Gold Before the Palaces: Crafting Jewelry and Social Identity in Minoan Crete

Jane Hickman

University of Pennsylvania

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Gold Before the Palaces: Crafting Jewelry and Social Identity in Minoan Crete

Abstract
During the period c. 2000 – 1800 BC, the first civilization was established in Europe, as illustrated by the development of palace-centered societies in Minoan Crete. However, the extent to which stratified society existed before the second millennium BC is unclear. This study focuses on the development of ranked society in prepalatial Crete, as evidenced by the manufacturing, use, and deposition of gold and silver jewelry. Indications of social stratification are also explored in the material remains of sites where jewelry was recovered.

Research objectives include an investigation of where, how, and why new forms of jewelry appeared in Crete and the impact jewelry had on the forging of individual and group identities. Jewelry is evaluated utilizing contextual, formal, technological, and functional analyses. In addition, human agency and instances of individual decision-making are revealed in association with the production and use of these objects. To place prepalatial Minoan jewelry in perspective, a comparison of this material with jewelry recovered from sites in the Eastern Mediterranean and the Balkans is conducted.

The appearance of gold and silver jewelry in Crete during the third millennium BC was an indigenous development with regional and site-specific variation. However, raw materials and perhaps the idea of making jewelry from precious metals were imported to Crete, most likely from the Near East. All prepalatial jewelry was recovered from funerary contexts; it was frequently found with other elite grave goods such as ivory seals, stone vessels, and copper/bronze daggers. Evidence suggests that objects such as diadems were used in public ceremonies, perhaps associated with ritual spaces at cemeteries.

Signs of ranked society in prepalatial Crete include the presence of symbols of authority such as gold diadems, appliqués for clothing, and a scepter; finds of suspected heirlooms, indicating inherited status; the organized construction of monumental tombs; differentiation in tomb size, placement, and associated grave goods; and craft specialization in the production of jewelry, stone vases, and seals. One may conclude that ranked society existed in Crete before palaces were constructed. Gold jewelry was a tangible, enduring way to demonstrate membership in emerging social groups.

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Richard L. Zettler

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GOLD BEFORE THE PALACES:
CRAFTING JEWELRY AND SOCIAL IDENTITY IN MINOAN CRETE

Jane Hickman

A DISSERTATION
in
Anthropology

Presented to the Faculties of the University of Pennsylvania
In Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

2008

_________s/Richard L. Zettler_________
Supervisor of Dissertation

_________s/Robert Schuyler_________
Graduate Group Chairperson
For Michael
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GOLD BEFORE THE PALACES:
CRAFTING JEWELRY AND SOCIAL IDENTITY IN MINOAN CRETE

Jane Hickman
Richard L. Zettler

During the period c. 2000 – 1800 BC, the first civilization was established in Europe, as illustrated by the development of palace-centered societies in Minoan Crete. However, the extent to which stratified society existed before the second millennium BC is unclear. This study focuses on the development of ranked society in prepalatial Crete, as evidenced by the manufacturing, use, and deposition of gold and silver jewelry. Indications of social stratification are also explored in the material remains of sites where jewelry was recovered.

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Introduction

One is struck with the delicacy and simplicity of the daisy pin from Mochlos. The diameter of the flower is just 2.5 cm, exactly the size of the image above. The petals were carefully measured and outlined before being cut from thin, hammered sheet gold. A circle of repoussé dots at the center of the flower is the only decoration added by the artisan who created the piece. After burial for perhaps 4,000 years, the pin has lost none of its charm or visual appeal.

This daisy is one of hundreds of extant gold and silver ornaments that were manufactured, worn, and deposited in tombs during the period before palaces were built in Crete. The nature of the evidence recovered from prehistoric contexts precludes us from knowing whether this jewelry was worn by those who would be considered divine or royal. Nevertheless, a study of the first widespread use of precious metals in Crete will provide insight on the crafting of gold and silver jewelry and the role jewelry may have played in prepalatial Minoan life.

Background

During the period c. 2000 – 1800 BC, the first civilization was established in Europe, as illustrated by the construction of palaces in Minoan Crete. However, the roots
of complexity in the southern Aegean stretched back to preceding millennia. By the end of the prepalatial period (c. 3000 – 1900 BC), social and economic development had led to increasing craft specialization, expanded trade, and the beginnings of stratified society.

An important question facing Aegean prehistorians is the extent to which society advanced in Crete before the palaces were built. Debate continues on the nature of the transformation from an egalitarian to a ranked society and whether this change was a result of indigenous developments or outside influence (for various points of view, see Branigan 1995; Cherry 1983; Cherry 1984; Driessen and Macdonald 1997; Haggis 2002; Schoep 2006; van Andel and Runnels 1988; Watrous 1994; Whitelaw 2004).

Research into Early Minoan (EM) social complexity is hampered by a lack of deciphered texts as well as the excavation and publication of large, well-stratified settlement sites (Branigan 1988). The explored settlements of EM II (c. 2900 – 2300/2150 BC) Vasiliki (Seager 1908a; Zoïs 1976) and Myrtos (Warren 1975; 1972) provide no concrete evidence of social stratification (however, see Watrous 2001: 223 on the Red House at Vasiliki). Cemeteries – some with monumental funerary architecture and richly furnished graves – are the major source of information about this period (e.g., Branigan 1970; 1993 on the Mesara; Seager 1912 on Mochlos; Xanthoudides 1924 on the Mesara).

A more promising direction for understanding the transition from egalitarian to ranked society may involve the analysis of material culture. Recent studies of pottery from prepalatial Knossos (Day and Wilson 2002) and daggers from the Aegean (Nakou 1995, 1999) suggest that objects such as these were used by early elites as new expressions of status and to demonstrate membership in emerging social groups.
Another class of objects not only retains its original form but also intersects many aspects of social and economic life, including trade, ideology, craft production, and art (Ogden 1982). Perhaps the most obvious sign of early Minoan social differentiation is the introduction of new personal luxury goods such as gold and silver jewelry.

Existing Scholarship on Early Aegean Jewelry

Jewelry manufactured from precious metals is included in reports from excavations (e.g., Alexiou and Warren 2004 on Lebena; Sakellarakis and Sakellaraki 1997 on Archanes-Phourni; Seager 1909; 1912 on Mochlos) and publications on geographical areas (e.g., Effinger 1996 on Crete; Konstantinidi 2001 on Greece; McGeehan-Liritzis 1996 on mainland Greece; Sapouna-Sakellarakis 1977 on the Cyclades; Vasilakis 1996 on Crete). Other studies of Aegean metallurgy have provided clear evidence for the importance of metals to the region (Branigan 1974, 1977; Muhly 1973; 1985; 2006; Renfrew 1967, 1972a). This fine-grained study of prepalatial gold and silver jewelry will take a closer look at the objects themselves as well as the contexts from which they were recovered. Emphasis will be placed on the methods used in crafting jewelry and the role precious metals may have played in the development of prepalatial Minoan society.

Goals of this Study

The goals of this study are to 1) identify gold and silver jewelry and ornaments that can be securely dated to the prepalatial Minoan period; 2) examine the manufacturing techniques employed and the classes of objects produced in order to better
understand the choices made by artisans and patrons; 3) evaluate the impact that metal jewelry may have had on the forging of individual and group identities; 4) investigate regional and site-specific production and consumption patterns in Crete, related to manufacturing, use, and deposition; and 5) place prepalatial Minoan jewelry into a wider geographical framework, comparing the form and function of Minoan jewelry with similar objects produced in the Eastern Mediterranean and neighboring areas during the third millennium BC.

**Chronological Issues**

One of the difficulties in beginning a study such as this is determining which objects to include. Since metal cannot be dated, we must rely on associated artifacts to decide if an object is prepalatial. All gold and silver jewelry from this period was recovered from tombs, primarily large collective house tombs and tholos tombs that were in use for many hundreds of years. Over the course of time, bones and grave goods were moved within the tombs to make room for later burials. Most of these tombs, visible on the landscape, were also looted in ancient and modern times. In many cases, the result is a jumble of bones and artifacts with no obvious relationship to one another.

Excavators frequently dated gold jewelry in broad terms, such as EM II – III or even EM II – Middle Minoan (MM) I, the latter period covering close to a thousand years (see chronology on page 397). This was especially the case when most of these objects were excavated – during the first half of the twentieth century. In this study, jewelry and associated objects such as pottery, daggers, and seals were evaluated together to determine a closer date for specific deposits within tombs and to assure that the deposits
or excavation levels could be assigned to the prepalatial period, before MM IA. Dates established for objects in this study sometimes varied from dates used in more general overviews of the period.

Two separate contexts, of 26 total contexts in the study, cannot be dated more closely than EM II or EM III to MM I. Rather than leaving them out altogether, they are included and are clearly identified as perhaps dating to the period when the palaces were under construction. Sites that are not conclusively pre-MM I or are not published adequately for a determination to be made are briefly described but not included in the study. In all cases, justification for dates is provided when sites are discussed, and deviation from conventional wisdom is addressed.

**Methodology and Organization of Dissertation**

Gold and silver jewelry was evaluated utilizing four types of analysis: contextual, formal, technological, and functional (cf. Sherratt and Taylor 1997: 450 on metal vessels in Bronze Age Europe). During this process, an effort was made to identify human agency and the active role that individuals – artisans, patrons, and other members of local communities – played in the manufacturing, use, and deposition of jewelry.

The contextual analysis, primarily addressed in Part I, includes an evaluation of the archaeological environment of all objects in the study. This helps to determine a closer date for deposits that included jewelry and allows for the identification of other grave goods – such as ivory seals, stone vases, and objects of copper and bronze – that were commonly recovered with gold jewelry (see charts 3, 4, and 5). Evidence of ranking, other than the presence of gold jewelry in burial contexts, was also investigated
for these sites (see Appendix B). The fact that all objects were found in burials, but some appeared to be discrete caches within tombs, will be addressed.

The forms of objects produced by Minoan artisans and the technology used in their manufacture are covered in Part II. Also included in this section are discussions of the properties of gold and silver and potential sources of these metals to prepalatial Crete. In addition, various methods used for the scientific analysis of precious metals are evaluated.

The writer was permitted to study and photograph many objects for this project, resulting in a detailed description of each gold and silver ornament from prepalatial Crete (see catalogue in Appendix A and Plates 1 – 32). Where hands-on study was not possible, objects were observed multiple times in their museum setting, and major works on metalwork and jewelry, especially those by Keith Branigan (1974) and Antonis Vasilakis (1996), were consulted.

The technological analysis required a comprehensive study of manufacturing techniques used during the third millennium BC in not only Crete but also elsewhere in the Eastern Mediterranean. This knowledge was then applied to objects in the study, including a discussion of tools that may have been used in the manufacture of the objects and the possibility of specialized craft production and workshops. Stages in the manufacturing of one object – a pendant from Platanos – were examined in detail.

The functional analysis covered in Part III relates to the use of jewelry as personal adornment and the significance of gold jewelry to prepalatial communities. How were social relations and craft production impacted by the introduction of gold and silver jewelry? Were objects designed for sepulchral purposes or did evidence exist that they
were worn in life? What choices were made by artisans and patrons in the
manufacturing of these objects? A detailed cultural biography (following Gosden and
Marshall 1999; Kopytoff 1986) of a diadem from Mochlos was developed. Incorporating
all forms of analyses described above, various stages in the life history of the diadem
were examined from selection of raw material through fabrication of the finished object
to use and ultimate deposition. The employment of common motifs in jewelry and other
EM media and depictions of jewelry on Bronze Age Aegean three-dimensional objects
and wall paintings were also reviewed in Part III.

Part IV places prepalatial Minoan jewelry in context, with a review and
comparison of jewelry from primarily third millennium BC sites in the Aegean, the
Eastern Mediterranean, and the Balkans. Information not available for prepalatial Minoan
jewelry such as textual and pictorial evidence for the use of precious metals and the sex
and age of those buried with gold or silver jewelry are investigated. Finds from the
Aegean Final Neolithic, that period directly preceding the Early Bronze Age, are also
discussed.
Gold or silver jewelry was recovered from 26 prepalatial contexts at 13 sites in Crete. Based on the proximity of findspots, sites are assigned to one of three regions: north-central Crete, south-central Crete, or east Crete (see charts 1, 2). No jewelry made from precious metals is presently associated with early periods in west Crete; although a small EM settlement was excavated at Debla (Warren and Tzedakis 1974), and a palace and settlement have been identified and partially excavated at Chania (Andreadaki-Vlasaki 2003), no prepalatial cemetery has yet been discovered. The existence of the modern town of Chania has prevented full exploration of that area.

The mere presence of gold and silver jewelry may be an important indicator for social stratification. However, a thorough analysis of contexts where jewelry was found might yield significant new information. What other objects were commonly recovered with jewelry? Can evidence be found that sheds light on the manufacturing, use, or deposition of the jewelry? What temporal and spatial similarities and differences become evident when comparing sites and regions?

In addition to examining jewelry and other grave goods recovered from the same context, signs of social ranking and ceremonial activities will be identified from the material remains of associated cemeteries and settlements (see Appendix B: Identifying Rank in the Archaeological Record). Multiple lines of evidence may illuminate evolving social organization and distinct features that can be attributed to individual settlements or regions. A greater knowledge of social relations and ritual in prepalatial Crete will also be achieved.
All jewelry in this study was found in burial contexts. Tomb types varied from large house tombs and tholoi to caves, rock shelters, and in-ground built tombs. The focus in Part I will be on evidence dated to the third millennium and the first century of the second millennium BC. Many sites, tombs, or levels within tombs can be securely dated to the prepalatial period (EM I – MM IA, see chronology on page 397). However, some collective tombs remained in use into MM I, which may have included MM IB, the time of palace-building in Crete. Find contexts that fall into the latter category – Platanos Tomb A, upper level and Kalathiana Tomb K – will be included here, with relevant chronological information clearly noted in the text.

As sites are reviewed, associated gold and silver jewelry and ornaments will be discussed. The reader will be referred to more detailed descriptions of each object in the catalogue (Appendix A) by the use of catalogue numbers (i.e., AR 1 is the first object from Archanes-Phourni). Most objects are also illustrated on Plates 1 through 32.

Brief mention will also be made of three additional categories of sites that are not included in the study: 1) sites that date later than MM I that contain some gold jewelry that may be assigned to the prepalatial period, 2) sites with prepalatial gold jewelry attributed to them that have not been fully published, and 3) collections of typologically prepalatial objects with incomplete provenance. Jewelry in private collections with no provenance will not be discussed. Map 1 illustrates all EM – MM sites with gold or silver jewelry referenced in the text.

Aside from issues related to chronology, an examination of early sites is not without problems. At many settlements, especially those that flourished into the MM period or Late Minoan (LM) period, excavations extending back into the EM period are
at best incomplete. Some communities associated with EM cemeteries have yet to be
discovered or may be buried under modern towns. Skeletal material, from cemeteries
excavated in the early twentieth century, was frequently discarded before study. Many
excavations were rescue operations, conducted quickly after looting of a site had already
begun; the publication of these sites has yet to occur. Consequently, conclusions reached
here may change as further evidence comes to light.
1. North-Central Crete

Jewelry made from precious metals was recovered from three sites in north-central Crete: Archanes-Phourni, Pyrgos, and Krasi. Tholoi at the EM – LM inland cemetery of Archanes-Phourni contained gold jewelry or ornaments that can be securely dated to the prepalatial period. A small number but wide variety of gold objects was found at Pyrgos, an early burial cave located on the northern coast. The tholos tomb at Krasi, further inland and over the mountains, provided evidence of silver jewelry in EM Crete.

Archanes-Phourni

Gold jewelry and ornaments were recovered from three prepalatial tholos tombs at Archanes-Phourni and from an area in the cemetery that was used as a dump during ancient times (Pls. 1, 2). These tombs were the only tholoi constructed in the cemetery. Each tomb had a smaller internal diameter than the average tholos in the Mesara (cf. Branigan 1993: 149, also see chapter 2), measuring approximately 3.5 to 4.3 m across.

Fifty-nine gold objects or fragments of sheet gold and pieces of a silver pin were found in the lower EM IIA burial stratum of the tholos and dromos of Tomb Γ (referred to by Sakellarakis and Sakellaraki 1997 as Tomb C). Silver tools and nails were also recovered from this level. Fewer gold objects, three and one respectively, were found in the EM IIA level of Tomb E and the MM IA level of Tomb B. The Area of the Rocks, adjacent to the tholoi, contained portions of grave goods deposited when Tomb Γ was cleared in the late Early Bronze Age (EBA). This was confirmed when two fragments of
sheet gold, recovered from Tomb Γ and from the Area of the Rocks, appeared to be part of the same gold strip (Papadatos 2005: 39, 52-53, fig. 25, J43; Sakellarakis and Sakellaraki 1997: 644).

Tomb Γ

Tomb Γ, excavated in 1972 – 1973 by Yiannis Sakellarakis and Efi Sakellaraki (Sakellarakis 1972, 1973) and recently published in greater detail by Yiannis Papadatos (2005), was the richest early tomb in the cemetery. On the basis of pottery sherds and other grave goods, Papadatos confirmed an EM IIA date for stratum III (2005: 52). Gold objects recovered from this level included two diadems or strips, both with perforations (see Appendix A: Catalogue, objects AR 1, AR 3); six fragments of strips, one with a single perforation (AR 2, AR 4 – AR 8); six very small pieces of thin sheet gold (AR 9 – AR 11A-D); six bosses, all but one perforated for attachment (AR 12A-F); one cast pendant (AR 13); and 38 beads manufactured in five different styles (AR 14A-M, AR 15, AR 16A-F, AR 17A-D, AR 18A-N). Small fragments of what may have been a silver pin (AR 19) were also found in this burial level.

The gold was found scattered throughout the lowest stratum of the tomb. These objects may have been deposited as collections of offerings that were later disturbed, or they may have originally adorned individual burials placed in the tomb. Although most of the gold strips were broken, it is unclear if the breakage was deliberate or accidental. However, at least some fragile gold strips likely deteriorated during the movement of skeletal material, grave goods, and soil during the use of the tomb or when the tomb was cleared. A group of gold beads was concentrated in one area, and overall, most jewelry was recovered from the section of the tomb closest to the entrance. However, Papadatos
suggested that this concentration of objects only related to the greater depth of the deposit in one area (2005: 53). While the back part of the tomb had to be cleared more extensively to level the floor for later larnake burials, less soil and consequently fewer objects needed to be removed from the area near the entrance.

Except for one tiny fragment of sheet gold with an incised herringbone decoration (AR 9), none of the strips were decorated, and only three contained holes that may have been used for attachment around the head or to clothing or other objects. The strips were quite small, with the longest complete diadem or strip measuring only 12.4 cm in length (AR 1). Most of the strips also appear to have been manufactured from very thin sheet gold. This would suggest that the strips were not used repeatedly as diadems during the lifetime of the owner, unless they had been affixed to a perishable material like cloth. These strips may have been used in different ways. Some strips may have been manufactured for sepulchral purposes and glued or sewn to fabric. Other strips, without attachment holes, may have been fragments of hair ribbons, or they may have decorated figurines or other objects.

The gold pendant (AR 13) was cast in the form of a vase with handles. Very few cast objects have been recovered from EM contexts, which suggest that this was not a common manufacturing technique during the prepalatial period. Parallels in silver have been identified from Avdheli and perhaps other sites on Naxos. However, the small vase-shaped objects from Naxos were not pendants; they decorated the tops of pins (Papadatos 2005: 36). With the exception of this pendant and one unique, well-made tubular bead (AR 18D), most of the objects recovered from Tomb Γ were manufactured without set standards for shape or size and without a great amount of technical skill. Also, none of
the objects required a large quantity of gold. The gold strips were thin and small and were cut irregularly out of different gauges of sheet gold. The six bosses varied in diameter. Fourteen tubular beads (AR 18A-N), identical in design and apparently manufactured at the same time, had nine different lengths that ranged from 1.9 cm to 2.8 cm.

The fragment of a gold strip found in the Area of the Rocks indicated that gold jewelry was definitely removed from Tomb Γ during the clearing operation. It may have also been common practice in antiquity to rob tombs of valuables or to remove objects from the cemetery with the knowledge of local authorities. Perhaps only smaller objects escaped notice when the tomb was cleared. However, with the exception of two fragments of strips with curved ends that resemble antenna-like extensions for diadems (AR 7, AR 8), there is no evidence to indicate that decorated diadems or other objects manufactured from thicker sheet gold were originally deposited in the tomb. Although the raw material used for this jewelry was gold, no object recovered from Tomb Γ was designed or manufactured to be a clear symbol of authority.

Stratum III had been cleared in antiquity. However, grave goods other than jewelry were overlooked and subsequently recovered during the modern excavation. None of these objects have a clear association with gold jewelry except that most artifacts were found in the eastern part of the tomb, near the entrance. Of particular interest are eight Cycladic-style figurines or fragments of figurines; a white marble bowl that may be from the Cyclades; stone beads; copper objects, including daggers; Melian obsidian; numerous bone pendants; and several tools and small objects made of silver. Imported hippopotamus ivory was used to manufacture seals, the head of a figurine, and several
handles (Papadatos 2005: 45), all clearly associated with the EM IIA level (see Krzyszkowska 2005: 59 on the identification of hippopotamus ivory versus elephant ivory for the manufacture of seals and other objects in prepalatial Crete). Before the full publication of this tomb, the ivory seals were dated no later than EM III (Sbonias 1995: 66, 158).

*Tomb E*

Tomb E, excavated in 1975 (Sakellarakis 1975; Sakellarakis and Sakellaraki 1997) and studied again in 1996 (Panagiotopoulos 2001; 2002), was constructed in EM IIA. In MM IA, after perhaps 200 years of disuse (Sakellarakis and Sakellaraki 1997: 187), the existing burial level, dated to EM IIA, was cleared and leveled so that only 10 cm remained. The cleared area was then covered with a thin layer of white soil and the tomb was used again for burials in the Middle Bronze Age (MBA) (Panagiotopoulos 2001: 173).

Only three gold objects were recovered from the EM IIA level of Tomb E: one globular bead made from thin sheet gold (AR 20) and two small rectangular fragments of gold strips, each just under one cm in length (AR 21A-B). One strip was evenly cut on three sides with one jagged end, where it appeared to have been broken. The second fragment was unevenly cut and appeared to be broken on both ends. No decoration was apparent on the strip fragments. The fragmentary nature of the strips would suggest that parts of these strips or other objects made of gold may have been removed when the clearing of the tomb took place.

Aside from gold jewelry, similar grave goods were recovered from the lowest burial levels of Tomb E and Tomb Γ. Objects from Tomb E included the head of a
limestone Cycladic-style figurine, described as the Koumasa variety, found close to an EM IIA pyxis (Panagiotopoulos 2002: 98, 171); eight early seals including two made from hippopotamus ivory, two made from bone, and four made from stone (Panagiotopoulos 2002: 72-73; Sbonias 1995: 66 confirms an EM II date for the seals from the lower level); bone, boar’s tusk, and stone amulets or pendants; small objects of bronze; stone beads and vases; and Melian obsidian. Nine triangular ceramic fragments and 29 round stones may have been game pieces.

**Tomb B**

A gold strip (AR 22), dated by the excavators to MM IA, was recovered from a small hollow that was dug in the dromos, just outside the main burial chamber of Tomb B (Sakellarakis and Sakellaraki 1997: 173). Unfortunately, the size and overall condition of the strip is not known. The strip may have been part of a ritual cache, as it was folded; it was also found with human and animal bones and a small collection of objects including a stone vase, a boar’s tusk, an obsidian blade, and a few ceramic pots.

**Additional Evidence of Ranking**

Aside from gold jewelry, what other evidence of ranking has been identified at EBA Archanes-Phourni and its associated settlement? The construction of large, vaulted tholoi, monumental burial places for extended families or clans, would have required a coordinated effort by the local population. Two of the tholoi – Γ and E – were constructed in EM IIA, suggesting that at least two social groups or lineages may have lived in the settlement at that time.

Although no assemblages of grave goods can be associated with individual burials, some classes of objects, found in both Tombs Γ and E, could be described as
characteristic of collective tombs of this period. Fine ceramic wares, small stone vases, and bronze weapons were recovered. Objects made from foreign raw materials, including gold and ivory, were found in the earliest burial levels of the tombs. Ivory, imported as hippopotamus teeth, was used to create seals and other objects. The seals – perhaps owned by individuals of higher status – may have related to early administrative functions at Archanes.

A connection to the Cyclades was confirmed by finds of obsidian from Melos; a Cycladic marble bowl and figurine; Cycladic-style figurines; the gold vase-shaped pendant similar to those from Naxos; and tools and other objects made from silver, a metal that may have come from the Cyclades. This evidence, while not necessarily supporting the presence of a ranked society, indicates that Archanes was involved in trade for foreign raw materials or perhaps even finished goods. Archanes may have played a direct role in an international trading network or, more likely, participated in down-the-line or regional exchange originating in settlements on the north coast of Crete.

Compared to Tomb E, Tomb Γ contained a greater number of gold ornaments, ivory objects, and figurines. The Cycladic connection, including the recovery of objects made from silver, was also more evident in Tomb Γ (Papadatos, personal communication). The difference between the number and types of grave goods in the two tombs would suggest that a more highly ranked lineage was buried in Tomb Γ, indicating the presence of a stratified society at EBA Archanes. Of course, the number of objects remaining in each tomb may have been affected by other factors, such as the care taken to remove all objects when the tombs were cleared.
Except for parts of a palace dated to a later period, no evidence of ranking has been obtained from the settlement at Archanes, as it remains buried under the modern town of the same name. No information is available on the size, plan, or population density of the EBA settlement, and no prominent early structures have been identified.

**Pyrgos Cave**

In 1918, Stephanos Xanthoudides discovered a small number of gold ornaments in a cave at Pyrgos, located on the northern coast of Crete (Pl. 3A-B). This burial cave, approximately 14 km east of Herakleion, had been accidentally discovered during the construction of a road (Xanthoudides 1918: 136). Although clay larnakes found in the upper level dated the last use of the cave to EM III (Branigan 1988) or MM I (Watrous 1994), gold jewelry and other grave goods were securely dated to the EM I – II period. The gold objects included a fragment of a diadem, three thin gold strips, two wire bangles (bracelets or anklets), a bead, and a decorative disk. During the 1924 – 1925 excavation season, Xanthoudides re-examined the cave and found another fragment of a gold diadem near two newly discovered burials and EM I pottery sherds (Woodward 1925: 226).

The two diadem fragments (**PY 1, PY 2**), each about seven cm in length, may or may not be part of the same object. Although currently displayed together as one diadem in the museum at Herakleion, an examination of the two strips reveals subtle differences. Both fragments have equidistant perforations along one of the long edges. However, the perforations are one cm apart on one piece and 0.8 cm apart on the second piece. Also, one fragment appears to be slightly wider. Both strips are ragged at each end, indicating that only portions of the diadem(s) were recovered; perhaps only fragments of the
diadems were deposited as grave goods. Although no accessories for diadems were found in the cave, pendants or leaves may have originally hung from the perforations (Vasilakis 1996: 108), or one edge of each piece may have been attached to a perishable material like leather or cloth.

Three thin gold strips (PY 3A-B, PY 4), common funerary offerings when gold was recovered from EM burial contexts, were found in the cave. Two of these strips were similar to antennae that extended from the top of diadems from Mochlos (see MO 42, MO 62), as one end of each strip was rounded or perforated. Two spiral bangles (PY 5, PY 6), one made from thick twisted wire, and the other made from plain wire of circular section, were quite small and may have originally been worn on the wrist or ankle of a small-boned person or child. The other gold objects included a spherical bead (PY 7) and a perforated, decorative disk (PY 8) with four embossed circles and an opening in the center. The excavator suggested that the disk may have decorated the mouth of a small pot or container (Xanthoudides 1918: 166). The fact that nine pieces of jewelry represent five distinct classes (diadems, strips, bangles, beads, and disks) may indicate that these objects were part of ensembles.

Several different types of pottery were recovered from the cave, providing the EM I – II date for the jewelry. Pyrgos Cave was the type-site for EM I Pyrgos Ware (Betancourt 1985: 26) with its tall, pattern-burnished chalices and other forms (Xanthoudides 1918: figs. 8-11). Hagios Onouphrios Ware was also found in the cave. Five incised Pelos Ware bottles were thought to be imports from the Cyclades (Renfrew 1972a: 201; Xanthoudides 1918: figs. 8.44-8.45, 9.67-9.69). Other objects suggesting direct or indirect contact between the north coast of Crete and the Cyclades included
obsidian blades, a tiny Cycladic-style folded-arm figurine, and seven roughly-shaped Cycladic “pebble form” stone figurines (Branigan 1971: 59; 1988: 100; Renfrew 1969: 5; Xanthoudides 1918: figs. 14, 15). Arsenical bronze (or arsenical copper) weapons and tools – long daggers, chisels, and punches – were also found in the cave (Branigan 1974; Xanthoudides 1918: fig. 15). A group of long daggers has been dated to the EM I period (Muhly 2002: 79, citing Branigan 1974: nos. 129, 251, 254, 401). Although no information is available regarding funerary rituals associated with the cave, evidence of burning on animal and human bones may indicate that feasting took place and that the cave was fumigated (Branigan 1988: 154).

The specific contexts of the gold ornaments are unknown. It is unclear whether the original finds were scattered throughout the deposit or found in close proximity to each other. Except for the disk, the gold objects were not decorated and the craftsmanship required for manufacturing was modest. Considering that Pelos Ware bottles, obsidian, and stone figurines all suggest a strong Cycladic influence, it is surprising that no objects made of silver were recovered from the cave (cf. following section on Krasi).

Xanthoudides suggested that the settlement associated with the hundreds of individuals buried in the communal tomb may have been located on a nearby hill, northeast of the cave (1918: 168). Although this site was not excavated, extant evidence of habitation included the remains of stone walls and EM I pottery sherds. Numerous oval or cylindrical pits, 20 to 40 cm deep, had been cut into rock, perhaps to collect rain water for use in animal husbandry (Xanthoudides 1918: 168-169).
Krasi

South of Malia, in the province of Pediados, a small tholos tomb was excavated by Spyridon Marinatos in 1926 and 1929. This site was unique in EBA Crete as the grave goods manufactured from precious metals were primarily in silver with only a few scraps of gold found. More silver jewelry was recovered from this tomb than from any other site in prepalatial Crete (Pl. 3C-D). Also, this was the first circular, above-ground tholos tomb found in northern Crete. Prior to the discovery of the tomb at Krasi, tholoi had been associated exclusively with communal burials in the Mesara in south-central Crete.

The silver jewelry included two pendants, two bangles, a finger ring, and a large bead. Four silver disks and fragments of sheet gold were also found. The pendants, both of which were perforated for suspension, were of unique design. Marinatos suggested that one pendant, shaped like the tip of a large nail or spike (KR 1), was made from lead with a percentage of silver (1929: 120). However, a more recent study indicated that this pendant, described as an anchor, was solid silver (Vasilakis 1996: 155). The second pendant (KR 2) consisted of a cylindrical stem from which two winged blades or flippers extended. The pendants were both unusual shapes and would have required a measure of skill in manufacturing.

The two small bangles (KR 3, KR 4), perhaps bracelets, and a finger ring (KR 5) were of the same simple design and were found together in the tomb. These objects were made from thin strips of sheet metal or square-section wire. Each piece was coiled around itself. The end of the wire, on the ring and on at least one of the bangles, had been flattened by hammering to create a disk-like terminal. On the ring, the flattened metal tip may have been worn as a bezel (Marinatos 1929: 121). A bi-conical bead (KR 6), made
from two joined pieces of sheet silver and incised with parallel lines, was also
recovered. Other ornaments made from silver included four perforated disks (KR 7A-D)
that resembled buttons. Three small fragments of thin sheet gold (KR 8) may have
covered a bead made from a perishable material (Marinatos 1929: 121).

The construction and the first use of the tomb at Krasi has been dated to EM I
(Marinatos 1929; Warren and Hankey 1989), confirmed by ceramic finds in the lower
burial level including Pyrgos Ware and Hagios Onouphrios Ware (Betancourt 1985: 27,
30; Marinatos 1929: 111). Two small bronze daggers have also been assigned to the EM I
period (Muhly 2002: 79, citing Branigan 1974: no. 1467). How long this level remained
in use is unclear. L. Vance Watrous suggested that a low-pedestaled goblet found in the
lower level was similar to those from EM IIA Knossos (1994: 703). Keith Branigan dated
Krasi to the EM I – EM III period (1993: 148); he suggested that the silver objects should
probably be dated to EM II (1968: 224). Although two MM I vessels were recovered
from the upper burial level (Effinger 1996: 236; Marinatos 1929: 126), the remainder of
the finds indicated that the primary period of use for the tomb was the EBA.

The tomb at Krasi had an internal diameter of just three m, about half the size of
the average Mesara tholos tomb (Branigan 1993: 149); this made it one of the smallest
vaulted tombs constructed in Crete. Although not an accepted theory today, some
scholars initially believed that the origin of the Krasi tomb might be found in the
objects, such as folded-arm figurines or stone vessels, were recovered from the tomb, this
misconception may have been fostered due to the presence of objects made from silver,
the precious metal preferred for jewelry in the Cyclades during the EBA.
The 1929 excavation report indicated that the dead were buried both inside and outside the tomb (Marinatos 1929: 110). However, most skeletal remains and the great majority of finds, including all silver and gold, were found in the lower burial level, inside the tomb. Fortunately, the layers inside the tomb were undisturbed (Marinatos 1929: 111) and, in most cases, the excavator was clear on where the grave goods were found.

Objects specifically assigned to the lower level of the interior of the tomb included clay vessels; bronze daggers, cutters, spoons, and needles; the silver ornaments and scraps of sheet gold described above; clay spindle whorls and beads; and a perforated ivory amulet or seal in the shape of a foot. This last object, which appeared to be a seal because it had an incised cross-hatched pattern on the bottom of the foot, has been dated to EM II; however, it may have been made of bone rather than ivory (Sbonias 1995: 45; 2000: 279). A wide variety of animal and fish bones were also recovered from this level, including hare, sheep/goat, cow, pig, hedgehog, dog, and herring (Marinatos 1929: 111, 124-125). The animal bones may represent funeral meals consumed or offered when the dead were placed in the tomb.

Although another small tholos tomb was identified near Krasi by Nicholas Platon, it remains unexplored (Branigan 1993: 36, 148). No early settlement associated with the Krasi tomb has been identified.

Other Sites of Note

Two burial caves located to the south of Krasi on the Lasithi Plain – the Trapeza Cave (Pendlebury, Pendlebury, and Money-Coutts 1935-1936) and the Hagios
Charalambos Cave (Betancourt, Davaras, and Stravopodí 2004) – may have contained gold jewelry that dated to the EBA. However, since the interiors of both caves contained disturbed secondary burials that dated from the Neolithic or EM period into MM IIB (Betancourt, personal communication), the jewelry cannot be securely dated. Consequently, these sites as well as finds of gold and silver objects are only mentioned briefly here and are not included in the analysis at the end of Part I.

Twenty-one fragments of gold were recovered from the Trapeza Cave, including several crushed sections of strips, a triangular pendant, and parts of leaf-shaped ornaments. All appeared to be made of thin sheet gold. Some of the objects revealed traces of dot repoussé, a decorative technique frequently employed during the prepalatial period (Pendlebury, Pendlebury, and Money-Coutts 1935-1936: 102). One silver tool and a silver rivet were also found (Pendlebury, Pendlebury, and Money-Coutts 1935-1936: 103).

A greater number and variety of gold and silver objects or fragments of objects were recovered from the Hagios Charalambos Cave (Betancourt and Muhly, personal communication). Gold objects included fragments of strips, one with a pierced hole; a hair ring or earring with a gold exterior over a core of bronze or copper; a finger ring with marine shells in relief; three beads; two bosses or caps decorated with dot repoussé borders; and several fragments of gold foil, one of which contained a herringbone design. Silver objects included a plain ring; parts of other rings, including one bezel incised with five flowers; a bead; several fragments of sheet silver; and a fragment of a silver and copper pin.
2. South-Central Crete

In the early part of the twentieth century, Stephanos Xanthoudides, then Ephor General of Antiquities in Crete, excavated many large tholos tombs in the Mesara region of south-central Crete. Since then, additional tombs have been discovered and investigated. Although more than 70 tholoi from approximately 40 cemetery sites have been positively identified in the region (Branigan 1998b: 13-14), gold ornaments were recovered from secure EM contexts at only three sites that have been fully published: Platanos, Lebena, and Koumasa. A tomb at Kalathiana and additional tombs at Lebena and Koumasa also contained gold jewelry, but these tombs appeared to have been in use into the MM I period.

In north-central and east Crete, prepalatial gold or silver jewelry was recovered from house tombs, tholos tombs, cist graves, and caves. In contrast, all objects made from precious metals found in south-central Crete came from a single tomb type: the tholos tomb. Since the tombs under discussion share common traits and the local populations may have followed the same cultural traditions, general characteristics of tholoi are best described before a review of specific tombs and objects.

Circular domed tombs of the Mesara were first constructed in EM I and may have been used by families, clans, or entire villages. Some sites had more than one tholos, and some tholoi were constructed with rectangular antechambers or annexes. Tomb doorways generally faced east. Keith Branigan proposed that egalitarian societies built the tombs with the first evidence of ranking appearing by EM II – III (1988: 241). Visible from the
surrounding area and often located close to settlements, tholoi may have marked territories or reinforced rights to local resources such as land (Murphy 1998).

In use from c. 2800-1800 BC (Branigan 1993: 12), the Mesara tholoi were collective tombs with bodies and grave goods deposited over several centuries to perhaps as many as 1000 years. Contexts were disturbed in antiquity as skeletal material and objects were moved, most likely when new burials were placed in the tombs. Consequently, when tombs were excavated, it was not possible to associate grave goods with specific human remains or closely date all recovered objects.

Xanthoudides suggested that removal of grave goods may have been a regular part of funerary ritual in Mesara tholoi (1924: 110). Gold may have been periodically collected to be melted and reused. Objects were also looted from tombs in both ancient and modern times. Gold jewelry, ceramics, and other grave goods are included in private collections but lack reliable provenance. Jewelry from the Mitsotakis collection (Marangou 1992), including gold strips or diadems and ivy leaf pendants on loop-in-loop chains, may very well be from looted tholoi in the Mesara.

Knowledge about gold jewelry from Mesara tholoi is also incomplete because not all excavated tombs have been fully published. Several sites were excavated as rescue operations to avoid looting and the eventual loss of these objects. For example, gold diadems and other jewelry recovered from Moni Odhigitria are on display in the Herakleion museum and are referenced in publications (Vasilakis 1989-90b, 1996; Watrous 1994). However, contextual information that would aid in interpreting and securely dating the finds is not yet available.
In 1914 and 1915, Stephanos Xanthoudides excavated a cemetery complex near the village of Platanos in the heart of the Mesara region. The site contained two large tholoi – A and B – and a smaller tholos tomb identified as Γ. The remains of annexes and storerooms were also present on the site. Except for one plain gold bead found in the soil over Tomb B, gold jewelry and ornaments were only recovered from the largest and oldest tholos, Tomb A (Pls. 4, 5). In his report of the excavation, Xanthoudides indicated that three large gold beads and a pendant attached to a loop-in-loop chain were all from the lower EM II level, separated from the level above by white earth. He noted that these four objects appeared to be manufactured from a paler gold, perhaps indicating that the gold contained a small amount of silver (1924: 110-111).

Of the three EM II gold beads, one hollow, nozzle-shaped bead (PL 1), 1.8 cm in length, was decorated in repoussé with several swirled shapes that resembled olive leaves. If the bead was stood on its narrow end, rolled lips or rims around the openings at both the top and the bottom of the object gave the bead the appearance of a miniature stone vase. Indeed, the bead is similar in shape to small “pithos-shaped” stone vases recovered from the Platanos cemetery (Xanthoudides 1924: 100, pl. 53.1670-71). The other two beads from Tomb A (PL 2, PL 3) are amygdaloid or almond-shaped. These beads are undecorated, with wide openings at each end.

The EM II pendant (PL 4) is quite delicate and hangs on a loop-in-loop chain. Measured together, the pendant and chain are long – almost 12 cm in length. The pendant was manufactured from a triangular piece of sheet metal that was rolled and creased to create a cone, similar to a closed flower such as a morning glory (see chapter 5, Pl. 34 for...
a detailed description and illustrations related to the crafting of this pendant). The object is decorated along the bottom edge with dot repoussé. This pendant has the same shape, same type of chain, and same twisted wire attachment to the chain as a pendant from Tomb II at Mochlos (MO 22) (Seager 1912: fig. 10.II.30).

Although many objects, including pottery, stone vessels, metal tools and weapons, ivory and bone seals, figurines, amulets, obsidian, and stone and faience beads were found in the Platanos cemetery, only one class of objects, other than gold jewelry, was assigned specifically to the EM II level of Tomb A. Fourteen short, triangular copper or bronze daggers plus fragments of blades, some with silver rivets, were recovered. Since the excavator noted that no objects of clay were found in Tomb A (1924: 94), as pots had apparently been placed in adjacent storerooms, the date of the lower level of the tomb appeared to have been determined based on the presence of triangular daggers.

Additional gold beads, pendants, diadems, strips, and ornaments were recovered from Tomb A. Although specific context and associations with other grave goods were not noted in the excavation report, it is likely that most if not all of these objects were found in the upper, later burial level as Xanthoudides indicated that most of the gold was found there. Dating the upper level of Tomb A has been problematic. A recent survey of early Crete suggested burials continued in Tomb A “at least into MM II” (Watrous 1994: 745). However, the evidence used to support this claim is suspect. Watrous states that Tholoi A and B contained MM IB – II pottery although, as indicated above, no clay objects were found inside Tomb A (Xanthoudides 1924: 94). Watrous also dates long daggers from Tomb A – Branigan’s types V, VI, IX, X, and XIV – to the MM IA – II or MM IB – II periods. Although a wider range for context is sometimes given in
Branigan’s catalogue (i.e., EM III – MM II), a close reading of his typological study, including descriptions and dates for these daggers (1974: 10-12) suggests an EM III – MM I date for types V, VI, and XIV. Type IX is described as “EM II or later”; type X has a much wider range: from late EM II into the LBA (Branigan 1974: 11).

