke, and Goldman 2006:375–376). Most bone and ivory objects found in the upper layers come from mixed and disturbed contexts; however, a collection of finely made spindles and whorls (**729**) from a grave (A 204),⁴⁴ dated to the early Roman period, shows that at least some inhabitants enjoyed well-made household items.

Much of the latest Roman settlement was disturbed by a later cemetery and pits dug during the Late Roman-Byzantine periods, and centuries later by trenches used during the Battle of the Sakarya in 1921. Most of the bone and ivory objects recovered from this layer are found without any datable context due to later building and disturbances, and several pieces appear to have migrated from earlier layers, such as a decorative insert carved in a well-executed winged sun disc design (**144**), dated by its motif and style to the Early or Middle Phrygian period.

NOTES:

1.1 For a summary of the excavation's history, see Sams 2005:10–21. More recent work is described in Rose 2017.

1.2 During antiquity, its meanderings and accumulated sediment both undermined buildings and raised the level of the plain (Marsh 1999:174). The river probably shifted to the west side of the Citadel Mound in the 19th century CE.

1.3 The exact number of tumuli is uncertain. Richard Liebhart notes that a study of aerial photography by Ben Marsh has revealed the possibility that there could be up to 240.

1.4 Current research now shows that there were likely at least four Phrygian kings named Midas known to the Greeks: Midas I who reigned from 723 BCE to 677 BCE, dedicated the throne in Delphi, and may have committed suicide by drinking blood; Midas II who reigned for an uncertain length of time during the second quarter of the 7th century BCE; Midas III whose reign was cut short during the Kimmerian invasion of Anatolia; and Midas IV who

lived around the beginning of the 6th century BCE (Berndt-Ersöz 2008).

1.5 Based on the types of carbonized seeds recovered from the Terrace Buildings, it is surmised that the fire occurred during the summer months (Rose 2017:154).

1.6 Confirmation of an 8th century BCE date for the rebuilding is partly provided by the recovery of imported Greek late 8th/early 7th century BCE sherds found in the South Cellar and the cellar of Building I:2 (DeVries 2005:37, 43; DeVries, Sams, and Voigt 2005:46; Voigt 2005:31).

1.7 This should be read in conjunction with Oscar Muscarella's review of the book (2012).

1.8 On the Citadel Mound, Early and Middle Bronze Age material was primarily found in context under Megarons 10 (Middle Bronze) and 12 (late Early Bronze II or Early Bronze IIIa) (Young 1966:275–278; Young 1962:168; Gunter 1991: 24–25, 50–81, 102), as well as random inclusions in the clay layer brought in to cover the Destruction Level (Gunter 1991:25, 82–85, 96–101). The earliest evidence of localized activity is Early Bronze I pottery found below Tumuli F and H on the ridge (Gunter 1991:102). Late Bronze Age material was found in the Lower Trench Sounding (Voigt and Hendrickson 2000:40–42).

1.9 For excavation details of the structure, see Voigt 1994:266–267, fig. 25.2.1, pl. 25.1.2–3.

1.10 Literary tradition claims that the Phrygians came from somewhere in Europe near Macedonia (Herodotus 7, 73; Strabo 7.3.2). Strabo seems to have despaired of reconciling different traditions about the origins of the Phrygians; he ends up saying that he had discussed the matter sufficiently and would refrain from further consideration of the issue (14.5.29). In 2007, G.R. Tsetckhladze (2007:283–304) challenged the certainty of a connection between Thrace and Phrygia based on the insecure dating of some of the graves and architecture claimed to be comparable, as well the vague parallels claimed for pottery in each region.

1.11 For excavation reports on the Early Phrygian Building, see Young 1966:273–275, pl. 70, figs. 16, 17, 19; DeVries 1990: fig. 2-3; Rose and Darbyshire 2011:2, fig. 0.6.