The evidence provided by seals also supports an earlier date for the upper level of Tomb A. Xanthoudides states that the “largest and most important ivory seals” were found in Tomb A and nearby storerooms while the later Tomb B contained primarily small stone seals (1924: 111-112). Kostas Sbonias’ study of Aegean seals (1995: 63-70; 2000: 279) indicates that imported hippopotamus ivory was used for seals from EM III – MM IA with its use dying out in the late prepalatial period (see also Krzyszkowska 2005: 63, 70; however, Papadatos 2005: 43 describes ivory seals from Archanes-Phourni dated EM IIA).

In addition to daggers and seals, a third line of evidence suggesting a pre-MM I date for the upper level of Tomb A can be offered. Large repoussé beads found in this level closely resemble gold beads recovered from an EM II – III context at Mochlos (cf. PL 9 and MO 48 [Pls. 5E, 21C]). Consequently, since the upper level of Tomb A may very well date EM III – MM I, gold ornaments from this part of the tomb will be discussed.

Branigan (1974) assigned most of this jewelry to EM III – MM I, with the exception of the diadems, which he dated EM III – MM II. One diadem and two fragments were undecorated and one complete diadem contained a border in dot repoussé. It is unclear why Branigan chose to extend the date on these objects to MM II, as plain gold diadems or diadems with simple dot borders appeared in other regions of
Crete during the prepalatial period (cf. Archanes-Phourni in Papadatos 2005: 41, fig. 25, J41; Mochlos in Seager 1912: 26-27, fig. 8, II.2 & II.6; Pyrgos Cave in Xanthoudides 1918: 166, fig. 15). Also, Xanthoudides noted that the diadems were of the same pale gold as the EM II objects from the lower level (1924: 111), which suggests that the diadems may have been heirlooms.

The largest diadem (PL 5), measuring 13.7 cm in length, included attachment holes and a single row of dot repoussé along the top and bottom edges. Another undecorated diadem (PL 6), also with attachment holes, was slightly broken on one end. Two fragments of sheet gold (PL 7, PL 8) appeared to be part of two different diadems or perhaps decorated clothing. Xanthoudides noted that many additional fragments of broad bands and small strips, some perforated and some decorated with dot repoussé, were also found in the tomb (1924: 111).

Nineteen large (PL 9A-S) and three small (PL 10A-C) hollow beads were recovered. The large beads, most with wide openings at each end, were described by the excavator as pendants or beads (1924: 110). Decorated in a fashion similar to the EM II bead found in the lower level (PL 1), the shape of these collared beads was identical to two large chalcedony beads from Tomb 19 at Mochlos (Seager 1912: 72, fig. 41, XIX.12a-b). All but two beads were of thin sheet gold with swirls or geometric patterns that had been incised or decorated using a repoussé technique. The two remaining barrel-shaped beads (PL 11A-B) included crudely-wound spirals of wire in filigree, a decorative technique that is thought to have appeared in Crete at the beginning of the second millennium BC (Higgins 1980: 57).
The remainder of the gold finds included: three circles of thin wire that may have been finger rings or served as the bases for miniature stone vases (PL 12A-C); 21 small perforated disks (PL 13A-U); one large (PL 14) and six small (PL 15A-F) bosses; a mass of curled wire (PL 16); a single leaf (PL 17) that may have been used in the hair or as an attachment for a diadem; a crescent-shaped ornament (PL 18); a repoussé ornament that resembled a crocus flower on a stem (PL 19); and two rings made from sheet gold that may have decorated the brims of miniature stone vases (PL 20A-B). Three perforated gold strips (PL 21A-C), two of which were decorated with dot repoussé, may be small diadems or diadem antennae.

Xanthoudides does not list all grave goods that were found in the upper level of Tomb A, as he only notes the findspots of objects that illuminate the chronology of the tomb (1924: 93). Objects other than gold jewelry that he assigns to Tomb A include two small shell dishes; 46 dagger blades; copper or bronze tools; a white serpentine seal; a stone figurine; and ivory objects including seals, a figurine, an amulet in the form of two apes, and three dagger pommels. It appears likely that small stone vessels were also found in Tomb A.

Except for the beads decorated with filigree, which may suggest a later date, there are no noticeable differences in the skill required to manufacture the gold ornaments from the lower, earlier burial level compared to the upper level. The diadems, strips, disks, bosses, vase rims, and small beads are of simple design, cut from sheet gold with a few pieces hammered over a form, perforated for attachment, or punched to create a dot repoussé border.
Although only one decorated bead (PL 1) from the EM II level was recovered, it resembles the beads from the upper level in both size and manufacturing technique. As is the case with the EM II bead, most of the upper level beads have wide openings at each end, indicating that they may have been formed over a perishable material such as wood. This would have maximized the impact of the beads while using less gold.

Tomb A was the largest tholos tomb discovered in the Mesara, with an interior chamber diameter of 13.1 m and walls that were almost 2.5 m thick (Xanthoudides 1924: 88). Although the height of the vault is unknown, this structure was monumental for its time and place. The construction of Tomb A would have required an advanced knowledge of building techniques and the coordinated effort of many villagers. It is also possible that the Mesara tholoi, including Tomb A at Platanos, were designed or built by a group of local traveling specialists experienced in vaulted tomb construction.

Craft specialization is indicated at Platanos not only by the production of jewelry but also by the recovery of many finely carved seals. The use of imported hippopotamus ivory as well as gold suggests direct or indirect participation in long distance trade. The large size of some of the ivory seals, preserving the natural shape of the hippopotamus tusk, may relate to the “conspicuous display” of the seals (Krzyszkowska 2005: 63, 68), perhaps associated with owners of higher status.

There is evidence that ritual activities took place inside or in the vicinity of Tomb A. Fires, probably related to fumigation or ceremonial activities, were set in the center of the chamber. In the lower EM II level, fire blackened bones, distorted some of the triangular dagger blades, and baked the clay floor. Area AB, an outdoor court between
Tombs A and B that is still visible today, was paved with green slate and may have been used for rituals associated with primary or secondary burial or other community activities. A Cycladic-style folded-arm figurine, recovered from this area (Xanthoudides 1924: 121), indicates that the paved court may have been in use as early as the EBA. Although an extensive settlement associated with the tombs has been identified, it has not yet been excavated (Branigan 1993: 111).

Lebena

Lebena, at modern Lentas, was located on the south coast of Crete with a view of the Libyan Sea. Excavated by Stylianos Alexiou from 1958 to 1960, the overall site consisted of five tholos tombs at three different locations: Papoura (Tombs I and Iβ), Gerokampos (Tombs II and IIα, a conjoined pair), and Zervou (Tomb III). At both Papoura and Gerokampos, there was an overlap in the use of the tombs, with the second tomb constructed while the first tomb was still in use (Alexiou and Warren 2004: 191). The sequence of construction appeared to be: Tomb II (EM I), Tomb I and then Iβ (both in EM IIA), Tomb IIα (EM IIA), and Tomb III (no later than EM IIB). Burials continued to be placed in the tholoi at Papoura and Gerokampos through MM IA, with one annex at Gerokampos in use at least through MM IB, as evidenced by the find of a Barbotine sherd (Alexiou and Warren 2004: 195). The tomb at Zervou continued in use into MM IB.

Gold jewelry or ornaments dated to early periods were found in three tombs: Tomb I at Papoura, Tomb II at Gerokampos, and Tomb III at Zervou (Pl. 6). Although Lebena has been discussed in many books and articles (e.g., Alexiou 1960a; Alexiou
The recent publication of The Early Minoan Tombs of Lebena, Southern Crete by Alexiou and Warren (2004) was used as the definitive reference in examining the context and dating of relevant grave goods as well as structural details of the tombs.

**Papoura**

Tomb I, dated EM II – MM IA, contained three gold objects: a gold diadem found near the bottom of the burial deposit and two small gold beads identified during the sieving operation. Recovered from a secure EM II context, the diadem (LE 1) was manufactured from sheet gold and decorated with lines of dot repoussé, including a border around the edge of the band and a double V in the center of the object. Two triangular projections on the top and one triangular projection at the bottom were cut out of the sheet metal. The diadem was complete except for a portion of a thin, upright stem-like strip at the center top of the object. This vertical projection may have created a dramatic effect similar to the two diadems with antennae from Mochlos (see Alexiou 1960a: 225, fig. 5 depicting a Cretan girl wearing the diadem, also Pl. 6B here).

The Papoura diadem was unique among finds of EM jewelry, as it was discovered with two plain leaf attachments in place, slipped through slits cut in the band. Also, two long, twisted gold ties – used to secure the diadem around the head – were attached through holes at each end of the band. These gold ties were the only evidence indicating that at least some diadems in prepalatial Crete were kept in place with gold ties rather than cords or pins made of perishable material.

Before the recent full publication of the tombs at Lebena, this diadem had been dated to the prepalatial period (Branigan 1974: 183; Effinger 1996: 239; Higgins 1980: 
Alexiou and Warren made it clear that the object was found in an EM II context (2004: 36). Since all finds from Lebena I were carefully recorded according to six measured excavation levels, it was possible to reconstruct the position of objects found near the diadem. An EM II ceramic pyxis was recovered in very close proximity (approximately 10 – 15 cm away) and at the same depth as the diadem (Alexiou and Warren 2004: 36). “Green-surfaced paste beads” were found just below the EM II pyxis and the gold diadem (Alexiou and Warren 2004: 35). These beads may have originally been associated with the diadem, as it is not uncommon for small objects to fall deeper into a deposit.

Sixty-seven pottery finds, including bowls, cups, jugs, pyxides, and other shapes, indicated that the tomb was used primarily in EM II with some burials continuing into EM III/MM IA (Alexiou and Warren 2004: 40). The latest material, including an EM III/MM IA White-on-dark amphoriskos and an early 12th Dynasty Egyptian scarab (c. 1973 – 1900 BC) were found near the entrance, perhaps the last area to receive burials before the tomb went out of use (Alexiou and Warren 2004: 36, 40).

A group of objects was recovered from the south-west area of level or stage C, located 1.2 m to 1.4 m below datum (the highest stone preserved in the vault of the tomb) (Alexiou and Warren 2004: 27). In addition to the gold diadem, this “close grouping” consisted of pottery; obsidian; seals including one ivory or bone seal; and a stone vase. Alexiou and Warren (2004: 41) suggested that these objects were not necessarily placed in the tomb together, but they probably “accumulated over time during EM II.”

In addition to the gold diadem, jewelry and other forms of personal adornment recovered from all levels of Tomb I – and consequently more broadly dated EM II – MM
IA – included two gold beads (LE 2A-B) recovered from sieving, with one described as from close to floor level; carnelian beads, also recovered from sieving; clay, ivory, and bone pendants or amulets; hundreds of paste or faience and stone beads; and seals of bone, ivory, and stone. Objects of bronze or copper included an EM II triangular dagger and a fish hook, both recovered from the upper level of the tomb, and a fragment of a long dagger or knife that may have been deliberately folded over (Alexiou and Warren 2004: 39). Obsidian, spindle whorls, and small EM II stone vases were also recovered. A gold bead was found in a compartment attached to the outside of the tomb, but a sherd of Barbotine Ware suggested a later MM IB date for this separate deposit.

Considering the wide variety of grave goods deposited in Tomb I, it is surprising that so few metal objects were recovered. The diadem is the most complete object of its type found in an EM context in Crete, with both leaf attachments and gold ties in place. The good condition of the diadem suggests that disturbance of the area around this object was minimal and/or that the diadem was handled with care. Additional gold objects included just two small beads, and only three objects of copper or bronze were found. The lack of metal objects must be attributed to looting, with gold and bronze easily identified and highly prized. Fortunately, burial areas near the walls remained intact – covered and protected by the collapsed vault of the tomb (Alexiou and Warren 2004: 13).

Tomb I at Papoura was average in size, with a maximum internal chamber diameter of 5.15 m and a wall thickness from 1.65 to 2 m (Alexiou and Warren 2004: 11-12). Signs of burning and a cup with charcoal, perhaps an incense burner, were found just inside the entrance. An EM settlement on Anginaropapoura Hill, associated with the tombs at Papoura, was identified by the presence of house walls and surface finds of
protopalatial pottery sherds and grindstones (Alexiou 1960a; Alexiou 1992; Hadzi-Vallianou 1989). Unfortunately, the site was located on private land unavailable for excavation by archaeologists. The excavator noted that there were “indications of a larger and more carefully constructed building” on the summit of the hill where the settlement was located (2004: 14). In a survey of the area, evidence was also found of a 0.8 m thick enclosure wall (Vasilakis 1989-90a: 286).

**Gerokampos**

Tomb II contained two distinct burial strata: a lower level dated to EM I and an upper level dated EM II – MM IA. Small gold objects, including one boss and gold beads, were recovered during the sieving process or from the upper level. A small perforated gold boss (**LE 3**), with incised lines around the flat part of the object, was recovered from sieved soil excavated near a robbed area at the center of the tomb. It is similar to a second boss, said to be from Lebena, that is currently in the Boston Museum of Fine Arts (Alexiou and Warren 2004: 129, 197). Peter Warren counted 1,138 beads recovered from this tomb, including 22 gold beads (**LE 4A-V**) and one lead nail-shaped bead (2004: 128). The gold beads were of various sizes and shapes, including short and long cylinders, spheres, and melon-shaped beads. Some beads were plain, and some beads were decorated with parallel lines or grooves, created by incising or repoussé.

Tomb II was similar in size to Tomb I at Papoura, with a maximum internal chamber diameter of 5.15 m and a wall thickness of 1.9 m. After the roof of the tomb collapsed and had been repaired, burials continued on top of the fallen blocks, with the blocks protecting the objects underneath from tomb robbers. (Alexiou and Warren 2004: 15). An unusual feature of this tomb was a small compartment or θήκη, built against an
interior wall, that contained a separate burial furnished with EM I vases and a marble figurine; perhaps this was the grave of a founder of the community (Alexiou and Warren 2004: 192). The lintel at the top of the entrance passage was blackened by the burning of incense or by torches carried by those that placed the dead in the tombs (2004: 16).

Over 500 ceramic vessels, many unbroken, were recovered from six measured levels of Tomb II (Alexiou and Warren 2004: 57). As with Tomb I, pyxides with perforated lugs – dated EM I – II – were the most represented shape. Four white marble figurines, including a folded-arm figurine, as well as clay and stone beads were found in the earliest levels of this tomb. White paste or faience, stone, and gold beads were recovered from under the collapsed stones of the earlier vaulted roof. Other objects found in Tomb II included: stone vases, some dated to EM IIA; a stone pommel for a dagger; 22 bone, ivory, or stone seals or pendants; five copper or bronze daggers, at least one securely dated to EM I; metal fish hooks and nails; obsidian; clay and stone spindle whorls; a pile of smooth pebbles; olive pits and limpet shells; and a late 11th Dynasty Egyptian stone scarab (c. 2025 – 1973 BC) dated to MM IA.

_Zervou_

One gold object was discovered in Tomb III at Zervou. A twisted strip of gold (LE 5) was found near an EM II juglet and a skull, toward the bottom of the burial deposit, approximately 5 to 13 cm above floor level (low in level D, with floor level at level E). No illustration of the object could be located and no museum or object number was assigned, but it was described by the excavator as similar to the strip recovered with the diadem from Tomb I. At 19.7 cm long, the strip may have been used alone or attached to a diadem that was then fastened around the head (Alexiou and Warren 2004: 188).
Tomb III was in use until MM IB, later than the others at Lebena. At floor level, however, the pottery was primarily EM II, with some similarities to Vasiliki (or Vasilike) Ware and Hagios Onouphrios Ware (Alexiou and Warren 2004: 21). An eroded Cycladic-style folded-arm figurine of the Koumasa variety was recovered near floor level. Other objects recovered from the immediate area near when the gold strip was found included a second skull, an EM II cup with a large handle, and a small, very worn piriform jar. A stone seal, dated EM II(A?) was most likely recovered from the same level as the gold strip (Alexiou and Warren 2004: 188, #42).

Tomb III was a stand-alone building, with no associated tombs or annexes. The maximum internal chamber diameter was 5.2 to 5.4 m, slightly larger than the two tombs from Lebena previously discussed. The wall thickness was approximately the same: 1.5 to 2 m. Objects from Tomb III that were recovered from higher levels, from sieving, or where specific find context was unclear, and consequently may date later than EM II included: ceramic vessels; stone vases; a bone pendant; a few bone and stone beads; rounded sea pebbles; ivory (or bone) and stone seals; obsidian blades; a spindle whorl; a lead hoop or ring; and a fragment of bronze or copper.

The careful excavation, recording, and publication of the contents of the Lebena tholoi have provided important information on the context of the jewelry finds. Alexiou confirmed that tholos tombs were indeed vaulted when he discovered a fallen mass of stones at Papoura that had retained their original circular arrangement, resembling “ranks of books resting on their edges” (Alexiou 1960a: 226). He also reported vessels placed near the dead in Gerokampos Tomb II that contained remnants of organic material: olive
pits, bird bones, animal bones and teeth, snail shells, and limpet shells (Alexiou and Warren 2004). This indicated that food for the deceased was deposited in the tombs or that ritual feasting by mourners may have taken place.

Evidence from different cemetery complexes suggested that at least some of the burials were primary interments. Eight skeletons were found stacked, a spinal column and associated skull were recovered, and, with the exception of a group of segregated skulls in Tomb II, skulls were generally distributed throughout the mass of bones (Alexiou and Warren 2004: 191).

Human skeletal remains from the Lebena tholoi were recovered and saved, but the analysis and publication of this material has not yet occurred. DNA analysis may provide evidence on the relationship of individuals and groups that were buried in various tombs. It would be interesting to know if Tomb I and Tomb Iβ at Papoura, both constructed during EM IIA, contained members of the same family, two different families, or various family groups who may have lived in the neighboring settlement. It would also be worthwhile to know the number of individuals buried in each tomb as well as data on skeletal anomalies, age, and nutritional status. All of this information could contribute to the identification of individuals of higher rank.

Alexiou and Warren (2004: 192-193) indicated that the quantity and design of certain types of grave goods suggested that regional craft production centers were located in south-central Crete, perhaps at Lebena. Similar decorative motifs on ceramics, such as on EM I red-on-buff pottery (identified by the excavator and Betancourt 1985: 30 as Hagios Onouphrios Ware) and EM IIA Fine Gray Ware, as well as ring-shaped seals made of bone and ivory with criss-crossed decoration on the bezels, imply local
production. Lebena’s location on the south coast of Crete along with finds of Egyptian scarabs; Cycladic-style figurines; Melian obsidian; carnelian beads; ivory seals and amulets; and objects of gold provide evidence for trade and external contact.

Although very little gold was recovered from Lebena, it was found in each of the tomb complexes. Except for the diadem, gold objects that survived were those that would easily be overlooked by tomb robbers: small beads, a thin gold strip, and a single boss. Although gold may have been available only to those of higher status, it is surely the case that gold ornaments were also removed from the tombs, by looters or by accepted social custom. In antiquity as well as in more recent times, the tombs were highly visible on the landscape and were surely explored by local residents.

Koumasa

The site of Koumasa, excavated by Stephanos Xanthoudides from 1904 to 1906, was comprised of three tholos tombs (A, B, and E), one rectangular tomb (Γ), and several adjoining spaces that were either paved or used for in-ground burials. The remains of a Minoan settlement were also located nearby. Peter Warren suggested that “much from the Koumasa tombs” can be dated to EM II (Warren 1980: 489; Warren and Hankey 1989: 15) and Efi Karantzali indicated that EM II pottery was found throughout the cemetery (1996: 79-80, compared with Xanthoudides 1924: 9-15, 34-42). Grave goods from Tombs A and Γ, including Fine Gray Ware and Koumasa Ware, confirmed an EM IIA context for the smallest tholos tomb and the rectangular tomb. The presence of White-on-dark Ware, in addition to EM II pottery, suggested burials continued in Tomb B until
MM IA. Ceramic finds from Tholos E and from spaces outside the tombs, including Barbotine Ware, indicated part of the cemetery remained in use until MM IB – MM II.

Gold ornaments were recovered from two tholoi that date to the prepalatial period: A and B (Pl. 7). Although no gold objects were found in the rectangular Tomb Γ, it should be noted that three long silver daggers, unique to EBA Mesara burials, were recovered from what Soles confirmed was a “closed EM IIA deposit” (Soles 1992: 158; Xanthoudides 1924: 47, pl. 29, #212-214).

Tomb A

Two gold objects were recovered from Tomb A, a small tholos with an internal diameter of 4.1 m (Branigan 1993: 149). A circle of thick gold wire (KO 1) may have been a bracelet or anklet for a child or an ornament used for another purpose. A diadem (KO 2) made from sheet gold was designed with an extension in the center that either projected up above the forehead or down between the eyes. The diadem was decorated around the edges with a double row of dot repoussé; an additional chevron of impressed dots followed the shape of the center extension. One hole at each end allowed for attachment around the head or to a perishable material. Apparently, the diadem was recovered in two pieces; a small hole on each side of a ragged tear indicated that the object was repaired in antiquity.

In addition to the gold ornaments, the excavator attributed only seven or eight objects to Tomb A. Three Fine Gray Ware vessels were described as well as a small rhyton in the form of a bird with an open beak (the latter assigned by Betancourt 1985: 49, fig. 29c to EM II). Other grave goods included a stone bowl, one or two triangular daggers, and a complete Cycladic-style folded-arm figurine, representative of the locally-
made Koumasa variety (Renfrew 1969: 18-19, ill. 2, type IV.E; Renfrew 1972a: 199, pl. 30.3, 4, 6). Seals and stone beads may have also been found in Tomb A, as 13 ivory or stone seals and “many hundreds” of necklace beads are listed in the excavation report without specific provenance (Xanthoudides 1924: 48).

Tomb B

Tomb B was one of the largest tholoi in the Mesara, with an internal diameter of 9.52 m. Constructed in EM II, it was also the tomb where most grave goods from this site were found (Xanthoudides 1924: 4). Evidence of fire was noted in the center of the tomb and against part of the interior wall. Xanthoudides observed that “many hundreds of interments” must have been made in the tomb with some skulls segregated from other skeletal remains (1924: 7). To the east of Tomb B was a wall, beyond which was located a paved court, perhaps used for community celebrations or events associated with burials in the cemetery.

Several gold objects were recovered from the tomb, including a small pendant or bead in the shape of a toad or lion (KO 3) and a bead that Xanthoudides described as resembling a lilac or *syringa vulgaris* seed capsule (KO 4). The excavation report also mentions, without elaboration or illustration, “a few bands of gold sheeting, two small narrow elongated necklace beads, and two small pierced discs, one with a lip of raised granulations round the hole” (1924: 29). Unfortunately, little else can be said about the gold strips (KO 5A-B), the small beads (KO 6A-B), or the disks (KO 7A-B) recovered from the tomb. Although they are listed in major publications that include Minoan jewelry (Branigan 1974: 184, 186, 194; Effinger 1996: 235 mentions the disks and beads; Konstantinidi 2001: 176 mentions the disks and beads; Vasilakis 1996: 140 mentions the
disks only), no illustrations, photographs, or measurements are provided for these objects, and they are not on display in the archaeological museum in Herakleion.

The most unusual object from Tomb B is the diminutive pendant or bead (KO 3) described by Xanthoudides as a squatting toad with warts executed in granulation (1924: 29). This object has also been called a lion with a granulated mane (Higgins 1980: 59). Although the head and bulging eyes resemble a toad, the outstretched front limbs, reclining haunches, and overall posture are more reminiscent of a lion. Perhaps the pendant is a fanciful composite of two creatures. Less than one cm long, the pendant, which may have been considered an amulet, is pierced lengthwise to accommodate a thin thread. The underside “preserves part of the very fine wire of a design in cloisonné” (Xanthoudides 1924: 29), which may be the remnants of filigree.

The pendant and disk from Koumasa Tomb B were the earliest examples of granulation found in Crete. The technique of granulation, fusing minute balls of gold to a gold substrate, was thought to have arrived in Crete just after 2000 BC, perhaps from Asia Minor or Syria (Higgins 1980: 22). Advanced skill would surely have been required of goldsmiths who used this technique in crafting jewelry (see chapter 5 for a discussion of granulation). However, it is not known whether these two Koumasa objects were manufactured locally or arrived in the Mesara as imports. There is also no evidence to indicate whether they were manufactured before or after 2000 BC or when exactly they were deposited in Tomb B.

In addition to gold jewelry, the assemblage of grave goods from this tomb was similar to that of other Mesara tholoi under discussion: clay and stone vessels; ivory and stone figurines; bronze tools and weapons; ivory and stone seals; and stone and faience
beads. Although Xanthoudides believed that the scarcity of metal objects associated with the earliest burials meant that valuable objects were removed from the tomb (1924: 8), some objects made from exotic raw materials, such as ivory and gold, were indeed recovered.

Koumasa is the type-site for Koumasa Ware, an EM IIA pottery style that features red or black linear decoration, often in a hatched or cross-hatched pattern, painted on light clay (Betancourt 1985: 40-43). Several vessels of this type were recovered from Tomb B, including anthropomorphic and zoomorphic vases. Ceramics that dated from EM IIA to perhaps as late as MM IA, including Fine Gray Ware and White-on-dark Ware, were also found in Tomb B. Xanthoudides (1924: 15) noted that all the pottery from Tomb B appeared to have been made by hand. If he is correct, Tomb B can be dated more securely to MM IA or earlier, as the potter’s wheel was introduced in Crete in MM IB (Betancourt 1985: 64; Cadogen 1983: 510; Warren 1980: 492; Warren and Hankey 1989: 47).

Xanthoudides indicated that more stone objects than clay objects were recovered from Tomb B (1924: 15), including over 80 fine quality vases, palettes, and pommels as well as Melian obsidian blades, flakes, and cores. Two broken Cycladic-style figurines contained drilled holes indicating that they had been repaired. Six smaller ivory or stone figurines or amulets, some wearing skirts and one depicting what may be a baby, were recovered. Metal objects included EM I – II triangular daggers and EM II – MM I long daggers as well as other small tools. Twenty seals were manufactured from stone and ivory, some of the latter designed to retain the shape of the hippopotamus tusk. One unusual seal was in the shape of a small ring with a bezel depicting two ants or
grasshoppers. The remaining objects included two stone foot amulets, a stone ox amulet, three incised stone pendants, about 60 stone beads (one of sard), and three dagger hilts in stone or ivory. Only one bead was made from lapis lazuli, a material that had to be imported to Crete. The principal ancient source for lapis lazuli was the Badakhshan region in northern Afghanistan (Aston, Harrell, and Shaw 2000: 39).

Tomb B contained many unique objects made from rare, exotic raw materials such as gold, ivory, and lapis lazuli. Also, well-crafted clay and stone objects were created to be eye-catching or even whimsical as well as functional. With four separate tombs in one location, Koumasa was the largest prepalatial cemetery in the Mesara. Perhaps the size of the cemetery as well as the variety and quality of objects recovered reflected the relative wealth and importance of the site.

Most of the objects recovered from Koumasa were found in Tomb B or in the spaces between the tombs. Objects that were found outside of the tombs in areas AB and Δ consisted of Cycladic-style folded-arm figurines, including one showing pregnancy (1924: 22-23, #122); anthropomorphic and zoomorphic ceramic vases and figurines, including humans as well as birds and bulls; and hundreds of stone and faience beads. Xanthoudides suggested that these open spaces may have contained “huts” that functioned as storerooms for grave goods (1924: 37). Perhaps regular removal of grave goods from the tombs was a part of funerary ritual.

One of the few EM vases depicting jewelry was found in area Δ (see Pl. 37C); a Koumasa Ware pouring vessel in the form of a woman – with snake- or rope-like arms, holding a vase – wore a tight double necklace (Betancourt 1985: 42, fig. 23; Xanthoudides 1924: 39, pls. 2.4137, 19.4137). The necklace may have represented a torc
or neckring (Eluère 1987). Three incomplete anthropomorphic vases of the same shape were also recovered, two from Tomb B (Xanthoudides 1924: 12-13, pl. 19.4138, 4139, 4993).

Xanthoudides conducted a trial excavation at a Minoan settlement located on Korakies, a “twin-peaked hill” about 100 m south of the cemetery (1924: 49). A MM shrine was revealed; snake tubes and other “sacred” objects were recovered (Xanthoudides 1924: 50). Although all pottery sherds were dated to the MM – LM period, the excavator believed that earlier EM remains existed under the later settlement. He suggested that the EM settlement might have been quite large as hundreds of burials were made in each of the four associated tombs. It is unclear if the paved area on the east side of the cemetery, facing the entrances to the three tholoi, was excavated or if any objects were found there. Located close to the tombs, this may have been the location for public gatherings or ceremonies related to burial in the cemetery.

Kalathiana

The site of Kalathiana, located at the northern edge of the Mesara, is not mentioned in most discussions of EBA Aegean chronology (e.g., Cadogen 1983; Manning 1995; Warren 1980; Warren and Hankey 1989). In studies of early periods in Crete, less precise dates (i.e., end dates of MM I rather than the more specific MM IA or MM IB) are proposed for the cemetery. Efi Karantzali (1996: 76) states that tholos tomb K may have been constructed in EM I and was in use until MM I. Maria Effinger (1996: 192) also dates the tomb EM I – MM I, citing a range established by Keith Branigan (1970: 170). Branigan, in the same book (The Tombs of Mesara, 1970: 70), indicates that
Tomb K was founded no later than EM II – III. In a later publication, Branigan dates Tomb K to EM I/II – MM II (1993: 147). Citing Reynold Higgins (1980: 58-59), Watrous states that gold jewelry recovered from Kalathiana dates to the MM IB – MM II period (1994: 730); however, in *The Plain of Phaistos* (2004: 246), Watrous indicates that “gold items…[from Kalathiana]…can be securely dated to EM II…”

The variation in dates put forth by these scholars was likely influenced by the disturbed condition of the tomb when it was excavated and the total absence of ceramic vessels, essential for closer dating. Perhaps the suggestion that tomb use extended into the MM II period also related to the presence of a large MM settlement nearby, a settlement that the excavator did not connect directly with burials made in the tholos (1924: 84-85).

Stephanos Xanthoudides stated: “For dating the tomb in the absence of clay vases…we have to fall back on the triangular daggers and the ivory seals, which point to the second and third Early Minoan periods” (1924: 84). In a re-examination of the contents of Tomb K, it cannot be determined with certainty that burials ended in EM III. However, there is no evidence associated with this tomb to suggest that burials continued beyond MM I. Extant remains, albeit limited in number, indicate that Tomb K was in use primarily during the prepalatial period, specifically EM II – MM IA, with perhaps some burials continuing into the MM IB period.

Before excavating in 1908, Xanthoudides was told the story of the discovery of Tomb K by the oldest resident in the village of Kalathiana. In 1854, the tomb was located when a burrowing badger displaced a piece of sheet gold. Numerous gold objects, copper
knives, stone vases, and clay pots were then removed from the tomb by villagers with the gold immediately sold as bullion. The remaining objects that had been taken from the tomb were either destroyed or lost over the years (1924: 81).

Tomb K was large with an internal diameter of 9.45 m. However, only half of the built structure remained in 1908. The tomb was thoroughly plundered, and all objects missed by the villagers were found in disturbed earth. Considering the small number of grave goods recovered during the excavation, a surprising proportion of them, approximately one-third, were gold. This suggested to Xanthoudides that, in regard to gold objects, “this tomb must have been the wealthiest of the tholoi yet known in the Mesara” (1924: 83).

Eleven gold ornaments or fragments of ornaments and an unknown number of small gold beads were identified (Pl. 8). An especially fragile diadem fragment (KA 1) included patterns of dot repoussé and cut-out rectangles and triangles that created the image of plaited gold strips. Antonis Vasilakis suggested that the design was similar to the decoration on EM III Λευκός Ρδθμός (White-on-dark) ceramics (1996: 97). This fragment was made of very thin sheet gold. The openwork design may have been cut with a small metal tool or with a sharp obsidian blade. The technique of crafting cut-outs on sheet metal – found in early Crete only on this diadem – was also illustrated on the EBA crown-like silver diadem from Amorgos (see Pl. 48D).

Five other fragments of sheet gold, perhaps parts of diadems or clothing ornaments, were also recovered. Two fragments (KA 2), apparently part of the same object, included borders of chevrons and incised parallel lines. Xanthoudides indicated that these “bits of thin gold leaf” also contained dot repoussé (1924: 83). Three other
fragments (KA 3 – KA 5), shown together as #396 (Xanthoudides 1924: pl. 43, but not described in text), included two strips of irregular shape (perhaps fragments of diadems) and one disk. At least one of the fragments was decorated in dot repoussé.

Other gold objects recovered from Tomb K included a round ornament made from thick gold wire (KA 6), a piece of bent wire that may have originally been a bracelet or anklet (KA 7), a perforated boss (KA 8), a nut-shaped bead (KA 9), and small round beads (KA 10). One very carefully constructed hollow gold bead (KA 11) was made from three pieces of sheet gold. Less than one cm in length, the cylindrical body of the bead was covered with six sets of double spirals in filigree. Although the application of the double spirals seemed to be planned and well-executed, a slight miscalculation meant that two sets of spirals overlapped.

The bead with the filigree spirals may be the primary reason some scholars have pushed the date of Tomb K to as late as MM II. After suggesting that filigree appeared in Crete about 2000 BC and granulation slightly after that (1980: 57), Higgins assigned both the pendant with granulation from Koumasa (KO 3) and this bead with filigree from Kalathiana to the early palatial period, c. 1900 – 1800 BC (1980: 58), as he believed these related techniques were not known in Crete during the prepalatial period. All three of the south-central contexts where jewelry with filigree or granulation was found – Koumasa Tomb B, Kalathiana Tomb K, and the upper level of Platanos Tomb A – have not been securely dated to the EBA as tomb use probably extended into the MM I period. However, it is incorrect to assume that these objects cannot date to the prepalatial period and, therefore, the tombs where they were found must have been in use until MM II. This is circular reasoning and not a logical conclusion supported by the evidence. At the end
of the third millennium BC, the technique of filigree was used by goldsmiths at Troy in western Anatolia (Antonova, Tolstikov, and Treister 1996; Schliemann 1875) (Pl. 50D-E), Poliochni on Lemnos (Bernabò - Brea 1957b, 1976), (Pl. 51E), Umm el-Marra in Syria (Schwartz et al. 2003; Schwartz, Curvers, and Stuart 2000) (Pl. 56B) and many other sites in the Near East (see chapter 15). It cannot be ruled out that the finished beads or the technical knowledge to make them was transported to Crete along with gold as a raw material during the latter part of the prepalatial period.

Objects of copper or bronze, ivory, and stone were recovered from Kalathiana Tomb K. Five triangular daggers were dated to the EM period (Branigan 1974: 155-156 dated them EM I - MM I). Three fragments of long daggers as well as scrapers and tweezers were also found. Of the six “ivory” seals recovered, one with a linear motif may actually be made of bone and not ivory and therefore dated to EM II (cf. Sbonias 1995: 63-70; Sbonias 2000: 280). The remainder appear to date from EM III – early MMIA, although Kostas Sbonias dates the full group of seals from the site to the EM II – MM IB period (1995: 66, table 2). This later date was perhaps due to seal #817 (Xanthoudides 1924: 83, pl. 8). Although made of ivory which would suggest an earlier date, this seal has a simple animal motif and a circular border, more characteristic of seals that date to the late MM IA/MM IB period (cf. Sbonias 2000: 289-290, fig. 5).

Ivory and stone pendants and beads, a small ivory amulet or figurine, and obsidian blades were also recovered. The use of ivory for seals and other small personal goods as well as the presence of obsidian confirms Kalathiana’s direct or more likely indirect participation in long distance trade.
In addition to Tomb K, Xanthoudides excavated 10 houses from a sizable settlement north of the tholos tomb, including one house built with “large dressed stones” (1924: 85). However, no evidence of an EBA occupation was confirmed, as all pottery from the houses was dated MM I – MM II. The excavator suggested that an earlier settlement, associated with Tomb K, may have been small. Part of a second unexcavated tholos tomb, identified as Tomb B, was mentioned by Arthur Evans (Branigan 1993: 147).

Other Sites of Note

Jewelry made from precious metals was found at other early sites in the Mesara, but the depositional date for this material cannot be established with certainty and may have extended beyond the prepalatial period into the MM period. None of the sites described briefly below were mentioned in analyses of the chronology of the EBA Aegean (e.g., Cadogan 1983; Manning 1995; Warren 1980; Warren and Hankey 1989), perhaps because they could not be assigned to a specific time period. For example, gold jewelry from a deposit at Hagios Onouphrios, most likely from a cemetery associated with the early settlement at Phaistos (Evans 1895), may date to the third millennium BC. Although this is the type-site for EM I Hagios Onouphrios Ware (Betancourt 1985: 29), some objects, including seals, date to MM II (Sbonias 1995: 165-166) with the tomb possibly remaining in use until the LM period (Branigan 1993: 147). Over 20 gold or gold-plated ornaments were found in the Hagios Onouphrios deposit, including pendants (see Pl. 33E for gilded bronze pendant); rings; pinheads or small knobs; wire hair rings; beads; and perhaps earrings and a diadem fragment (Evans 1895: 109; Vasilakis 1996).
The pendants were all quite unusual and especially well-made: one pendant consisted of a piece of faceted rock crystal that was mounted in gold, and another globular pendant was decorated with what may be granulation.

Excavators also recovered gold ornaments from tholoi that were clearly constructed in the EM period, such as Tomb A at Hagia Triada (Banti 1930-31) and Tomb II at Porti (Xanthoudides 1924). However, ceramic and other evidence indicated that burials and grave goods were placed in these tombs after MM I. A wide variety of gold objects – over 50 in number – was recovered from the large tholos A at Hagia Triada. Finds included a diadem or strip fragment decorated with dot repoussé, diadem attachments, pendants, disks, rings, and beads (Banti 1930-31; Branigan 1974; Vasilakis 1996). A silver bead or pendant was also found in Tomb A. One gold ring, two gold diadem fragments, strips of gold leaf, a silver pin (Xanthoudides 1924: 194), and perhaps a silver finger ring (Vasilakis 1996: 93) were recovered from the tholos tomb at Porti. One diadem fragment was decorated with dot repoussé and the other fragment included incised lines.

Two small tholoi at Vorou (Marinatos 1930-31), at the eastern edge of the Mesara, were built and used during the MM I period (Branigan 1993: 147). The only evidence of precious metals at this site was two silver-plated bronze hoops from Tomb A. Effinger dated the hoops to MM I (1996: 297). However, Higgins (1980: 58, 205), who described the hoops as earrings, indicated they should be assigned to the early palatial period. Some seals recovered from Vorou may also date as late as MM II (Sbonias 1995: 66).
Additional tholoi at Moni Odhigitria (Vasilakis 1992; Vasilakis 1989-90b), Kouses-Sopata (also called Sopata Kouse by Hatzi-Valianou 1979), and Trypeti (Vasilakis 1989; Watrous 1994) may very well date to the prepalatial period, but insufficient documentation of the objects, including the context of their discovery, has made a thorough analysis impossible. Tomb B at Moni Odhigitria, with a small internal diameter yet massive walls, contained four objects of gold: three diadem fragments and a bracelet (Vasilakis 1992: 213). One diadem fragment, decorated with diagonal lines and a border in dot repoussé, was recovered with a leaf attachment in place (Vasilakis 1996: 105-106). Another diadem fragment was remarkably similar in shape and decoration to the center portion of the diadem from Lebena (LE 1).

Very little is known about the site of Kouses-Sopata. The excavator dated the tholos to no later than MM I and described the recovery of stone and gold beads (Hatzi-Valianou 1979: 384). A silver pendant that resembles a nail head and a barrel-shaped silver bead have also been attributed to this site (Vasilakis 1996: 155, 188). Two silver beads have been associated with a tholoi located near the coastal settlement of Trypeti (Vasilakis 1989; Vasilakis 1996: 194; Watrous 1994: 707).
3. East Crete

Gold or silver jewelry was recovered from six sites in east Crete: Sphoungaras, Pseira, Mochlos, Hagios Antonios, Hagia Photia, and Maronia. The findspots included a sepulchral deposit of unknown origin, slab-built cist graves, large house tomb complexes, and caves or hollows in rocky outcrops. The variety of tombs in the east is in sharp contrast to the single tomb-type found in south-central Crete or even the tholoi and cave used for burials in the north-central part of the island. Since all six eastern cemeteries were in use during the EM II – III period, this difference may indicate diverse cultural traditions, perhaps related to variations in wealth among populations or settlements within the region.

One cemetery site in east Crete stands out in terms of the number of tombs with gold jewelry and the overall quantity of jewelry recovered. More gold jewelry was found at Mochlos than all other prepalatial sites in Crete combined. The sheer number of objects, in conjunction with the careful publication of the tombs, allows for a thorough analysis of objects in context as well as a more extensive investigation of ranking at the site.

Sphoungaras

Four gold objects were recovered from Sphoungaras, a cemetery located on the coast of northeastern Crete (Pl. 9A-C). One ring, one bead, and two matching pendants or earrings were found in Deposit A, one of two deposits with EM material identified at the site. The ring (SP 1), which was large enough to be a finger ring, was made from twisted,
circular-section gold wire. The round bead (SP 2) appeared to be deliberately pinched, although this may have been partly due to crushing during burial.

Two heart-shaped pendants (SP 3A-B), manufactured from sheet gold and attached to loop-in-loop chains, were of the same size and design. A template was used to cut out hearts of identical shape. However, the two hooks extending out from the bottom of each heart and the vertical extensions that allowed for attachment to chains were cut freehand. Jump rings at the top of each chain indicated that the pendants were originally attached to something else: a strip of perishable material, a gold diadem, a necklace, or wires that would have allowed for their use as earrings. The method of fastening the pendant to the chain – twisted wire cut as an extension of the heart – was similar to the technique used with pendants at Mochlos (e.g., MO 20, MO 22) and Platanos (PL 4). Although not enough is known about the specific context of these objects in relation to one another, except that they were all found in the same deposit, the classes of jewelry represented suggested that the pieces may have been an ensemble of jewelry.

Sphoungaras was excavated by Richard Seager and Edith Hall in 1910 (Hall 1912). A Late Neolithic (LN) deposit, perhaps evidence of early habitation (Soles 1979: 150), included coarse clay pottery sherds and a worked bone. Remnants of three walls, described by Hall as “practically negligible,” (1912: 46) may have been the remains of EM cist graves (see also Betancourt and Davaras 2003: 132). Burials in natural rock shelters and direct inhumations were dated to EM II – III, with Sphoungaras continuing in use as a cemetery in later periods.

Deposit A, approximately nine m square (Soles 1992: 1), was located about 35 m from the edge of a cliff. Edith Hall indicated that finds from this area were very similar to
those from the tombs at Mochlos, with fragmentary bones which may have been from primary or secondary burials and many examples of EM IIB Vasiliki Ware (1912: 48) and other EM IIB – EM III pottery. White-on-dark Ware, recovered from this deposit, was dated to the EM III period (Hall 1912: 50; Karantzali 1996: 51). Stone objects included two small bowls, a lid, an arrowhead, and heavy rings that Hall described as weights. Ivory seals, an ivory spindle whorl, and the body of an ivory figurine were recovered along with bronze tweezers and triton shells (Hall 1912). Although Hall assigned the seals to the EM II period (1912: 52-53), Sbonias has more recently dated them EM II – EM III (1995: 66).

Traditionally associated with the settlement at Gournia, Sphoungaras may have in fact been the cemetery for an unexplored town in the area. A recent survey confirmed that another settlement, dated to EM II, was located on a hill above Sphoungaras (Watrous 1994: 713). This second settlement may have been separate from Gournia or may have been what Harriet Boyd Hawes described as a “suburb” of the larger town (1908: 56a). If Gournia had two burial sites, the second cemetery – the North Cemetery – appeared to receive the more elite burials from the town (Soles 1992: 3). Although later in date, it is interesting to note that Tomb 1, a MM I – II house tomb from the North Cemetery, contained eight skulls in association with EM II objects; it appears that an earlier deposit of bones and grave goods may have been moved to a deep pit in the tomb after the tomb’s construction (Soles 1992: 8-9).

Soles (1979: 150) suggested that the coastal setting, nearby beach, and central location for north-south as well as east-west land travel would have positioned this area well for trading purposes. Residents had access to good land for farming and animal
husbandry as well as many sources of fresh water. However, it is unclear how advanced Gournia and the surrounding area were in the EBA. No direct evidence of social ranking, except for the grave goods from Deposit A, has been uncovered in this area.

The size of EBA Gournia and the unexplored settlement on the hill are unknown. The location of the two EM deposits at Sphoungaras, separated by more than 30 m, may mean that other early interments between the deposits were removed to make way for later burials in pithoi (Hall 1912: 55, plate XV). If this was the case, the EM cemetery as well as its associated settlement may have been larger than extant remains might suggest.

**Pseira**

One end of a gold strip (PS 1) was recovered from Tomb 7, an EM IIB grave on the island of Pseira (Betancourt and Davaras 1990: 32; 2003: 66) (Pl. 9D-E). The fragment contained a border and perhaps the beginning of a pattern of straight and diagonal lines, executed evenly in dot repoussé on thin sheet gold. Although this fragment had no attachment holes in the preserved end, it is similar in width and decoration to diadems or gold strips recovered from neighboring Mochlos.

Tomb 7, a slab-built cist grave, was originally excavated by Richard Seager in 1907. However, the gold strip was not recovered until 1989, when the cemetery was cleaned and additional graves were excavated under the direction of Philip Betancourt and Costis Davaras. In addition to the fragment of gold, other objects found during the cleaning of Tomb 7 included FN/EM I to EM IIB pottery sherds, obsidian tools, and
marine shells (Betancourt and Davaras 2003: 63-68). EM IIB Vasiliki Ware provided a firm date for the last use of the tomb.

The cemetery consisted of approximately 40 tombs of various types, with ceramic evidence indicating that at least 13 tombs were in use during the EBA (Betancourt and Davaras 2003: 133). Pseirans were not buried in large collective tombs associated with clans but were interred in smaller tombs that were used over many years, perhaps by family groups or households (Betancourt and Davaras 2003: 135). Murex shells and animal bones recovered from the area around Tomb 7 indicated that feasting may have been part of the funerary ritual in the cemetery (Betancourt and Davaras 2003: 135-136).

Seager never published an account of his excavation of the cemetery at Pseira. However, in his 1912 book on Mochlos, he noted the lack of metal objects and jewelry – other than stone beads – as grave goods, and he concluded that the inhabitants of Pseira were poor (1912: 11). Seager indicated that stone vases, recovered from early Pseiran graves, were manufactured from local raw materials, and the craftsmanship was inferior compared to that employed at Mochlos (1912: 102). The smaller size of the tombs and differences in the amount and quality of grave goods may indeed have been due to a lack of wealth among residents of Pseira. Alternatively, this may have reflected a different set of attitudes and rituals associated with death and burial (Betancourt and Davaras 2003: 136), with fewer objects of value taken out of circulation to be deposited in graves.

No evidence of ranking during the EBA has been found in the settlement at Pseira. Fragments of coarse, heavily burnished pottery, perhaps dating to the fourth millennium BC, pointed to an early presence on the island (Betancourt 1999: 33). Ceramic finds also indicated that Pseira was occupied from the Final Neolithic (FN) into
EM II. Seager suggested that the town grew in size during EM III (1910: 17), with EM III structures gradually incorporated into the architecture of the MM I period (Seager 1910: 9).

During the EBA, settlers may have been drawn to Pseira because of the presence of a protected cove on the southern side of the island. This natural harbor, with a favorable eastern exposure, would have served as an ideal port (Betancourt and Banou 1991; Seager 1910: 6). Although the use of thin-slabbed cist graves as well as recovered pottery and obsidian suggested contact with the Cyclades during early periods, evidence does not indicate participation in widespread trade at that time (Betancourt and Davaras 2002: 20-21). Betancourt has suggested that, before MM II, the residents of Pseira were primarily engaged in fishing, farming, and keeping animals (Betancourt and Davaras 2002: 21).

It is unusual to find only one fragment of gold in a cemetery. The remainder of the strip may have been inadvertently discarded during Seager’s excavation, or the gold may have originally been deposited in the tomb in fragmentary condition. If the burial was secondary, the missing part of the strip may have been removed when the bones were moved. It may also be the case that the rest of the strip as well as other objects made from precious metals were looted from the tombs or washed down the eroded hillside.

**Mochlos**

Approximately 190 gold objects, plus smaller beads and scraps of gold, were recovered from the EBA cemetery at Mochlos (Pls. 10 – 31). Over 65% – 124 objects – were associated with two house tomb complexes: Tombs 1/2/3 and 4/5/6. Of the 17
smaller graves in the cemetery, only four contained gold jewelry: #16 (one armlet),
#19 (20 objects), #21 (48 objects), and #23 (tiny beads). Although most of these objects
were recovered by Richard Seager when he excavated the site in 1908 (Seager 1912),
gold jewelry and ornaments were also discovered during a cleaning of the cemetery in
1971 (Davaras 1975). Additional tombs, excavated or re-examined more recently by
Jeffrey Soles and Costis Davaras (Soles 1992; Soles and Davaras 1992), yielded no gold
objects.

*Tomb 1/2/3*

Tomb complex 1/2/3 contained the largest number (74 plus eight small beads) and
the greatest variety of gold ornaments, with the majority of the objects recovered from
Tomb 2 (Pls. 10 – 19). Perhaps the most impressive items were the large, decorated
diadems, some cut from thicker sheet gold and exhibiting clear evidence of repeated use.
Of the 16 gold diadems (MO 1 – MO 10, MO 11A-B – MO 15) found in Tomb 2, one
diadem was designed to hold three sets of antenna-like extensions that projected from the
top when the diadem was worn in life (MO 2) (see chapter 8, Pl. 45E). Most of the
diadems were decorated in dot repoussé or were incised, illustrating geometric designs
(e.g., MO 3, MO 4, MO 8), four dogs in opposing pairs (MO 2), and human eyes with
uneven pupils (MO 1).

Other objects recovered from Tomb 1/2/3 included a matching pair of delicate
crocus pins that may have adorned the hair or been stuck through holes in a diadem (MO
16A-B); one of the crocuses still retained its stamen. Single gold leaves of various shapes
and sprays of olive leaves (MO 17A-C – MO 19A-C) contained borders of dot repoussé.
Several pendants were recovered, including a bell-shaped pendant with a clapper
suspended from a simple linked chain (MO 20); seven leaves attached to a loop-in-loop chain (MO 21); and a pendant in the form of a cone or a closed flower hanging from another loop-in-loop chain (MO 22). This last object is quite similar to a pendant (PL 4) from the EM II level of Tomb A at Platanos. Two of these pendants retained circular jump rings for fastening to a diadem or other object. A pair of plain triangles (MO 23A-B) and eight small undecorated leaves (MO 24A-H) may have hung from diadems or been used as earrings. The remainder of the objects included a plain boss or tack (MO 25) and two circular bosses decorated with dot repoussé (MO 26, MO 27); a large disk with a dot repoussé border (MO 28); eight heavy bands that may have been riveted together to form four separate armlets or belts (MO 29A-D); several gold ornaments or scraps of gold that probably decorated objects made from perishable materials (MO 30 – MO 37); gold beads (MO 38 – MO 41A-B), including one drum bead with an incised rosette pattern (MO 38); and numerous gold strips, folded or broken off at one end and identified as diadem antennae (MO 42A-P).

Tomb 1/2/3 has been dated EM II – EM III. However, it should be noted that Tomb 3 contained some material of MM date that Seager believed was associated with later burials. Since the four objects of gold found in Tomb 3 were recovered from the “deepest southeast corner” (Seager 1912: 37), Seager concluded that these objects were from the EM II – III period (see also Effinger 1996: 256).

Gold jewelry and ornaments from Tomb 2, the richest tomb in the cemetery, were found mixed with skeletal material and “piled in a confused heap” in what was clearly a secondary burial context (Seager 1912: 24, 32). The jewelry, perhaps originally contained in a bag or box, was recovered from a deep (70 cm), circular, partly manmade cavity with
soil immediately above it. Every class of gold jewelry found at Mochlos was represented in the cache. Based on the presence in the soil above the deposit of two mottled Vasiliki Ware vases and one White-on-dark Ware jug, Seager determined that the jewelry dated no later than EM II – III (1912: 23). The excavator suggested that MM III intruders cleaned out the tomb, perhaps taking valuable grave goods, but missed this deposit because of a sloping tomb floor and the deep cavity where the jewelry was buried.

Several alternative explanations might account for the location and condition of this deposit. Bones and grave goods, as part of the original interment, may have been placed in the tomb and later pushed into the cavity in the rear to accommodate later burials. Skeletal material and objects collected together in secondary funerary deposits did not appear to elicit the same respect for the dead as was likely the case at initial burial. A second possibility is that the objects were placed in the tomb along with a primary or secondary burial. A third explanation may relate back to when this tomb was constructed. Perhaps human bones, jewelry, and other objects, in the form of an ancestral hoard or ritual cache, were moved from elsewhere and buried in the pit, deliberately constructed for that purpose.

Many of the gold objects from Tomb 2 showed evidence of hard usage, cutting, or breakage. Armlets and other ornaments were cut apart and had sections missing. Antenna-like extensions, once attached to diadems, were ripped off (note the three ragged notches on the top of diadem MO 2); extra antennae, with no corresponding diadems, were also found in the tomb. Numerous pendants and leaves were recovered but, unless they had been secured through perforations to a perishable material like leather or cloth,
no means of attachment could be determined. Seager noted that the deposit also contained fragments of other gold ornaments and scraps of gold foil; he indicated that “many of the gold objects were crumpled up into little balls, and in one or two cases the diadems were rolled or folded up in a sort of tight packet” (1912: 34).

The condition of the gold when it was found demonstrates that damage to the objects did not occur because of natural forces during burial. It does indicate, however, that when jewelry was placed in the pit in Tomb 2, some of it was already in poor condition due to extensive use and deliberate destruction. Cut and broken jewelry would not have adorned bodies at the time of initial burial although it may have accompanied the burials as bullion. It is also possible that rites of separation practiced at death included the destruction of the deceased’s possessions (van Gennep 1960 (1908): 164). However, unless pieces of objects were deliberately removed by family members or others, the nature of the recovered material, with only parts of some objects placed in the tomb, does not suggest the ritual “killing” of objects, as is found with bent weapons or broken pottery placed in graves (Åström 1987; Fossey 1985; Grinsell 1961; Hamilakis 1998; Kurtz and Boardman 1971; Soles 1999, see chapter 8 for further discussion of this topic).

_Tomb 4/5/6_

The second large house tomb complex was Tomb 4/5/6. Seager recovered EM I pottery sherds and fragments of gold ornaments from beneath a paved court in front of the structure, leading him to believe that the tomb was constructed in EM II over earlier graves (1912: 40). Thirteen gold objects, 17 small gold beads, two silver pendants, and scraps of gold foil were found inside the tomb by Seager, with 35 additional gold objects and three small beads identified during the cleaning of the cemetery in 1971 (Pls. 20 –
27). During the cleaning, jewelry was discovered in the earth spoil from the earlier excavation as well as in a crushed silver cup associated with EM II – III pottery (Davaras 1975: 101). Overall, 50 gold ornaments (including scraps of foil), two silver pendants, and 20 gold beads less than one cm in length were recovered from Tomb 4/5/6.

Seager’s excavation yielded primarily small objects: pendants, some with single leaves hanging from loop-in-loop chains (MO 43A-B – MO 45); a plain gold strip (MO 46); a boss perforated for attachment (MO 47); large and small beads (MO 48A-O, MO 49A-E); a small mask resembling a feline’s head that likely covered an object made of wood (MO 50); a disk with a dot repoussé border (MO 51); and a plain triangle of gold foil (MO 52). An object that appeared to be the head of a staff or scepter, recovered from Tomb 5, included a round gold cap with leaves fastened around its circumference (MO 53). If the staff was swung from side to side or in a circular motion, the leaves would have made a clinking sound as they moved. Seager also found scraps of gold foil (MO 54, MO 55), a pair of silver pendants (MO 56A-B), and a small silver cup in this tomb complex (for cup, see Seager 1912: 52, fig. 22.VI.8).

The objects recovered in 1971 from the earth spoil included an eight-petal daisy hairpin cut irregularly out of gold sheet (MO 57); a simple circle of gold wire that may have been a finger ring (MO 58); two plain beads made from rolled sheet gold (MO 59A-B); a filigree bead made from three coils of fine gold wire (MO 60); and a bead in the shape of a lily (MO 61).

As with Tomb 1/2/3, unusual treatment of gold jewelry was also evident in this tomb complex. The gold strip recovered by Seager (MO 46) was crushed into a small stone vase. At least one leaf that matched those that decorated the head of the staff from
Tomb 5 was recovered from another tomb, Tomb 21 (MO 97). The condition of the jewelry is best illustrated, however, by a description of the objects found inside the silver cup in 1971. The one-handled cup, which was flattened during its burial in Tomb 6, contained a carefully packed treasure of gold jewelry, some of which was damaged (see Pl. 22 for cup and jewelry). Costis Davaras (1975) reconstructed a diadem decorated with stylized dot repoussé animals thought to be agrimia or Cretan ibexes (MO 62). Sometime before being tightly folded to fit into the cup, the bottom of the diadem had been cut off and its vertical projections removed. Other incomplete gold objects recovered from the cup included eight ragged fragments of thin strips, some with attachment holes (MO 63A-H); a broken piece of loop-in-loop chain (MO 64); an extra tip of an antenna that was not part of the Agrimi diadem (MO 65); and a fan-shaped pendant on a broken chain (MO 66). The cup also contained two fairly thick bands, one with worn corners, that may have originally formed a single armlet (MO 67A-B); a carinated cylinder made from sheet gold (MO 68) which had a spray of four gold leaves (MO 69) stuffed inside; eight sprays of multiple leaves with very short stems (MO 69 – MO 77); and two carefully made single leaves, one in the shape of a heart (MO 78, MO 79).

Although it is not known whether this jewelry was placed in the silver cup at the time of initial burial or later when the bones were moved, it is clear that much of the jewelry was not in a condition to be worn. The ability to remove objects of worth from circulation, such as gold and other valuables, demonstrated the importance, and perhaps the stability, of the lineage buried in the tomb. Caches of gold objects may have been tied to ancestor veneration or to aspects of belief systems dealing with the afterlife; perhaps
valuable tomb offerings assured arrival into the next world (Garland 1985; Kurtz and Boardman 1971; Sourvinou-Inwood 1995).

**Smaller Tombs: 16, 19, 21, and 23**

Of the remaining tombs with gold jewelry, Tomb 16, one in a group of three built tombs (Soles 1992: 88), contained only one object (Pl. 28A-B). However, at 12.3 gr, it was the heaviest gold object recovered from the cemetery (Seager 1909: 68; Vasilakis 1996: 177). This armlet ([MO 80](#)) was decorated with grooves and a herringbone design similar to the pieces of armlets from Tomb 1/2/3; it was probably created over a form or hammered from the back using a repoussé technique. The edges of the armlet were folded inward, indicating that it may have covered a perishable material like leather. Tomb 16 was the only smaller tomb with gold jewelry that was in use as late as the end of the prepalatial period. Although Seager dated this tomb to EM II based on pottery and fine stone vases, one clay vase and perhaps a stone seal date to MM IA (Sbonias 1995: 180; Seager 1912: 67).

Tomb 19, a structure of two rooms (Soles 1992: 64), contained 20 gold objects, the third highest count in the cemetery (Pls. 28C-D – 31A-B). Other than the large house tomb complexes, Tomb 19 was the only tomb to contain diadems ([MO 81, MO 82](#)). The two diadems appear to have been manufactured at the same time as the size, shape, placement of perforations, and geometric decoration in dot repoussé are virtually the same. Other gold objects included five daisy pins ([MO 83A-B – MO 86](#)), each constructed in two parts; two armlet fragments which resembled those from Tombs 1/2/3 and 16 ([MO 87A-B](#)); two pendants on loop-in-loop chains with jump rings in place ([MO 88, MO 89](#)) and one plain leaf pendant ([MO 90](#)); two antennae that may have originally
been part of a diadem (MO 91A-B); perforated ornaments that may have been attached to clothing or other objects, including a small lozenge-shaped object (MO 92) and gold flowers or stars (MO 93A-C); three single leaves that may have formed a spray (MO 94); and one unusual drum bead (MO 95) similar to a bead recovered from Tomb 1/2/3. Several of these objects were decorated in dot repoussé.

Tomb 21, part of a two-tomb structure (Soles 1992: 73), contained 12 gold objects, fragments of gold foil, and 74 large and small gold beads that likely formed a necklace (Pl. 31D-I). Seager indicated that the “best objects” from this tomb were recovered from a crevice in the rock near the rear of the tomb (1912: 76). Several gold ornaments resembled those found in the house tomb complexes: six small, leaf-shaped pendants like those from Tomb 1/2/3 (MO 96A-F); a gold leaf, identical to those attached to the staff from Tomb 4/5/6 (MO 97); another gold leaf with a border of dot repoussé, like leaves from Tomb 1/2/3 (MO 98); and two gold rings made from thin wire, similar to a ring found in the earth spoil from Tomb 4/5/6 (MO 99A-B). Other objects included an ornament in the shape of a cross (MO 100); a tiny foil mask of a human face that may have had a core of wood (MO 101); and tubular and disk-shaped beads (MO 102). Scraps of gold foil (MO 103) were also found in Tomb 21. The only gold jewelry recovered from Tomb 23 was a necklace comprised of 130 tiny gold beads (MO 104) (Pls. 21C, 31H).

Different levels of craftsmanship were illustrated by the jewelry from the Mochlos cemetery. For example, the Herringbone diadem (MO 4) was roughly cut out of sheet gold, with a false start still apparent; it was also decorated with uneven dot
repoussé. Other diadems (e.g., MO 1, MO 3) were measured before they were cut and were decorated with neat, even dot borders and symmetrical designs. Flower pins ranged from simple, flat daisies (MO 84) made from two pieces of metal to crocuses (MO 16A-B) that were carefully planned out before being cut from thin sheet gold (on the crocuses, see Evely 2000: 419). Chains varied from a simple chain with round, irregular links (MO 20) to well constructed loop-in-loop chains with perfectly matched links (MO 21).

Except for some of the small beads which may have been cast, all of the jewelry found at Mochlos was manufactured from sheet gold, sometimes after being cut into thin strips and rolled to make wire. Most of the decoration was achieved with repoussé, primarily with simple dots. No elaborate designs or advanced manufacturing techniques, with the exception of one bead that may be decorated with filigree (MO 60), were employed in the creation of this jewelry. It would be expected that jewelry would be more crudely fashioned when gold, as a raw material, was a new commodity in Crete. As illustrated by the variation in Mochlos jewelry, technical ability and quality control may have improved quickly as artisans became more skilled at working with precious metals. This may have related to the availability of gold or an increased demand for jewelry. The differences seen in craftsmanship may also indicate that residents of Mochlos obtained gold jewelry from more than one local source.

Although specific locations within tombs are not known for all of the gold jewelry recovered from Mochlos, it appears that most of the extant objects were hidden from view when tombs were cleaned or visited in later periods. That is the only reason this material survived to be excavated in modern times. Seager noted that almost all of the jewelry recovered from Tomb 1/2/3 was buried in a deep cavity associated with a sloping
floor that may have been misleading to intruders (1912: 23). The majority of gold ornaments found in Tomb 4/5/6 were tightly packed inside a crushed, corroded silver cup that was missed by the first excavator of the cemetery. The finest objects from Tomb 21 were found in a rock crevice in the rear of the tomb (Seager 1912: 76). This would suggest that the gold recovered from the Mochlos cemetery may represent just a small fraction of what was originally deposited in the tombs.

The poor condition of many gold objects recovered from the Mochlos tombs indicated that these objects were not buried in their final form as jewelry adorning corpses but as treasure, significant in its value as an exotic commodity and perhaps also because it represented the ancestors of those who lived at Mochlos. Several groups of objects consisted of jewelry that had been collected and apparently re-deposited, such as the objects placed together in a deep cavity in Tomb 2 or the ornaments found tightly packed inside a silver cup in Tomb 6. The condition of the jewelry at the time of final deposition, along with other evidence – a pile of skulls at the end of a tomb (Seager 1912: 15), no mention of articulated human remains, and the lack of any jewelry found in direct association with bones – indicated that this jewelry was connected with secondary burials. Initial burial may have been within compartments of multi-room tombs in the cemetery or may have been elsewhere.

*Evidence of Ranking*

The existence of a ranked society at EBA Mochlos is demonstrated by specific gold ornaments recovered from the cemetery (Soles 1988). Before these objects were buried, they were clear symbols of authority. Diadems and the gold staff or scepter with dangling leaves may have been displayed in public ceremonies in association with
individuals of high status. These objects were found in the three richest tombs: the two house tomb complexes and Tomb 19. Most of the diadems made from thicker sheet gold showed evidence of wear, with one diadem (MO 2) clearly repaired. At least two of the diadems (MO 2, MO 62) were adorned with three sets of antennae: dramatic vertical projections that may have been mounted to headdresses (see chapter 9). Another diadem was decorated with human eyes (MO 1), which Costis Davaras suggested may have had a magical association (1975: 113 referencing Dussaud 1914). Numerous gold flowers and sprays of gold leaves enhanced diadems, hair, or clothing. In its first life as a form of adornment, this jewelry must have appeared quite dramatic and striking.

Evidence of ranking can also be found in the construction of the tombs and the layout of the cemetery. Compared to the other tombs, the two house tomb complexes – each comprised of three compartments – were larger and placed in a more prominent position, higher up on the hillside. The west façade of Tomb 1/2/3 was 14.12 m long (Soles 1992: 43, fig. 16). Tomb 4/5/6 measured 5.54 by 8.20 m (Soles 1992: 51, fig. 20). Some of the walls were up to one m thick.

A paved court and platform with steps, also described as an outdoor altar, were found in front of Tomb 4/5/6 (Seager 1912; Soles 1992). This court may have been used for public celebrations or private ceremonies associated with the primary burial or subsequent movement of bones within or into the tomb. Fragments of broken stone vases, found on the platform, may have been offerings.

In each of the house tombs, the majority of bones and grave goods were recovered from one room. Both Keith Branigan (1991) and Jeffery Soles (1992) suggested that bodies from the house tomb complexes may have received special treatment, as they were
initially laid out in one room and later moved, along with grave goods, to an adjacent room that served as the ossuary. Thirty skulls found together in Tomb 1 likely represented ancestor veneration.

Grave goods, in addition to gold jewelry and ornaments, included many other valuable objects: well-made stone vessels; copper or bronze tools and weapons; lead objects; clay figurines and pottery; ivory and bone seals; ivory plaques and inlays; two silver cups and small silver ornaments; and stone beads and inlays. A silver cylinder seal, probably of Syrian origin and dated to the mid-third millennium BC, was found in Tomb 1 (Aruz 1984; Seager 1912: 22, fig. 36.I.n). It is worth noting that objects of ivory and silver were only recovered from the two house tomb complexes. Although no tomb in the cemetery could be considered poor, tombs with gold jewelry, especially the house tombs, also contained more high quality grave goods, again supporting the fact that some tombs contained higher status burials than others.

Compared to the cemetery, less investigation has been made of the EBA settlement at Mochlos. However, its strategic location off the north coast of Crete is clear. During the EBA, this small island was connected to Crete by means of an isthmus. When sea levels rose (Leatham and Hood 1958-59), the isthmus became submerged. The importance of Mochlos during the EM period was likely due to its protected, natural harbor and its role in sea trade. Mochlos may have served as a gateway community (Branigan 1991), importing and working raw materials like obsidian (Carter 2004), ivory (Krzyszkowska 1989), and semi-precious stones as well as metals like gold, silver, and perhaps tin and copper.
Some members of the community may have been craft specialists. An unfinished stone bowl recovered from Tomb 1 indicated that fine stone vessels may have been manufactured at the site (Seager 1912: 20). A large deposit of Melian obsidian provided evidence that Mochlos was actively involved in the production of obsidian blades, perhaps supplying finished goods to towns in east Crete (Carter 2004). Unfortunately, no evidence of gold working has been found at Mochlos. Local artisans may have been attached to elites or affiliated with early workshops producing various types of luxury goods. The manufacturing may have taken place at Mochlos, nearby on the Cretan mainland, or elsewhere in east Crete.

Eventual specialization in the working of precious metals implies an ongoing market for gold jewelry, a market that could only be associated with persons of influence and high status. Although the design of the objects and the classes of jewelry represented at EM Mochlos suggests a local or east Cretan source, a few of the objects may have been imported as trade goods or provided as gifts to Mochlos elites. A pendant and three large beads resemble those found in prepalatial contexts at Platanos in the Mesara.

Several EM houses have been excavated (Soles and Davaras 1992, 1994, 1996, 2000), and it appears from the EBA deposits found to date that the inhabited area was located on the hillside facing the island of Crete. It is possible that houses or buildings related to the commercial activities of trade were constructed across the water on the Cretan mainland. Whitelaw (1983) suggested that the early settlement was 0.8 hectares with about 55 houses. Soles (1988) indicated that about 30 families could be accommodated by the number of tombs in the cemetery. Based on the projected size of the settlement and cemetery, the population estimate for Mochlos during the EBA was
approximately 300 people. Keith Branigan (1991) proposed that the population could have exceeded 400 individuals, if associated houses on the Cretan mainland were included as well.

Evidence from Mochlos supports the presence of a multi-level ranked society during the EBA. Gold jewelry and other valuable grave goods, along with well-constructed, large collective tombs, indicate the presence of one or more elite lineages that may have exerted political, religious, or economic control over the island and influence in the region. Smaller, more simply constructed tombs, with fewer but still valuable grave goods, suggest the presence of at least a second social or economic tier.

**Hagios Antonios**

In 1912, while waiting to begin her explorations at Vrokastro, Edith Hall excavated an EM burial located in a “cave-like recess” on a hillside near the village of Kavousi (Hall 1914: 183). A brief description of the site and a detailed list of finds were included as an appendix to Hall’s 1914 publication on Vrokastro. Three silver ornaments were recovered: a perforated disk (HA 1) and two simple wire hoops that may have been used as hair rings (HA 2A-B) (Pl. 32A-B) (Hall 1914: 184, fig. 107). Although Hall described the disk as perforated in the center and around the circumference, Keith Branigan indicated that the row of dots around the edge of the disk was punched (1968: 228), suggesting dot repoussé. Two perforations in the center of the disk confirmed that it had been attached to another object, perhaps sewn onto clothing. The two wire hoops, which appeared to be the same size, were undecorated lengths of overlapping wire.
Although no accounting was given by Hall as to extant human remains, a recent surface survey of the terrace near the rock shelter resulted in the collection of fragments of human and animal bones as well as other objects such as shells, obsidian, and ceramic sherds. The recovered human skeletal material was consistent with the burial of one adult, most likely a male (Liston 1993: 34). However, no excavation was conducted, and it is probable that more bones and other objects remain below the surface. This wide terrace, in front of the rock shelter, may have been a dump from Hall’s excavation or a setting for rituals associated with burials in the cave (Haggis 1993: 13).

An interesting collection of grave goods was recovered by Hall. In addition to the silver ornaments, the finds included: two stone vessels, numerous serpentine (described as steatite by the excavator) beads that may have formed a necklace, two bronze or copper daggers, three bronze or copper borers or awls, a coil of thick bronze or copper wire that may have been a hair ring, and an ivory pig pendant. Pottery, which supported an EM II – III date for the site, consisted of sherds of Vasiliki Ware, Fine Gray Ware, and White-on-dark Ware; several whole vessels in other fabrics were also listed by Hall (1914: 183). Betancourt studied four of the objects, which are currently in the collection of the University Museum, University of Pennsylvania: a tripod cooking pot (EM II – MM I or later), a dagger (EM II – MM IA), a stone bowl (EM II – III), and a stone jug (EM II) (1983: 5-6, fig. 5.1-4, pl. 1.1-4). Additional sherds, recovered from the site during the Kavousi-Thriphti survey, were dated EM I – II (Haggis 1993: 15).

Several grave goods were made from raw materials that required either knowledge of metallurgy or skill in carving. Personal ornamentation included objects in silver, stone, and ivory. Several tools and weapons of bronze or copper were also
deposited in the grave. Parallels for both stone vessels can be found at Mochlos; the stone jug with attractive horizontal veining was “an example of the stoneworker’s craft at its best” (Betancourt 1983: 5-6). The range of grave goods, including those made from exotic raw materials like ivory and silver, suggested contact or trade with other sites in east Crete and, directly or indirectly, with distant lands.

In a recent re-examination of existing data as well as new evidence obtained from the survey of the Kavousi area, Donald Haggis concluded that the nearby EM settlement of Alykomouri was connected with the burial cave at Hagios Antonios (Haggis 1993: 8, note 8 indicates that the association was initially suggested by Day and Gesell, based on the records of Harriet Boyd; 2005). Ceramic sherds found on the surface near the habitation and burial sites, as well as the grave goods found by Hall in the rock shelter, suggest an EM I – III occupation of the area (Haggis 1993: 27). Although the settlement appears to have been abandoned in EM III, and the rock shelter shortly after, another settlement was established closer to the bay of Tholos, which remained in use from the MM through the LM I periods (Haggis 1993: 32). The settlement at Alykomouri and the cemetery at Hagios Antonios may still exist under olive groves and along an adjacent hillside. This site would benefit from further exploration and perhaps excavation.

*Hagia Photia*

One silver pendant was recovered from the cemetery at Hagia Photia, a site located on the northern coast of east Crete on the Gulf of Siteia (Davaras 1971: 397 initially described the pendant as lead; Davaras and Betancourt 2004: 181-182, #200.22b). The zoomorphic pendant, a quadruped with horns (**HP 1**), may represent a
sheep or bull (Pl. 32C-D); it measures 4.4 cm in length and is perforated through the body (Betancourt, personal communication). Manufactured using the lost-wax process, this is the only object made from precious metal that was recovered from the cemetery.

The Hagia Photia cemetery is noteworthy because of the large number of Early Cycladic (EC) imports found there; pottery, stone bowls, and copper daggers (Davaras and Betancourt 2004: xxv) indicate a close connection with the Cyclades. Crucibles containing copper were also recovered. Davaras and Betancourt indicate that most of the material from the cemetery, while Cycladic in nature, should be dated to the EM I – EM IIA period (2004: 4).

Although the cemetery originally consisted of more than 300 tombs, about 50 were destroyed before Costis Davaras conducted a rescue excavation in 1971. The silver pendant was found in Tomb 200, a two-chamber built tomb that contained four burials. Other objects recovered from the tomb included EC pottery; EM IB Pyrgos Ware; copper jewelry, including two bracelets, four beads, and another zoomorphic pendant; and obsidian blades. The bracelets and the silver and copper pendants were found in close proximity to each other, in the center of the burial chamber. Very little metal jewelry was found in the cemetery; other than the jewelry recovered from Tomb 200, only one lead pendant and one copper pin were recovered, each from a different tomb (Davaras and Betancourt 2004: 154, 229). However, other metal objects, including copper tools and weapons, were recovered from various graves.

Three types of tombs were present in the cemetery: a cave of uncertain date; pit graves of a type found in the Aegean and Mediterranean; and built tombs of a distinctive two-part design, including an anteroom and a burial chamber (Davaras and Betancourt
Davaras and Betancourt state that the built tombs were a class of tombs common to islands of the Aegean, and perhaps represented “some type of Cycladic expansion to adjacent regions” (2004: 239).

Although there is not enough evidence to state that the population buried in the cemetery at Hagia Photia was ranked, two tombs contained more metal objects: Tombs 2 and 200. Tomb 2, the largest tomb in the cemetery, contained 10 burials in two levels, 34 ceramic vessels, and four copper tools or weapons (Davaras and Betancourt 2004: 9). Of the 10 items of metal jewelry recovered, eight were found in Tomb 200, including the only object of silver in the cemetery.

No associated EM settlement has been identified; however, Davaras and Betancourt reported that early pottery sherds, like those from the cemetery, were found nearby at a fortified site on Kouphota dated to the MM period (2004: 2).

**Maronia Cave**

In 1954, Nicholas Platon excavated a burial cave at the site of Maronia, a small mountain village located south of Siteia in east Crete (Platon 1954: 511; 1969: 498-500). Only one object of gold, a solid cast bead (**MA 1**), was recovered from the inland site (Pl. 32E). Described as bullet-shaped (Vasilakis 1996: 189), the bead came from an undisturbed burial layer that also included EM II Vasiliki Ware, stone bowls like those from Mochlos (Platon 1969: 498), and two ivory seals. Although very little has been reported about the cave at Maronia, scholars agree that the site should be dated EM II – III (Branigan 1974: 194; Effinger 1996: 304; Sbonias 1995: 66, 164; Yule 1980: 235).
Prepalatial gold or silver jewelry and ornaments were recovered from 26 separate burial contexts at 13 sites in Crete. By EM II, the practice of placing gold jewelry in tombs was the custom in the central and eastern regions of the island. An examination of find spots reveals similarities and differences between geographical areas and within the timeframe of the prepalatial period (see charts 1 – 5). A contextual analysis of associated objects, especially those manufactured from raw materials not found in Crete, provides information on the nature of trade in exotica during the prepalatial period.

Except for Platanos Tomb A and Kalathiana Tomb K, all burial contexts with gold or silver jewelry contained pottery; these two contexts most likely also included ceramic grave goods, which were either not mentioned by the excavator (Platanos) or were removed from the tomb by looters (Kalathiana). Forms and types of pottery varied by site and by date of deposit, e.g., more pyxides in one context and more cups at another (Miller, personal communication) or Hagios Onouphrios Ware from early sites and White-on-dark Ware from later sites. However, ceramic vessels were by far the most common objects in prepalatial burials.

In addition to pottery, burial assemblages in this study were similar in various areas of prepalatial Crete (see chart 3) with copper or bronze objects, ivory ornaments, and stone vessels recovered from most sites with gold jewelry. Copper or bronze weapons or tools were found in 18 burial contexts. The short triangular dagger, typically associated with the EM period, was recovered from eight contexts: from three separate tombs at Mochlos and five tombs in the Mesara. Small, well-made stone vessels – some in the form of miniatures – were found in as many as 18 contexts. Stone Cycladic-style
figurines, recovered from seven contexts, were only found at sites in north-central and south-central Crete.

Certain classes of exotic grave goods – those crafted from foreign raw materials – were associated with tombs with jewelry. Although not much silver jewelry was found in prepalatial cemeteries (see chart 2), one or two sites in each region contained other objects of silver or lead including small tools, nails, rivets for daggers, cups, and a cylinder seal. The largest quantity of silver was associated with three silver daggers from Koumasa Tomb Γ (see chapter 2). Melian obsidian, in the form of blades and sometimes cores, was a common find in the north-central and south-central regions. Obsidian was also more common at the earliest sites, especially those sites that were dated to the EM II period.

Hippopotamus ivory made its first appearance in Crete in EM IIA (Krzyszkowska 2005: 63), about the same time the first gold jewelry was placed in tombs. Although it is not known with certainty where the ivory originated, Krzyszkowska suggested that the “ultimate source” at this time was probably Egypt (2005: 63). Ivory may have been transported to Crete via Syria-Palestine with the primary source either Egypt or Syria; both Branigan (1988: 182) and Watrous (1994: 750) suggested that later sources of ivory included Syria. Small personal objects such as ivory amulets, pendants, figurines, inlays, plaques, pommels, a spindle whorl, and handles for tiny scrapers or other tools were found in burial contexts with gold jewelry. However, the most common ivory object recovered from the same context as gold was the engraved seal, found in all regions and in both early (EM I – II) and later (EM III – MM IA) prepalatial environments. Ivory seals were found in as many as 14 burial contexts including tholoi, rectangular house
tombs, and caves. Since less than two dozen prepalatial sealings and seal impressions have been found in Crete (Krzyszkowska 2005: 59), it is possible that seals were valued as much or more as personal adornment as they were for the express purpose of sealing containers or other objects.

A handful of objects made from semi-precious stones were found along with gold jewelry in prepalatial tombs. One lapis lazuli bead was identified at Koumasa Tomb B. Carnelian or sard (darker carnelian) beads were associated with Lebena I, Koumasa B, Kalathiana K, Mochlos 4/5/6, and Mochlos 19. A small amethyst bead was recovered from Mochlos 1/2/3, and a chalcedony pendant was associated with Mochlos 4/5/6. Chalcedony beads were found in Mochlos Tomb 19. Rock crystal beads were also found in at least five tombs. None of these stone objects was recovered from a tomb in the north-central region.

During early periods, the principal source of lapis lazuli was the Badakhshan region of northeastern Afghanistan, where four ancient quarries have been identified (Aston, Harrell, and Shaw 2000: 39). Afghanistan was thought to be the major source of lapis lazuli for Egyptian and Mesopotamian jewelry; Zettler (1998c: 150) indicated that this may have been the source for jewelry manufactured at Ur. It is possible, however, that Iran was also an early supplier of lapis lazuli (Moorey 1999: 86). Since there were no known sources of this distinctive blue stone in Crete, it must have been imported as a raw material or as manufactured beads.

It is unclear whether carnelian, amethyst, chalcedony, and rock crystal – all varieties of quartz – were available locally in Crete. Carnelian (or cornelian) and amethyst were associated with ancient gemstone quarries in Egypt (Aston, Harrell, and...
Shaw 2000: fig. 2.2, table 2.2). Carnelian, a microcrystalline quartz, also occurred “widely as pebbles in minor alluvial deposits” (Moorey 1999: 97). If carnelian was imported, it probably came from Egypt or the Near East. Carnelian pebbles and larger stones could be found on the surface of the Eastern Desert in Egypt (Aston, Harrell, and Shaw 2000: 27; Konstantinidi 2001: 8 suggested Egypt was the source for Crete). In addition, textual evidence indicated that the Indian subcontinent and Iran were sources of carnelian to southern Mesopotamia in the third and second millennia BC (Moorey 1999: 97).

Objects of Cycladic manufacture included Pelos bottles and other Cycladic pottery; some folded-arm and “pebble form” stone figurines; and stone bowls. Silver, lead, obsidian, and perhaps marble, in the form of raw materials or finished objects, also came from the Cyclades. It is surprising, however, that so few other foreign objects were recovered with gold jewelry. One would imagine that those with access to gold also had access to other exotic goods, if those goods were present on the island. In addition to objects from the Cyclades, only three certain foreign-made objects have been identified from contexts with gold jewelry: an early 12th Dynasty Egyptian scarab from Lebena I; an 11th Dynasty Egyptian scarab from Lebena II; and a mid-third millennium BC silver cylinder seal found in Mochlos Tomb 1/2/3, thought to be from Syria (Aruz 1984). The gold pendant and beads with granulation and filigree as well as the silver cups may also have been imports from abroad. If more foreign-made objects were indeed circulating in Crete during the prepalatial period, perhaps they were of perishable material or were not used as grave goods.
Compared to the late prepalatial period, a greater variety of exotica was recovered from earlier EM I – II contexts (see chart 4). This was due partly to the raw materials and finished goods that arrived in Crete from the Cyclades. After EM III, silver jewelry and other objects disappeared from burial contexts, and finds of Cycladic-style figurines and obsidian were less common. During EM II – III, an increase in beads made from semi-precious stones can be identified. This indicates that depositional practices and/or trading patterns changed as the prepalatial period progressed.