1.12 For excavation reports on the Polychrome Gate House, see Young 1956:260–261, 1960:234–236, 1964a:290–291.

1.13 For excavation reports on the Early Phrygian Gate, see Young 1953:25–26, 1955:11–16, 1956:257–260, 1957:320, 1960:233–234, 1962:157–159, 1964a:290–291. See also Rose 2017:148–152). Excavations carried out between 2013 and 2019 revealed the presence of an

additional contemporary gate complex to the south (South Gate); the Early Phrygian Gate is now termed the East Citadel Gate.

1.14 For excavation reports of Megaron 9 (originally named Northeast Building), see Young 1962:159, 1964a:289–290, 1966:273–275. For reports on Megaron 10 (originally called the North Building), see Young 1964a:289, 1966:272, 275–277.

1.15 For excavation reports on Megaron 1 (variously named the Burned Phrygian Building and the Brick Building), see Young 1957:320–322. For excavation reports on Megaron 2 (previously named West Phrygian House and Mosaic Building), see Young 1956:261, 1957:322–323, 1958a:142–143, 1962:160. For a recent summary, see Rose 2017:159–160.

1.16 For excavation reports of Megaron 3, see Young 1958a:144–145, 1960:237–240, 1962:160–163.

1.17 For excavation reports on Megaron 4, see Young 1962:163–164, 1964a:286–288.

1.18 For the excavation report of Megaron 11, see DeVries 1990:383.

1.19 It appears the building was not destroyed in the massive conflagration that swept through the structures across the open Inner Court. It is not clear whether the burned debris found in Megaron 11 was brought from elsewhere or whether it stemmed from a fire within the building (DeVries 1990:383).

1.20 The Terrace Building was excavated over many years, from its first discovery in 1955 (Young 1956:262–263) through the exploration of the anteroom of TB 2 in 1989 (Sams and Voigt 1991:459–460). Details on the excavation of individual rooms can be found in Young's excavation reports published in 1956, 1958a, 1960, 1962, 1964a, 1966, 1968a and DeVries 1990. For more recent exploration and conservation efforts, see Rose 2017:154–157.

1.21 The excavation reports for these three rooms in the CC Building are found in Young 1964a:285–286 and DeVries 1990:385–387.

1.22 Under the original dating framework, Tumulus W was thought to date before the middle of the 8th century (Young 1960: 227–232, 1981:242, 270; Sams 1971:274) or in the late 8th century (Muscarella 1967:3–4 and 43, n. 27).

1.23 Elizabeth Simpson speculates that there may have been some ivory inlay (now missing) used to decorate the surface of the inlaid table from Tumulus MM (Simpson 2010:34–36, 2020:141).

1.24 The previous dating of the Persian conquest of Lydia to 547 BCE, based on a reading of the Babylonian Chroni-

cal 7, II 15–17, has recently been questioned as to whether it refers to Lydia or Urartu; a date for the Persian take over in Gordion in the mid-6th century seems most likely (van Drogen 2013:49).

1.25 An initial study of Persian period pottery from six clusters on the Citadel Mound demonstrates the difficulty of assigning finds to a particular building. The stratigraphic context dates the material between 400 and 333 BCE. The pottery shows a continuity with Middle Phrygian wares and indicates that, while Gordion was in the Persian ambit, its status left it less influenced by outside pottery styles than more prominent cities like Sardis and Daskyleion (Toteva 2009).

1.26 For excavation reports on the Middle Phrygian Gate, originally called the Persian Gate, see Young 1953:17–24, 1955:1–3, 1956:252–254, 1962:156–157.

1.27 For excavation reports on Building A, see Young 1951:8–10, 1953:14–17, 1955:1–2, 1958a:142; Sams and Burke 2007:330–331. For a recent analysis of the building, see Rose forthcoming a.

1.28 For excavation report, see Young 1953:18–19. More recent work on the building is reported in Rose 2021:50–51 and forthcoming a.

1.29 For excavation reports on Building E, initially called the Hearth Building, see Young 1955:3–6, pl. 2, fig. 9. For a more recent interpretation, see Rose 2021:45–46.