Although all prepalatial jewelry made from precious metals was recovered from burials, the tomb types varied (see chart 5). In north-central Crete, tholoi and one cave contained jewelry. In south-central Crete, jewelry was found exclusively in tholoi. Tomb types were more diverse in the east, with gold jewelry found in rectangular house tombs, caves, in-ground built tombs, and a deposit not directly associated with a specific tomb. Other than pottery and jewelry made from precious metals, copper or bronze objects were the only type of grave good found in all types of tombs.

Some sites with gold jewelry were located directly on the coast, and others were situated further inland. This would suggest that trade networks – perhaps originating on the north and south coasts – supplied gold, obsidian, hippopotamus ivory, and other foreign raw materials or finished goods to inland settlements via land or river routes, either as gifts to local elites or through exchange. Exotic raw materials and objects may also have been obtained at central trading posts. Branigan (1988: fig. 1) illustrated a network of rivers and tributaries in both north and south Crete that may have served as a means for transport. The situation is somewhat different in the eastern part of the island,
where five of the six sites with gold were coastal sites; the cave at Maronia, where only one gold bead was recovered, was the only inland site in the east.
Before the Bronze Age, jewelry in Crete was crafted from stone, shell, clay (Hood 1978: 187), and perhaps wood and animal bone. These indigenous and easily worked materials were used to create pendants, rings, and beads. By the middle of the third millennium BC, gold, and to a lesser extent silver, were added to the repertoire of raw materials available to artisans, greatly increasing the types of objects that could be manufactured. Suddenly, we see decorated diadems; thin metal ribbons or strips; flower and leaf pins; and delicate loop-in-loop chains. Pendants were no longer simple rings; they were now crafted in various organic shapes. What made precious metals so desirable for jewelry when other more easily available materials could be used? Was it just that new forms of jewelry could be created? The answer is more complicated and may relate to the properties of gold and silver and the metals’ exotic origins as well as the beauty and durability of these new forms of personal adornment.

Part II will focus on the characteristics of gold and silver jewelry from the earliest contexts in Crete. In chapter 4, gold and then silver will be examined. The properties of the metals will be discussed, followed by a description of where gold and silver are found in the natural environment and possible geographic sources for precious metals used in prepalatial Crete. Methods used to analyze the construction of jewelry and the elemental composition of metals will be briefly reviewed. Difficulties inherent in sourcing metals used in antiquity will also be addressed.

Chapter 5 will describe techniques employed in the creation of prepalatial jewelry, with an emphasis on principal and secondary manufacturing methods as well as
on decorative techniques. The level of craftsmanship achieved by EM goldsmiths, as observed in the jewelry from various regions in Crete, will also be discussed.

Specific classes of jewelry will be evaluated and analyzed in chapter 6, including an assessment of assemblages from various sites. Iconography and the use of precious metals with other raw materials will be reviewed.
4. Precious Metals in Prepalatial Crete

**Gold**

Gold has always been used to create objects of beauty (de Jesus 1980: 88). Many diverse cultures, both ancient and modern, have attributed exceptional qualities to this metal. Gold was often valued for its “religious, mythical, and symbolic” qualities (Stierlin 1997: 10). In Egypt, where gold represented “the material of the flesh of the gods, the colour of divinity,” the first amuletic *serekh* beads made from gold appeared during the First Dynasty, c. 3000 BC (Andrews 1994: 104-105; Wilkinson 1971: 16). In both the Old World (Mesopotamia) and the New World (Mesoamerica and the Andes), gold was identified with the sun and silver with the moon (Bachmann 2006: 17; Hosler 1994: 228; Maxwell-Hyslop 1971: lxiii).

**The Properties of Gold**

The spiritual and even magical qualities attributed to gold may be due to the metal’s natural properties. Gold is bright, shiny, and attractive to the eye. Even after being buried in the earth for thousands of years, gold does not corrode or tarnish. In its native state, gold is quite soft and malleable, easily hammered into sheets or melted and cast into various shapes. Objects can be created from metals such as gold that could never have been made from stone or bone (cf. Muhly 1988: 16 on copper). The ductility of gold allows it to be drawn out into thin wire; one ounce of gold is all that is required to create a wire that is a mile long. Gold foil can be hammered to less than five millionths of an inch thick (McCredight 1991: 5). According to Pliny, gold suffers little from wear and is the only metal that “loses no substance by the action of fire” (1968: 47-49). Gold’s rarity
promotes its use as a repository of wealth. If the need arises, gold jewelry can be traded or melted down. Small gold objects can also be easily hidden during unsettled times.

A lack of written records precludes us from knowing how early Minoans perceived gold or whether they attributed supernatural qualities to this metal. But the properties of gold must have been understood during this period. Since no evidence exists indicating that gold ever occurred naturally in Crete, it was surely associated with distant lands and exotic cultures. Perhaps the natural properties of gold, along with its foreign origins, added to its desirability as a new form of personal adornment in life as well as a symbol of reverence and respect in death.

Gold is never 100% pure. If it was, it would be too soft for most uses. With natural trace elements that may include silver, lead, copper, iron, cassiterite (a source of tin), antimony, mercury, bismuth, zinc, or platinum, gold is at most 98 – 99% pure (Evely 2000: 401; Ogden 1982: 19; Young 1980: 14). To be described as “gold,” the metal should generally contain at least 75% gold; a gold-silver alloy with less than 75% gold may be called electrum (Ogden 2000: 162), although the percentages assigned to gold and silver in electrum seem to vary (Bachmann 1999: 269 suggests that electrum should contain 40-50% silver; Moorey 1999: 217 suggests 20-50% silver; Rehren, Hess, and Philip 1996: 1 indicates that auriferous silver may contain as much as 30-50% gold).

Gold is a heterogeneous material (Muhly, personal communication). Whether it is mined or recovered as placer deposits, gold always contains some silver. When native gold contains copper, the quantity of copper is generally under 1.5% (Hartmann and Sangmeister 1972: 626; Stambolov 1999: 23) or at most 2.5% (Ogden 1993: 40),
suggesting that gold with a high copper content may very well be an intentional alloy (Bachmann 1999: 269).

Copper and silver were deliberately added to gold at least by the middle of the second millennium BC; in New Kingdom Egypt, a reddish gold, produced by adding copper or iron, was preferred to a more traditional yellow gold (Ogden 1982: 18-19). Red gold – also referred to as dark gold – may have been considered superior in ancient Mesopotamia as well, as Ur III texts list red gold as of higher purity and quality than other types of gold (Moorey 1999: 219). However, it should be noted that objects with a reddish-gold surface film only, appearing as a separate layer bonded to the gold substrate, may have tarnished during burial, as naturally occurring sulphur reacted with a gold-silver alloy (Frantz and Schorsch 1990: 148-149).

The addition of silver resulted in a greenish or gray gold, depending on the proportion of silver to gold (Moorey 1999: 218; Ogden 1993: 39; 2007: 562). As well as changing the color, creating an alloy increased the hardness of the resulting metal and altered its working properties (Rehren, Hess, and Philip 1996: 8). At the present time, there is no evidence that EM metallurgists deliberately changed the chemical composition of the gold by adding other metals such as silver or copper. However, preferences for certain colors of gold may very well have led to experimentation with alloying.

Sources of Gold in the Environment

Gold exists in three principal forms: 1) primary or reef deposits in veins of quartz, which require the mining, crushing, and washing of ores followed by the melting of the resultant gold flakes; 2) secondary or placer deposits that occur when primary deposits of gold erode out of veins into moving water; and 3) tiny particles of gold within minerals
called pyrites and arseno-pyrites (refractory ores), which are released through smelting or treatment with mercury (Bachmann 1999: 267; 2006: 19-21; Craddock 1995: 110-111; Ramage and Craddock 2000: 10-11). According to Craddock, the last form is not attested to before Roman times (1995: 110). Therefore, primary or secondary deposits are the only possible forms of gold that would have been available to EBA metallurgists and artisans.

Gold used in the production of prepalatial Minoan jewelry was likely alluvial gold, obtained from placer deposits found in the gravel of rivers and streams. It has been suggested that particles of gold may have been collected on sponges or the fleeces of sheep (Higgins 1980: 7; Williams and Ogden 1994: 14). Larger nuggets may have been simply picked up by hand. A form of panning may have also been employed, whereby water and gravel from streambeds were spun around in a low-sided pan, with the heavier pieces of gold settling to the bottom of the pan (Ogden 2000: 162).

Many sources discovered and exploited in the third millennium BC would surely have been depleted and forgotten, with no surviving record of their location. Those who gathered gold dust or gold flakes and cold-welded gold nuggets may have followed streams to the source of the metal as it naturally washed out of lodes due to exposure to weather; if the proper technological skills were present, this would have allowed for the subsequent mining of gold in its primary form.

**Scientific Analysis of Gold**

Although radiocarbon dating may be conducted on associated organic material, metals themselves cannot be dated. However, there are many techniques available to look more closely at the manufacturing and wear of objects as well as the chemical
composition and purity of the gold. The use of a strong magnifying glass, a jeweler’s loupe, or a close focus monocular can reveal information on the construction of jewelry as well as scratches and other surface details that may aid in use-wear analysis. A scanning electron microscope (SEM) allows for a closer look at joins and surface features and aids in the study of inclusions in metals. A SEM analysis of objects from an unprovenanced Final Neolithic (FN) mainland hoard of gold jewelry revealed that quartz and aluminum silicate inclusions were rounded on the ends; this suggested to archaeologists that the gold used to make the jewelry experienced natural erosion in water (Demakopoulou 1998: 47).

Several analytical techniques can be used to examine the composition of gold in manufactured objects, with the express purpose of discovering provenance or identifying objects made from the same gold source, the so-called “material groups” that contain trace elements in the same quantities (Muhly 1983: 2, referencing Hartmann and Sangmeister 1972: 626). The pros and cons of three methods are described by Joseph Riederer (1999: 66). Two methods are nondestructive: the determination of specific gravity and X-ray fluorescence (XRF) chemical compositional analysis. The former measures how much gold is contained in an object; however, if more than one metal is alloyed with gold, the result loses its reliability. XRF measures the proportion of gold in the surface of an object. Riederer indicates that results using this technique are suspect when analyzing objects that have been buried, as copper or silver (occurring naturally or as a result of deliberate alloying) may have leached out, changing the composition of the surface of the object (see also Bachmann 1999: 272). Atomic absorption spectrometry (AAS) is thought to be more dependable and has been used extensively in the testing of

Unfortunately, AAS requires a small sample of metal, which is usually not possible when
the object is gold.

XRF has been used for the testing of EBA Aegean copper axes (Phelps, Varoufakis, and Jones 1979) and Mycenaean inlaid metalware (Demakopoulou et al. 1995) as well as the gold jewelry from the FN mainland hoard mentioned above and a second millennium BC gold ibex figurine from the Cycladic island of Thera. The results suggest that XRF can provide information on artifacts otherwise unavailable to archaeologists. Nine of the 12 FN objects that were analyzed contained 92 – 95% gold, with the remaining metal comprised of silver and lesser amounts of copper (Demakopoulou 1998: 45); this supports the assumption that native (natural, non-alloyed) gold was used in the production of these objects. Low percentages of copper and iron present in the gold from the Theran ibex are also consistent with gold in its native state; higher copper concentrations in the welded areas suggest that copper mineral powders may have been used to attach elements of the figurine (Pantazis et al. 2003: 156, 159), in a process called copper diffusion bonding.

Another method used recently in Crete to determine the elemental composition of metals is Laser-Induced Breakdown Spectroscopy, also known as LIBS (Ferrence et al. 2003). Traces of silver, copper, or other metals may be identified from the surface of objects. Because LIBS removes a very small amount of metal, however, it is unlikely that this method would be acceptable for use on prepalatial gold jewelry.

Proton Induced X-ray Emission (PIXE) is a non-destructive technique that also determines the elemental composition of metals (Demortier 1984; Politis et al. 2002).
This method, along with binocular microscopy, has been used successfully by Philip Betancourt (2006) and Charles Swann to determine that joins in EBA Trojan jewelry were made using a copper diffusion bonding process (for a discussion of copper diffusion bonding, see joining techniques in chapter 5).

With the exception of the analysis of joins, scientific testing done to date on early gold objects from Greece generally confirms what is already suspected: FN and EBA Aegean gold objects were likely manufactured from quite pure gold. The most promising non-destructive techniques that may be used in future testing appear to be XRF and PIXE, both used to determine the elemental composition of metals.

**Geographic Sources of Gold**

Although specific amounts of naturally occurring trace elements in gold, e.g., gold containing 2% silver and 1% copper, would theoretically allow for a “fingerprint” that could be matched against an ancient source, the common practice of recycling metals in antiquity combined with the lack of any certain EBA sources of gold means this match has not occurred. As personal preferences and fashion evolved or as objects were broken or changed ownership, jewelry was collected and melted down with the amalgamated metal used to create new objects (see Bass 1991; Bass 1996; Pulak 1988 for a description of scrap gold found on the LBA Uluburun shipwreck; Zettler 1990: 86 on the recycling of gold in late third millennium BC Mesopotamia). Recycling of metals, especially a metal as rare as gold, surely occurred during the EBA in Crete.

Gold used in the production of prepalatial jewelry probably originated as small nuggets or gold dust recovered from streams. Even if the gold in these objects was recycled, the purity level would have remained high. Ancient texts generally refer to gold
dust, with one of the first references to primary deposits – “red gold, 10 shekels from pounded rock…” – included in a business document from the Third Dynasty of Ur (Legrain 1947: 217, #418; Levey 1959: 31). Branigan indicated that the capability existed among Aegean metallurgists for mining, extraction of gold from ores, and the deliberate creation of alloys (1974: 90). If, indeed, alloys had been created, any attempt to identify sources of the gold would be further complicated, as the original chemical composition of the metal was changed.

It is difficult to locate ancient mines, yet alone ascertain when they were first exploited and consequently exhausted. Cave-ins and the growth of vegetation can obscure mine entrances and tunnels. Extant remains, like pottery found in old mining shafts, may illuminate the last use of a mine, but the initial discovery of the site and the period of time metal was extracted are difficult if not impossible to determine for prehistory. Even if a primary source of gold was positively identified, it might be problematic to match objects made from gold mined at the site; trace elements and the overall composition of ores in a complex deposit may be different based on whether the ore was obtained from the surface or from a greater depth (Muhly 1999; Patterson 1971: 286; Yener 2000: 7).

Consequently, it is not known where EM artisans obtained their supplies of gold, and it is unlikely that we will ever know with certainty. Different regions of Crete may have received supplies from different sources, and these sources may very well have changed through time (cf. Moorey 1988: 28 in his discussion of metal sources in Mesopotamia). This has not prevented scholars from speculating on the possible sources of gold used in prepalatial Crete, with theories generally based on probable trading
partners, trade routes, and trading colonies as well as sources known to exist during the first millennium BC or later.

Northern Greece and Anatolia are most frequently suggested as probable sources. Branigan indicated that, although prepalatial gold may have come from Bulgaria or Romania, more likely sources were Macedonia and northwest Anatolia (1974: 63, 98). Lehrberger described 13 major gold deposits in Macedonia as well as evidence of gold in Thrace (1995: 137). McGeehan-Liritzis (1996: 234) indicated that gold slags from Saratse and Vardarophtsa, in northern Greece, provided the only evidence for processing of gold from Greek sources during the EBA (see also Branigan 1974: 90).

Yener (2000: 77) has suggested that the Bolkardag valley in the Central Taurus Mountains of Anatolia may have been a source of early panned gold. Kestel, the mining complex located in the same region, may also have been a source of gold as well as tin (Yener 2000: 80-81), as these metals are often found in the same area (see also Muhly 2001: 730).

Other possible sources included Syria, Egypt, Nubia, and various Cycladic islands. Higgins described a “rich alluvial deposit in the Melas valley near Antioch in North Syria” that may have been the source of gold to EBA Crete (1980: 54; see also Maxwell-Hyslop 1971: 230). The Eastern Desert of Egypt and Nubia also contained gold deposits (O'Connor 1980: 62; Wilkinson 1971: 7). Ogden indicated that gold was mined in the Eastern Desert as early as the Predynastic period (2000: 161). Although it is unclear when Nubian deposits were first exploited, evidence of gold-processing centers in the Nubian kingdom of Kush appeared to date at least from the early second millennium BC (Wilford 2007: F1). The Cycladic islands of Melos (Lehrberger 1995: 137) and
Siphnos, the latter a known source of ancient silver (Higgins and Higgins 1996: 177; Weisgerber and Pernicka 1995: 174, 177), are also possibilities.

In a book on the geology of Greece and the Aegean, Higgins and Higgins (1996) provided an overview of ancient metal sources. Gold deposits in Macedonia and Thrace were mined for perhaps 5,000 years, including areas in the Rhodope Mountains and Mt. Pangaion; gold mines on the island of Thasos, just off the coast of Thrace, may have been exploited later, by at least 700 BC, and soon exhausted (1996: 108, 116-118, 120). In The Histories, Herodotus described gold mines at Scapte Hyle on Thasos that made the islanders wealthy (1963: 375). Gold was also found at Sardis, in the northeast Aegean on the Ionian coast of Anatolia; silver-rich placer gold deposits, many with enough silver to qualify the metal as electrum, were recovered from the Pactolus River before the source was exhausted by the 1st century AD (Higgins and Higgins 1996: 141-142; Ramage and Craddock 2000).

Gold may have been brought to prepalatial Crete as a traded commodity or offered as a gift to local elites. It is also possible that it was obtained in foreign lands by Minoan traders. Gold probably arrived in Crete as gold dust or nuggets, although it may have been transported as sheet metal or ingots. Incised bars of gold, perhaps ingots marked for cutting, survive as part of Treasure F from third millennium BC Troy (Antonova, Tolstikov, and Treister 1996: 118-119; Hazirlayan and Esin 1991: 38).

Pictorial and textual evidence reveals that – by no later than the middle of the second millennium BC – gold was cast as ring ingots and bricks, as illustrated in Egyptian wall paintings (Andrews 1991: 45, 77; Bryan 2000: 259) and described in the Amarna letters (Moran 1992: 44, EA 19, 34-38). Bachmann (2006: 30) indicates that
small bars or pieces of gold called *shats*, weighing 7 – 8 g, were used for payment in second and first millennium BC Egypt.

*Silver*

It has been suggested that silver was more valued than gold in pre-Dynastic Egypt, as Egypt had access to gold but no deposits of silver (Andrews 1991: 56; de Jesus 1980: 78; Ogden 1992: 33). However, silver was a secondary player to gold during the prepalatial period in Crete, at least in terms of objects that were used as grave goods and survived to be excavated in modern times. Except for the small collection of silver jewelry and ornaments recovered from the tholos tomb at Krasi, a fragment of what may be a pin from Archanes-Phourni, three simple ornaments from Hagios Antonios, a pendant from Hagia Photia, and two tiny pendants found at Mochlos, silver was not the preferred medium for jewelry (see chart 2). Indeed, it should be noted that all recovered EM silver jewelry was found in northern Crete (Branigan 1968: 224), between Archanes and Hagia Photia.

No silver diadems, headbands, strips, or antennae were recovered from sites associated with EM Crete. This is in sharp contrast to the two large silver diadems and other objects recovered from cemetery and settlement contexts in the EBA Cyclades (see chapter 10, Pl. 48). Silver was used more often in EM Crete for the manufacturing of objects not generally associated with personal adornment: the two cups found at Mochlos as well as an assortment of tools, nails, and rivets recovered from Archanes-Phourni and Platanos. The only exceptions to this were three silver daggers from Koumasa Rectangular Tomb Γ, all manufactured from silver alloyed with a great deal of copper (Stos-Gale 1985: 371, table 1, indicating 10-27% copper). Three additional silver daggers
were recovered from sites not referenced in this study: two from Tekes in northern Crete and one from Galania Kharakia in southern Crete (for the latter, see Branigan 1968: 220, 223; Branigan 1974: 160, #271, with a date of EM III-MM I). Since it would be difficult to maintain a sharp edge on a silver blade, the daggers would have been impractical for everyday use and must have been reserved for ceremonial display (see Nakou 1995; 1999 for a discussion of daggers and male "dress code" in the EBA Aegean).

Silver may have been used to craft jewelry that was not deposited in tombs. Also, some silver objects may have been placed in graves but later missed by early excavators, as small objects may have corroded and broken during the long period of burial.

Properties of Silver

The lack of silver objects in prepalatial burial contexts may have been due to the properties of silver, surely recognized by early Minoans. Although a brilliant, white metal when polished, silver tarnishes easily with exposure to oxygen and corrodes when placed in the earth. Objects made of silver require more work in the metallurgy process than those made of gold. Alluvial gold can be hammered or melted, then cut or cast into various shapes. Substantially more work is involved in getting most silver to a stage where it can be used in the manufacturing of jewelry.

In his description of ancient silver mining operations at Laurion, a Classical site where archaeological evidence of mining remains today, Thilo Rehren outlined the multi-task operation required for the processing of silver (2005: 25-26). According to Rehren, ores containing silver were extracted from the ground and then crushed and washed (the process of beneficiation) to separate minerals rich in metals from waste minerals (see also
Higgins and Higgins 1996: 34). Good pieces were then picked out and smelted in furnaces to extract the lead. The final stage in this process was cupellation, where lead was heated again, separating into silver and lead oxide (see Kakavoyianni 2005 for evidence of cupellation at EH I Lambrika, Attica). The resulting silver could then be cast into ingots or poured into molds to create jewelry or other objects. A simplified version of this process eliminated the washing.

The cupellation stage could be avoided if the silver was purer native silver, sometimes found in very deep mines, or if the metal was obtained from dry silver-rich ores (e.g., silver chloride or silver sulphide), which only required smelting (Craddock 1995: 211-212). However, silver is rarely recovered in its native state. The discovery of silver and lead ores was likely more common in prehistory (de Jesus 1980: 63; see Gale and Stos-Gale 1981b: 174-175 for mineralogical sources of silver). Based on a comparison of the elemental composition of silver artifacts, Pieter Meyers (2003: 283-286, fig. 3) proposed that Aegean silver-producing technology developed from the use of silver ores in the third millennium BC to oxidized lead ores (cerussite) in the second millennium to primary lead sulfide ores (galena) after about 1000 BC.

Native silver contains other metals including gold. Aurian silver includes at least 5% gold (Gale and Stos-Gale 1981a, b). Ogden indicates that aurian silver, a naturally occurring alloy of silver and gold (2000: 170), contains 5 – 50% gold, while silver with under 5% gold is just silver with “low gold” (2000: 162). Analysis of an EBA silver diadem from the Cycladic island of Amorgos shows that it contained approximately 5% gold and 2% copper (Branigan 1974: 90). Although Renfrew (1972a: 317) suggested that 5% gold is a considerable amount and native silver may have been used in the
manufacturing of the diadem, due to the rarity of aurian silver (Gale and Stos-Gale 1981b: 175), it is also possible that this object was crafted from cupelled or smelted silver.

The chemical composition of Cycladic artifacts manufactured from silver has been studied by N. H. Gale and Z. A. Stos-Gale (1981b: 208-209, table 7), in conjunction with their investigation of sources of EBA silver. XRF analysis determined that seven objects from Amorgos and Syros (one bowl, four bracelets, one diadem, and one pin) contained very small percentages of gold, copper, and lead (see Sherratt 2000: 36-38, pl. 12 for further discussion on the bowl). The small percentage of lead (generally under 1%, with four objects at 0.1%) indicates that the silver was cupelled. Total amounts of gold (0.1 to 0.3%) and copper (under 2%, with one object at 5.6%) are consistent with ores from Laurion or Siphnos.

**Sources of Silver**

Many sources of silver and lead were thought to have existed in the Cyclades in antiquity, including Melos, Poliagos, Naxos, Kythnos, Seriphos, Antiparos, Syros, Thera, and Siphnos (Gale and Stos-Gale 1981b: 216-217; see also Stos-Gale and Macdonald 1991). Branigan listed numerous known sources of lead in Crete and mainland Greece, although he believed lead/silver ores were “scarce” in Crete (1974: 59, fig. 1).

Large deposits of lead and silver were also thought to have existed in Anatolia – from the south coast of the Black Sea, the Troad, and the Taurus region (Stos-Gale and Gale 2003: 92). Silver may have been obtained from mines on the Ionian shore of Anatolia including Balya – in the Balikesir region – and Sardis, as well as in Thrace at Mt. Pangaion and Thasos (Higgins and Higgins 1996: 117-120, 140, 142). Yener (2000:
indicated that the Bolkardağ area, in the Central Taurus Mountains, was a source of ancient silver (see also Weisgerber and Pernicka 1995: 177).

The Levant has also been suggested as a source for silver. Prag (1978: 40) indicated that the “silver mountain” mentioned in Mesopotamian texts from the second half of the third millennium BC may have been located in the Amanus Range, approximately 300 km north of Byblos. This may be supported by the large number of silver objects recovered from tombs at Byblos dated to the preceding millennium (see chapter 11).

Two sources of EBA Aegean silver have been confirmed by comparative lead-isotope analyses of ores and artifacts: the Cycladic island of Siphnos and the mainland site of Laurion, in southeast Attica. Siphnos may have been a major source of EBA silver, with more metal obtained from Laurion in later periods (Gale, Stos-Gale, and Davis 1984: 390; McGeehan-Liritzis and Gale 1988: 223; Muhly 1973: 187; Stos-Gale 2000: 66-67; Stos-Gale 1985: 367; Weisgerber and Pernicka 1995: 174-175). However, finds of EH II pottery in a gallery of mine #3 at Thorikos/Laurion (Spitaels 1972/1976: 153, 170-171) indicated that this site was indeed mined during early periods (see also Conophagus 1982).

Some EBA objects from Crete appeared to be of Siphnian origin although a few objects are clearly of Laurion metal. Early Minoan objects with the greatest amount of silver, the three silver daggers from Koumasa, contained metal from an unknown origin (Branigan 1982: 701). Lead-isotope analysis was performed on one of the Koumasa daggers, with results falling between the Siphnian and Laurian fields; this indicated that
the silver may have been a mixture from both sources or from an entirely different source (Stos-Gale 1985: 368, 371).

If EM Crete had its own deposits of lead/silver and knew the methods required to process ore to obtain silver, one would expect to find more artifacts made from this material. If silver was imported, which is likely, it is not known in what form it was transported to Crete. However, evidence from elsewhere in the Aegean and the Eastern Mediterranean suggests that silver was traded as ingots or coils. Silver ingots were recovered from third millennium BC hoards in Anatolia, including Treasure A from Troy II (Schliemann 1880: 470-471 described six silver talents or ingots; 1884: 111) and Mahmatlar (Yener 2000: 68). Silver ingots, scrap sheet metal, coils, and rods were part of the Akkadian hoard found at Tell Brak (Matthews 1994: 293, fig. 5, see also Pl. 58A). Ingots, lumps, and rings of silver were also recovered from a hoard at Tell Taya (Reade 1968: 248). Silver coils and rings are thought to have been an early form of currency in Mesopotamia (Powell Jr. 1978: 226, pls. 1-2). Silver chain- and bar-ingots, and perhaps ingots in the form of coils of thick wire, were part of the Middle Kingdom Tôd treasure (Bisson de la Roque, Contenau, and Chapouthier 1953: pls. 2, 3). Sumerian and Assyrian texts also describe ores brought to settlements (de Jesus 1980: 79), which is another way silver may have arrived in Crete.
5. Manufacturing Techniques

Two principal manufacturing techniques were available to EM goldsmiths: casting molten gold and forming jewelry from sheet metal. The same methods were used when working silver. Although a small number of pieces were cast, the vast majority of prepalatial gold and silver objects were crafted from different thicknesses of sheet metal. These objects were then finished using various decorative techniques, including repoussé and chasing. In rare instances, granulation, filigree, and ajouré were also employed. Chart 6 provides an overview of manufacturing techniques by region, site, and context.

Cast Objects

Cast gold objects from prepalatial Crete included a vase-shaped pendant (AR 13) and a bullet-shaped bead (MA 1). A silver zoomorphic pendant (HP 1) was also produced this way. A few other pendants and beads may have been cast (e.g., KR 1, KO 3, MO 104) but, without closer examination, this cannot be determined with certainty. Casting can be accomplished using two methods: the cire perdue or lost-wax process and by the use of fired clay (terracotta) or carved stone molds. Simple molds can also be made from cuttlefish bone for the casting of small, one-of-a-kind objects (cf. McCreight 1991: 85; McGrath 1995: 22-24 on modern cuttlefish casting). Although there is no direct evidence associating cuttlebones with jewelry-making in early Crete, the remains of these marine invertebrates have been identified from MM and LM contexts in Kommos as well as other Bronze Age sites (Reese, Rose, and Payne 1995: 270).
One of the earliest examples of lost-wax casting in precious metals is from the Royal Cemetery at Ur, dated c. 2600 BC (Hunt 1980: 65); a cast silver rein ring with an electrum equid was mounted on the chariot found in Queen Puabi’s tomb (Weber and Zettler 1998b: 165, fig. 52; Woolley 1934: 78). Bulls cast in both gold and silver have been recovered from a chieftain’s tomb at Maikop in southern Russia, dated c. 2300 BC (Artamonov 1974: 156, pl. 21; Hunt 1980: 66). In the Cyclades, silver pins from Syros (Tsountas 1899: pl. 10.10) and Amorgos (Tsountas 1898: pl. 8), dated to the late third millennium BC, may also have been created using lost-wax casting (see Pl. 48E for a pin from Amorgos).

In the lost-wax process, a wax model of the desired object is created, which is then covered with clay or plaster. After the clay or plaster dries, the wax is heated and drains out of a channel designed for that purpose, leaving a void suitable for casting. Molten metal is then poured through the channel into the void. After the metal hardens, the mold is broken and removed; the object is finished after seams are smoothed and decorative details are enhanced or added. The silver zoomorphic pendant from Hagia Photia (HP 1) was manufactured this way (Betancourt, personal communication; Davaras and Betancourt 2004: 181-182).

Although no EM jewelry molds have been found on Crete, beads were probably cast in one- or two-part, open or closed molds (cf. Canby 1965 on EBA Near Eastern "trinket" molds; Maxwell-Hyslop 1971: 29, pl. 28 on a pendant mold from Tell Brak; Müller-Karpe 1994: pls. 51-58 on Anatolian jewelry molds). The vase-shaped pendant (AR 13) may have been manufactured using either the lost-wax process or by means of a mold. It is understandable that so few cast objects have been found, as casting solid
objects requires more raw material that creating objects from sheet metal (Despini 1996: 21; Moorey 1999: 228; Williams 2006). Also, some gold will be lost in the melting process as it will stick to the porous interior walls of the crucible (Betancourt 2006: 2, note 11). Moreover, the purest gold does not produce well-defined castings (Williams and Ogden 1994: 29).

*Objects from Sheet Metal*

The process of manufacturing a piece of jewelry from sheet metal varied with the complexity of the object and the number of construction elements or components. Some objects, such as the daisy and crocus pins (e.g., **MO 84, MO 16**) or pendants on chains (e.g., **PL 4, MO 89**) required that elements of the design be measured in advance and that the construction of the piece be carefully planned out (see Evely 2000: 419, fig. 163 for the original layout of a crocus pin, also Pl. 16C here). Other objects, like plain metal strips (e.g., **AR 1, PY 4**), required little more than a piece of sheet metal and the means to cut it.

Different methods may have been used to make sheet gold. Since native gold was quite soft and malleable, there was no need to reduce gold dust to a liquid state as lumps or sheets of gold could be created by hammering (Raub 1995: 247). In Old Kingdom Egypt, another method was employed: gold was melted in a crucible, then poured into a shallow dish where the metal solidified into a thin sheet (Andrews 1991: 85). In both cases, it would be relatively easy, albeit time-consuming, to further work the gold into sheets of uniform thickness. The metal may have been placed between layers of leather, cloth, or vellum to protect it while hammering (Evely 2000: 405; Ogden 1982: 34).
Occasionally, it would be turned over so as to be hammered on both sides. Since metal, other than the purest gold, becomes brittle as it is worked, it may have been necessary to stop periodically to anneal or heat, then quench or cool, the metal; annealing reduces stress within the metal and realigns the molecular structure, allowing for continued hammering without breakage. Ogden (1993: 47) noted that impressions of leather or other perishable materials may be visible on the sheet metal of a finished object if the piece only received light burnishing or polishing.

Sheet gold has been found in many different thicknesses, from the substantial sheet metal used for diadems or bangles to thinner sheet metal found in ornaments such as bosses and disks. Ogden (1992: 43) indicated that most ancient gold work was made from sheet metal that was approximately .1 mm thick. In his study of early metal jewelry from Crete, Antonis Vasilakis (1996) measured the thickness of many diadems; although the sheet metal varied from .1 to .5 mm thick, over 40% of the measured objects were quite substantial at .5 mm thick.

Thin strips and coverings for wooden beads or other objects were made from gold foil. Gold leaf, the thinnest form of sheet gold, was recovered from several EM sites in fragmentary form and was most likely pressed or glued onto objects made from a perishable material (see Eluère and Raub 1991; Shimura 1988 on the fabrication of gold foil). The process of making gold leaf was likely quite time-consuming. Using traditional techniques, goldbeaters in modern India place thin pieces of gold or silver between pages made from treated sheep’s scarf skin (the skin just below the wool). Hundreds of pages are then bound as books and hammered for three to four days (Untracht 1997: 365, figs.
Modern gold leaf may be just a few hundredths of a mm thick (Shimura 1988: 307) or even thinner to the point of virtual transparency (McCreight 1991: 5).

After producing the desired thickness of sheet gold, the metal was cut to the size required for the object. The final cutting might also occur after simple decoration within a traced outline on a larger sheet. Sheet gold was probably cut with knives or chisels, with a knife best for long, straight cuts and a small chisel preferred for shaped edges and cut-outs; an obsidian blade could also be used to trace the shape of an object, add incised decoration or cut thinner gold sheet (Ogden, personal communication). On a few of the EM gold objects, incised lines, which were not followed in the final cutting, are noticeable on the metal; this indicates that a rough outline of the object was drawn on the metal and later ignored or missed.

Secondary Manufacturing Techniques

Hammering is required to create sheet metal. It is also the means by which various secondary manufacturing and decorative techniques are achieved, generally with the use of other tools or materials. These techniques, all used in the creation of prepalatial jewelry, include working thin strips of metal while making wire and chains; pressing metal into a yielding matrix in a process called repoussé; shaping metal using forms, cores, and molds; punching small dots into metal from the back, known as dot repoussé; creating detailed decoration through chasing; crafting an openwork design or ajouré; and gilding, attaching gold leaf to a non-gold substrate. Decorative processes that required heat rather than simply hammering included granulation and filigree: adhering tiny metal spheres or thin wire onto a base object.
**Wire and Chains**

Wire was a common component in the production of prepalatial gold jewelry. Thicker wire was used for bangles, finger rings, and the stems of flower and leaf pins. Thinner wire was used for chains, jump rings, and to create filigree spirals for beads.

Although there is no evidence that draw plates were used during early periods (Carroll 1972), other methods of making wire were available to the EM artisan. After cutting a long, thin strip from a piece of sheet gold, the strip was hammered to the desired thickness, then rolled between two flat surfaces, such as blocks of wood or stone (Evely 2000: 405; Ogden 1982: 48). This produced a round wire, also referred to as a wire of circular section. A straight seam indicated that the strip was pressed into a circular form as it was hammered. A diagonal or spiral seam, clearly seen on links in EM chains (e.g., Pl. 34G), meant that the wire was twisted (Ogden 1982: 48-49; Rudolph 1995: 7).

Square-section wire was also utilized in prepalatial jewelry.

Two types of chains were used for the suspension of pendants: simple chains (only one example from Mochlos) and loop-in-loop chains (see Pl. 33A for a comparison of both types of chain). Modern goldsmiths make links of the same size for a simple chain by coiling a length of wire around a wooden doweling rod, and then cutting or sawing apart the individual links. The links are then soldered in place as the chain is constructed. However, the links on the Mochlos chain (MO 20) are of different sizes, indicating they were formed by first cutting small lengths of wire and then bending the pieces into hoops. Globs of gold are visible at the joins in the links, suggesting that the links may have been poorly fused, in an attempt to quickly melt the points to be joined without melting the whole object (see especially links near the center of the chain on Pl.
16G). The teardrop shape of some of the links indicates that the spring tension that existed between the two ends of the wire was not sufficiently strong to keep the two ends from slipping during fusing (Benzel, personal communication).

Simple chains are rare and actually more difficult to construct than loop-in-loop chains (Ogden 1982: 57), where each link is made in advance, bent into a U-shape, and then quickly assembled into a chain. However, this was not the only method used to make links for loop-in-loop chains in the EBA Aegean. Although there is no evidence that this method was used in EM Crete, Athanassopoulos et al. (1983) have demonstrated that some chains from the Troad were made from individually cast links.

*Repoussé*

Another technique used to create prepalatial jewelry was repoussé, illustrated in the production of beads (PL 9A-S, MO 48) and thick bands that may have been armlets or belts (MO 29A-D, MO 67A-B). Repoussé is derived from the French verb *repousser*, meaning to push away or push back. In this process, a relief pattern or design was raised in the metal from the back (Pl. 33B). Sheet metal was placed against a flexible material like pitch, beeswax, resin, or any substance that could be kept soft enough by periodic heating to allow for the working of the metal. Several layers of leather or a leather sandbag would also provide a yielding surface. Higgins (1980: 12) indicated that a clay and wax mixture, used for the production of repoussé, was found at Tell el-Amarna in Egypt. After a rough shape or more detailed image was traced on the sheet metal, wooden, bone, horn, or metal punches of various sizes and shapes were gentlyhammered against the metal. The object may have been periodically turned over, with the process continued on the reverse side.
Domed ornaments, such as bosses (AR 12), were shaped by lightly hammering or pressing thin sheet metal over or into a simple form, which was probably made of stone or wood. Seams are apparent on a cone-shaped boss from Mochlos (MO 26), indicating that thin sheet gold was folded over to accommodate the form. Bosses may also have been created using the repoussé technique. In the case of some beads, a carved wooden core, covered by gold foil, could not be removed, and would have remained part of the object. Several beads from Platanos (PL 9A-S) may have been made using this method. Some two-part beads may also have been manufactured using molds (Higgins 1980: 14): thin sheet gold was pressed into a mold with the two resulting hollow crescents of metal later pushed and folded or fused together.

Dot Repoussé

The most common technique used to decorate prepalatial jewelry was dot repoussé. In this process, raised dots were produced in the front of a piece by punching dots, one at a time, from the back. Punches or needles, perhaps made from bone or wood (Eluère 1983: 84), must have had rounded rather than pointed tips, to avoid piercing the sheet metal (see modern embosser in Evely 2000: 327; Ogden 1982: 35 suggests tip would be like ball point pen). Dot repoussé was used to create borders on objects such as diadems, pendants, strips, pins, diadem antennae, bosses, and other ornaments. Two zoomorphic designs and a pair of human eyes were created in this manner on diadems from Mochlos (MO 1, MO 2, MO 62). Although jewelry decorated with dot repoussé was found at many sites in EBA Crete, none of these sites were located in the north-central region.
Chasing

Jewelry and other ornaments, produced using repoussé, were sometimes further decorated by means of chasing. Lines and indentations, often used to enhance the existing design, were made in the surface of the object, in a process which displaces or moves the metal without removing it (Pl. 33C). Simple linear decoration on diadems was also created this way. Engraving, where metal is cut out, was not used during the EBA in Crete.

Chasing was also employed to finish objects that had been cast. When objects were made using two-part molds, “casting webs” remained which could be removed with chasing (Maryon and Plenderleith 1967: 626). Chasing also removed imperfections left on the surface of the finished object when the cire perdue method of casting was employed. Modern goldsmiths are known to dip their chasing tools, generally punches or tracers, into oil in order to facilitate the process (McCreight 1991: 20).

Ajouré

Only one example of ajouré (also referred to as á jour or ajorcé), the creation of an openwork design, has been associated with jewelry production in prepalatial Crete: a diadem fragment (KA 1) from Kalathiana in the Mesara (Pl. 33D). However, this technique was also used in EC II Amorgos to create a silver diadem with openwork triangles and a zigzag pattern (Pl. 48D). The Kalathiana diadem fragment resembled plaited strips of gold but was actually created using an open design of cut-out rectangles and triangles. Pierced, lattice-like designs such as this may have started with holes punched into the sheet gold (Ogden 1982: 43), making it easier to insert a blade in the
metal to produce the cut-out. The delicacy of this work might have been best achieved with an obsidian blade.

**Gilding**

Fragments of gold foil were recovered from several sites, suggesting that gilding may have been practiced by artisans in EM Crete. In gilding, a thin covering of gold is applied to the surface of an object made from another material such as wood, stone, or a less valuable metal like bronze. Both gold foil and thinner gold leaf may be employed in this process. The earliest Minoan ornaments with relatively intact gilded surfaces were a series of cast bronze pendants from Hagios Onouphrios (Pl. 33E). Because the jewelry from this site was not recovered in context, its date is uncertain and may date into the MM period (see chapter 2 for a brief description of the site and associated jewelry).

In the gilding process, gold is attached to a substrate by overlapping edges of foil, heating, and burnishing (Ogden 2007: 560) or with the use of an adhesive such as organic glue or egg whites (Bachmann 2006: 28). For the gold to remain attached, the substrate should be quite clean (Moorey 1999: 227; Oddy 1981: 75-77). In EM Crete, gilding was likely used to cover wooden beads, pendants, and other forms of jewelry. It may have also been used to decorate wooden or ivory boxes and figurines. Gilding utilized a minimum amount of gold to create a greater visual impact.

**Granulation and Filigree**

The last two decorative techniques used in the creation of prepalatial jewelry were the related processes of granulation and filigree (Pl. 33F-G). With both methods, small pieces of metal – tiny gold balls or patterns of thin wire – were attached to a metallic surface by a bonding process, either by fusion or with the use of a copper salt (Lilyquist
Another type of filigree, not found in EM Crete, utilized wire that was soldered together to create an openwork pattern.

Objects from Koumasa – a pendant or bead (KO 3) and possibly a disk (KO 7A) – were decorated with granulation. One bead from Kalathiana (KA 11) and two beads from Platanos (PL 11A-B) contained filigree in a spiral design. All of these objects were recovered from what may perhaps be late prepalatial contexts in Mesara tholoi (see discussion on the dating of these sites in chapter 2). Another bead recovered from the earth spoil of Tomb 4/5/6 at Mochlos (MO 60) is made from three carefully-made coils of wire.

Although these two processes were thought to have originated in Western Asia (Higgins 1980: 22, 57; Maxwell-Hyslop 1971: 65; Wolters 1981: 120), it is unclear whether the first extensive use of granulation and filigree was associated with sites in Mesopotamia or Anatolia (see chapter 15 for further discussion). Two tiny objects from the Royal Cemetery of Ur – a ring-bead made from six gold spheres and a gold strip, decorated with six gold spheres – are dated to the middle of the third millennium BC and may be the earliest examples of granulation (Lilyquist 1993: 33; Maxwell-Hyslop 1971: 36; 1977: pls. 1a, b; Ogden 1992: 51; Plenderleith 1934: 297). However, it should be noted that a dagger from the same site, which appeared to contain granulation on its hilt and pommel, was actually made using proto-granulation: gold nail studs were used to create the same effect (Carroll 1974: 36; Moorey 1999: 231; Politis 2001: 162; Weber and Zettler 1998b: 164, 169, #146) (Pl. 60E).

Gold objects from EBA Troy and Poliochni, dated c. 2500-2200 BC, contained early examples of “true” granulation (Politis 2001) (Pls. 50B, 51B). Basket earrings and
double- or triple-lobed earrings or hair rings, with granulation and, in many cases, filigree, were recovered by Schliemann from Troy (Antonova, Tolstikov, and Treister 1996: 48-53, 71-73, 104-105, 116-117, 136-137, 178; Aruz 2003b: 267-269; Schliemann 1885: 579). In addition, a sheet metal bracelet and two pins with well-crafted filigree spirals or petals were found at Troy (Antonova, Tolstikov, and Treister 1996: 114-115, 182-184; Aruz 2003b: 262) (Pl. 50D-E). Basket earrings and shell earrings or hair rings with granulation and filigree, as well as a pin with crude filigree, were part of the jewelry hoard recovered at Poliochni on the island of Lemnos (Aruz 2003b: 270; Bernabò - Brea 1957a: figs. 5, 6, 12-15; 1957b: figs. 27, 30, 31, pl. 3; 1976; Cultraro 1999: fig. 7). An unprovenanced hoard of gold jewelry thought to come from the Troad, purchased by the University Museum of the University of Pennsylvania in 1966, also contained basket earrings, shell earrings or hair rings, and a pin decorated with granulation and filigree (Aruz 2003b: 265, 268-269; Bass 1966: 29-32, 35; 1970: pls. 85-86; Betancourt 2006: figs. 1-6, 8).

One of the more interesting recent discoveries of jewelry with filigree comes from the island of Aegina, just north of the Peloponnese. An EH II – III hoard containing gold and silver jewelry as well as stone beads includes one gold pendant with a simple, uneven double spiral in filigree (Pl. 49D) (Reinholt 2004: pls. 14.1b, 15.3). It is interesting to note that while granulation and filigree appeared in the Troad during the third millennium BC, and filigree can be associated with jewelry dated to the same period in Aegina, these techniques are not seen in Crete until the end of the prepalatial period, c. 2000 – 1900 BC. It is close to that time, during the Middle Kingdom (c. 1900 BC), that granulation
makes its first appearance in Egypt (see Ogden 1992: 52, fig. 36 for a gold cylinder pendant; Ogden 2000: 165).

The first step in granulation involved making the tiny metal granules. Carroll (1974: 34) described several techniques that may have been used during the EBA (see also Wolters 1981: 124-125; 1983). If sheet metal or wire was cut into small pieces and heated in a medium like charcoal or between layers of ash in a crucible, spherical granules were formed. Cutting pieces of metal of exactly the same size would result in gold balls of the same size. Molten gold might also be poured into moving water or onto a flat stone placed in shallow water, producing granules of various sizes. The resulting granules were then sorted by size (for a further discussion of granulation, see Betancourt 2006; Muhly 1989; Politis 2001). The diameter of the grains varied in antiquity; granules from Ur measured 2 mm (Wolters 1981: 120; Woolley 1934: 297) while those from Troy IIg were much smaller and ranged from 0.4 to 1.1 mm (Higgins 1980: 19; Wolters 1981: 120). The final stage in producing a piece with granulation or filigree involved attaching the tiny spheres or thin wire to the base object. Moorey (1999: 231) has suggested that more than one hot joining technique may have been used by goldsmiths. Several methods are described below.

*Joining Techniques*

Various techniques were used to attach components of prepalatial jewelry. For very soft alluvial gold, heating was not required. An example of a mechanical or cold joining method – pressure-welding (Higgins 1980: 33) – was found in the two-part flower pin from Mochlos *(MO 84)* (Pl. 29C); the circular center and stem, which have now
separated from the petals, appeared to have been attached by light hammering, perhaps with the addition of an adhesive, such as animal glue, to help keep the two sections together. Vertical antennae-like attachments on Mochlos diadems (MO 2, MO 64) were fastened by placing the antennae through slits cut in the diadem and, in some if not all instances, folding the excess metal back on the inside of the object (Pl. 45D). Two leaves from the Lebena diadem (LE 1) were also slipped through slits cut in the gold band.

Sprays of leaves (MO 19) were created by simply twisting the stems of individual leaves around each other (Pl. 16F). Two pieces of sheet metal could also be fastened by folding and pressing the edges together. Another mechanical method, perhaps facilitated with some heating, was used to attach pendants to chains (e.g., PL 4, MO 20): the top of the pendant was formed into a wire hoop that was inserted through the bottom link on a chain and then twisted back around the top of the pendant (Pl. 34H).

One of the most intriguing areas of modern inquiry into EBA Aegean jewelry relates to hot joining techniques employed by jewelry-makers. At least three methods were used by goldsmiths in antiquity (Carroll 1974: 35-36). One technique was soldering, whereby a natural or manmade metal alloy, with a lower melting point than the base object (in pure gold, approximately 1063° to 1064° C), was placed at the area to be joined, and heated until it melted. Unless the gold was very pure, a flux would be required to prevent oxidation and to help the solder fill in where it was needed; in ancient Egypt, natron, a sodium compound, was probably used as a flux (Andrews 1991: 88). The resulting flow of metal from the solder would be visible and, depending on the composition of the solder, it might be possible to see a difference in color at the join.
Maryon and Plenderleith (1967: 650) suggested that the concept of soldering was likely discovered when craftsmen were melting gold nuggets from different sources and noticed that some nuggets melted first, spread over the others, and bonded the lot of nuggets. If the nuggets from a particular source always melted first and were identified as such, they might have been put aside and used as the earliest solder. These natural solders most likely preceded solders that were created by the deliberate alloying or mixing of metals.

The second hot joining technique was fusing, sometimes described as sintering, whereby objects are united through the application of heat. In this process, elements may be temporarily attached using organic glue which later vaporizes. The application of heat would be stopped just as the surface of the areas to be joined melted, but before the object itself became liquid. Although it would be very difficult to achieve the exact temperature needed to make the join without melting the object, Carroll (1974) recreated this process and indicated that quick heating and careful observation allowed for successful fusing. Only “simple equipment, such as would have been available to the ancient smith” would have been needed (Carroll 1974:36). Since no metal was added, the join might be invisible if this method was carried out properly (see McGrath 1995: 80-83 for a demonstration of this procedure).

The third joining technique, copper diffusion bonding or copper-salt soldering, was a multi-step procedure. Goldsmiths from the ancient Near East and the Aegean employed this process to produce well-made objects with invisible joins. The decorative technique of granulation can be used to explain copper diffusion bonding. Tiny spheres of gold were initially attached to a thin metal surface by means of animal glue mixed with
copper salts, perhaps in the form of malachite. In antiquity, a malachite compound may have been known as χρυσοκόλλα, which can be translated as “gold-glue” or “gold-solder” (Carroll 1974: 37; see also Muhly 1989: 603 for a discussion of this term). Firing the object changed the copper salts to copper oxide and the glue to carbon (Higgins 1992: 46), eventually creating a gold/copper surface alloy that bonded the individual pieces (McCreight 1991: 32; Politis 2001: 165). This process created “‘microsites’, in situ binary or ternary alloys: these would be binary when copper diffuses in pure gold or copper-gold alloys, ternary when it diffuses in gold-silver or copper-gold-silver alloys…” (Demortier 1984: 31, referencing Thouvenin; Thouvenin 1973). The gold balls, or in the case of filigree, spirals or lengths of fine wire, were attached to the substrate and the glue melted away. Copper diffusion bonding or copper-salt soldering is known by several other names: copper-salt reaction soldering, colloidal hard soldering (see http://www.jpm-international.com/pdf/littledale.pdf for Henry Littledale’s 1934 patent of this process that may use various metal salts), diffusion welding, reduction soldering, and eutectic soldering.

Scientific analysis of the joined area may be necessary to determine the joining technique and, if an alloy was used in soldering, to reveal the chemical composition of the alloy. For example, it has been determined that natural electrum was used for solders at Ur (Ogden 1982: 64). When a join is not visible and copper diffusion bonding or fusing is suspected as the joining method, the best procedure for investigation involves binocular microscopy combined with a technique that allows for the examination of the surface chemistry of an object, a technique that distinguishes between the composition of
the joins and the composition of the base object. Non-destructive PIXE analysis is a method for accomplishing this.

In an examination of EBA gold jewelry thought to be from the Troad, Philip Betancourt (2006) and Charles Swann analyzed various areas on a pin, including joins, areas near the joins, and areas located at a distance from the joins. They concluded that copper diffusion bonding was the joining technique employed. While small amounts of copper were present in the base object, the copper was “significantly enriched near the joins…[with] even more copper on top of the bonds” (2006: 93). If fusing had been the joining method, the proportion of copper would have been consistent throughout the object, including the joined areas (see also Duval et al. 1989; Politis et al. 2002).

The great majority of prepalatial jewelry was created using cold joining techniques. Some objects that have not been examined closely – primarily beads – may have been finished with a hot joining technique. However, less than 20 such objects have been positively identified. Examples of filigree and granulation were recovered from Platanos, Koumasa, and Kalathiana in south-central Crete. A simple chain and perhaps a filigree bead were found in Mochlos. Twelve loop-in-loop chains – made from thin or medium wire – were found at three sites: one from Platanos, two from Sphoungaras, and nine from Mochlos. No chains were found in north-central Crete. Indeed, no objects created with a hot joining method have been confirmed from that region.

Polishing Agents

The last step in the production of jewelry was polishing, a process necessary to remove fine scratches and any other marks incurred during manufacturing. Rough edges
needed to be smoothed as well. “A polished appearance is the result of a perfectly flat surface” (McCreight 1991: 46), so removing any imperfections would be desirable. With very pure gold, only burnishing may have been required to create a polished surface. This could be achieved with burnishing stones like agate (Higgins 1980: 34), animals’ teeth (Ogden 2003), or even smooth pieces of wood.

A strong abrasive, such as sand or emery, would not be used as it would tend to create scratches rather than smooth them away. Very fine abrasive powders made from lime or pumice, mixed with a lubricant such as wax, oil, or fat (Evely 2000: 411) might improve the final appearance of some objects. Polishing agents used in antiquity may have also included ground cuttlebone, dried clay dust, powdered hematite (modern jeweler’s rouge), and charcoal (Ogden 1982: 86-87).

The Crafting of a Pendant

Although most prepalatial gold and silver jewelry was of simple design and construction, artisans were still required to think through the manufacturing process in advance and plan out the production of each piece. Some objects required the creation of various components before the assembly of the finished item. This might involve developing a design; measuring and cutting sheet metal; creating wire and fabricating a chain; selecting the best tools and processes for shaping the metal; and choosing decorative techniques that produced the result desired by both the patron and the craftsman.

In this section, one object has been selected that will be followed through the manufacturing process from initial concept to finished piece: an EM II gold pendant from
Platanos (PL 4). The object is comprised of two components, including a fluted pendant, decorated with dot repoussé, and a length of loop-in-loop chain (Pl. 34A). The end of the chain ends abruptly, suggesting that a jump ring for attachment was lost or removed. The pendant, 3.35 cm in length, is formed from one piece of thin sheet gold. The width at the bottom of the pendant is 0.95 cm and the circumference is 2.80 cm. Including the chain, which is made up of 36 links, the complete object is 11.75 cm long. The function of the pendant – whether it hung from a necklace or diadem or was used as an earring – is unknown.

The inspiration for this pendant may have been the natural world, as flowers and leaves were common motifs in Minoan jewelry. Perhaps, the pendant was fashioned to resemble a closed morning glory, a bellwort, or a buttercup, as the overlapping sheet gold on the object is similar to the petals of a flower (Pl. 34B-C). It may also have been crafted to resemble a seedpod or a bell. Of course, it is quite possible that it was created wholly from the artisan’s imagination, perhaps with direction from his patron.

Unless sheet metal had been previously prepared, the first step in manufacturing was to hammer the proper thickness of metal desired for the pendant and for the wire used to make the links in the chain. After the sheet metal was in hand, the actual fabrication of the piece began. To create the rolled cone pendant and include a hoop for attachment to the chain, it was necessary for the artisan to cut a triangular piece of sheet metal with an extension at the top (Pl. 34D). To avoid wasting metal, he may have cut a template out of another material first and tested the design. The edges of the metal are not perfectly straight and may indicate that the cuts were made freehand. A dot repoussé
border was added with a punch or a needle around the bottom edge of the pendant – before or just after the sheet metal was cut, but while it was still flat.

Most likely, the next step in the manufacturing sequence involved shaping the pendant. The triangle of metal had to be twisted around to form a cone. Since the gold was malleable, this could probably be done by hand, perhaps with the aid of a wooden form about the size of a pencil. The metal overlapped by 1.1 cm at the bottom of the object, which was enough to avoid an open seam and to allow the pendant to retain its shape. The metal was pinched at three regular intervals, possibly using tweezers covered with thin leather or another tool that would not leave marks (Pl. 34E). The resulting creases brought the metal together, covering a small gap at the top, and created the triangular shape of the pendant. The bottom edge of the pendant, just below the dot border, appears to be slightly turned in, perhaps to protect the wearer from the jagged edge or to give the object a finished look.

The metal projection at the top of the pendant was hammered on all sides, probably on a wooden or stone block that was covered with a protective material, resulting in a long extension with progressively thinner wire. A seam, the result of folded-over sheet metal, is visible at the top of the pendant, just before the spirals of wire. The wire becomes smooth and round, suggesting that it was rolled between two flat surfaces, a process that would have been known to an artisan who was involved in the production of wire.

The second component of the object, the loop-in-loop chain, began with the creation of wire. Thin strips of sheet metal were cut, hammered, and rolled between two pieces of wood or stone to create wire of circular section. Diagonal seams, visible on
some links, indicate that the wire was strip-twisted during its manufacture (Pl. 34F-G). Over 43 cm of wire would be required to create 36 loop-in-loop links of uniform size. The wire was then cut into equal lengths of approximately 1.2 cm, which may have been facilitated by coiling the wire around a rod and cutting straight down the coil to create small open hoops. The resultant hoops were fused, bent to form a U-shape, then placed one through the other, to form the chain.

The last step in manufacturing required attaching the pendant to the chain. The straight wire on top of the pendant was slipped through the last link on the chain. It was then looped around, perhaps kept circular with the aid of a round tool like an awl, and twisted around the top of the pendant three times. The resulting looping of progressively thinner wire, resembling a twisting vine, is proportional to the pendant and pleasing to the eye (Pl. 34H).

An experienced goldsmith could have made the pendant rather quickly. Creating the chain would have taken longer, as well as requiring a fire and a more specialized knowledge of a hot joining technique. However, the most time consuming aspect of the production of this piece most likely related to the initial production of sheet metal. If gold was available in advance, it would have been advantageous to the artisan to hammer sheet metal in various thicknesses well before the production of specific pieces of jewelry.

The Platanos pendant is very close in design and construction to a pendant recovered from Mochlos (MO 22, Pl. 34I). Although the Mochlos object is approximately the same length (11.20 cm versus 11.75 cm), its cone-shaped pendant is much smaller and has no dot repoussé decoration. Also, the chain on the Mochlos
pendant is divided in two by a leaf-shaped piece of gold, and the jump ring is still in place. However, the method used to create the pendant, a flat triangle of gold twisted to form a cone and a wire extension placed through the chain and wrapped around the top of the pendant, are the same. In addition to these two bell-shaped pendants, other pendants from Mochlos, Sphoungaras, Hagios Onouphrios, and Hagia Triada were manufactured in a similar fashion, with a vertical extension of metal that was hammered into wire to create a loop for attachment. These pendants may not have been made by the same hand or workshop, but similar mechanical joining techniques were known in both south-central Crete and east Crete.

Artisans and Workshops

The physical evidence for ancient jewelry-making might consist of finished objects, raw materials, waste products, crucibles, molds, and tools (Bayley 1989), with the last category including the remains of bellows or blowpipes as well as objects more traditionally thought of as tools such as chisels or punches. Unfortunately, any conclusions drawn about prepalatial goldsmiths are limited to what can be learned from extant jewelry. Since gold was a valuable commodity, it is not surprising that gold nuggets or ingots do not survive from this period. Also, any waste must have been carefully collected and recycled into new objects. Crucibles have been found in Crete, but either from early sites where no gold jewelry was recovered (Davaras and Betancourt 2004 on EM Hagia Photia) or much later sites where precious metals do indeed appear to have been worked (Evely 2000: 404 on LM II Knossos). Since few objects were cast in early periods, the lack of molds dated to the EM period is understandable. Some tools
used by goldsmiths, such as chisels or awls, must have been used by other craftsmen as well; many copper or bronze tools have been recovered from prepalatial contexts, but they cannot be identified specifically with jewelry-making.

The desire for gold jewelry in EM Crete may have been as much or more about the material used – gold – as it was about the jewelry itself. The simplicity of manufacturing techniques employed in the creation of prepalatial jewelry suggests that, before specialization in this field arose, some of the earliest jewelry-makers may have been metallurgists, more comfortable working metal than creating intricate works of art. Understanding the properties of metals – how long metal could be hammered before annealing was required or the best method for melting gold – as well as having the proper tools, must have been desirable attributes in the first Cretan jewelry-makers.

Although it is possible that foreign craftsmen arrived with the gold imported to Crete, the primitive nature of the design and execution of many objects makes this unlikely, especially when compared with the fine metalworking found during the mid- to late-third millennium BC in Mesopotamia and the Near East (see Part IV). Other than multiples that may have been designed to be worn in groups – such as flower pins, leaf attachments, and beads – each piece was unique. No evidence exists to suggest standardization of design or manufacturing techniques, let alone mass production. In EM jewelry, repoussé dots were not always precisely placed. Scribed lines were not always removed from objects after they had been cut from sheet metal. Globs of gold were noticeable on the links of chains. One is left to wonder if early pendants and beads with granulation or filigree – objects that required a more specialized knowledge of jewelry manufacturing – may not have been imported as finished goods rather than made locally.
It is unknown whether itinerant, full-time, or part-time craft specialists made jewelry (Branigan 1983a) or whether they were attached to elites or worked as independent specialists. This may have varied by region or by site as well as through time. However, the production, use, and deposition of jewelry, associated with many sites in prepalatial Crete, implies an on-going market composed of elites with access to exotic trade goods. Assuming precious metals were not readily available, these rare raw materials were likely provided to artisans by their patrons (cf. Moorey 1999: 13-14 on Egypt and Mesopotamia; Williams 1998b: 99 on Classical Greece), who then produced made-to-order jewelry.

It is unclear whether the production steps in jewelry-making were divided among individuals who handled the initial metallurgical aspects of production; those who actually fabricated the jewelry – cutting and decorating the sheet metal; and those who worked with perishable materials that may have been used in conjunction with gold ornaments. Woodworkers carved a core for a bead that was later covered with gold foil. Leatherworkers embellished a simple leather belt by adding an embossed gold strip. Clothing-makers sewed gold disks and appliqués onto a ceremonial robe. Perhaps the first Minoan artisans who created gold jewelry were also involved in one of these related crafts (see Wright 1998 on the manufacturing of objects requiring different craft skills).

No archaeological evidence has been found that identifies a goldsmith’s workshop in prepalatial Crete. However, a few objects from Mochlos and another group of objects from Platanos appear to have been made by the same hand or by a group of artisans who shared a common style (see further discussion in chapter 6).
Reynold Higgins (1980: 11) provided a good list of what might be required for the production of jewelry by an EM goldsmith: a metal or stone anvil; hammers – perhaps made of stone, bone, or wood – to create sheet metal and to drive punches and tracers; chisels; forms, cores, and molds; abrasives; and polishing stones (see also Eluère 1983: 82-83; Evely 2000: 405; Moorey 1999: 226). A blowpipe or bellows, tuyères, bronze tongs, crucibles, and perhaps a scale might also be needed. A source of heat, such as a charcoal fire, was essential if melting, annealing, or hot joining was required.

Although no early jewelry-maker’s toolkit has been positively identified, an intriguing collection of tools, with many of the implements required for the manufacturing of jewelry, was recovered from the EC settlement site of Kastri on Syros (Bossert 1967: 60-63, fig. 1, pl. 42 a-c; Tsountas 1899: 124-126). Evidence of silver and copper production, as well as a large EC silver diadem (Pl. 48B-C), have also been found at this site (Broodbank 2000: 215; Marthari 1998: 28).

Colin Renfrew (1972a: 315, fig. 17.2) described the late third millennium BC “Chalandriani hoard” recovered from Room 11 at Kastri as containing: two pins, a bone handle for a pin, two awls, eight narrow chisels, a saw blade, six obsidian blades, five stone rubbers, and one metal rubber (Pl. 35A, saw blade not included in illustration). The rubbers are small pestle-like objects made from attractive, veined stone (Pl. 35B); the metal rubber has a lead covering (Pl. 35C).

Renfrew suggested that, since all of these objects were found in the same room as a hearth, crucible, and copper slag, they must have been the tools of a smith. He associated the saw with carving, perhaps wood-carving or stone-carving. Renfrew offers
no explanation for the use of the rubbers or stone pestles. Tools found in the hoard could all have been associated with jewelry-making. The obsidian blades may have been used for tracing or cutting thin metal as well.

The stone pestles found in the hoard may have been miniature hammers that were held between the fingers and gently tapped to create sheet metal as well as to perform other tasks in jewelry-making. Similar pestles have been found at other sites in Greece, including the EH site of Zygouries (Blegen 1928: 196, pl. 22), where jewelry made from precious metals was also recovered. In writing of finds at the Royal Cemetery of Ur, Plenderleith (1934: 295) described a small hematite pestle which was “almost certainly a small goldsmith’s hammer or burnisher which might have been used for preparing…thin leaf.” Ogden (1982: 35, fig. 4:3) compares the Ur hammer to stone hammers used by early goldsmiths in Peru (see also Lothrop 1952: 119, fig. 113 for ancient Peruvian metallurgical hammers). As previously noted, one of the pestles from Kastri was covered with lead; Despini (1996: 20) stated that – in modern jewelry-making – a strip of lead is often placed between the gold and the hammer when producing relief designs. This hoard may indeed have contained the tools of a smith. It is possible that the smith, or someone else in the workshop, was also engaged in the production of silver jewelry.

Regional Variation

Except for a few gold and silver pendants that appear to have been cast, only the most basic manufacturing techniques were employed in the creation of jewelry recovered from sites in north-central Crete. Most objects from this region were cut from sheet metal, and perhaps perforated, but with no subsequent decoration. A handful of tubular
beads and a tiny fragment of a thin strip were incised. Papadatos indicated that one of the tubular beads from Tomb Γ at Archanes-Phourni was created in relief (2005: 40), possibly hammered over a form; this bead may have been the prototype for the more simply made incised beads found in the same tomb. Undecorated wire bangles, in both gold and silver, were also found in this region.

The full range of manufacturing techniques used by prepalatial artisans was seen in jewelry found in tholos tombs in south-central Crete. This may correspond with the evolution of jewelry-making that would have occurred by the later prepalatial dates associated with some of the deposits in the Mesara. Repoussé and/or the use of forms or wooden cores were employed to create large beads decorated with chevrons, parallel lines, and swirls of leaves. Beads and pendants made of bronze or perishable materials were gilded with gold foil or gold leaf. A fluted pendant was attached to a carefully made loop-in-loop chain. Diadems were enhanced with borders of dot repoussé and leaf attachments. Simple granulation and filigree decorated a pendant, beads, and perhaps a disk. A small fragment of an openwork diadem contained the first Minoan example of ajouré.

Although the greatest amount of extant EM jewelry was recovered from tombs in east Crete, specifically the house tombs at Mochlos, the techniques of granulation, filigree, and ajouré were not employed in the manufacturing of this jewelry, except perhaps for the coil bead from Mochlos. However, other techniques were more fully exploited. Numerous chains were recovered, including one simple chain and several loop-in-loop chains with wire links of various thicknesses. Repoussé and chasing were used more extensively to create small drum beads as well as heavily-grooved and
embossed armlets or belts. While dot repoussé was used sparingly in the Mesara, primarily to create borders on diadems and a pendant, the full potential of this simple technique is seen in east Crete with geometric, anthropomorphic, and zoomorphic motifs on diadems; life-like leaves with center veins; and flowers with punctuated centers.
6. Classes of Prepalatial Jewelry

Existing studies of Aegean metallurgy and Minoan jewelry include detailed typologies of jewelry made from precious metals (e.g., Branigan 1974; Effinger 1996; Vasilakis 1996). While these typologies are crucial for understanding the various categories of objects manufactured and worn in prepalatial Crete, a different approach will be taken here. In addition to an examination of the similarities among objects, this chapter will also look at how gold and silver jewelry differs by region, by site, by context, and through time.

Although all prepalatial Minoan jewelry was recovered from funerary contexts, not one object was found in place on human skeletal remains. Consequently, we can only surmise how this jewelry may have been worn in life and subsequently deposited in the grave at death. We do not even know the sex or age of those who wore gold or silver jewelry. Most objects appear to have been designed to be worn on the head or around the neck. However, exactly who wore this jewelry, and in what combinations, remains unknown.

A diadem may have been worn across the forehead – simply tied through the hair with no elaboration (e.g., Pl. 6B). Or it may have been the focal point of a highly-crafted textile headdress that was also decorated with appliqués and sprays of gold leaves. Pendants may have served as earrings or as components of necklaces or diadems. Bangles may have been designed for the wrist or for the ankle; perhaps they were interchangeable. Some jewelry may have been crafted as ensembles of objects, to be worn at the same
time by the same individual, or by several individuals in a ceremonial setting. Other pieces may have been created to stand alone.

In this chapter, each gold or silver object will be assigned to a particular class. A definition of each class will be provided as well as noteworthy examples from the category. Occasionally, it is difficult to determine the class to which an object should be assigned; this is a particular problem with small, undecorated diadems, strips, and antenna-like extensions. If an object overlaps two categories, it will be given a designation such as “diadem or strip” and counted as part of the first class mentioned.

Charts 1 and 2 provide an overview of gold and silver ornaments by region, site, and context. Some categories of jewelry – finger rings, bangles, and strips – were manufactured with a minimum of effort and skill; these objects were simply twisted wire or small pieces of very thin sheet gold. Other classes of jewelry – especially diadems, pins, pendants, some beads, and armlets or belts – required a higher level of craftsmanship and a larger quantity of gold. Ornaments with pierced holes – appliqués, bosses, and disks – probably decorated clothing or other objects that have perished.

All jewelry included in this study is described in detail in Appendix A: Catalogue of Jewelry. Most objects are also featured on Plates 1 through 32.

Earrings

North-Central Crete: no sites
South-Central Crete: no sites
East Crete: possibly at Sphoungaras (2), Mochlos 1/2/3 (10), Mochlos 4/5/6 (2), Mochlos 21 (6)
Total objects: 20
Earrings are pendants that are suspended from the ear by means of a ring or a wire. These pendants may be attached to chains or to an apparatus such as a plate or a basket. Earrings can also be annular, taking the form of plain or decorated hoops. As the post earring – which was screwed – was not invented until modern times, the ring, wire, or hoop would have been stuck through or into the ear. An earring may have also hung by wire or string over the top of the ear.

No objects that can definitely be identified as earrings have been recovered from prepalatial sites in Crete because no obvious means of attachment to the ear – no earring fitting – has been found on any pendant. It must be noted that fittings, in the form of small split or open metal rings, may have been lost or classified by excavators as finger rings. The method of attachment to the ear may also have been organic; a small piece of string or thread would have perished.

If earrings existed in prepalatial Crete, they may have been worn individually or in pairs. During the late third millennium BC Sargonid period at Ur, both women and men wore the same type of small lunate earrings. However, women wore earrings in both ears, while men wore a single earring (Woolley 1934: 247). The sites listed above all contained pairs of pendants that could have functioned as earrings. However, virtually any pendant may have been worn on the ear.

If the heart-shaped pendants from Sphoungaras (SP 3A-B) were earrings, they would have just brushed the shoulders. The 14 small, leaf-shaped pendants from Mochlos (MO 24A-H, MO 96A-F), along with a pair of plain triangles (MO 23A-B) and a pair of silver ball pendants (MO 56A-B) may have also functioned as earrings.
Finger Rings

North-Central Crete: Krasi (1)
South-Central Crete: Platanos A upper level (3)
East Crete: Sphoungaras (1), Mochlos 4/5/6 dump (1), Mochlos 21 (2), Hagios Antonios (2)

Total objects: 10

Ten small, plain hoops – in some cases identified as finger rings by the excavator of the site – were recovered from all regions of Crete. The rings were manufactured from circular- or square-section wire. Finger rings are defined here as simple, undecorated wire hoops of a diameter that allowed them to be worn on fingers. However, it is quite possible that some of these objects were used in different ways: as toe rings, hair rings, or ornaments sewn onto clothing. If the wire was not soldered or fused to form a complete circle (which is unknown in some cases), it is possible that these objects served as earrings. One silver ring from Krasi (KR 5), with a flattened disk serving as a terminal on one end, was described by the excavator as having a bezel (Marinatos 1929: 121). No prepalatial ring had any additional ornamentation, and no signet rings dating to early periods have been recovered.

Bangles

North-Central Crete: Pyrgos Cave (2), Krasi (2)
South-Central Crete: Koumasa A (1)
East Crete: no sites

Total objects: 5

Bangles were made from unadorned circular- or square-section wire and may have been worn around the wrist or the ankle. Two sets of two bangles were recovered from north-central Crete, and one bangle was recovered from the Mesara. Both silver
bangles from Krasi (KR 3, KR 4) are similar in design and size and may have been worn as a pair. The gold bangles from the Pyrgos Cave (PY 5, PY 6) are different: one is a simple hoop of plain wire, and the other is made from two hoops of overlapping twisted wire.

With the exception of one bangle from Krasi, the diameter of each bangle is approximately five cm or less, which would make these objects too small for adult wrists or ankles. These bangles may have been worn by children or the circle of wire may have been left open to facilitate attachment and removal. The bangle from Koumasa (KO 1), made from thicker wire, may have functioned as a base for a stone vase. One silver bangle from Krasi, which matched the finger ring described in the previous section, had a flattened terminal on one end of the wire. If gold or silver wire was available, this type of bangle would have been quite easy to construct.

**Beads**

- **North-Central Crete:** Archanes Γ lower level (38), Archanes E lower level (1), Pyrgos Cave (1), Krasi (1)
- **South-Central Crete:** Platanos A lower level (3), Platanos A upper level (24), Lebena I all levels/sieving (2), Lebena II (22), Koumasa B (3), Kalathiana K (3+)
- **East Crete:** Sphoungaras (1), Mochlos 1/2/3 (10), Mochlos 4/5/6 (20), Mochlos 4/5/6 dump (4), Mochlos 19 (1), Mochlos 21 (74), Mochlos 23 (130), Maronia Cave (1)

**Total objects:** 339+

Beads are small, generally symmetrical ornaments that are perforated or open on both ends and can be strung together. Various materials may have been used for suspension of beads including metal wire, chains, thread, string, animal gut, human hair, animal hair, or thin strips of reeds or other organic material. Some single beads of unusual design (MO 38, MO 95) may have also functioned as amulets.
More than 338 gold beads and one silver bead were recovered from 18 separate prepalatial contexts, more contexts than any other class of objects in this study. Unfortunately, the total number of beads recovered from a site, and their exact dimensions and shapes are not provided in all excavation reports. Of those that are described, the beads range in size from as small as 0.2 cm in length (AR 14A-M) to as large as 2.8 cm (AR 18). Some beads may have been cast, while others were created from sheet metal as bi-conical, globular, spherical, and tubular beads; the shapes of other beads resembled rings, cylinders, barrels, almonds, seeds, melons, and drums (see Branigan 1974: 39-40; Effinger 1996: 23-41; Rudolph and Rudolph 1973: pls. 22-23; Vasilakis 1996: 184-185 for bead typologies). Some of the larger beads cannot be categorized as their shapes are unique.

A few beads from Mochlos were gilded bronze (MO 41A-B); gold leaf was all that remained of others that must have covered a perishable material. The most beads – 130 tiny gold beads – were recovered from Mochlos Tomb 23. The smallest beads were plain, but other larger beads were decorated with incised designs (KR 6), repoussé (PL 1), and filigree (KA 11). Some quite large beads must have been formed over carved cores of wood or another organic material that has since disappeared (e.g., PL 9, PL 11).

Fourteen hollow, tubular beads were recovered from Archanes Γ (AR 18A-N). Although 13 are incised, one was created with the same design, but in relief. Papadatos observed that the gold in this one “skillfully produced” bead is also of a lighter color (2005: 40). Perhaps this one bead served as the manufacturing prototype for the others.

Another group of beads that deserve mention are the 20 repoussé beads from Platanos (PL 1, PL 9A-S). Many or perhaps all of these beads – with wide-open ends,
which suggest that the beads had cores that have perished – must have been made by
the same artisan or workshop; the repoussé and chased lines, grooves, and leaf images are
expertly executed. Although a few of the Platanos beads are cylinders, the rest can best
be described as vase-shaped.

Two beads from Mochlos (MO 38, MO 95) are drum beads. Although recovered
from different tombs, they were clearly made by the same workshop, perhaps by the same
hand. The beads are of hollow construction and may have had a core of wood, clay, wax,
or resin. Two rectangular cuts were made in a plain strip of gold, which was then formed
into a circle. Disks of sheet gold were decorated in repoussé as well as chased, perhaps
worked on both sides over a blend of clay and wax. After placing the gold disks on either
side of the strip, the edges on each disk were then gently hammered to create a lip,
holding the plain strip in place (Pls. 19F-G, 31A-B).

Beads made from precious metals may have been combined with stone, bone,
shell, clay, or wooden beads and pendants to form necklaces, bracelets, or anklets. Some
gold beads may have decorated belts, hung from diadems, or served as earrings. Beads
might also have been sewn onto clothing or woven into fabrics during textile
manufacturing. Although objects made from ivory were recovered from many of the
same contexts as gold jewelry, it is curious that only a few ivory beads were found.

**Diadems**

**North-Central Crete**: Archanes Γ lower level (2); Pyrgos Cave (2)
**South-Central Crete**: Platanos A upper level (7), Lebena I lower level (1), Koumasa A
(1), Kalathiana K (3)
**East Crete**: Mochlos 1/2/3 (16), Mochlos 4/5/6 (1), Mochlos 19 (2)
**Total objects**: 35
Diadems were bands of sheet gold that were tied or pinned around the head or forehead, as indicated by perforations at the ends of each band. In a few cases, wider rectangular fragments were assigned to this class even though both ends were broken and no attachment holes remained. This assignment was made if the excavator and others who have studied the object closely determined it to be a diadem fragment. Small, evenly spaced pierced holes along the long edges of some bands indicate that they may have been attached to a perishable material like leather or cloth; this would have made the diadems more comfortable to wear and perhaps more durable.

Minoan diadems have been described as “symbols of authority” (Soles 1988: 57) and as headdresses or crowns that were worn in life on ceremonial occasions (Davaras 1975: 112) and later placed in graves with the deceased. Considering the effect that would have been achieved by a luminous band of gold stretched across the top of the head, there is no other class of objects in this study that would have been more impressive to view.

Only one diadem survived with its means of attachment in place. The diadem from Lebena I (LE 1) retained twisted gold ties through single holes at each end of the band (Pl. 6A). These slender ribbons of gold may have been twisted with human or animal hair to provide additional strength to the tie, which would have been prone to tear or break with repeated use (for evidence of the use of animal hair for this purpose, see Andrews 1991: 19 on Abydos; Maxwell-Hyslop 1971: 69 on Ur). Another twisted gold tie was recovered from Lebena III (LE 5, cataloged as a strip) and, although an associated diadem was not found, this tie may have been used in the same fashion. Some
diadems may have also been attached to the head with strings made from organic material.

Compared to other types of ornaments, many prepalatial Minoan diadems were made from somewhat thicker sheet gold. Excavators described signs of use such as fold marks or multiple pin holes for attachments (Davaras 1975; Seager 1912; Xanthoudides 1924). The Dog diadem from Mochlos (MO 2) and the diadem with a tongue-like extension from Koumasa (KO 2) were broken and repaired in antiquity. The Agrimi diadem from Mochlos (MO 62) was deliberately cut before burial (Davaras 1975: 103), a questionable action if the object was made specifically for the grave. Evidence indicates that many diadems were worn in life and not manufactured strictly for sepulchral purposes. Some may have been heirlooms, passed down through generations.

Complete diadems or fragments of diadems were recovered from all regions in Crete. Of the 35 objects or fragments of objects assigned to the diadem class, 54.3% (19) were recovered from Mochlos in east Crete; 34.3% (12) were recovered from four sites in south-central Crete; and 11.4% (four) were found in north-central Crete. The Mochlos diadems, while greater in number, were often of simple design and construction. Some diadems were quite long, and many were decorated with dot repoussé. The major difference in east Crete related to the use of pins and accessories with larger diadems: flowers, sprays of leaves, and vertical attachments decorated the bands of gold.

Some of the well-made, small bands, especially those that were carefully decorated with dot repoussé, may have been set into the front of the hair or drawn across the forehead, as was the fashion with Sargonid frontlets (Maxwell-Hyslop 1971: 22-23;
Woolley 1934: 246). Two diadems from Mochlos – 7.2 cm and 8.0 cm in length – may have been used this way or may have served as diadems for children (MO 12, MO 13).

An individual craftsman or “hand” has been tentatively identified at Mochlos. This artisan may have created two of the most skillfully-made diadems from Tomb 1/2/3 (MO 1, MO 3). These objects were measured out before they were decorated and cut from sheet gold. A straight edge may have been used to guarantee the precise placement and spacing of tiny repoussé dots along the borders. Even pressure was applied on both pieces to create dots of exactly the same size.

Diadems from the Mesara included three of the most innovative designs. The diadem from Lebena (LE 1) had a broken center projection and two leaves stuck through slits in the band. The Koumasa diadem (KO 2) also had a center projection, but it is not known whether it was meant to rise up above the head or down between the eyes. The diadem fragment from Kalathiana (KA 1), which may date to the end of the prepalatial period, was manufactured in ajouré, a technique that required the artisan to carefully cut out segments of thin gold sheet; it is surprising that a piece so delicate survived. There was substantially less decoration on diadems from the south-central region, and when dot repoussé was employed, it was used sparingly, as a simple dot border or a chevron design.

In keeping with the early date (EM I – II) and with the simplicity associated with most objects recovered from the north-central region, the two diadem fragments from the Pyrgos Cave (PY 1, PY 2) were plain gold bands, with no decoration. The strips with perforations from Archanes Tomb Γ (AR 1, AR 3) may be small diadems or may have
served another function. Throughout prepalatial Crete, diadems appeared to have been an accepted class of objects. There were, however, no standardized sizes, shapes, or decorative motifs.

More than half of the diadems were complete, with lengths that varied from 12.3 cm to 32.3 cm. Many of the complete diadems were large enough to have been worn around the head. However, some of the smaller diadems may have been worn by children. There was more decoration on the larger diadems, perhaps to signify the wearer’s importance or maybe just because there was a larger field for the execution of designs. Two sets of diadems appeared to have been created as pairs (MO 11A-B; MO 81, MO 82), as they are virtually identical in size and decoration and were recovered from the same contexts. These matching diadems may have been manufactured in the same workshop or by the same artisan.

Eleven diadems or diadem fragments were plain, and the remaining 24 pieces were decorated with dot repoussé. Dot repoussé was used to create borders, linear patterns, geometric designs, rosettes, and anthropomorphic or zoomorphic images. The animal diadems (MO 2, MO 62) included incised outlines that were filled in with dots. Circular bosses were also included on one diadem (MO 1). Although diadems were generally long rectangular strips, a few were cut in what Williams (2006) has described as a “pedimental” shape (LE 1, KO 2). Two diadems (MO 8, MO 9) have round cut-outs at their centers; if evidence of wear did not indicate that these diadems were worn in life, one might suspect that they covered the eyes, with the area of the nose cut out. Irregular pierced holes, which were clearly used many times (e.g., MO 1, MO 9), indicate that
some diadems were worn with removable attachments such as pendants on chains, flower pins, or sprays of leaves.

Two diadems from Mochlos, one decorated with what may have been agrimia or wild goats and the other with dogs, were worn with antennae (MO 62, MO 2): vertical strips that projected up from the diadems. At the suggestion of Costis Davaras, the six antennae associated with the Dog diadem were located in the museum at Herakleion (Pl. 45E), confirming that the band and the vertical strips were part of the same object (see chapter 8). A few of the antennae retained their means of attachment to the band. Apparently, one undecorated end of the strip was slipped through a slit in the diadem, then folded over and secured in place (Pl. 45D). Single holes at the top of each antenna on the Dog diadem (MO 2) indicated that these extensions were attached to something at least 10 cm above the band; perhaps they were sewn onto a fabric headdress. This diadem was valued so much that it was repaired. Yet, the antennae were ripped off at a later time. Clearly, the diadem, in complete form, was not to be used again.