1.30 For excavation reports on Building D, see Young 1956:255, 1962:156. For Building F, see Young 1956:255, 1962:156. For Building C, see Young 1955:6–8, 1956:254–255, 1960:233. A reinterpretation of the building's several phases between the 8th and 4th century BCE can be found in Fields 2011:41–42 and Rose forthcoming b. For the Painted House, see Young 1955:8–10, 1956:255–256. Based on the style of paintings, this building has been variously dated 500–490 BCE (Voigt and Young 1999:221, n. 20), 525–500 BCE (Mellink 1980:94; Harl 2011:757), mid-5th century (Fields 2010:45), and again 500–490 BCE (Rose forthcoming b). For Building G, see Young 1956:255, 261, 1957:320.

1.31 For excavation reports on Building H, see Young 1958a:141. For Building M, see Young 1958a:141–142, 1960:233, 1964a:282; Edwards 1959:265–256; DeVries 1990:392.

1.32 For excavation reports of Buildings X, Y, and Z, see DeVries 1990:396–398, fig. 35.

1.33 For excavation reports on Building L, see Young 1958a:142; Young 1960:233. For Building N, see Young 1960:233; Young 1962:155; Young 1964a:281. For Build-

ing R, see Young 1964a:281; DeVries 1990:391. For Building T, see Young 1964a:281, 1966:269; DeVries 1990:395. For Building U, see Young 1964a:281; DeVries 1990:395.

1.34 Excavation results are reported in Young 1966:268–289 and DeVries 2005:37–40. See also Rose 2021:49.

1.35 For excavation reports on the PPB, see Young 1968a:234–245 and DeVries 1990:380–318. Whereas Young originally thought the building was started in the Early Phrygian period and was used into the Middle Phrygian period, current understanding places its construction in the Middle Phrygian period (Voigt 2012a:99, n. 6.2; Rose 2021:52–53).

1.36 For excavation reports on Tumulus P, see Young 1957:325–327, 1963:356, 1981:1–77; Kohler 1958:20–25; Muscarella 1967:3. For the excavation report on Tumulus KY, see Young 1956:266; Kohler 1995:73–82.

1.37 For Tumulus F, see Kohler 1958:90–94, 176; Kohler and Dusingberre 2023. For Tumulus H, which is securely dated to the third quarter of the 7th century BCE by a bird-bowl, see Young 1953:32–34, fig. 26, 1963:351, fig. 3; Muscarella 1967:5; Sams 1971:276; Kohler 1995:43–53. For Tumulus I, see Young and Edwards 1952; Kohler and Dusingberre 2023.

1.38 For Tumulus K, see Muscarella 1967:6; Kohler and Dusingberre 2023.

1.39 For Tumulus A, see Kohler 1958:142–144; DeVries 2005:43–44; Kohler and Dusingberre 2023. For Tumulus B, see Kohler 1958:132–133, 1995:9–24; Muscarella 1967:6. For Tumulus C, see Kohler 1958:106–110, 1995:25–

34; Muscarella 1967:6–7. For Tumulus D, see Kohler 1958:114–115; Muscarella 1967:6; Kohler and Dusingberre 2023. For Tumulus E, see Kohler 1958:6; Young 1953:30–31, fig. 22; Kohler and Dusingberre 2023.

1.40 DeVries (1990:400) had previously postulated that this transition had occurred around 400 BCE, but Voigt (Voigt and Young 1999:197–220) sees evidence in the stratigraphy, disruption in architecture, and well-dated Attic imports to place the transition around 540 BCE, corresponding approximately to the time of the Persian conquest of Gordion.

1.41 The knot, reportedly made of cornel bark, was reportedly part of an ox cart dedicated years earlier by Midas, son of Gordias. Young (1955:11–12) believed the discovery of numerous arrowheads found embedded in the paving of the interior court of the Middle Phrygian Gate bore witness to Alexander's arrival. These are more likely to be related to the attack by the Spartan king Agesilaos in the early 4th century (Rose 2017:170, n. 99).