The craftsmanship of the diadems varied. Some appeared carefully planned out, with the metal band measured before cutting and the placement of geometric or zoomorphic images calculated before execution (e.g., Pl. 13B-C). These diadems also had very evenly spaced and impressed dot repoussé borders. Others, however, were not as well made. On a diadem from Mochlos (MO 4), the herringbone motif and border on the top were reasonably well executed, but on the bottom, the border was uneven, and the dot lines forming the herringbone pattern were not straight (Pl. 14A-B). Some diadems (e.g., MO 81, MO 82) also appeared to vary in width as if they were cut freehand. These differences in quality of manufacturing may relate to the skill level of various artisans.
involved in jewelry-making. As gold working evolved in Crete, artisans surely became more adept at their craft; perhaps the better-executed pieces were created later in the prepalatial period. Although apprentices may have been used for mundane tasks such as the creation of sheet gold and wire or crafting links for chains, it is unlikely that the decoration of a diadem, worn in such a prominent position on the head, would be assigned to a less-experienced worker.

All prepalatial diadems were gold. Although silver diadems, dated to the late third millennium BC, were recovered from Syros (Tsountas 1899: pl. 10.1) and Amorgos (Tsountas 1898: pl. 8.1) in the Cyclades as well as Zygouries (Blegen 1928: 181-182) in mainland Greece, why have no silver diadems been found in Crete? Perhaps this was due to a lack of silver, the greater ease in working pure gold, a preference for gold over silver, or accidents of preservation or discovery.

**Strips**

**North-Central Crete:** Archanes Γ lower level (5), Archanes E lower level (2), Archanes B (1), Pyrgos Cave (2)
**South-Central Crete:** Lebena III lower levels (1), Koumasa B (2), Kalathiana K (1)
**East Crete:** Pseira (1), Mochlos 4/5/6 (9)

*Total objects:* 24

Strips were narrow, generally rectangular pieces of thin sheet metal or foil, which usually did not contain perforations for attachment. Gold strips were surely used in various ways, such as ribbons for the hair (cf. Woolley 1934: 86 on Ur), ornamentation on clothing, or inlays for boxes or furniture. They may also have decorated figurines or other objects made of stone, clay, or a perishable material like wood. Strips, especially those made from the thinnest gold foil, may have embellished death shrouds or other
garments of the deceased or may have been used to create sepulchral jewelry; the lack of any means for fastening most of the strips may indicate that some were intended for funerary use (cf. Shaw and Nicholson 1995: 144 on 12th Dynasty Egyptian jewelry). In late third millennium BC Anatolia, strips were sometimes used as coverings for the mouth and eyes of the dead (Bingöl 1999: 37).

Gold strips were found in all regions. A total of 24 strips or fragments of strips have been identified: 42% (10) from four contexts in the north-central region; 16% (4) from three contexts in the south-central region; and 42% (10) from Mochlos and Pseira in east Crete. Other than beads and diadems, no class of object has been found in more places. More of these strips surely existed, as not all of them were catalogued or illustrated by excavators. Xanthoudides, in his description of the finds from Platanos A, described “dozens of small strips of thin gold leaf, some of which have the usual decoration of dots along the edge, while others have attachment holes” (1924: 111). The excavator of Mochlos, Richard Seager, also mentioned fragments of ornaments and scraps of gold foil found in Tomb 1/2/3, although he did not elaborate further (1912: 32).

Strips would have been the easiest gold ornament to manufacture. If very thin sheet metal or foil was available, no skill in jewelry-making was required, and the only tools needed were a knife or a piece of obsidian, and an awl or sharp stick if the piece was to be perforated. Most of the strips or fragments of strips were undecorated, with the remainder incised or decorated with dot repoussé. It is possible that some strips with no extant perforations, such as the fragment of a decorated strip from Pseira (PS 1), were glued to cloth bands and used as diadems.
Antennae

North-Central Crete: Archanes Γ lower level (2), Pyrgos Cave (1)
South-Central Crete: no sites
East Crete: Mochlos 1/2/3 (16), Mochlos 4/5/6 (7), Mochlos 19 (2)
Total objects: 28

Costis Davaras (1975: 102) first used the word “antennae” to describe six vertical gold strips that extended upward from a diadem from Mochlos (MO 62). For the purpose of this study, antennae will be defined as long, thin strips that are rounded or pointed on one end and straight on the other end. Pierced holes may exist in one or both ends. If the rounded or pointed end was perforated, this indicated that the strips were attached to another object, perhaps an article of clothing or a headdress. Branigan (1974; 1983b: 15) classified some narrow gold bands as “diadem ties,” although it is unclear how these strips would have been used to fasten or secure diadems around the head.

Antennae or fragments of antennae have only been recovered from north-central and east Crete, and the three found at Archanes (AR 7, AR 8) and Pyrgos (PY 4) were plain and could have been simple strips with rounded ends, rather than antennae. Since no antennae were found in the south-central region, this suggests that a unique cultural tradition was observed in prepalatial Mochlos: the use of diadems with separately manufactured and attached vertical projections. Of the 25 antennae recovered from three tombs at Mochlos, all but one or two were decorated with dot repoussé. Twelve of these antennae have been associated with two diadems, indicating that several other diadems that do not survive were designed to hold vertical attachments.
Bosses and Disks

North-Central Crete: Archanes Γ lower level (6), Pyrgos Cave (1), Krasi (4)
South-Central Crete: Platanos A upper level (28), Lebena II (1), Koumasa B (2), Kalathiana K (2)
East Crete: Mochlos 1/2/3 (4), Mochlos 4/5/6 (2), Hagios Antonios (1)
Total objects: 51

Bosses and disks were circular-shaped ornaments of sheet metal that were probably used to decorate clothing or objects made from perishable materials like leather or wood. Bosses had a convex surface and may have been formed by pressing thin sheet metal over or into a form. One boss from Mochlos (MO 27) appeared to have a floral design and may have been worked from the back using the repoussé technique.

Disks were flat circles of metal. Disks from three sites (KA 5, MO 28, HA 1) had borders in dot repoussé. One of two disks from Koumasa (KO 7A) was reported to have a “lip of raised granulations round the hole” (Xanthoudides 1924: 29). A disk from the Pyrgos Cave (PY 8) included four equally-spaced, embossed circles suggesting the use of repoussé or a mold. No group of disks appeared to have been made with the use of a template, not even the set of 21 disks of gold leaf recovered from Platanos (PL 13A-U).

Most bosses and all but one disk were perforated for attachment, suggesting that they may have been sewn on to textiles. It is also possible that organic glue was used to attach those without perforations.

Nineteen bosses and 32 disks were recovered for a total of 51 objects. Bosses ranged in size from a diameter of .6 cm to 3.7 cm, with most between one and two cm. Disks, found in both gold and silver, tended to be larger. The smallest disk was 1.5 cm and the largest was 15 cm.
Pins and Attachments

North-Central Crete: Archanes Γ lower level (1)
South-Central Crete: Platanos Α upper level (2)
East Crete: Mochlos 1/2/3 (10), Mochlos 4/5/6 (11), Mochlos 4/5/6 dump (1),
Mochlos 19 (6), Mochlos 21 (1)
Total objects: 32

Pins, as the forerunners of fibulae or brooches, were traditionally used to secure articles of clothing. Many silver and bronze pins – with straight shafts and relatively small finials in the form of pyramids, vases, double spirals, or animals – were recovered from EBA sites in the Cyclades and mainland Greece (e.g., Pls. 48E, 49C). However, no pins in this conventional style, except perhaps for a small fragment of a silver pin shaft from Archanes (AR 19), have been recovered from prepalatial contexts.

The flower pins from prepalatial Crete, along with the leaf attachments with which they are grouped, were all crafted from sheet metal with some of them assembled from multiple components. Many were decorated with repoussé dots. These objects may have been used in different ways. Although none of the pins that were examined closely ended in sharp points, the shafts were long enough to stick through loosely woven clothing. These flowers and leaves were more likely used as attachments to diadems; they may have also been worn in the hair. Multiple pins and attachments may have been arranged in a coiffure, creating an effect similar to the headdresses worn by Queen Puabi and other women in the mid-third millennium BC Royal Cemetery of Ur (Pittman 1998: 90-91; Woolley 1934: 84 ff, pls. 43b, 127, 128).

Flower pins and leaf attachments have only been recovered from Platanos and Mochlos. A pin or attachment from Platanos, in the form of a stylized, scalloped leaf or perhaps a lily or crocus on a short stem (PL 19), includes lines and dots created using the
repoussé technique. The second object from Platanos is a single, plain leaf attachment or pendant on a short wire stem (PL 17). This type of stemmed leaf is the only surviving example of a tradition of leaf attachments in the Mesara. Perhaps this object was an import from Mochlos, where a larger number of leaves on wire stems were recovered.

Eight flower pins and 21 sprays of leaves or individual leaf attachments have been found in four tombs at Mochlos. The construction of a pair of crocuses (MO 16A-B) was carefully planned out, with petals and stamens cut from one piece of sheet metal and rolled to form the flowers (Evely 2000: fig. 163) (Pl. 16C). Another pair of plain daisy pins (MO 83A-B) and four unique daisy pins (e.g., MO 84, MO 86) were manufactured in two parts: a thick stem of wire with a hammered-out center and a pierced flower with seven to 15 petals. An outline of the petals was incised, possibly with obsidian or a knife, before the flower was cut out of the sheet. After the stem was slipped through the perforation, the two pieces may have been pressure welded or glued. It is also possible that the two pieces on some of the daisies remained loose, allowing the petals to move or be spun around.

Leaf attachments were recovered from four different tombs at Mochlos. Some were found as single leaves, and others were bound together as sprays. A total of 50 individual leaves were found, in various shapes. More than half were found inside a silver cup when Tomb 4/5/6 was cleaned in 1971 (see chapter 3). Most, if not all, of the leaves appeared to have been made in a similar fashion: a leaf and thin stem were cut out of sheet metal with the stem just a few centimeters long. Only five sprays of leaves were found in situ with the remainder assembled by the excavators after their recovery. Three sprays of olive or willow leaves (MO 19A-C) are especially interesting; the thin stems
were expertly twisted around each other (Pl. 16F). All but four leaves were decorated with dot repoussé borders and a few had straight and diagonal dot lines representing veins.

**Pendants and Chains**

**North-Central Crete:** Archanes Γ lower level (1), Krasi (2)
**South-Central Crete:** Platanos A lower level (1), Koumasa B (1)
**East Crete:** Sphoungaras (2), Mochlos 1/2/3 (13), Mochlos 4/5/6 (8), Mochlos 19 (3), Mochlos 21 (6), Hagia Photia (1)

*Total objects:* 38

Pendants are ornaments that were designed to be suspended from a chain, wire, or string; they may have hung down from the head, ears, neck, wrist, or waist. Pendants were always perforated or maintained a ring for suspension. They may have been used alone or – in conjunction with beads or other pendants – they may have been components of diadems, necklaces, or adornment for the hair. It is also possible that those with extant jump rings or fittings were attached to clothing by wooden pins that have perished, in the fashion of seals and amulets that hung from toggle pins on cloaks at Ur and Mari (Maxwell-Hyslop 1971: 12; Parrot 1962: pl. 11; Woolley 1934: pl. 231).

Some of the pendants recovered from prepalatial contexts, such as the golden frog pendant from Koumasa (**KO 3**), the silver anchor from Krasi (**KR 1**), and the silver quadruped with curved horns from Hagia Photia (**HP 1**), may have served as amulets. These small personal ornaments, of unique shape and made from precious metals, may have been seen as talismans or charms, with the ability to offer protection, bring good luck, or ward off evil (cf. Andrews 1994: 6 on amulets in Egypt).
Thirty-two gold pendants, one broken gold chain, and five silver pendants have been recovered from prepalatial Crete, for a total of 38 objects in this class. As would be expected, the majority of pendants (82%) were from Mochlos in east Crete. The silver pendants may have all been cast. No silver pendant was found with a chain. Indeed, no silver chains have been found in prepalatial contexts. The surviving pendants can be divided into three groups: those with perforations or a cast circular method for attachment (7); those with jump rings in place (15); and those with an extant chain and perhaps a jump ring (12). The means of attachment for three pendants is unclear. This class also contains one broken loop-in-loop chain with no pendant attached.

Pendants that may have served as earrings are included in this class and in the counts described above. Since no clear means of attachment to the ear was found on any pendant, and none were crafted in earring styles known from the northeast Aegean or western Asia, it may be that earrings were not considered desirable personal adornment in prepalatial Crete. However, it is also possible that the means of attachment to the ear has been lost or was organic and did not survive. Pendants may have hung from diadems and rested near or below the ears, giving a visual impression of earrings. If earrings were worn in pairs, three sets of virtually identical pendants (SP 3A-B, MO 23A-B, MO 56A-B) may have functioned as earrings, along with 14 tiny gold pendants on jump rings (MO 24A-H, MO 96A-F).

Many pendants were in the form of leaves, including small, leaf-shaped objects on jump rings (MO 90), single leaves on chains (MO 43A-B, MO 44), and multiple leaves attached at intervals to a chain (MO 21). Pendants were also shaped like closed morning glories or cones (PL 4, MO 22; see chapter 5 for a description of the crafting of the
A small, incised bell-shaped pendant (MO 20) contained a clapper, which produced a faint sound when lightly shaken; if the individual wearing this pendant were dancing, she may have heard its sound. Surprisingly, only two pendants (PL 4, MO 44) were decorated with dot repoussé borders.

Prepalatial chains are defined as a series of links made from gold wire, which are connected to form a flexible cord. Two types of chains were used with pendants: simple chains and loop-in-loop chains. The only object that hung from a simple chain was the bell pendant from Mochlos (MO 20). The 12 examples of loop-in-loop chains were not all made with the same thickness of wire or the same link size. This would indicate that these chains were made at different times or by different artisans, utilizing the size of wire available to the craftsman at the time of construction. Several of the pendants from different sites were manufactured with the same joining technique (e.g., PL 4, MO 20): wire that extended from the top of the pendant was drawn through a link on the chain and then twisted around the top of the pendant.

**Armlets or Belts**

**North-Central Crete**: no sites  
**South-Central Crete**: no sites  
**East Crete**: Mochlos 1/2/3 (4), Mochlos 4/5/6 (2), Mochlos 16 (1), Mochlos 19 (2)  
**Total objects**: 9

Roughly rectangular sections of embossed sheet gold were recovered from four tombs at Mochlos. Eleven of the 13 individual pieces were manufactured from thick sheet metal. Identical decoration on some of these bands indicated that they were originally attached together to form seven to nine separate objects. In discussions of finds from
different tombs, both Seager (1912: 30-31) and Davaras (1975: 104) have suggested that these bands may be armlets. However, it is also possible that some of them formed parts of belts that were mounted to leather or cloth and worn at the waist or the hip over a robe, dress, or other article of clothing (see similar belts, as part of the later Santa Eufemia Treasure, in Williams and Ogden 1994: 209).

At 12.3 grams, a single, complete band from Tomb 16 (MO 80) was the heaviest gold object found in the cemetery at Mochlos (Seager 1912: 68). This piece, as well as many of the other bands, had folded back edges indicating it was attached to a perishable core, perhaps leather. Its shape and size suggest that it was an armlet designed to be worn on the upper part of the arm. The dimensions of the object indicated that it may also have been worn around the wrist or the ankle. The function of the remainder of the objects in this class is less clear. Some of the bands from Tomb 1/2/3 (MO 29A-D) appeared to have been cut apart before burial. Most of these fragments were perforated, but it is unknown whether they were sewn or riveted to each other or to another material. With designs that included parallel grooves, herringbone lines, and dots, these bands were crafted with the use of forms or molds or may have been manufactured by the repoussé technique.

Miscellaneous

North-Central Crete: Archanes Γ lower level (5), Krasi (3)
South-Central Crete: Platanos A upper level (4), Kalathiana K (2)
East Crete: Mochlos 1/2/3 (9), Mochlos 4/5/6 (6), Mochlos 19 (4), Mochlos 21 (4)
Total objects: 37
The Miscellaneous class includes gold objects that do not fit easily into one of the previously described groups: fragments of sheet metal and foil; rims and wire rings; a length of bent wire and a mass of twisted wire; appliqués of identifiable shape that may have been sewn or glued to textiles, leather, or wood; and a unique gold cap with four to six hanging leaves that was likely the head of a staff or scepter.

As stated previously, not all fragments of sheet gold – especially if they were crumbled foil or leaf – were catalogued by excavators. The discovery of remnants of very thin sheet metal probably indicated that some objects were gilded, including beads or pendants made from bronze or wood. Gold foil and gold leaf may have also decorated figurines or other objects.

A wire ring from Kalathiana (KA 6) was too small to be classified as a bangle for an adult unless it was worn open. It was more likely worn by a baby or very young child. This ring may also have been a hair ornament. A few rims, with diameters of 1.9 cm to 2.8 cm, were recovered (e.g., MO 31A-B, PL 20A-B). Both Seager (1912: 30) and Xanthoudides (1924: 111) suggested that the rims decorated small vases that have perished. These miniature vessels may have held perfumed oil, similar to scent jars found in Egypt and Byblos (Xanthoudides 1924: 105).

The function of two objects is unclear. While a length of bent wire (KA 7) may have once been a bangle, a “tangled mass of fine flat wire” (PL 16) from Platanos (Xanthoudides 1924: 111) – which resembles the diadem ties from Lebena (LE 1, Pl. 6A) – may have once been twisted or braided with human or animal hair, perhaps used as a hair ornament.
Eighteen sheet metal ornaments were recovered from sites in all regions. Seven of these were plain, cut in a deliberate shape, and apparently glued or pressed onto another object. Another seven ornaments, some in the shape of flowers (MO 34, MO 93A-C) or crosses (MO 33, MO 100), were decorated with dot repoussé. Of this group of seven, all appear to have been perforated, indicating they were probably sewn or nailed to a perishable material. One perforated ornament (MO 32), perhaps from a dagger sheath (Seager 1912: 30), was manufactured with the use of a form or by the repoussé technique. Another ornament was a long, twisted bar of gold with perforations on each end (MO 30); this may have been attached to a flat object such as a box. The last two ornaments in this group are masks, probably originally foil coverings over a material that has not survived. One is a tiny human mask (MO 101), and the other is the mask of an animal, perhaps a lion or Cretan wild cat (MO 50).

The last remaining object in this class was probably the head of a staff or scepter (Pl. 21E-H) (MO 53, MO 97). Leaves were attached to a hollow cap of gold that was likely mounted on the staff by means of a silver stem-like wire. The scepter is listed here as two objects, as parts of it were recovered from two different tombs at Mochlos: Tombs 4/5/6 (cap and four leaves) and Tomb 21 (one leaf). Vasilakis (1996: 169-170, photo 78) shows this object with six leaves, but it is unknown where the last leaf was found. This object was meant to be swung around; if the individual holding the staff twisted it back and forth, the leaves would have moved in a circular fashion, perhaps creating a metal-on-metal sound. The leaves are unlike any others found in EM Crete as the outline of each leaf, as well as a center vein, is incised.
Silver Jewelry

North-Central Crete: Archanes Γ lower level (1), Krasi (10)
South-Central Crete: no sites
East Crete: Mochlos 4/5/6 (2), Hagios Antonios (3), Hagia Photia (1)
Total objects: 17

Although silver objects were included and described in the aforementioned classes, it is worthwhile to examine silver jewelry briefly as a separate group. Sixteen silver ornaments or fragments of ornaments and one silver bead were recovered from secure prepalatial contexts, with objects found at more than one site in both the north-central and eastern regions (see chart 2). All jewelry was found in the northern half of the island, from Archanes to Hagia Photia. No silver jewelry was recovered from sites in the south-central region. However, it should be noted that silver rivets were associated with triangular daggers found in the lower, EM II level of Platanos A. Also, three silver daggers were recovered from a Koumasa rectangular tomb; since the tomb did not contain gold or silver jewelry, it was not included in this study.

Although very few silver ornaments were found in prepalatial contexts, silver was used for several different classes of jewelry. Ten objects were recovered from the tholos tomb at Krasi, including a wire finger ring (KR 5) and two bangles with similar flattened terminals (KR 3, KR 4). These three pieces appear to have been made by the same craftsman and may have comprised a small suite of jewelry: two or more objects designed to be worn at the same time. Button-like disks with two perforations may have been sewn onto clothing at both Krasi (KR 7A-D) and Hagios Antonios (HA 1). Silver pendants from Krasi (KR 1), Mochlos (MO 56A-B), and Hagia Photia (HP 1) were
probably cast. Two sites in the east – Hagios Antonios and Hagia Photia – had objects made of silver but no ornaments of gold.

Iconography

Motifs incorporated in the construction of prepalatial jewelry were generally geometric designs or images from the natural world. Although artisans occasionally employed chasing or worked ornaments from the back using the repoussé technique, the decoration on most objects was created by simple dot repoussé. Geometric designs, including lozenges, triangles, arrows, chevrons, and a herringbone design (e.g., LE 1, MO 3, MO 15) were included primarily on diadems but were also found on other classes of jewelry from all regions in prepalatial Crete. Single and double dot lines were used as borders on diadems, strips, and bosses. Running spirals and double spirals were incorporated into filigree designs on beads; the S-shaped double spirals on the bead from Kalathiana (KA 11) were identical to those on a pin thought to be from the Troad (Bass 1970: 335, pl. 86.1).

The natural world was represented by numerous flowers and leaves. With the exception of the crocus pins (MO 16A-B, perhaps Crocus laevigatus or Crocus cartwrightianus), no flower appears to be a close imitation of an actual flower, at least one that grows in Crete today (determined after consulting botanical guides by Blamey and Grey-Wilson 1993; Fielding and Turland 2005; Sfikas 2002). Flowers may have been loosely represented, with the final design of each ornament due as much to the ease in cutting a simple shape out of sheet metal as to the original inspiration for the piece.
With that in mind, the most popular shape for pins was the daisy, with seven, eight, or 15 petals (e.g., MO 57, MO 86). Several perforated flower appliqués (MO 93), which were probably sewn onto clothing, had six petals. Four- or five-petal rosettes were depicted on a diadem (MO 3) and both sides of two drum beads (MO 38, MO 95). A pin-like ornament (PL 19) and a bead (MO 61) were created in the form of stylized lilies, while two fluted pendants (PL 4, MO 22) resembled closed morning glories.

The daisies may have been the artisan’s representation of flowers like *Blackstonia perfoliata* (with seven petals), *Anemone hortensis* (eight petals) or *Anemone coronaria* (approximately 15-18 petals), while the drum bead rosette with five curving petals resembled *Nerium oleander*. The lily, perhaps also depicted in a later Minoan fresco from Amnissos (Fielding and Turland 2005: ix; Immerwahr 1990: 179-180), may be *Lilium candidum*; the three-part scalloped design on the pin and bead may be *Lithodora hispidula*. The fluted pendants are similar to closed blossoms of *Onosma erecta*.

Sixty-eight individual leaves with short stems, all but one from Mochlos, were cut from sheet metal; some of these appeared to have been worn as sprays (e.g., MO 71, MO 75), which have been classified here as attachments. Most of the leaves had dot repoussé borders and a few also had center veins (e.g., MO 72). Repoussé leaves with veins were also represented on the curved surface of large beads from Platanos (e.g., PL 1). The leaves were in various shapes and sizes with oblong, rounded, and obovate leaves most commonly depicted. Three sets of four leaves (MO 19A-C) – with stems twisted to form sprays – appeared to be olive (*Olea europaea*) or willow (*Salix alba*).

Animals represented on prepalatial jewelry included the dog (MO 2, *Canis familiaris*); an abstract horned animal that may have represented an agrimi (MO 62,
Capra aegagrus creticus), a frog or toad (KO 3); a quadruped that may have been a sheep or a bull (HP 1); and a feline, perhaps a lion or the Cretan wildcat (MO 50, Felis agrius). These images may have been purely decorative, or they may have had special meaning.

Animals were represented on portable objects in many ancient cultures including those in Egypt, Syria, and Mesopotamia. For example, frogs in Egypt were associated with fertility and perhaps childbirth (Andrews 1994: 10, 63); Mallowan (1947: 100) proposed that a stone frog from Tell Brak symbolized rain. Frog amulets – in gold and semi-precious stones such as lapis lazuli – were also found in tombs at Ur (e.g., Woolley 1934: 175, pl. 142, #U.10008).

It is also possible that some depictions of animals – such as the dogs or agrimia on diadems from Mochlos – represented families or clans that were buried in the tombs (see chapter 8). Aside from the diadem, other images of dogs were found at Mochlos: a stretching dog on the lid of a stone vessel (Seager 1912: fig. 5) and an ivory seal with back-to-back animals that may have represented dogs (Seager 1912: fig. 11, II.42b). Two male dogs with collars are included on a large silver diadem from Kastri, Syros (Tsountas 1899: pl. 10.1). Reclining dogs, some with collars, were also depicted on amulets during the Old Kingdom in Egypt; these Egyptian objects endowed their owners with “fleetsness of foot” as the primary function of a dog was to hunt (Andrews 1994: 62).

Only two objects contained anthropomorphic images: a tiny human mask in gold foil that may have been part of a gilded object (MO 101) and a diadem with a pair of human eyes, shown with uneven pupils (MO 1). Egyptian amulets come to mind again when discussing the latter. Human eyes were potent images; during the Fifth Dynasty, the
plain human eye (as opposed to the protective *wedjat*-eye) represented “sight in the Other World” (Andrews 1994: 69). Cross-culturally, the use of eyes on ceremonial headdresses provided a protective image thought to repel the evil eye (Biebuyck and Van den Abbeele 1984: 45; see also Eluère 1985: 145 on apotropaic eyes on gold headgear from Iron Age Europe).

Another image associated with prepalatial jewelry was the vase. A two-handled vase pendant (*AR 13*), which Papadatos appropriately compared to pins with vase heads from Naxos in the Cyclades (2005: 36), was recovered from Archanes. Vases of a different shape also decorated the tops of pins from the Troad (Antonova, Tolstikov, and Treister 1996: 182-183; Bass 1970: pl. 86, fig. 1) and Byblos (Maxwell-Hyslop 1971: 57). This may symbolize a commodity such as wine or perfumed oil, which was transported in vases of the same shape.

Other pendants from prepalatial Crete represented a bell (*MO 20*) and perhaps an anchor (*KR 1*). Heart-shaped objects included a leaf attachment (*MO 79*) and two pendants that may have been earrings (*SP 3A-B*). The omission of some motifs should be noted. Except for one pendant that appeared to be shaped like flippers (Vasilakis 1996: 156) (*KR 2*), no marine creatures such as dolphins, fish, or shells were illustrated on prepalatial jewelry. No ships were incised on diadems or other objects. This is curious as many of the sites where jewelry was recovered were on or near the coast of Crete. Also, no images of birds or insects were found on gold or silver jewelry from prepalatial Crete.

It is quite possible that various components, found separately when excavated, were actually part of the same article of adornment, and played into an overall iconographic theme. Cross-culturally, this can be seen most often in objects worn on the
head. The headdresses found in situ on Queen Puabi and on other female burials in the mid-third millennium BC Royal Cemetery of Ur (Woolley 1934: pls. 43b, 72b; Zettler and Horne 1998: 90-91, #29, also Pl. 61B here) illustrated that separate gold hair ribbons, pendants, beads, and other hair ornaments were meant to be worn together by one individual. With imagery similar to the pins and attachments found in tombs at Mochlos, many of the components of the Ur headdresses represented the natural world, with flowers and leaves dominating the arrangement.

Head gear with multiple components was also found in Egypt and in the Troad. A wire diadem and numerous small rosette hair ornaments, which were attached to individual locks of hair, were recovered from the 12th Dynasty Egyptian burial of Senebtisy, dated c. 1975 BC (Andrews 1991: pl. 75). The tradition at EBA Troy, where fully assembled jewelry was discovered, indicated that some objects such as diadems were designed to carry multiple pendants on chains (Antonova, Tolstikov, and Treister 1996: 38-45; Schliemann 1875: pl. 19). Among the contexts examined in this study, selected objects from Mochlos Tombs 1/2/3, 4/5/6, and 19 – including diadems, flower pins, and leaf attachments – may have been worn as an ensemble by the same individual at the same time. Perhaps some of the objects that were stored inside a silver cup found in Tomb 4/5/6 (Davaras 1975), including a diadem, antennae, and numerous leaf attachments, were actually designed to be worn together.

**Precious Metals and Other Raw Materials**

Except perhaps for simple beaded necklaces or bracelets, precious metals were not used with other imported raw materials – such as ivory, carnelian, or lapis lazuli – in
the construction of prepalatial jewelry. There were no inlays of semi-precious stones or extant stone beads with gold caps. The only object that included both gold and silver was the gold staff with leaves from Mochlos (MO 53), and the silver was no more than a simple piece of wire. However, organic materials were surely employed in conjunction with precious metals, beyond the use of carved wooden cores for beads. Easily available, local substances may have been used to connect or support components of jewelry or to sustain an overall design or motif.

Contemporary ethnic jewelry from Africa, Asia, Oceania, and the Americas incorporates perishable organic materials such as feathers, plant fibers, woven textiles, wood, leather, animal hair, and human hair (Biebuyck and Van den Abbeele 1984; Borel 1994: 7; see also Markowitz 2001: 202-203 on ancient Egypt). More durable bone, ivory, shell, and seeds are also used. Some of these materials – especially textiles, dyed animal hair, and feathers – may have introduced vibrant colors for greater visual effect in Minoan jewelry and costumery. Although pierced holes and turned-back edges indicate that some prepalatial ornaments were sewn to clothing or fabric bands or folded over a leather backing, no evidence of these materials survives in the archaeological record. However, finds from Egypt and Mesopotamia, where preservation is better or burials are found undisturbed, suggest that at least animal hair, human hair, and feathers may have been used in conjunction with third millennium BC gold or silver jewelry (Andrews 1991: 19; Maxwell-Hyslop 1971: 69; Musche 1992: pl. 21.2.3; Woolley 1934: pl. 159a).
Discussion

A wide variety of jewelry forms was created in prepalatial Crete using only basic, mostly cold-working techniques. Although uncomplicated in design and construction, many pieces of jewelry were carefully planned and well executed. However, objects such as finger rings, bangles, and strips appeared to have been made with a minimum of skill; if sheet metal or wire had been previously manufactured, some of these pieces could have been made by an individual with no knowledge of metallurgy or jewelry-making.

Other than multiples that may have been created to be worn in groups – flowers, leaves, beads, and some appliqués – each piece was unique. This would suggest that there was no mass production and no standardization of design, even as the prepalatial period progressed. The earliest sites with gold or silver jewelry, dated EM I – II (see chart 4), included jewelry of simple design and a few cast pieces that may have been one-of-a-kind objects (Pls. 3A-D, 32D). Perhaps the first jewelry-makers in Crete were those who were more familiar with the working of materials other than gold. And later, as the supply of precious metals and the demand for quality jewelry increased, craft specialization in gold working was established. Goldsmiths may have worked independently or may have been attached to elites. In either case, made-to-order jewelry may have been produced with gold supplied to artisans by their patrons.

The great majority of prepalatial gold ornaments would have been appropriate adornment for use in public, ceremonial display. Diadems, some with golden flowers, leaves, or vertical extensions, surely served to differentiate and draw attention to those who wore them. Robes, dresses, or other articles of clothing were probably decorated
with gold appliqués, bosses, disks, strips, and belts. A person of influence or high status must have carried the gold scepter with dangling leaves.

When one compares objects found in each of the three regions, it appears that there existed some accepted classes of objects and similar manufacturing techniques, but no standardized designs or motifs. Perhaps there were separate traditions for craftsmanship and a preferred style in each region. Diadems from Mochlos were quite different in shape and decoration from those recovered from tombs in the Mesara. Beads were found in all regions, but their forms varied from tubular beads at Archanes to drum beads at Mochlos to large vase-shaped beads at Platanos. The variety of objects crafted in prepalatial Crete – with differences evident even between sites within regions – suggested that local centers of production rather than traveling goldsmiths were responsible for jewelry production in prepalatial Crete.

Did these traditions develop independently, or might there have been contact between elites living in various regions of Crete? The identification of a single Mochlos-type leaf attachment at Platanos (PL 17), Platanos-style repoussé beads at Mochlos (MO 48A-C), and cone-shaped pendants on loop-in-loop chains (PL 4, MO 22) at both sites may indicate interaction between Platanos and Mochlos during the prepalatial period (see also Watrous 1994: 712; Wilson and Day 1994 on EM trade in pottery among different regions in Crete). Perhaps leaders or representatives from various sites were invited to take part in planned, regular events in other parts of the island (see chapter 9), and took keepsakes home with them in the form of small pieces of gold jewelry.

Over 608 gold and silver ornaments were recovered from prepalatial contexts in Crete. If beads are excluded, this number falls to 269 objects. With the abundance of
jewelry recovered from tombs at Mochlos, it is not surprising that 60% (without beads) or 66% (including beads) of all finds are from East Crete. Not counting beads, 23% of jewelry was from the south-central region and 17% was from the north-central region. When beads are added in, those numbers change to 20% and 14%, respectively.

Certain classes of objects stand out for various reasons. Beads were the most common objects, found in all regions and in 18 of 26 burial contexts. Beads required a smaller amount of gold or silver, and if wooden or bronze beads were gilded, very thin gold leaf could have been used. Assuming precious metals were in short supply or at least limited supply, manufacturing beads instead of other larger objects would be one way to extend these metals. Before the introduction of gold, beads were made from other local materials such as clay, stone, and bone. Consequently, continuing to make and wear beads as necklaces, bracelets, or perhaps anklets – in newly available raw materials – would have been a natural extension of an earlier tradition. It is curious that only one silver bead was recovered from EM Crete: a two cm long bi-conical bead from Krasi (KR 6). Perhaps this lack of silver beads was due to the natural corrosive tendencies of silver; tiny silver beads, which were buried for thousands of years, may have deteriorated or may not have been recognized by early excavators without careful sieving.

Another class found in all regions consisted of bosses and disks, with a total of 51 objects recovered. Most bosses and all disks were perforated for attachment and were often recovered as multiples. Some bosses and disks may have been sewn onto cloaks or ceremonial attire. The set of disks from Platanos (PL 13A-U) are made from thin gold foil and may have decorated sepulchral garments.
Diadems, one of the more varied forms in this study, were also recovered from all regions. However, in the north-central region, only four pieces were found at two sites, and it is not certain that the objects from Archanes Tomb Γ actually functioned as diadems. Compared with the range of shapes, sizes, and motifs found in the south-central and eastern regions, the pierced rectangular fragments from the Pyrgos Cave (PY 1, PY 2) were simple and undecorated. The Pyrgos diadems – dated EM I – EM IIA – were perhaps the earliest diadems in the study, manufactured at a time when jewelry-making was less advanced. This is supported by the early date (EM I – EM II) associated with all but one context in this region, the general lack of decoration on north-central ornaments, and the absence of objects like loop-in-loop chains, which required a more highly developed skill set to produce.

Strips are also represented in all regions, from nine separate contexts. Strips were surely the easiest objects to manufacture in gold and would have required a minimum amount of craftsmanship. The rough and uneven edges evident on some strips indicate that they were cut freehand. Strips also required a small amount of metal as many were made from very thin sheet gold. Thin strips probably had different functions at different sites: as jewelry or perhaps as decoration for clothing or objects made from wood or leather.

Thick bands of gold that formed armlets or belts were only recovered from Mochlos. Since these objects were found in four separate tombs, this may suggest a cultural tradition that was not present in the other regions or even at other sites in east Crete. All but one object (MO 80) appeared to be in pieces, deliberately cut apart before burial or perhaps cut subsequent to the initial burial, when bones were moved within the
tomb. Perhaps these objects were used as grave goods as much or more for the quantity of gold used in their manufacture than for the objects they represented when they were worn by living individuals.

More classes of jewelry were recovered from the two largest house tombs at Mochlos: 1/2/3 and 4/5/6. Mochlos Tomb 19 also contained a wide variety of gold ornaments. Diadems and forms of jewelry that may have been worn with diadems – flower pins, leaf attachments, antennae, and pendants – predominated. This may relate strictly to accidents of discovery as two large caches of jewelry were recovered from these tombs. If these caches had not been difficult to spot (the silver cup with jewelry found in 1971 was missed by Richard Seager), they may have been removed in antiquity. In any event, the collection of objects found in these tombs indicates that public displays, with individuals wearing gold jewelry and perhaps headdresses, were familiar to at least some residents of Mochlos.

Differences exist between finds from tombs in use early in the prepalatial period and tombs in use closer to the time of the palaces. Three time periods have been established for the purpose of analysis. Early sites are dated EM I – EM II. Early/late sites were established in EM II and remained in use until EM III or MM I. Late sites date from EM III – MM I (see chart 4, with sites arranged by date). Of course, jewelry from a site in use from EM II – MM IA, such as Lebena II, may have been deposited early in the tomb’s existence or later. The confused nature of grave goods found in many such tombs precludes the assignment of an exact date. The assignment of a more specific date based strictly on jewelry style has been avoided in this study.
It appears that smaller, plain objects – such as finger rings and bangles – may be dated, with one exception, to EM I – EM III. Perhaps this was due to a lower availability of raw materials at some sites, which would be expected at the beginning of the importation of gold and silver. It may also relate to a lack of sophisticated knowledge regarding jewelry manufacturing or less interest in gold jewelry for ceremonial display. It is also possible that gold and silver jewelry was simply not deposited in tombs as frequently during this period; if this was the case, it would indicate that a change in burial customs occurred as the prepalatial period progressed.

While diadems were recovered from tombs that date from the beginning to the end of the prepalatial period, 71% of diadems, 83% of strips, and 100% of antennae are dated EM III or earlier. Exceptions include diadems from Platanos A (upper level) and Kalathiana K, both in the south-central region; fragments of diadems from these contexts may date as late as MM I. Strips from somewhat later contexts were found at Archanes B, Koumasa B, and Kalathiana K.

When examining the style and complexity of diadems throughout prepalatial Crete, no overall developmental sequence is evident. In some cases, early diadems, such as the EM II diadem from Lebena I, are more complex than later diadems from the same region, such as those from the upper level of Platanos A, dated EM III – MM I. However, one can surely see advances in jewelry-making techniques toward the end of the prepalatial period. Unless some objects were imported from outside of the island, goldsmiths in the Mesara were responsible for the first appearance in Crete of granulation, filigree, and ajouré soon after the beginning of the second millennium BC.
Tomb type (see chart 5) was a clear indicator of the number and variety of finds. Caves or rock shelters, in-ground built tombs, and the one funerary deposit all contained substantially less gold and silver jewelry that house tombs and tholos tombs. Although this may have been partly due to the relative wealth available at specific sites, it was surely related to the collective nature of house tombs and tholoi; many burials and a variety of grave goods were placed in these tombs over hundreds of years. In the locales where collective burial was practiced, individuals of higher religious, political, or social rank were not interred in separate graves but appeared to be buried, with gold jewelry and other high status grave goods, alongside other members of their communities.

Due to the removal of objects from tombs in antiquity and in modern times, it is difficult to ascertain and compare the actual amounts of precious metals that were used for jewelry in each region and through time. Clearly, the most gold – in terms of number of objects and overall weight of gold – was recovered from tombs at Mochlos, tombs that were assigned unequivocally to the prepalatial period. This is probably an accidental imbalance, however, as many objects from Mochlos were found in caches that were missed by cemetery workers, looters, and the first archaeologists at the site. Earlier levels of tholos tombs in north-central and south-central Crete surely contained many objects of precious metal that were removed when the tombs were cleared for new burials. From the extant evidence, however, it appears that, while gold and silver may have begun to arrive in Crete as early as EM I – II, the overall quantity of imported gold increased by EM II – III, the middle to end of the third millennium BC.
Part III: The Society

The significance of ancient jewelry in the construction of individual and group identities can often only be surmised, entailing a process fraught with difficulty, especially when dealing with prehistoric material culture. This study of prepalatial Minoan gold and silver jewelry cannot be left, however, without an attempt to understand something of the underlying culture where the jewelry was produced, worn, and ultimately taken out of circulation. Who commissioned and created these objects? Under what circumstances and in what combinations were the various pieces worn? What effect might the pendants, pins, and diadems have had on those who saw them? What can the study of gold and silver jewelry tell us about prepalatial Minoan society?

Part III begins with an examination and comparison of jewelry and other media. It discusses similarities in the motifs employed as well as depictions of jewelry on Bronze Age Aegean three-dimensional objects and wall paintings. Craft production will then be reviewed, with a focus on the technical, stylistic, and cultural choices made by artisans and patrons in the creation of gold jewelry. Part III ends with a discussion of adornment: the possible function of jewelry in ceremonies and rituals, how some prepalatial jewelry may have been worn, and the special significance of jewelry made from precious metals.
Prepalatial Jewelry and Other Media

Motifs

Early Cretan gold and silver jewelry was designed and manufactured in a vibrant society that was producing other luxury goods as well as items essential for daily life. Trade had expanded, and raw materials – metals, ivory, and semi-precious stones – were now arriving from abroad. Locally-produced commodities were also widely circulated in Crete (see Betancourt 2003: 117 on trade in EM pottery; Watrous 1994). Objects made from organics – wood, leather, and textiles – have perished. However, evidence remains in the form of goods manufactured from materials such as clay, stone, and ivory.

Although the communities in EBA Crete were growing at this time, they were not large. Artisans and craft producers in various specialties must have had contact with one another; they were also consumers of each other’s products. A cross-fertilization of ideas surely occurred. Craft specialists may have worked together in the production of objects made from multiple materials (cf. Moorey 1999: 15 on ancient Mesopotamia), such as carved wooden beads covered with gold leaf or textiles decorated with disks of thin sheet gold. Jewelry-makers may have even worked with other raw materials before becoming involved in the nascent production of gold and silver jewelry.

Similarities in design existed between prepalatial gold diadems with repeating geometric motifs (e.g., MO 4, MO 8) and other objects from the prepalatial period in Crete (for motifs used in EM jewelry, see Vasilakis 1996: fig. 4; for a comparative study of later Minoan pottery, seals, and frescoes, see Walberg 1986). EM IIA Fine Gray Ware included incised parallel lines, crossing lines, a herringbone design, and a simple dot
design that resembled dot repoussé (Pl. 36A) (Betancourt 1985: 41, fig. 21; Davaras 1982: 25, #19). Some of these designs also appeared on East Cretan White-on-dark Ware (Pl. 36B-C) (Betancourt 1985: 58, fig. 37; Davaras 1982: 25, #17-18; Seager 1912: pl. 49).

Stone vases and bone and ivory seals included geometric designs, such as parallel lines, groups of dots, cross-hatching, and a herringbone motif (Krzyszkowska 2005: 62, #100b, 101b; Sbonias 1995: 84-85; Xanthoudides 1924: pls. 1, 8, 15, 25, 54). Double spirals or S-spirals, like those found on filigree beads from late prepalatial Kalathiana (KA 11) and Platanos (PL 11), were also employed in the decoration of pots (Pl. 36D) (Betancourt 1985: 59, fig. 39G; Seager 1912: figs. 18.V.a, 19; Warren 1975: 56), anthropomorphic vases (Pl. 37F) (Seager 1912: figs. 32.XIII.g, 34), ivory seals (Hood 1978: 212, fig. 210B; Krzyszkowska 2005: 68, #115b; Sbonias 1995: 87; Xanthoudides 1924: pls. 4.517, 4.528), and stone vessels (Xanthoudides 1924: pl. 11.1904).

Images from the natural world – leaves, flowers, and animals – were common motifs employed in the decoration of prepalatial jewelry. Several pins or diadem attachments from Mochlos (e.g., MO 19, MO 57) were in the form of leaves, daisies, and crocuses. Gold drum beads (MO 38, MO 95) were decorated with rosettes and a petaloid design. Leaves and rosettes were also found on stone, bone, and ivory seals (Pl. 36F) (Krzyszkowska 2005: 65, #108b, 69, #120b, 75, #131b, 132a; Xanthoudides 1924: pls. 8.653, 14.1094, 14.1126) and stone vessels (Xanthoudides 1924: pls. 11.1845, 31.685, 31.687). The image of a dog, repeated four times in dot repoussé on a gold diadem from Mochlos (MO 2), also decorated a chlorite lid from the same site (Hood 1978: 139, fig. 131; Seager 1912: 20-21, figs. 4.I.i, 5); this type of long-legged Cretan dog was the
primary decorative element on a stone pyxis from Zakros, clearly made by the same artisan (Pl. 36E) (Sakellarakis 1993: 15, #2719). Xanthoudides indicated that many zoomorphic vases were found in the Mesara tombs (1924: 13). Animals were also depicted on ivory, bone, and stone seals (Krzyszkowska 2005: 66, #111c, 112c, 69, #121a, 75, #132c; Sbonias 1995: 44-45; Xanthoudides 1924: pl. 13.1039).

Designs used in the decoration of prepalatial jewelry, such as those described above, may have also been incorporated into textile design during the weaving process, or stamped onto fabric after it was woven. Some seals recovered from prepalatial contexts may have been used to apply color pigments to cloth (see Krzyszkowska 2005: 25 for a discussion on the early uses of seals). Although no textiles remain from this time period, evidence of clay spindle whorls, loom weights, and other spinning/weaving apparatus – suggesting the processing of flax (linen) and wool – have been recovered from contexts in Crete, including the EM site of Myrtos on the southern coast (Barber 1994: 104, 106; see also Warren 1972: pls. 73E, 74A-B, 77D, 77F, 78A).

Anthropomorphic clay vases, including a vase recovered from Mochlos of a female holding her breasts (Pl. 37F) (Seager 1912: figs. 32.XIII.g, 34), were decorated with lines, zigzags, and double spirals, perhaps representing woven patterns in clothing worn by women in prepalatial times.

Elizabeth Barber’s reconstruction of Minoan textile patterns from 12th Dynasty Egyptian tomb paintings included a double heart-spiral with dots and lozenges (1991: 346, fig. 15.23; 1994: 109-110, fig. 4.4; see also Shaw 1970: pl. 5), perhaps a variation on the double spiral used on other forms of material culture in prepalatial Crete. In later periods, rows of spirals, rosettes, diamonds, zigzags, and other patterns also decorated
textiles (Barber 1994: 109 ff.). Many of these elements were found in the elaborate
dress of women from Pseira, depicted in a relief painting dated to the mid-second
millennium BC (Pl. 41C) (Barber 1991: 318, fig. 15.4; Seager 1910: pl. 5; Shaw 1998:
pls. 41-44). Images from other Aegean wall paintings confirmed that some of these
motifs remained in use as elements of textile design into the LBA (for Theran paintings,
see Doumas 1992: 140, 144, 157, pls. 103, 107, 121).

Gisela Walberg (1986: 52) suggested that Minoan craftsmanship was a
combination of tradition and innovation; some of the same design elements and motifs
may have been used by various artisans, but they were adapted to accommodate different
raw materials and surfaces as well as the size of the finished object. Selected pieces of
prepalatial jewelry were decorated in a tectonic fashion; a herringbone design is easily
accommodated on a long, rectangular diadem and may have been chosen simply for that
reason. However, the selection of the same decorative elements by various artisans may
have also been driven by a community-wide preference for objects with traditional and
recognizable symbolic values.

*Depictions of Jewelry in Other Media*

Jewelry depicted on figurines, larger figures, sealings, signet rings, and wall
paintings may clarify or confirm who wore jewelry, how it was worn, and in what
combinations. The study of objects and paintings will also illuminate socially acceptable
portrayals of jewelry and the adorned in the Minoan and Mycenaean periods, as
understood by those who commissioned, created, and viewed the representations. What
types of individuals are shown wearing jewelry and under what circumstances? Is the
depiction of jewelry in other media reserved for powerful religious or political figures, or is jewelry worn by lesser individuals as well? Is the addition of jewelry an artist’s convention – a type of shorthand – to signify high status or perhaps a religious affiliation?

It is impossible to know whether ornaments depicted in other media were meant to indicate jewelry made of metal or another material such as stone or even cloth, as the jewelry was representational and not the real thing. Objects such as earrings, bracelets, anklets, and some necklaces, or pieces painted yellow to indicate gold, were probably created with metal in mind. However, headbands, hair ornaments, and elements of headdresses may have been metal or cloth or a combination of both materials. For the purpose of this study, all jewelry will be noted, regardless of whether it was created to represent metal or another material. Bands worn around the head will be called *headbands*. If the headband is painted gold or has other characteristics that suggest it may be metal, evidence will be provided, and the object will be referred to as a *diadem*. A diadem is defined as a crown or a metallic headband.

*Three-dimensional Media: Crete and the Cyclades*

Only a few representations of jewelry exist from the EM period in Crete. The EM II “Goddess of Myrtos” wears a thin, painted headband at the top of her head (Pl. 37A-B) (Davaras 1982: 20, fig. 13; Warren 1975: 66; Warren 1972: 208-210, figs. 91-92, pls. 69-70). Lines are also painted on the lower part of her neck, perhaps to indicate necklaces. Based on the context of the find – Room 92, described as a shrine – and the nature of the object, Peter Warren suggests that this vase was the earliest representation of the Minoan Household Goddess (1972: 85-87, 210). Nanno Marinatos
also believes that this vase represents a goddess; the pouring of liquids through a jug or breasts related to the ability of the goddess to provide sustenance (1993: 147). Another vessel, also depicting a female holding a jug, was recovered from EM II-III Koumasa. This vase is decorated with a line that may be a headband and two thin rolls of clay at her neck that appear to represent necklaces (Pl. 37C) (Xanthoudides 1924: pls. 2.4137, 19.4137). A female Cycladic folded-arm figurine from Zinta, perhaps manufactured in the Cyclades, is on display in the Herakleion museum; she retains a line of paint at the top of her head that may represent a headband or hat (Pl. 37D-E).

An anthropomorphic vase with a thick band around her neck and what Richard Seager described as a “fillet” or “head-dress” was found at EM III Mochlos (Pl. 37F) (1912: 64, figs. 32.XIII.g, 34). A small ivory figure, which was probably a pendant or amulet, was recovered from an EM III – MM I context in Tholos A at Platanos; the figure, of indeterminate age and sex, wears a band or flat hat (Pl. 37G) (Xanthoudides 1924: 121-122, pl. 15.229). Except for the ivory piece from Platanos, the objects clearly symbolized females. Jewelry was represented by simple lines or bands. The three clay pouring vessels (Pl. 37A, C, and F) were all decorated in a similar fashion with jewelry and patterned textile robes. These three females, adorned with headbands, necklaces, and elaborate clothing, are the only extant examples of this type of EM anthropomorphic vessel. Other similar vessels must surely have existed, although they have not survived. Perhaps this type of vessel, representing female dress and adornment in EBA Crete, provided the prototypes for later Bronze Age Aegean portrayals of high status women.

Jewelry is depicted on other artifacts from the EBA Aegean, including stone folded-arm figurines from the Cyclades (for a discussion of the meaning of painted
folded-arm figurines from the Cyclades, see Hendrix 1998; 2003). A female figurine of the Kapsala variety (c. 2700 – 2600 BC) is decorated with face dots that may represent paint or tattoos. She wears painted bracelets, a scalloped necklace, and perhaps a headband (Pl. 38A) (Broodbank 2000: 63, fig. 11; Getz-Preziosi 1985: 55, fig. 42; 1987: 156-157, pl. 1; Hendrix 2003: 420). Several folded-arm figurines on display in the Naxos Museum include painted bands at the top of their heads (see also Marangou 1990: 150-151, fig. 156). The band on one figurine contains a dotted lozenge design (Naxos museum #4182) (Hendrix 2003: 421, fig. 6), while another large, broken female figurine (in two parts: Naxos museum #8916 and #4691) has a painted line around her neck – perhaps indicating a necklace – and a headband that resembles a diadem with a raised center extension.

An increase in the representation of jewelry on figurines, larger figures, seals, ivory objects, and wall paintings occurred from the MBA onward. Even Cycladic pottery – ewers with painted eyes and sculptural nipples – was decorated with images of beaded necklaces (Doumas 1983: figs. 34, 58, 62-63; Marinatos 1969: fig. 5, pl. 36.3). Numerous classes of jewelry or related adornment have been associated with MBA and LBA iconography: plumed caps or headdresses, headbands, hair pins, earrings, necklaces, arm rings, bracelets, U-bracelets, lentoid seals on string bracelets, beads that ornamented dresses, and anklets (Younger 1992).

A number of clay figurines from MM Crete – primarily from peak sanctuaries such as Petsopha – depict women wearing what Costis Davaras has described as “tiaras” (1982: 38, 42, 44, figs. 35, 44, 47A-B; see also Higgins 1992: 30-31, fig. 18). Although most of these figurines appear to be wearing tall hats, the headgear on the figurine from
Chamaizi may incorporate a headband (Pl. 38B). Heads of female figurines from Piskokephalo also wear thick bands, which are incorporated into their complex hairstyles (Hood 1978: 104, fig. 86; Rethemiotakis 2001: pl. 2).

Two heavily restored faience figurines, recovered from the Temple Repositories at Knossos and dated to c. 1600 – 1550 BC, also wear jewelry (Pl. 38C-D) (Betancourt 2007: fig. 5.24; Evans 1921: frontispiece, figs. 359-362, 377; Higgins 1992: 16-17, 33, figs. 3, 22; Hood 1978: 133, fig. 123; Sakellarakis 1993: 37, figs. 63, 65). According to Marina Panagiotaki, fragments of arms and hands, combined to form the two figures, may actually represent as many as five or six separate figurines (1999: 98). As currently displayed, the “Snake Goddesses” – alternatively described as a goddess and votary, a mother and daughter, or snake-handlers (Panagiotaki 1999: 96-98) – wear necklaces and, in the case of the smaller figure, a bracelet on the arm that is preserved. It is unclear, however, whether their headdresses are meant to indicate the incorporation of diadems or other jewelry. Arthur Evans suggested that the figure with upraised arms – the votary – also wears a “tight-fitting metal belt” (1921: 503).

Objects from the MM period through LM I also include men and fantastical creatures wearing jewelry or ornaments. The serpentinite “Chieftain Cup” or “Cup of the Report” from Hagia Triada (Higgins 1992: 155, fig. 192) illustrates a man holding a scepter, wearing armlets, bracelets, and a headband as well as strings of beads around his neck and in his hair (Pl. 38E) (Evans 1928: fig. 516; Hood 1978: 144-145, fig. 137). He has been described as a god or a prince (Hood 1978: 145), but he may also represent a military leader. A second male figure on the cup carries a sword and wears a necklace, bracelet, and plumed cap. The LM I “Boxer Rhyton,” also from Hagia Triada, depicts
men wearing headbands and necklaces (Hood 1978: fig 139; Immerwahr 1990: pl. 20; Koehl 2006: 164-166, frontispiece, fig. 29, pl. 41).

A clay sealing from Knossos portrays a curly-headed man wearing a headband (Pl. 38F) (Immerwahr 1990: 36-37, fig. 13; Kofou 1992: 44, fig. 38), while another sealing from Zakros depicts a sphinx with butterfly wings and a band in her hair, perhaps representing part of a headdress (Pl. 38G) (Hood 1978: 221, fig. 223.G; Weingarten 1983: pl. 24.Z74). A bronze figurine of a male votary from Tylissos wears simple anklets, bracelets, and a necklace (Sakellarakis 1993: 68, #1831).

Clay figurines from the Unexplored Mansion and the Shrine of the Double Axes at Knossos, dated to the postpalatial period (c. thirteenth century BC), were decorated with painted necklaces, bracelets, and perhaps headbands or hats (Michailidou 1994: 128, fig. 85; Popham 1984: pl. 191; Rethemiotakis 2001: 14-15, pl. 4, fig. 19). The figurine from the Shrine of the Double Axes has been described as a goddess; she wore a bird on her head, which may be the symbol of epiphany (Pl. 39A) (Rethemiotakis 2001: 120, 132-133, fig. 141; Sakellarakis 1993: 92). She also wore numerous necklaces and bracelets including amygdaloid sealstone bracelets on both wrists. This was the first extant clay figurine with upraised arms, a gesture seen in larger figures from the postpalatial period (Rethemiotakis 2001: 14) such as the LM IIIB female figure from Gazi that wore a diadem decorated with poppy-headed pins (Pl. 39B-C) (Higgins 1992: 126, fig. 152; Hood 1978: 109, fig. 92; Rethemiotakis 2001: 33-35, figs. 38a-c) and the series of LM IIIB figures with crowns or headdresses from Kania, Gortys (Hood 1978: 108, fig. 91; Rethemiotakis 2001: 19-22, figs. 23-25) and Pagalochori, Rethymnon (Kofou 1992: 233, fig. 294). Costis Davaras (1975: 112) remarked on the similarity
between the headdress on the “Poppy Goddess” and the gold agrimi diadem with upright projections from Mochlos (MO 62) (cf. Pls. 39B-C and 24A-B), suggesting that the Mochlos diadem was a “prototype [for]…later Minoan crowns.” Another unusual clay figurine from Gournia, depicting a pregnant woman wearing two beaded necklaces, has been dated to the middle phase of the postpalatial period (Rethemiotakis 2001: 24-25, fig. 27).

According to Rethemiotakis (2001: 105, 123), many Minoan clay figurines – especially of the Neopalatial period – were part of larger compositions or narratives that apparently depicted Minoan religious ritual; these rituals were also illustrated on wall paintings, signet rings, and seals.

*Three-dimensional Media: Mainland Greece*

Clay figurines, a painted plaster head, ivory objects, and gold signet rings, all from Late Helladic (LH) I – LH III mainland contexts, also contain depictions of jewelry. Female figurines from the House of the Idols at Mycenae and the Lower Citadel at Tiryns (Pl. 39D) are elaborately adorned with necklaces, bracelets, armlets, and crowns (Demakopoulou 1988: 99-100, 196-197, #25, 167, 168); one figurine (Pl. 39D, right) wears an ensemble of objects created from circular ornaments and a dress or robe decorated with disks. A painted plaster head from Mycenae, with its thin red headband, is one of the few surviving sculptures from this period (Pl. 39E). Because of its coloring and “chilling stare,” it may represent a sphinx (Higgins 1992: 93-94, fig. 101).

An ivory trio from the citadel at Mycenae, probably dated before c. 1300 BC (Hood 1978: 124-126, fig. 114), includes two kneeling women and a small boy or girl (Pl. 39F) (Higgins 1992: 130, fig. 159; Mylonas 1993: 34, fig. 14; Vermeule 1972: pl. 38;
Wace 1939: figs. 1-22). The women are dressed in flounced skirts and adorned with jewelry. Although the head of one female is partially destroyed, the other female wears a band in her hair. All three figures wear beaded necklaces. What may be a beaded wrap or cloak is draped over the backs of the women. Another LH III object of ivory from Mycenae wears closed cropped hair and a headband (Pl. 39G) (Demakopoulou 1988: 74-75, #2; Hood 1978: 126); the rigidity of the band suggests that it may represent a metal diadem. Two additional ivory objects, which are dated LH IIIA – LH IIIB, include a pyxis from Megalo Kastelli at Thebes (Demakopoulou 1988: 76, #3; Demakopoulou and Konsola 1981: color pl. 26B; Fraser 1970-1971: 14, fig. 26) and a relief plaque from Spata in Attica (Higgins 1992: 133-134, fig. 163). Carved images of sphinxes, wearing traditional headdresses with flowing plumage, decorate both objects; the sphinx on the plaque also wears a beaded necklace or collar.

The last class of three-dimensional objects under discussion are LH gold signet rings, such as those from Tiryns (e.g., Higgins 1992: 187-188, fig. 241; Krzyszkowska 2005: 240, #457; Sakellariou 1964: 202-203, #179; Vassilicou 2000: 16, figs. 4a-b) and Mycenae (Pl. 39H) (e.g., Demakopoulou 1988: 198-199, #170; Krzyszkowska 2005: 245, #465, 255, #494; Sakellariou 1964: 103, #87; Vassilicou 2000: 27, 31, 34, 55, figs. 13, 16, 19, 36). Sphinxes on signet rings wear necklaces and head ornaments, their headdresses typically decorated with long feathers. Women, who may represent goddesses, priestesses, or worshippers, wear necklaces, armlets, bracelets, and perhaps headdresses or beads in their hair.
Although some walls and floors were plastered and painted in prepalatial Crete, including the use of dark red paint at EM II Vasiliki and Myrtos (Cameron 1972: 305; Evans 1921: 72; Immerwahr 1990: 11), no evidence of EM figural wall painting has been found to date (Immerwahr 1990: 21). However, second millennium BC wall paintings from Crete, the Cyclades, and mainland Greece provide numerous examples of women and a few examples of men and children wearing jewelry (for jewelry motifs on Minoan paintings, see Evely 1999: 187-188). Some of these paintings may represent living individuals and actual events, while others are surely idealized versions of goddesses, priestesses, political figures, or other individuals of high status.

Numerous wall paintings from Knossos, found in very fragmentary condition, are of interest. The “Jewel” fresco, a stucco relief dated stylistically to MM IIIB, provides a close view of a beaded necklace being placed around the neck of a woman by the hand of a man (Pl. 40A) (Evans 1921: 525-526, fig. 383; Evely 1999: 164; Immerwahr 1990: 50, 53, 172; Kontorli-Papadopoulou 1996: pls. 6-7). The necklace is comprised of round beads and unusual, quite detailed pendants. The pendants depict human heads with close-cropped, curly black hair, wearing dangling earrings. Evans (1921: 526) proposed that the “dull orange” color of both the beads and the faces of the pendants indicated that the material was meant to represent gold. The earrings on the pendants, each made from three interlocking rings, are identical in design to linked coils of gold recovered from the EBA mainland site of Levkas (cf. Pl. 49F). Kontorli-Papadopoulou (1996: 40, #4) suggests that the heads represented by the pendants are “Libyan-like” and may denote “a copy of a
necklace imported from Egypt.” However, Morgan (1988: 90) indicates that Libyans wore small stud or hoop earrings rather than the large earrings depicted in the painting.

The restoration of the “Grandstand” or “Temple” fresco (c. MM IIIB – LM IA) by Gilliéron depicts an architectural façade, a tripartite shrine with columns, a crowd of primarily men, groups of standing women, and – flanking the shrine – groups of seated women (Pl. 40B-C) (Evans 1930: pls. 16-17, figs. 28-34; Evely 1999: 90; Immerwahr 1990: 64; Kontorli-Papadopoulou 1996: color pl. 1). All of the individuals in this painting wear headbands, and the men in the bleachers also wear necklaces. However, the seated women, who are substantially larger in size, are dressed more elaborately; they wear necklaces and, in some cases, bracelets. It has been suggested that the seated and standing women represent priestesses (Kontorli-Papadopoulou 1996: 41, #8), with everyone present for a “game or ritual” (Hood 1978: 62). The fresco referred to as the “Sacred Grove and Dance,” dated to the same period, also includes large crowds of men and women and a group of elaborately dressed women who may be dancing (Evans 1930: pl. 18; Immerwahr 1990: 173, pl. 23; Kontorli-Papadopoulou 1996: pl. 12, color pl. 5). Here, however, the men in the stands do not wear headbands.

The earliest reconstruction of the larger-than-life size LM IA “Priest-King” or “Prince of the Lilies” relief from Knossos (Pl. 40D) (Evans 1928: figs. 504 A-B, 508, 510-511) has been disputed (Immerwahr 1990: 171 references Cameron 1970, that the figure is a female bull-leaper; Coulomb 1979, with his suggestion that two figures are boxers; Niemeier 1988, indicating that the figure is a god; Waterhouse 1974; 2002, that it is not a priest-king). Hood (1978: 75-76), following Arthur Evans, suggested that the fragments may have come from more than one figure, perhaps a male with a crown,
“leading a sphinx…or a griffin…on a rope” (see also Immerwahr 1990: 52-53). Since sphinxes and women are more frequently shown with crowns or plumed headdresses, it would have been quite unusual if this significant component of the painting was worn by a man.

After a close examination of the fresco and a detailed study of associated iconography, Maria Shaw (2004: 81) proposed that the “Priest-King” may have been an elite athlete wearing a crown, “a kind of present-day ‘gold metallist,’ parading at the head of a procession in a place of honor…” Shaw suggested that excelling at athletic tests may have been one of the criteria for future Minoan rulers (2004: 82).

It cannot be certain that the “Priest-King” represents a priest, a king, a god, a prince, or an athlete. However, the elements of adornment appear clear. The figure wears a multi-colored bracelet on one preserved wrist and a simple necklace. A string of large lily-shaped beads is worn loosely over his shoulders. The most important aspect of the painting is surely the elaborate headdress. Hood (1978: 76) describes a crown “surmounted by stylized papyrus-lilies…[and] long feathers”; he suggests that the headdress “may be meant for one of metal, the white, red, and blue of the lilies representing silver, gold, and inlays of blue paste.” If this were indeed the case, it would have represented a spectacular headdress.

“Ladies in Blue,” also dated MM IIIB – LM IA (Immerwahr 1990: 58-59, 172), was recovered in very fragmentary condition (Pl. 40E). However, elements of the painting that survive include necklaces made from various types of beads (in one case, five strands), bracelets, and bead-like hair ornaments (Evans 1921: figs. 397-398; Evely 1999: 169; Kontorli-Papadopoulou 1996: 191, pl. 8). Although most of the beads are
round, others are shaped like cylinders, crocuses, and papyrus fans. One fragment, reconstructed as part of the central figure of three, includes the hand of a woman touching the beads in a necklace, similar to the gesture portrayed in the “Jewel” fresco (cf. Pl. 40A and E).

The “Cupbearer” and “Procession” fresco, dated LM II – LM IIIA, depicted at least two females and numerous males (Evans 1928: fig. 443, pls.12, 26-27; Evely 1999: 192, 229-232; Immerwahr 1990: 174-175, pls. 38-40; Kontorli-Papadopoulou 1996: 42-43, pls. 21-23). Except for the torsos of two males, most of what remained in the “Procession” fresco included the extreme lower portion of the painting. Both males and females wore U-shaped anklets, similar to those worn by the “Saffron-gatherers” from Thera (Doumas 1992: 152, 154, 156 figs. 116, 118, 120 ); Cameron’s restoration, however, has the men wearing blue beaded anklets (Evely 1999: 232). The “Cupbearer” also wore blue double-armlets and a bracelet, a blue earpiece (like a modern sideburn), and a sealstone on his left wrist (Pl. 41A). Immerwahr suggested that the blue armlets, anklets, and earpiece were “probably of silver” (1990: 88).

The last wall paintings from Knossos to be discussed are the LM II – LM IIIA “Taureador” panels. The most well-known of these paintings portrays a charging bull and three bull-leapers, two of whom are female (Evans 1930: fig. 144; Evely 1999: 165; Immerwahr 1990: 175, pl. 41; Kontorli-Papadopoulou 1996: color pl. 2). Immerwahr (1990: 91) indicates that the female acrobats, who may be adolescent girls, are differentiated from the males not only by their skin color, but also by their hairdos and their jewelry. The separate “Female Taureador” panel (Pl. 41B), which includes a single female figure on a yellow background, depicts a female quite like those from the larger
painting (Evans 1930: pl. 21; Evely 1999: 168; Immerwahr 1990: 175, pl. 42; Kontorli-Papadopoulou 1996: pl. 25). She wears a headband, two necklaces – one of which is beaded – as well as bracelets and armlets. The male bull-leapers also wear headbands, necklaces, and armlets (Evely 1999: 165).

Both miniature frescoes and life-size or large-scale depictions of humans may provide insight on Minoan society. Sara Immerwahr indicates that the miniature frescoes from Knossos – the “Grandstand” and “Sacred Grove” paintings described above – “suggest a female bias…as women are emphasized at the expense of men in fullness of portrayal and in position” (1983: 144). With the exception of the “Priest-King,” the reconstruction of which has been debated, women figure prominently in all Minoan wall paintings where jewelry is worn. This may reflect “the dominance of a female divinity and her priestesses” in Minoan society or the religious nature of palace life (Immerwahr 1983: 149).

Jewelry was also noted on fragments of a LM IA painted plaster relief from Pseira (Pl. 41C) (Immerwahr 1990: 185; Seager 1910: pl. 5). Richard Seager indicated that the fragments may have been associated with two figures, although only one woman was depicted in his restoration (1910: 32). Immerwahr (1990: 184) proposed that the relief may have included a goddess and a votary. In a more recent study, Shaw (1998: 74-75, pls. 41-44) provided several possible reconstructions, concluding that the most probable arrangement consisted of a seated woman with a standing woman to her left. Extant jewelry included two necklaces. One necklace was painted yellow and may have represented gold beads and gold bars; the other string of beads was blue, which Seager
suggested symbolized blue “porcelain” beads (1910: 34). The use of blue paint may have also designated silver (Shaw 1998: 58).

The painted limestone surfaces of the well-preserved Hagia Triada sarcophagus portrayed women and men wearing jewelry and headdresses (Pl. 41D-E). Dated LM IIIA, a ritual funerary scene is played out on four sides of the coffin (Hood 1978: 70-71, figs. 53-54; Immerwahr 1990: 100-102; Levi 1956). On one side, a man, presumed to be dead, stands in front of his tomb, while women pour libations in his honor and men present him with offerings, all to the sound of a lyre being played. On the opposite side, a bull sacrifice is carried out to the tune of pipe music. Both ends of the sarcophagus depict chariots, one drawn by griffins and the other drawn by goats (Immerwahr 1990: 180-181, pls. 50-53). In the libation scene, one woman wears an elaborate headdress and two bracelets on each arm; one set of bracelets is plain, while the other set appears to include at least one sealstone (Pl. 41E). The “goddesses” transported in the griffin chariot also wear headdresses (Hood 1978: 70, fig. 54; Immerwahr 1990: 101, pls. 52-53).

Wall Paintings: the Cyclades

Numerous Cycladic wall paintings, dated Late Cycladic (LC) I, are of interest to this study. A seated woman drawing a net or holding a cloth was recovered from Phylakopi on Melos (Bosanquet 1904: fig. 61; Hood 1978: 53, fig. 35A; Immerwahr 1990: 189; Kontorli-Papadopoulou 1996: 60, pl. 87). She wears bracelets that resemble thick, twisted wire. The most complete and visually arresting Cycladic wall paintings, however, are those from Akrotiri on the island of Thera (Santorini). Because these paintings were preserved, some in situ by a volcanic eruption and subsequent ash fall, details of color and composition are evident here that are not found elsewhere.
At the museum in Phira, where many of the Theran paintings are displayed, a descriptive panel indicates that jewelry of various colors can be equated with specific metals: yellow paint indicates gold and blue paint indicates silver. If one looks closely at objects that would most likely be made of metal – such as earrings or wire bracelets – this appears to be an accurate assessment, especially regarding the use of yellow or gold paint for annular earrings. Sara Immerwahr seems to accept this as well as she describes “gold” earrings, hairpins, and necklaces; in a discussion of Theran bracelets, she also equates blue with silver (1990: 61). Since the Theran palette included at least black, red, yellow, blue, purple, and combinations of these colors (Chryssikopoulou and Sotiropoulou 2003; Doumas 1992: 18-19), jewelry painted blue may have surely denoted silver. However, blue was probably also used to represent faience, lapis lazuli, glass, and cloth (cf. Evely 1999: 188 regarding Knossian wall paintings).

It should also be noted that the heads of all figures are painted in profile. Consequently, only one earring – never a pair – is depicted by the painter. Since earrings are shown on both left and right profiles, it will be assumed that the custom was to wear earrings in both ears.

Paintings from four buildings – House of the Ladies, West House, Building Beta, and Xeste 3 – as well as Sector Alpha, contain individuals wearing jewelry. Only two males, both atypical examples, wear jewelry. From what remains of the paintings, neither male would be described as having the characteristics or demeanor of a god, a priest, or an influential figure. “Boxing Boys” from Building Beta includes two young boys or adolescents, one of whom wears a gold earring as well as a blue beaded (silver or lapis lazuli?) necklace, bracelets, and anklets (Pl. 42A) (Doumas 1992: 112-115, figs. 79-81;
Marinatos 1971: fig. 3, pls. 119-120). The other male is from a Sector Alpha fragment called “The African.” This man, with curly short hair and “markedly African features” (Doumas 1992: 184, 187, fig. 148; Marinatos 1969: pl. B 3-4), wears a large gold earring. It must be noted, however, that curly, short black hair is also worn by the girls gathering saffron (Doumas 1992: 155, 161, figs. 119, 124) and, as previously stated, large gold earrings should not necessarily be associated with Africans.

With the exception of the young boxer and the man with the curly hair, jewelry is primarily an adornment for women in Theran wall paintings. Two mature women from the House of the Ladies (Pl. 42B) (Doumas 1992: 38, 40-41, figs. 6-7, 9-10; Marinatos 1972: pls. F-H) wear plain gold hoop earrings. One woman also wears a gold-trimmed headband and a silver bracelet on the wrist that is preserved, while the second woman wears a simple necklace. A woman from the West House, the “Young Priestess,” carries an incense burner or a lamp and wears gold earrings that are similar to the design of the cloth on her sleeve. She also wears silver and gold bracelets and a silver necklace (Pl. 42C) (Doumas 1992: 56-57, figs. 24-25; Marinatos 1972: pls. J-K).

Xeste 3 may have been a public building, perhaps with religious significance. Paintings of a ritualistic nature on the first and second floors of Room 3, with vivid depictions of well-adorned women, are frequently cited as evidence to support this point of view (Immerwahr 1990: 59, 62; Marinatos 1984, 1993). Among the paintings found in Xeste 3, “Lustral Basin” and “Adorants” include three females and an architectural feature that has been described as a shrine or altar (Doumas 1992: 129-130, figs. 100-108; Marinatos 1976: figs. A, F-J, pls. 58, 62-64). The three figures are considered to be
of high status, as they are adorned with “rich Minoan garments, elaborate coiffures and ornate jewellery of precious metals and rare gems” (Doumas 1992: 129).

All three women wear large gold earrings of a more elaborate type than have been illustrated thus far; dark red lines or dots painted over gold may indicate, respectively, chasing or engraving and granulation or dot repoussé. Two women have decorated their hair with ribbons or strips of cloth, edged in a reddish-gold. On the wrist that is preserved, one woman (Pl. 42D) wears a twisted silver bracelet, decorated with black dots that may represent dot repoussé or black beads. Her necklaces are of gold X-shaped beads alternating with red beads that may be carnelian, fan-shaped beads that may represent crocus stamens, and a silver necklace that matches the bracelet. She holds a rock crystal necklace in her left hand, a gesture that is similar to that of the “Mykenaia” discussed below (cf. Pl. 43A). The second woman in this scene wears two ornaments in her hair that may be metal or organic: a branch of myrtle and what appears to be a pin with a pomegranate finial (Doumas 1992: 129). The third figure may be identified as a young girl, as her head has been partially shaved (see Davis 1986 on the relationship between hairstyles and age in Theran paintings). In addition to gold earrings, she wears a silver necklace decorated with black dots, silver anklets, a gold bracelet, and a red beaded bracelet.

The second floor of Room 3 portrays a group of young women gathering saffron (Doumas 1992: 130-131, figs. 116-130; Marinatos 1976: figs. B-E, K, pls. 59-61). This scene is dominated by a large, seated female flanked by exotic and imaginary animals, including a monkey and a griffin. She is thought to be a nature goddess or “Mistress of Animals.” The “Saffron-gatherers” wear gold hoop earrings, some of which are
elaborated with red lines or dots. They also wear silver bracelets and anklets with black dots and gold or blue (silver or cloth?) headbands; one headband has black dots (Doumas 1992: 156, fig. 120), while another includes black and red dots (Doumas 1992: 167, fig. 130). One girl wears three necklaces of gold, silver, and what may be carnelian beads; her earrings are quite similar to those recovered from Shaft Grave III at Mycenae (Pl. 42E) (Hood 1978: 201, fig. 200; Immerwahr 1990: 58; Karo 1930/33: pl. 32, #61; Schliemann 1878: 194, fig. 293). Another girl, the only young woman with red hair, carries a bucket on her shoulder. She wears a double headband, a red-beaded necklace (carnelian?), and gold bracelets and anklets with red dots; her earrings are unique, composed of two interlocking gold hoops (Doumas 1992: figs. 129-130).

Great care is taken by the painter in his illustration of the jewelry worn by the “Mistress of Animals.” She wears a blue (silver or cloth?) headband with a blue earpiece and red beads in her hair (Pl. 42F). Her gold hoop earrings are quite large, with red dots around the circumference. On her left arm, which is reasonably well-preserved, she wears bracelets of gold and silver and one bracelet that may represent carnelian beads and blue (silver, faience, glass, or lapis lazuli?) papyrus fan-head pendants (cf. Morgan 1988: 179-180, note 64). At the bottom edge of her left sleeve are circular gold ornaments, perhaps representing gold disks that were sewn onto her clothing or a gold beaded armlet. One of her necklaces is the typical blue band with black dots worn by other women in Xeste 3. The other two necklaces, however, are what best exemplify the name she has been given. These necklaces have been created from zoomorphic beads, including what may represent gold, silver, carnelian, and rock crystal (or ivory) ducks, perforated and
connected by gold wire, and large blue (silver?) and gold dragonflies hanging from a
gold chain.

Less well-preserved images of other women, perhaps associated with aquatic
birds, were also recovered from Room 3. From the wall painting fragments that remain,
their only jewelry consisted of necklaces: one torque or collar-like necklace of red and
gold and another consisting of two strings of small black beads (Doumas 1992: 131, 168-
171, figs. 131-134; Marinatos 1976: pls. 65-66).

The jewelry from the Theran wall paintings provides a detailed visual account of
possible materials and techniques employed in the creation of mid-second millennium
BC adornments. The similarity of earrings worn by one of the crocus gatherers
(Pl. 42E) to those recovered from contemporary Mycenaean has already been noted. A
comparison can also be made between twisted bracelets and anklets worn by many
Theran women and those seen on the “Procession” fresco and the “Mykenaia” (cf. Pl.
43A). Materials used in the manufacture of jewelry worn in Thera, at least as represented
in the wall paintings, may have included gold (perhaps even copper-alloyed reddish
gold), silver, ivory, obsidian, and semi-precious stones such as carnelian, rock crystal,
and lapis lazuli. Some of the pendants may have been made from faience or glass paste.
Although there was a similarity in the design of objects worn by various women –
especially the gold earrings and the blue ornaments with black dots – many of the pieces
were unique to individuals. For example, the headband, bracelets, and necklace decorated
with red (carnelian?) beads matched the red hair of one girl (Doumas 1992: 167, fig.
130), and the ducks and dragonflies worn by the large, seated female surely conveyed her
special status as the “Mistress of Animals.”
Numerous necklaces, bracelets, and anklets are painted as blue strips with black dots. However, it is unclear what this artistic device was meant to convey. Was the artist representing silver bands decorated with dot repoussé or granulation, or blue cloth bands embellished with black stone beads? Pendants of this time period, illustrated by the ducks and the dragonflies of the “Mistress of Animals,” are painted to appear carefully constructed; the duck pendants include tiny curled legs. To maintain consistency, perhaps some metal pendants of this time period were produced in stone molds. Earrings seem to demonstrate the use of granulation, chasing and other detail work. Large annular earrings – so common on women and girls from the Theran paintings – are not found on any other Bronze Age Aegean wall painting.

Wall Paintings: Mainland Greece

Numerous LH wall paintings – from Mycenae, Tiryns, Pylos, and Thebes – depict women wearing jewelry. Three paintings from Mycenae include the “Mycenaean Lady” (LH IIIB), the “Goddess with Sheaves” (mid-LH IIIB), and the “Lady with the Lily” (perhaps LH IIIC) (Immerwahr 1990: 191). The “Mycenaean Lady,” also known as the “Mykenaia,” may depict a goddess (Pl. 43A) (Hood 1978: 79, fig. 62; Mylonas 1972: pl. 171). She wears beaded necklaces with red (carnelian?) and gold pendants; beaded and U-shaped bracelets; and a banded ornament that wraps around her long hair, similar to those worn by two women referred to as “Adorants” from Thera. In her right hand, she holds a necklace that is quite like those she is wearing; perhaps this is the “culmination of the Mycenaean processional theme,” as the “Mykenaia” receives an offering from attendants (Immerwahr 1990: 119; cf. Kontorli-Papadopoulou 1996: 61).
The upper portion of the “Goddess with Sheaves” (Pl. 43B) was very well preserved. Adorned with a plumed headdress, armlets, and bracelets (one with a amygdaloid seal), she may be a goddess of fertility (Immerwahr 1990: 121). The “Lady with the Lily” (Pl. 43C) wears a gold diadem, red pendants on a gold chain, and a gold U-shaped bracelet; perhaps she is part of a procession, as she carries an offering of a yellow lily (Immerwahr 1990: 120; Mylonas 1973: pl. 180).

A LH IIIB frieze of at least eight women, again in procession, was recovered from Tiryns (Immerwahr 1990: 114, fig. 26g, pls. 55-56; Kontorli-Papadopoulou 1996: 65-66, pls. 106-107; Rodenwaldt 1912: pls. 8-9). Facing left as well as right, the group included at least two women with dotted headbands and one with dotted hair ornaments (Pl. 43D).

The “White Goddess” of Pylos, also dated LH IIIB, wears a headdress set into a band and a necklace (Pl. 43E). Since fragments of another female figure, about half the size of the “White Goddess,” were also recovered, the goddess may have been accompanied by a priestess (Immerwahr 1990: 118, 197, pl. 58). A façade with sphinxes wearing headbands and perhaps necklaces was also recovered from Pylos (Immerwahr 1990: fig 35d; Kontorli-Papadopoulou 1996: pl. 127).

The last mainland painting to be reviewed includes a LH II – LH IIIA procession of nine to twelve life-size women from Thebes (Demakopoulou and Konsola 1981: color pl. 21A; Immerwahr 1990: 200-201; Keramopoulos 1909: pls. 1-3). In a reconstruction by H. Reusch, the women carry gifts and wear headbands and hair ornaments, multi-colored beaded necklaces, and beaded bracelets (Immerwahr 1990: color pl. 21). Necklaces from the 1909 publication of separate fragments of the painting indicate that
three strands of black and gold beads were strung with what appeared to be gold wire (Keramopoullos 1909: pl. 1.6-8).

Discussion

Adornment on the few extant EM anthropomorphic vases and other objects is minimal. Although simple headbands and necklaces decorate the vases, attention is drawn more to the patterned textile robes and the mechanisms for pouring (Pl. 37A-C, F). This focus on headgear – hats, headdresses, headbands – and necklaces, in association with elaborate textiles, continues into later periods, sometimes augmented by bracelets and armlets. Objects worn on the head and neck are also the most common forms of gold and silver jewelry from prepalatial Crete.

By the end of the MM period, women, men, and fantastical creatures are depicted with jewelry, although female figures remain in the majority. With one possible exception – the “Grandstand” fresco, where everyone wears a headband and a necklace – the addition of jewelry appears to be the artisan’s shorthand for status. Jewelry is often combined with other adornment that may also signify high status, such as intricately-patterned textiles or costumes and elaborate coiffures (e.g., figurines from peak sanctuaries such as Petsopha, the Snake Goddess figurines, and the Ladies in Blue fresco). Jewelry is also worn by central figures associated with ceremonial activities or public events (e.g., the Grandstand fresco and the Sacred Grove fresco). Sometimes, women wearing jewelry are seated (e.g., the fresco from Pseira and the Theran Mistress of the Animals).
Adding jewelry is the most visible way to elevate the rank of an unadorned male or female figure to god, goddess, priestess, lady of the court, votary, chieftain, or ruler. It should be noted, however, that none of these designations can be proven; the man with the staff on the “Chieftain” cup (Pl. 38E) may indeed be a prince or a ruler, but he may also represent someone of lesser status such as the leader of a military brigade.