1.42 “The sudden appearance...of many common Greek names immediately after Greek military penetration into this area in 333 BCE suggests that at least some of the people who bore these characteristically Greek names were actually Greek, i.e., Greek people who had settled in Gordion” (Roller 1987a:107).

1.43 For a preliminary summary of evidence of the Galatians' impact on Gordion, see DeVries 1990: 402–403; Voigt 2012b.

1.44 See excavation NB 33:158.

Ivory: Material and Craft

Because a material's characteristics often determine the nature of the created object, it is helpful to understand the essence of the material—its structure and its responsiveness to the carver's tools. In addition, determining the possible sources of the raw material enhances our ability to understand the influences that affected the subject and style of the products made by craftspeople.¹ The raw material and the cultural environment at its source are not the only factors shaping the finished piece; equally significant are the traditions and beliefs of the local craftspeople and the political and cultural world in which they worked and used these objects.

Nature of Ivory

Ivory is normally understood to mean the tusks of an elephant; but since the chemical structure is the same in the teeth of all mammals, the term “ivory” could equally as well apply to the teeth of the hippopotamus. Tusks are the elephant's upper incisors that grow at a rate of about 18 cm a year. Physically, the one third of the tooth structure consists of a pulp cavity surrounded by a thick layer of dentine, topped by a thin layer of cementum that attaches the tooth to the jawbone, and enamel, usually confined to the tip of the tooth (Lapatin 2001:7–8). Because the enamel experiences the most wear, it is often absent or removed along with the cementum before working the material. Chemically, ivory consists of 82% calcium phosphate, 15% magnesium phosphate, 2% calcium carbonate, and 0.2% calcium fluoride (Taylor 1955:248).

Seen in cross-section, dentine is composed of micro-canals or dentinal tubules, each 0.00017 cm in diameter, radiating outward in a pattern of intersecting arcs (G. Herrmann 1986: pl. 422). These are

called Schreger lines, after the German scientist who first described them in the early 19th century (Rodriguez 2018: pl. 31.4).² By measuring the angle of these lozenge-shaped lines, it is possible to distinguish between ivory derived from elephants and extinct mammoths, since the latter display sharper angles below 100 degrees.³ As the tusk grows, new layers of dentine are formed, giving the appearance of concentric rings, called lines of Owen. Spaced about 1 cm apart, each line represents about seven to eight years of growth. Lamination splits usually occur along these rings (Beihoff 1961:19).

Tusks vary in size, depending on the species of elephant. In antiquity, the tusk of the African elephant averaged around 2 to 3 m in length and weighed about 90 kg;⁴ Asian elephants have slimmer and lighter tusks, closer to 35 kg on average. The density and hardness of African ivory allows for a good polish; by contrast, Asian ivory has a softer, more open texture, causing it to split and warp more easily. Only about 60% of the tusk is useable for carving (Moorey 1994:116). The material's natural tendency to laminate yields longitudinal pieces suitable for inlays and other flat pieces.⁵ The pulp cavity in the center accommodates wider sections suitable for round containers, while narrower parts of the tusk are often used for hollowed-out handles. The more solid tip offers opportunities for thick slices for decorative discs or lids, or solid pieces appropriate for figurines (Feldman 2014: fig. 2.3). Leftover pieces can be used down to the smallest fragment for buttons, toggles, dice, and other miniature items.

Ivory's color was prized for its approximation of flesh tones. Although African ivory has a pale, blond hue when green or fresh, it whitens on exposure to light. Asian ivory is whiter when fresh, but quickly yellows. In some cases the color was intentionally modified either by painting or heating.⁶ When heated

or burned, elephant ivory progresses through different color stages: light yellow at 204°, brown at 260°, brown-black at 316°, black at 593°, dark grey-blue at 649°, light grey-blue at 670°, and finally white at 816° (Baer et al. 1971:3, table 1).⁷ By the time ivory reaches the white stage, it has lost nearly 46% of its weight and the organic content has dropped from about 45% to slightly less than 2% (Baer et al. 1971: table 2). The combustion of the organic content leaves a residue of carbon which can make it easy to confuse burned ivory with other materials such as ebony and even stone.

Sources of Ivory

Modern elephants fall into two genera: *Loxodonta africana africana*, the African bush elephant, and *Loxodonta Africana cyclotis*, the African forest elephants, and *Elephas maximus indicus*, the Asian elephant. African elephants are distinguished by their large size, concave back, and large ears. Both male and female African elephants produce ivory. Asian elephants are smaller in stature, have rounded backs and smaller ears. Only the male Asian elephant produces ivory.

Speculation as to whether elephants inhabited a particular geographic area is based on a collective evaluation of finished ivory objects, unworked pieces, the presence of elephant molars and bones, representations of elephants, as well as a reconstruction of a region's ancient ecology and its capability of supporting native or imported elephants. Each piece of evidence presents its peculiar complications. Carved objects can travel far from either the source of the raw material or their place of manufacture, but elephant molars and bones are more likely to be found near locations where elephants lived. Representations of elephants can be based on direct observation or imaginings drawn from verbal reports. Coupling this evidence with written records about wild and imported elephants makes it possible to speculate about the presence of elephants in or near areas that developed skills in ivory carving.

The range of the African elephant extended far north on the continent during pre-dynastic times. Hunting and habitat encroachment in the Early Dynastic Period pushed the animals back to the First Cataract, near Elephantine. By the mid-3rd millennium

BCE, elephants were no longer present in Egypt, although there is evidence that they remained in some parts of North Africa (Moorey 1994:116). Despite the frequent occurrence of ivory objects in Egypt, the textual record shows that, by the Late Bronze Age, Egypt functioned primarily as a trading intermediary, supplying others with finished objects made from ivory obtained from sources further south and west.⁸ The Egyptians supplemented their sources by receiving Syrian ivory as tribute and engaging in large-scale hunting expeditions in the same area.⁹ This indicates there were Asian elephants present in northern Syria and southeastern Anatolia, a potential source for some of the ivory used at Gordion.

The Asian elephant is believed to have lived throughout much of modern Asia, beginning about 11,500 years ago in the early Holocene period (Parker 2002:50). Finds of numerous tusks, elephant bones, and molars, coupled with representations of the elephant in art¹⁰ and textual references to trade in ivory, suggest the presence of the animals in the area between Mesopotamia and southeastern Anatolia possibly as early as the late 7th millennium, but certainly from the late 3rd millennium until well into the 1st millennium BCE. Whether these elephants were native or imported, true Asian elephants or a local subspecies, is a matter of differing opinions, as discussed below.

Skeletal remains are less likely to travel and are most indicative of the presence of live animals. Both cranial and postcranial bones have been found at sites ranging from Babylon in the east, to Kāmid el-Lōz in the west, and Tell Tayinat in the northwest (Pfalzner 2016).¹¹ Unworked molars have also been recovered at several sites. These could have come from live animals or have been imported as raw material useful for carving small objects from the thin layer of dentine (De Hoff 1988:83; Çakırlar and Ikram 2016:173).¹² Tusks are the parts most likely to have been brought in from another location. While their presence at a site presents slim evidence that elephants lived in the area, it is of note that some have been found in early 2nd millennium BCE contexts at Tell Çagar Bazar (Barnett 1982:6; Reese 1985:399) and Achemhöyük (Deniz 1987; Bourgeois 1992:63). The largest piece, from a building close to the palace at Achemhöyük, weighed 13 kg, measured 48 cm in length, and was between 14 and 16 cm in diameter.

While it is indisputable that elephants existed in the area, it is a matter of conjecture as to how and why they were present. There is some evidence to suggest they were naturally occurring, either as an extension of the Asian elephant or as a separate subspecies, commonly termed *Elephas maximus asurus*. There has been much debate over the validity of a subspecies,¹³ but the recovery of a Late Bronze Age full skeleton, known as the Maraş elephant, in Gavur Gölü near Konya has been taken as confirmation of the Syrian subspecies (Pfälzner 2016:168, fig. 12). The fact that so many elephant bones have been found in palace and other royal settings, coupled with accounts of royal hunts by visiting Egyptian pharaohs, has led to speculation that the animals were imported from farther east and kept in enclosures for the prestige value of hosting hunts and displaying the large skeletons, perhaps in a ritual context (Pfälzner 2016:179–180). However, the problems with maintaining a herd of any size, considering the amount of food required, as well as the difficulty in breeding elephants in captivity, suggest it was more likely that elephants were naturally occurring in the area and able to find sufficient habitation safe from human conflicts (Pfälzner 2016:180–181).

A reconstruction of the ancient ecology of an area may be useful for determining whether it could have supported an elephant population large enough to supply the region with ivory. A study published in 1986 suggests the ecology of Syria in the late 2nd and early 1st millennium BCE would have been suitable to sustain elephants (Miller 1986). Although the date of their disappearance is uncertain, as discussed below, elephants were certainly present in Syria through the 9th century BCE when mention of live elephants decreases, although ivory continues to be listed as an item of exchange or tribute into the 8th century BCE. All references to live elephants in Syria cease after the 7th century BCE (Çakırlar & Ikram 2016:170).

Trees, preferably smaller, more immature ones, comprise approximately 30–40% of the elephant's diet, but the animals need a mix of grasses, which means that they tend to live in areas with a combination of forest and grassland (Miller 1986:29). However, studies of modern elephant habitat in Africa show them to be equally adaptable to desert scrub, as well as lush forest vegetation (Lafrenz 2004). This type of mixed forest and grassland habitat was present in Syria in the middle of the 2nd millennium BCE but

seems to have disappeared by the 8th or 7th century BCE under pressure from the expanding human population and its impact on the habitat.

Elephants can subsist within a 16–52 square kilometer range that provides sufficient water and protein content in the biomass (Miller 1986:30). Adequate, well-managed, large land areas left fallow, even in semi-arid places, can produce a high-enough grade biomass to sustain an elephant population (Miller 1986:36). An individual elephant in an area comparable to northern Syria would consume about one hectare of woody vegetation annually (Miller 1986:37). These requirements could have been met under the ecological conditions in Syria in the late 2nd and early 1st millennium BCE.

Miller (1986:34) speculates that the reduction in settlement density between the Late Bronze Age (ca. 1600 BCE) and the Early Iron Age (ca. 900 BCE) could have improved habitat conditions, allowing an expansion of the native herds. Conversely, he postulates that the rise of city-states and the increasingly sedentary settlement patterns later in the 1st millennium BCE led to forest degradation and diminished resources for any remaining herds (1986: fig.2).

The terminal impact may have come from the rise in iron production in the late 2nd millennium BCE. The smelting process required a large quantity of fuel in the form of easily transportable charcoal pieces, best produced from tree branches of the same size as the woody browse favored by elephants (Miller 1986:37).¹⁴ The evidence that iron production diminished in North Syria coincident with a reduction in ivory production could signal a joint correlation with the depletion of forest resources that supplied both food for elephants and charcoal for the ironsmiths.¹⁵ Lafrenz (2004:523–256) believes that Miller has grasped at coincidences to account for the elimination of the Asian elephant from Syria; she suggests that other factors like over-hunting could also have been behind the elephant's disappearance.

Some scholars date the disappearance of the elephant to the last quarter of the 2nd millennium BCE. Although others point to evidence of an ivory-carving industry during this period in Acemhöyük, Ebla, and the Palestinian territories as proof that the elephant was still present (Moorey 1994:117). Assyrian accounts of local elephants are plentiful until the middle of the 9th century BCE when Shalmaneser III