Three-dimensional objects and wall paintings, dated MM III into the LM period, show an increase in the number and variety of ornaments that adorn human figures. Images of primarily women are decorated with multiple necklaces and bracelets and unique headgear (Pls. 39A-C, 40A-E). Necklaces include pendants of various shapes, and some bracelets appear to carry seals (e.g., Pl. 39A).

Elaborately-patterned textiles and jewelry decorate women in MM IIIB – LM IA wall paintings from Knossos and Pseira. These women may represent goddesses, priestesses, votaries, influential women unassociated with religion, or “ordinary women in festal dress” (quote from Immerwahr 1990: 40; Kontorli-Papadopoulou 1996: 52; Shaw 1998). Two paintings from Knossos – the “Jewel” fresco and “Ladies in Blue” – include images of human fingers touching the beads in a necklace (Pl. 40A, E). Drawing the attention of the viewer to the necklace, this gesture may relate to ritual acts of ceremonial adornment, perhaps of a priestess, queen, or important woman of the court.

Men in wall paintings wear jewelry less frequently. It is open to question whether the “Priest-King” is a priest, a king, or even a man. The “Cupbearer” and “Procession” figures, which date later to LM II – LM IIIA, depict men taking part in a procession, with no indication that any male figure is the focus of the event depicted in the painting.
Jewelry worn by male figures also tends to be less decorative, taking the form of plain armlets, bracelets, and anklets.

Although separated from prepalatial Crete by geographical distance and a chronological interval of perhaps 400 years, the wall paintings from Thera are instructive regarding the possible materials and techniques employed in jewelry-making at that time. The frequent depiction of large, gold hoop earrings is surprising (Pl. 42), as they are not seen at all on figurines or in wall paintings from EBA through LBA Crete. Earrings are also not featured in LBA mainland paintings, although we know of their existence through actual objects recovered from Mycenae (Karo 1930/33: pl. 32, #61; Schliemann 1878: 194, fig. 293).

A gesture related to the acceptance or offering of necklaces is first seen at Thera (Pl. 42D) and later at Mycenae (Pl. 43A), supporting the importance of beaded necklaces in the iconography of jewelry, perhaps in association with religious or political ritual. The custom of handing gold necklaces to honored individuals is known from Egypt; the “royal reward” scene is depicted on New Kingdom tomb paintings and stelae (Feucht 1999: 387).

Plain headbands are featured on many LH figurines and in wall paintings. Both the ivory head (Pl. 39G) and trio (Pl. 39F) include bands that appear to be rigid and may be representative of metal. The band worn by “Lady with the Lily” is painted gold and may represent a diadem (Pl. 43C). Overall, jewelry depicted in LH wall paintings is less detailed compared to earlier works from the Cyclades and Crete.

Finger rings and hair rings are not illustrated on any Bronze Age Aegean three-dimensional object or wall painting. Surely the small size of some figures would have
precluded the inclusion of finger rings. However, since large, gold signet rings are found in LBA burial contexts in Crete and on the mainland (Pl. 39H), we know they were worn by the living. Perhaps some were worn on a chain around the neck or the wrist and not as traditional finger rings. Might they be the amygdaloid seals seen on several depictions of bracelets? It may be, however, that signet rings were not associated with or worn by the types of individuals portrayed in Minoan and Mycenaean art.

Jewelry depicted on three-dimensional objects and wall paintings played an active role in conferring status on individuals in religious and perhaps secular environments. Jewelry – apparently highly crafted and in large quantities – has been associated with goddesses, priestesses, female votaries, and ladies of the court. To a lesser extent, jewelry was also worn by young male athletes – bull-leapers and boxers – as well as male votaries and perhaps military leaders. Jewelry – in particular headgear and necklaces – was also worn by sphinxes.

Bronze Age Aegean art may have served various purposes: to inform, to entertain, to propagandize in a manipulative way, to promote social cohesiveness, or to simply reinforce existing cultural norms. Although many individuals with jewelry are described by scholars as goddesses, priestesses, or votaries, it is uncertain how many of these figures were truly associated with religion and ritual. Regardless of the function of this material, to adorn a human figure with jewelry was surely to signify elevated status.
8. Artisans and Patrons

One of the greatest challenges in the study of prehistory is identifying individuals and groups behind the material culture that makes up the archaeological record. Although archaeologists attempt to understand cognitive processes (Flannery and Marcus 1996 [1993]; Renfrew 1985, 1993; Renfrew and Scarre 1998) and explain actions in terms of human agency (Bourdieu 1977; Dobres and Robb 2000; Giddens 1984; Hodder 1982b, 1997 [1986]; Miller and Tilley 1984; Shanks and Tilley 1992 [1987]; Shennan 1989; Tringham 1996), it is difficult to isolate instances of individual decision-making without the benefit of textual evidence (however, see Carter 2007; Hodder 2000).

Rather than seeing a piece of jewelry as an “instantaneous act of creation,” one might look more closely at the technological choices and sequence of operations that went into the production of a specific object (Dietler and Herbich 1998: 238; Lemonnier 1993: 2). An in-depth study of the crafting of an object may provide information on the actions of both artisans and patrons, illuminating aspects of the society in which they lived and worked.

Before and during the manufacturing process, the artisan thinks about the object he is producing. His actions are usually pre-meditated, and the choices he makes are design-directed (Costin 1998), as he knows what he wants in the finished product. Choices may be limited, however, by the existing state of technological advancement and the preferences or dictates of his patrons or customers. Within a class of objects, each form poses its own technological challenges, as there are alternatives for producing the same effect or solving the same problem (van der Leeuw 1993).
The final choices made during production relate directly to shared values and collectively-held beliefs (Akrich 1993; Knappett 2002) that stem from the specific social context in which a craft is learned and practiced (Dietler and Herbich 1994; Gosselain 1998). Artisans are the link between social norms and social practice. Those who create pottery, seals, jewelry, or other objects “must share systems of symbolic codes and meanings with their sponsors and consumers in order to effectively produce the desired goods” (Costin 1998: 5). Whether decisions related to raw material, form, or decoration were made by the artisan or the patron, the gold jewelry crafted in prepalatial Crete was the result of an underlying mental template possessed by both users and producers of prepalatial Minoan material culture.

French archaeologist André Leroi-Gourhan (1971; 1993) believed that the study of a society’s technology revealed aspects of belief systems and underlying social structure (see also Lemonnier 1986; 1993; Stark 1998). Leroi-Gourhan suggested that gestures used by artisans during the manufacturing process could be compared to speech as both are “a form of expression of the mind and language” (White 1993: xvii).

Leroi-Gourhan’s concept of *chaîne opératoire*, derived from Mauss’ notion of *enchaînements organiques* (Mauss 1979 [1935], as referenced in Dobres 2000: 154), relates to choices made in the operational or manufacturing sequence that transform a raw material into a finished product (Cresswell 1976). Pierre Lemonnier (1993: 3) suggests that “any technique…is always the physical rendering of mental schemas learned through tradition and concerned with how things work, are to be made, and to be used.” Dietler and Herbich (1998) as well as Dobres (2000) have suggested that the concept of *habitus* (Bourdieu 1977) – the routines of everyday life – provides a connection between
selections made among technical choices and underlying social norms (see also Hegmon 1998).

Certain courses of action are adopted during production and others are discarded. These decisions are affected by cultural traditions, environmental limitations, and knowledge of foreign ways (for symbolism attached to foreign objects, see Helms 1988; 1993; on the borrowing of technical features, see Pétrequin 1993). Choices may also be impacted by social, political, and economic pressures or may be used in a deliberate fashion to differentiate one group from another (Gosselain 1998). However, production systems and techniques are not static; they have temporal and spatial variability (Leroi-Gourhan 1993). The evolution of techniques can be examined through time. Also, boundaries between social groups can be identified through the study of variation and patterns in material culture (Stark 1998).

Case Study: the Mochlos Dog Diadem

The cultural biography (following Kopytoff 1986: 64) of the Dog diadem (MO 2) begins with its manufacture – probably at or near Mochlos – in the third millennium BC. Decisions related to design and construction were made by the artisan and his or her patron. Although the artisan may have had some experience in jewelry-making or a related craft, the simplicity of the diadem and the basic manufacturing skills required would suggest that workshop production of gold jewelry – with highly-skilled specialists and apprentices – had not yet been established in Crete (cf. Sbonias 2000 on EM seal production). Unfortunately, there is no way to determine if the patron was an individual, a group such as a family or clan, or the entire community of Mochlos. It is also unknown
if the patron – if an individual – wore the diadem or simply commissioned its manufacture.

What technological and cultural choices were made during stages in the life history of the Dog diadem from Mochlos (cf. Appadurai 1986; Dobres 2000; Nakou 1995)? Decisions related to the selection of raw material; the type or form of object produced; the techniques and tools employed in fabrication and decoration; the manner in which the object was maintained and used; and the method and context of final deposition. Also, does a comparison of the Dog diadem to jewelry from other sites or regions in Crete provide evidence of social boundaries or cultural interaction at this time?

Find Context of the Dog Diadem

In a 1908 letter to Edith Hall, Richard Seager reported his discovery of EM house tombs on a ledge of rock high above the sea at Mochlos, Crete. He described a tomb with rotted bones, one skull “literally smothered in gold ornaments of all sorts. Diadems, chains, pendants, gold flowers, branches of olive leaves…” (Seager 1908b). This find, which amounted to over 80 gold ornaments and beads, would stand as the greatest discovery of gold jewelry securely dated to EBA Crete.

Although Seager’s excavation notebooks have never been found, it appears that he was referring to Tomb 2, part of the Tomb 1/2/3 complex. This was the “richest” tomb in the cemetery (Seager 1912: 22) with finds that included the objects he described to Hall. One object of special note was a long, gold diadem decorated with four dot repoussé dogs (Seager 1912: 26-27, figs. 8-9, II.4 ) (Pl. 44A-D).

The diadem was part of a cache that had been deliberately placed into a deep cavity in the back of the tomb (see chapter 3). This hoard, which may have originally
been contained in a bag or wooden box, included numerous gold objects: diadems, strips, pendants, flower pins, leaf pins, fragmentary armlets or belts, bosses, rings, beads, and other ornaments. Short triangular daggers, other copper tools or weapons, EM pottery, seals (e.g., Pl. 44E), stone vases (e.g., Pl. 44F), and additional objects of gold, silver, lead, ivory, bone, and stone were also found in the tomb complex. The human bones were in poor condition and were apparently not retained or studied.

A Description of the Diadem

The Dog diadem is manufactured from thin sheet gold, with a length of 32.3 cm and a maximum width of 2.9 cm. The weight is 5.1 g. The artisan, perhaps with input from his patron, decided to use dogs as decoration. He thought out his design ahead of time and decided on the size and spacing of the elements, with pairs of dogs at each side facing the center. He lightly incised an outline of each dog and filled it in with dot repoussé. Because the diadem is narrower and curves slightly upward at each end, the two outside dogs have virtually no space above their heads, and their legs extend down into the border. It is clear that the artisan did not precisely measure elements of the diadem and did not use a template to create the animals. However, the dogs are all similar with curled-back tails and open mouths. The hind legs of the center-left dog (and less so, those of the center-right dog) are higher compared to its front legs. Perhaps the artisan intended to indicate movement. No feet are depicted on any dog. Between the two center dogs is a curious pattern of dots (Pl. 44C-D), which Vasilakis (1996: 99) suggests may represent θήραμα – quarry or game. Since the mouths of the dogs are open, their ears are forward, and they are portrayed in opposition to one another, the dots may also represent the sound of barking or perhaps barking at winged prey.
Dogs decorate other objects recovered from Tomb 1/2/3 at Mochlos. An ivory seal, which Seager describes as containing the “design of two cynocephalus apes back to back” (1912: 34, fig. 11.II.42a-b) may very well illustrate opposing dogs (Pl. 44E), as dogs often appear on seals dated to the Bronze Age in Crete (cf. Branigan 1970: fig. 13, on a seal from Platanos; Day 1984: 30, on later Minoan seals with dogs; Evans 1921: 120, fig. 88b, on a seal from Hagia Triada; Karytinos 1998: 84, fig. 5.8, on a seal from Archanes; Krzyszkowska 2005: 66, fig. 112c, on a prepalatial seal with a hunting motif). A cover for a stone vessel, perhaps for a pyxis, contains an outstretched dog with long limbs and a curving tail (Seager 1912: fig. 5) (Pl. 44F).

Two dogs, quite similar in appearance to the Mochlos dogs, decorate an EBA silver diadem from the island of Syros in the Cyclades (Papathanassopoulos 1981: 132-133, fig. 61) (Pl. 45A; for full diadem, see Pl. 48B-C). The Cycladic dogs, created with an outline of dot repoussé, have upraised ears and open mouths; they rise up on their back legs instead of their front legs. However, the artisan at Syros took greater care or was perhaps more skilled than his counterpart at Mochlos: he portrayed the Syros dogs with more detail, including eyes, collars, and genitalia indicating they are males.

Returning to the diadem from Mochlos, the artisan decided to use dot repoussé to create six vertical lines (three pairs) at each end of the piece and an uneven, single-dot border along the top and bottom edges (Pl. 44B). He added two perforations each, at the extreme left and right, intended as the means for attachment around the head or to a perishable material such as cloth or leather. The perforations are punched, but the visible ragged edges of the holes indicate he did not finish them in any further way. Two additional perforations are evident on the left side, one of which is associated with a tear
at the top of the diadem. A pin or pendant may have been stuck through these holes. The holes may also have been created to more securely attach this side of the gold band to its backing. The Dog diadem was recovered in two pieces, due to a vertical break in the band to the right of center (Pl. 45B). Associated perforations indicate that the object was repaired in antiquity, perhaps by someone other than the individual who created the piece.

Seager (1912: 26-27) noted “five places at regular intervals where the metal has been torn or broken away” (see also Davaras 1975: 109). He may have drawn this conclusion from his illustration of the object (1912: fig. 9, II.4) (Pl. 44B), as he prepared his publication of the cemetery. Although only three indentations are indicated on his drawing, Vasilakis (1996: 99, fig. 10.10) described four notches, perhaps one of which he associated with the extra perforations on the left side. It appears that the artisan cut out only three notches of approximately .5 cm in width along the upper edge (Pl. 44A). Close examination of the diadem revealed a small patch of gold of slightly different color, evident along the right upper edge. This may have been due to a chemical change during burial or to a repair. The patch did not seem to cover a notch, however, as it was quite shallow.

In 1971, during a cleaning of tombs at Mochlos, a crushed silver cup was found that contained a gold diadem and other gold objects, among them long, thin strips decorated in dot repoussé. These “antenna-like appendices” (Davaras 1975: 104) were originally attached to a diadem decorated with three or four abstract agrimia (MO 62, Pl. 24) and had been ripped off sometime before final burial. At the time of Seager’s
excavation at Mochlos, this type of diadem with vertical extensions was unknown, so he did not connect numerous strips of gold also found in Tomb 1/2/3 with the Dog diadem.

When this writer began her study of prepalatial jewelry, Costis Davaras suggested that antennae may exist that could be associated with the Dog diadem from Mochlos. With that goal in mind, a tray of antennae was studied in the Herakleion Museum (Pl. 45C), and a possible match was made with gold strips recovered from Tomb 2. Seager illustrated nine of the strips that were found in this tomb (1912: figs. 8.II.16a-f, 9.II.11b, 10.II.31a-b), but he thought they were “intended for fastening to garments” (1912: 30).

A few antennae on the tray were complete, which allowed the means of attachment to the band to be determined. Apparently, the artisan slipped the previously-prepared strips through horizontal slits he had cut at the top of the diadem, similar to the method used on the Agrimi diadem from Tomb 4/5/6 (Davaras 1975: 104; de Checchi 2006: 20). He then folded the antenna-like extensions over several times in the back of the diadem before perforation (Pl. 45D) and further fastening with a small piece of string, gold wire, or perhaps a plug-like rivet. When the antennae were later torn off, notches of a roughly rectangular shape remained. The six fragments of antennae that were reconstructed as part of the diadem were all of similar design and manufacture, with dot repoussé borders and single perforations at the rounded tips (Pl. 45E). Of course, it is also possible that single rather than double extensions projected up from each notch. The antennae, each approximately 10 cm in height, are flimsy and would not have stood up on their own. The single perforation at the tip of each extension indicates that they were
most likely affixed to a tall leather or cloth headdress (see chapter 9), perhaps by another craftsman.

Additional antenna-like extensions were recovered from Tomb 1/2/3, but without associated diadems. This was also the case in Tomb 4/5/6 and Tomb 19 (Davaras 1975: 109-110). So many extant antennae, recovered from several different contexts, would indicate that headdresses decorated with gold bands and upright extensions may have been a tradition at EM Mochlos.

Selection of Raw Material

The decision to use gold for the Dog diadem was likely made by the patron, perhaps due to the metal’s color, shiny appearance, ease in working, and availability. Silver, even if it was obtainable, was not used for diadems in prepalatial Crete, as least insofar as those objects that have survived. A greater knowledge of metallurgy was required to manufacture objects in silver (see chapter 4), whereas the most difficult aspect of gold working would have been the tedious production of thin sheet metal. Perhaps gold was selected over silver, bronze, or copper because of its rarity and its association with foreign elites or exotic locales.

Early jewelry-makers at Mochlos may have benefited from the arrival of gold as ready-made sheets. Surely, this would have been a practical way to carry the metal over great distances (see chapter 11 on evidence from Ebla on trade in sheet gold). Alternatively, the know-how for producing thin sheet metal through hammering and the crafting of objects like diadems may have been provided by Minoan or foreign traders who transported gold as nuggets, dust, or ingots. As in ancient Egypt and Mesopotamia (Moorey 1999: 13-14) as well as Classical Greece (Williams 1998a: 99), the patron
probably supplied the raw material to the artisan (see also Boardman 1996: 10; Kotsonas 2006: 154).

*Form and Iconography*

Most likely, the patron also suggested or even dictated the form of the object: a headband with tall, vertical extensions. Alternative forms of headbands that were not selected included simple decorated or undecorated bands of gold (e.g., *MO 3*, *MO 9*) and diadems with separate attachments, such as the Eye diadem (*MO 1*) that was worn with sprays of golden leaves or flowers stuck through the band.

As evidenced by EM anthropomorphic pouring vessels (Pl. 37A-C, F), the tradition of wearing simple headbands may have already existed in prepalatial Crete, perhaps paving the way for their execution in gold. This would have been known by both the patron and the artisan. When new types of objects are introduced into a society, acceptance may occur more quickly and easily if a variation on the form of the object already exists (Derevenski and Sørensen 2002: 117; Urban 2001: 67). Creating headbands in gold would have been an innovation, providing the greatest visual impact for this new, exotic metal. Decorated headbands were also one of the easiest forms for a craftsman to produce from sheet metal, requiring nothing more than cutting and punching. Perhaps the production of this new form of metal headband – the diadem – was stimulated by a developing market for prestige goods, driven by increasing social complexity and evolving social systems (cf. Sbonias 2000 on prepalatial seal production). The desire for social differentiation that might be satisfied by the use of gold diadems may have existed on an individual level, or it may have related more to group cohesion or competition.
What is the significance of the dog iconography? Did the patron or artisan have a favorite dog or pack of dogs that he immortalized in gold? Were dogs simply part of the Minoan artistic repertoire of natural images, which also included flowers, leaves, and birds? Or did images of dogs mean something more to residents of prepalatial Mochlos?

Today, dogs symbolize the qualities of loyalty, protection, courage, and guidance. In ancient times, dogs were frequently associated with the hunt (e.g., Andrews 1994: 64 on Old Kingdom Egyptian amulets; Immerwahr 1990: pls. 68, 70, 80 on LBA Tiryns and Pylos wall paintings) or depicted as companions to herdsmen (Lonsdale 1979: 149). In LBA and Early Iron Age Crete and mainland Greece, dogs were buried with humans; Leslie Day suggested that these animals were “…probably intended to act as companions or guardians on the journey to the Underworld…” (1984: 21).

In ancient Mesopotamia, dogs were associated with Gula, the goddess of healing (Gibson 1990). In Greek mythology, Cerberus or Κέρβερος – translated as “watchdog” – was the monstrous dog with three heads that guarded the entrance to Hades (James 2003: 9). Members of the dog genus Canis were also linked with life after death in Egypt, where the jackal Anubis, god of the underworld, was responsible for escorting the souls of the dead (Knight 1876 [1818]: 113).

Dogs depicted by craftsmen on jewelry and other prepalatial objects may have been the symbol of a family or an individual, with characteristics reminiscent of totems associated with early forms of social and religious organization. The totem itself is a name and emblem – a “true coat of arms” (Durkheim 1995 (1912): 99, 111) – used to decorate objects connected with a social group. In addition to the “collective emblem of
the clan,” totems may also be associated with an individual and are thought to “express his personality” as well as protect him (1995 (1912): 158-162). Dogs and Cretan agrimia, both depicted on gold diadems with vertical extensions, and recovered from the two largest house tombs at Mochlos, would be logical symbols for early social groups or individuals. However, if these animals represented true totems, one would expect to have found more objects depicting the animals and perhaps evidence of more than two moieties or lineages at Mochlos.

It cannot be determined if artisans used dogs strictly as decorative motifs or if dogs played a more significant role in the social and economic life of residents of EM Mochlos. One could argue that working dogs – either as hunters of prey or as companions to shepherders – must have participated in daily life in third millennium BC Crete. Dogs may have also been associated with illness, death, or life after death. To figure so prominently on a gold diadem, at least some dogs were surely held in high regard.

Fabrication Methods and Tools

Techniques employed by the artisan in the manufacture of the Dog diadem were not complex. No specialist knowledge of jewelry-making was evident. No special tools were necessary. However, the craftsman must have been something of an artist, as the dogs were sketched realistically and in proportion. He was also familiar with working with sheet gold, as he knew which tools would work to produce the desired result. Fabrication methods used by the artisan included hammering (if sheet metal was produced), cutting, chasing or incising, embossing, perforating, manipulating the sheet metal by hand, and perhaps burnishing. Since the metal was about as thick as heavy foil, great strength was not required. At only .01 cm in thickness (Vasilakis 1996: 99), the
diadem would not have stood up to repeated use. The artisan may have known in advance that the finished piece would be strengthened by its attachment to a backing of some sort. Only cold joining techniques – cutting a slit, slipping an extension through the slit, and folding the strip to keep it secured – were used to attach the vertical extensions to the diadem.

In her examination of the Agrimi diadem from Mochlos Tomb 4/5/6, Corinne de Checchi (2006: 20-21) described the difficulty that would have been encountered by an artisan as he or she attempted to incise a continuous line, as required to outline the animals. She noted an accidental double line near the top of one of the animals, where the artisan’s tool must have slipped (2006: fig. 7). Unintentional tool marks are also noticeable on the Dog diadem, near the repaired break (Pl. 45B). On the dog on the center right of the diadem (as depicted on Pl. 44B), an extra line is evident to the left of where the tail meets the body. The head of the dog on the far right has three unintentional tool marks: at the neck, the mouth, and the left ear. In each case, the artisan stopped and moved his hand and the tool to change the direction of his outline. This problem was avoided somewhat in other places as he incised the backs and tails of the dogs with short strokes forming broken rather than continuous lines (Pl. 44C-D).

The artisan used a knife or more likely an obsidian blade to cut the band and the extensions from sheet metal. The blade would have been extremely sharp to avoid any pulling or tearing of the thin metal. If any burnishing was required to remove fine scratches or smooth out wrinkles in the metal, it was probably done at this point. Subsequent decoration of the band from the back of the piece would have been best undertaken on a hard surface covered with a pliable material like leather. If a material
like leather had not been used, the repoussé dots may have had a flattened appearance. A sharp obsidian blade would have also been useful for cutting the horizontal slits in the upper part of the band. The slit on the right is cut deep into the back of the dog. This would suggest that the artisan did not take into account the additional space that would be needed for the slit, or that upright extensions were not part of the original plan but were added after the diadem was constructed.

The artisan created an outline of each dog and then filled in the outline with dots; dots on some legs spilled into the border (e.g., Pl. 44C-D). He would have required two types of awls: a scratch awl with a sharp tip for chasing or incising, and a rounded-tip (or dull?) awl for creating the embossed dot repoussé. The artisan was familiar enough with sheet gold to know that if he used a sharp tool to create the dots, it would have cut through the thin metal. Since the perforations for attachment at the ends of the band are larger than those used for the later repair, two different-sized punches or perhaps needles were used as well. A hammer would not have been necessary to drive the awls and punches, as they could be pushed into or through the thin metal with ease. All of these potential tools – knives, obsidian blades, awls, punches, needles, and burnishers – would have been available in a leatherworking or woodworking workshop. Of course, it is quite possible that metal tools were not used at all; sharpened sticks, worked animal bone, pieces of shell, and animal teeth, all easily available outside of a workshop environment, could have created the same effects.

*Maintenance and Use*

Considering the fragility of the piece, the diadem was recovered in very good condition. During the period of its use, the band would have surely deteriorated more
than it has if it had not been attached to a backing for support. As it is, the diadem was worn, broken, repaired, and most likely worn again, all before its final deposition. The repair is confirmed by three perforations, indicating someone mended the band, perhaps securing it with wire or thread, as it was reattached to its backing (Pl. 45B). The perforation on the right of the break was made from the back of the object. On the left, however, the bottom perforation is from the front, while the top perforation in from the back. This may indicate that a needle was used to poke holes in the metal and a needle and thread were used to reattach the band to its backing utilizing running stitches. The diadem was probably mended by a seamstress rather than a goldsmith. The presence of the repair provides unequivocal evidence that the diadem was not created strictly for sepulchral use.

Although this diadem appears to have been part of a headdress, there is no indication of why, when, or by whom the headdress was worn. Adornment will be discussed in more detail in the next chapter. Suffice it to say that a headdress of this sort, created partly from gold with dramatic upright extensions, would have been worn by select individuals during special or ceremonial occasions.

Although evidence of repair indicates that the Dog diadem was worn in life, the circumstances of its deposition are unclear. Did it decorate a corpse when the body was first interred? Were the extensions removed at the time of initial burial or years later when bones and grave goods were pushed to the back of the tomb? In the last role it played in Minoan life, did the Dog diadem – as part of a buried cache of gold jewelry – represent something other than personal adornment?
The antenna-like extensions were not carefully unfolded and removed from the diadem. They were ripped off, either by someone who did not understand the construction of the piece or in a deliberate forceful act. It is curious that the Agrimi diadem had its vertical extensions ripped off in the same fashion. Could the similar, intentional destruction of these two diadems represent the end of an individual’s or clan’s power, perhaps a symbolic “killing of the crown”?

Evidence from the Aegean Bronze Age confirms the deliberate destruction of grave goods such as pottery, bronze vessels, daggers, and marble objects (Åström 1987: 215; Broodbank 2000: 268; Hamilakis 1998: 122; Soles 1999, 2001). Several explanations have been offered to better understand this custom. Grinsell (1961: 476; 1973) compares the ceremonial “killing” of objects to the killing of humans and animals during funerary ritual; when an object is broken, its spirit is released, and it is then able to accompany the dead to the afterlife. Grave goods of a personal nature may also be destroyed in order to prevent them from being used again, either in deference to the deceased or because of a fear of objects associated with the dead (Fossey 1985: 23; Grinsell 1961: 477). Some objects, especially ceramic drinking vessels, may be broken as a symbolic act after use in burial rituals (see Betancourt and Davaras 2003: 136-137 for a discussion of ritual "killing" at Pseira). Intentional destruction of grave goods also illustrates the high rank of those able to destroy or remove valuable objects from circulation; in this process, the status of the deceased and his descendents may be elevated (see Broodbank 2000: 267-268 on the EBA Cyclades) or lowered.

Other objects from Mochlos were ripped or cut. Perhaps the family associated with various pieces of jewelry kept small parts of objects because of the value of gold
(Davaras 1975: 110) or for sentimental or other reasons (cf. Carter 2007: 100 on long obsidian blades). Gold fragments held back from final burial may have been melted down and used to create new objects. It is also possible that, years after burial, the objects had lost their human association and were thought of strictly as bullion – as gifts to ancestors or to the gods.

Social Boundaries and Social Continuity

Aspects of the design, construction, and deposition of the Dog diadem may illustrate social boundaries and social continuity in prepalatial Crete. Social boundaries, exemplified by distinct burial customs, may have existed between settlements on the islands of Mochlos and Pseira, both located off the coast of northeast Crete. While monumental tombs and hoards of gold jewelry were found at EBA Mochlos, burial practices and grave goods at Pseira were substantially less elaborate (Betancourt and Davaras 2003: 136), with only one fragment of gold (PS 1) found in an EBA tomb at Pseira (see chapter 3). This may indicate that elites, even those living on neighboring islands, deliberately demonstrated their status in different ways. As Lévi-Strauss (1992: xiv, also referenced in Lemonnier 1993: 18) stated: “diversity results from the desire of each culture to resist the cultures surrounding it, to distinguish itself from them – in short, to be itself.” Unfortunately, little is known about social practices at EBA Pseira and Mochlos aside from what has been gleaned from funerary contexts. Perhaps different activities, more or less associated with objects like gold jewelry, were conducted at each site.

Social continuity is demonstrated by characteristics of the Dog diadem as compared to jewelry from elsewhere in EBA Crete. Antenna-like extensions can only be
connected with certainty to diadems recovered from Mochlos. However, south-central Cretan diadems, also decorated in dot repoussé, contained built-in projections (KO 2) and leaf attachments stuck through slits (LE 1). A fragment of a diadem from Moni Odhigitria in the Mesara (see chapter 2), which probably dates to the prepalatial period, includes a cut-out, pointed central projection (Vasilakis 1996: 106, fig. 3.38, pl. 33a). Another diadem from the same site is decorated with an upright extension of two leaves, suspended on twisted wire inserted through a perforation (Vasilakis 1996: 105-106, fig. 11.37, pl. 32a).

Different expressions of the same idea – namely, gold headbands with projections or attachments – may indicate cultural continuity and contact between south-central and eastern Crete, in a manner similar to the regional variation seen in seal production during the prepalatial period (cf. Sbonias 2000: 281). However, attachments on diadems are also seen elsewhere in the eastern Mediterranean during the third millennium BC (see Part IV), such as the strips that project downward on diadems from Alacahöyük (Pl. 52B) or the tiny leaves on long chains that are attached to diadems from Troy (Pl. 50A).

In his discussion of the Agrimi diadem from Mochlos, Costis Davaras suggests that “the original ancestry of the Minoan diadems is considered to be derived from Mesopotamia,” with “these influences [evidently reaching] Crete through Syria” (1975: 109, note 69, citing Higgins 1961: 56). To illustrate his point, Davaras describes diadems from the Royal Tombs of Ur: a plain diadem, a diadem decorated with a dot repoussé border (Pl. 61D), and the highly crafted headdresses associated with Queen Puabi and her attendants (Pl. 61B).
The specific source or sources of imported gold and the exact nature of the jewelry created at sites such as Troy or Ur may not have been known to early Minoans. However, the gold that arrived in Crete as a raw material surely carried positive associations with distant peoples and exotic locales (cf. the "Versailles effect" in Wiener 1984: 17). These associations would have been transferred to the elite individuals, perhaps better described as “persons of influence” (Helms 1993: 4), that facilitated the arrival of the gold and the production of objects like diadems. The transformation of gold into a new form of personal adornment, including ceremonial headdresses, was clearly a non-utilitarian endeavor and must have been connected with political or ideological activities (Goldman 1970: 477; Helms 1993: 6, referencing Goldman).

The simplicity of design and imperfections in manufacturing suggest that the Dog diadem was not the result of specialized craft production. Decisions related to choice of raw material, form, use, and deposition were probably made by the patron. The dog iconography, perhaps associated with hunting or representing the clan buried in Tomb 1/2/3, may have also been determined by the patron or by a patron/artisan collaboration. Techniques and tools employed in fabrication, decoration, and repair were likely chosen by the artisan. The power of the symbolism associated with an exotic raw material like gold, translated into objects like the Dog diadem, surely enhanced the prestige of all involved: those who procured the gold as well as the individuals who commissioned, crafted, and were adorned by this jewelry (Helms 1988, 1993).

Adornment

From ancient times to the present, jewelry has been used in the construction and negotiation of individual and group identities. The earliest jewelry – small, perforated shells from Israel and Algeria (Vanhaeren et al. 2006) – may have been created as much as 100,000 years ago (see also Bardsley 2007; Bouzouggar et al. 2007 on shell beads from Morocco). Costume and adornment facilitate communication among members of a society (Hegmon 1998; Schwarz 1979; Wiessner 1989; Wobst 1977). Objects and combinations of objects can be used to “code” appearances, conveying different messages in different social situations (Biebuyck and Van den Abbeele 1984; Derevenski and Sørensen 2002; Sørensen 1997). Jewelry may also be used to reinforce ethnic identity or position individuals in terms of age, sex, social status, or cultural affiliation. More than simply reflecting status, prestige objects such as gold jewelry play an active role in creating and supporting social identities and strategies (Hodder 1982a; Renfrew 1986b).

Jewelry is also an effective means for social differentiation as complex societies begin to develop from earlier simple societies (Appadurai 1986; Schwartz et al. 2003), especially at a time of growing individualism (Hodder 2000; Treherne 1995). Wearing jewelry is a tangible way to express ideology and world view, as the natural body is transformed into a cultural body (Brain 1979: 15; see also Ebin 1979). Jewelry made of precious metals also acts as “[a reserve] of wealth, storing intrinsically valuable materials and the labor invested in their manufacture” (Costin 1998: 3). In the EBA Aegean, gold and silver were not only new commodities but a new way of expressing
and fortifying emerging cultural identities. Moreover, the desire for precious metals may have been a contributing factor to the further expansion of long distance trade in the Aegean and Eastern Mediterranean.

Some anthropologists “…view the body as a social ‘construction site’” (Meskell 1996, as referenced in Nakou 1999: 27), as it is a place of “mapped and inscribed social relations, specifically of displays and negotiations of power and gender dynamics” (Meskell 1996: 2). The body may be divided into zones, such as hair, head and neck, or extremities (Sørensen 1997). Over various cultures, the head appears to have special significance, perhaps because it is the “seat of perception and decision” (Clark 1986: 93; see also Crowley 1995: 478-479; Treherne 1995: 126) as well as the uppermost part of the body (cf. Renfrew 1986b on jewelry from Varna).

Headdresses are particularly well-suited to messages of group affiliation because of their visibility (Sørensen 1991, 1997; Wobst 1977). In a cross-cultural study of headdresses, Biebuyck and Van den Abbeele show that common components include high vertical extensions, perhaps made of natural materials like feathers, and attachments that hang down over the ears or forehead, often composed of pendants, beads, and chains (1984: especially pls. 64, 65, 69, 78, 95, 160; see also Borel 1994: 43, 63, 122). Headdresses may also contain temporary attachments that are added or removed as needed. Sound may be created by ornaments such as bells and chains, and the movement of the head may be emphasized during walking or dancing by elements such as feathers and other vertical attachments (Biebuyck and Van den Abbeele 1984: 18, 28). “Across human cultures the most elaborate markers of identity are often carried on the head of
important individuals” (Pittman 2003: 111). In early Cretan society, these symbols of authority are best exemplified by the golden diadems recovered from many parts of the island.

Most of the gold and silver ornaments found in prepalatial Minoan contexts appear to be fashioned for the head and neck: diadems; hair ornaments or attachments for diadems such as flowers, leaves, pendants, and antennae; and beads. Representative examples from each of these groups have been found at one or more sites in the north-central, south-central, and east regions of Crete. Because of their dramatic appearance when worn, gold diadems are especially appropriate for ceremonial use and public display, as they emphasize the face and can be seen from a distance. Some prepalatial diadems show evidence of repeated use, indicating that they may have been heirlooms worn by multiple generations. If this were indeed the case, the diadems would have taken on added significance, providing a tangible and symbolic connection to a “collective ancestral past” (Lillios 1999: 235).

Several prepalatial diadems provide clues on how they were worn. The Dog diadem from Mochlos, with perforated vertical extensions (MO 2), was probably part of a tall headdress that may have been decorated with additional gold ornaments as well as perishable materials such as patterned textiles, feathers, or other materials of vegetal or animal origin (Pl. 46A). The Agrimi diadem from Mochlos (MO 62) (Pl. 24) and the diadem with the central extension from Koumasa (KO 2) (Pl. 7A-B) may have also been the focal point of headdresses. If the extensions on the Agrimi diadem were not glued to fabric or leather, the antennae would have “[waved] freely above it” with any movement of the head (Davaras 1975: 112).
The only diadem with its means of attachment in place – slender, twisted gold ties, perhaps originally strengthened with animal or human hair – was found at Lebena (LE 1) (Pl. 6A-C). The excavator, Stylianos Alexiou, placed it on the head of a young Cretan girl to demonstrate how it may have been worn (Alexiou 1960a: 225) (Pl. 6B). The Lebena diadem had a thin center extension that is now broken; this built-in vertical strip may have resembled the antennae of Mochlos. The diadem from Lebena also contained leaf attachments, which were fastened to the diadem by means of slits in the metal.

Separate attachments, in the form of sprays of olive leaves or perhaps crocus pins, were most likely stuck through the Eye diadem from Mochlos (MO 1) (Pls. 12, 46B). A group of ragged, symmetrical holes to the left of the eyes indicates that attachments were stuck through this diadem again and again (Pl. 12D). Based on the direction of the excess metal around each perforation and the extant vertical crease in the middle of the holes, it is clear that the metal band was pinched as horizontal pins or attachments were pushed in on the left and came out on the right. Poke marks are also visible around the holes, suggesting that not every attempt to pierce the metal was successful.

Several other diadems have been found with perforations indicating that something was fastened to the bands when they were worn. Attachments may have included flower pins, pendants on chains, or leaf clusters found in the same tombs (e.g., MO 3, MO 39). The series of small leaf-like pendants from Mochlos (MO 24), with jump rings in perfect condition (Pl. 17H), may have hung from a cloth or leather headband (Pl. 46C). Organic materials that changed with the seasons – leaves, flowers, and feathers – may have also decorated the diadems.
Before the appearance of gold in Crete, village elders, clan leaders, or other persons of influence may have participated in community-wide ceremonies that included the wearing of costumes and headdresses. In that case, the arrival of gold and its first use in adornment would have enhanced and reinforced existing tradition and ideology. Alternatively, gold diadems and other jewelry made from precious metals may have been commissioned and worn by a new group – emerging elites – as a tangible way of distinguishing themselves and legitimizing and institutionalizing their authority.

Evidence exists to support both propositions. Virtually every gold object securely dated to the prepalatial period was recovered from a context of collective burial; this would suggest that the final deposition of these objects was associated more with the interests of the kin group or clan buried in the tomb or with individuals that represented the group. However, EM I – II pottery deposits from Knossos indicate a move away from the use of large, communal vessels for ritual consumption of food and drink to smaller jugs, bowls, and footed goblets that would be used by individuals; this change may be associated with “a breakdown of traditional ties and relationships within societal groups” (Day and Wilson 2002: 149-152, fig. 8.4). Perhaps a new form of adornment such as gold jewelry was embraced by emerging elites as a potent form of further social differentiation within a group environment (see Bailey 2004: 343 on Varna; also Renfrew 1974: 74-82 on "group-oriented" and "individualizing" societies).

Diadems have been the focus of this discussion of adornment. However, there were other gold objects found in prepalatial contexts that should be briefly reviewed. The broken staff or scepter from Mochlos Tomb 5 (of 4/5/6) (MO 53), with four to six dangling leaves, could be described as a symbol of authority (Brown 1981; Crowley...
1995; Peebles and Kus 1977; Soles 1988) and was likely carried in a ceremonial context. If the staff had been twisted back and forth, the leaves would have swung around, creating a rhythmic sound. Appliqués, bosses, and disks from many sites (e.g., MO 93, MO 100, AR 12, LE 3, KR 7, PL 13) may have decorated special robes or other articles of clothing. Large and small beads, forming necklaces and bracelets, were frequently recovered; although not all of these ornaments may have been used in ritual contexts, some of the larger beads (e.g., PL 1, PL 9, PL 11, LE 4, MO 48) were designed for maximum visual impact, while in fact utilizing a small amount of gold in their manufacture.

*Evidence of Ritual in Prepalatial Crete*

Although gold and silver ornaments such as simple finger rings and wire bangles may have been worn in the course of daily life, most of the jewelry recovered from prepalatial Minoan contexts was surely associated with ceremonial activities, perhaps worn repeatedly as part of public ritual and display. At least 14 diadems of various shapes and sizes were recovered from Tomb 1/2/3 at Mochlos, indicating that ceremonies may have taken place where more than one participant wore gold (see especially MO 81 and MO 82, two diadems manufactured to similar specifications).

To better understand how gold jewelry, particularly diadems, may have been used in ceremonial display, evidence for ritual activities in prepalatial Crete will be reviewed. The emphasis will be on evidence from mortuary contexts, as cemeteries appeared to be the focal point for community ritual during early periods (Branigan 1993, 1998a; Dickinson 1994; Marinatos 1993), with tombs revisited for ceremonies after initial
burials took place (Betancourt 2007: 37). It should be noted, however, that events may have also taken place within settlements; open area 85 at EBA Myrtos was paved with large slabs and contained a stone bench (Warren 1972: 78-79) and may have been used for such purposes.

Although burials in third millennium BC Crete occurred in rock shelters, caves, and in-ground built tombs (Watrous 1994: 701), new types of tombs of a more monumental nature were also constructed in Crete during this period. Tholoi in north-central and south-central Crete and house tombs in east Crete – large, above ground, and built to last – sent a “message of permanence” (Hatzaki 2006, describing the Temple Tomb at Knossos), remaining visible to adjacent communities for thousands of years. Status must have accrued to those who were responsible for financing and supervising the building of these tombs. Perhaps the construction of monumental tombs as well as the ability to commission, wear, and ultimately dispose of gold jewelry were ways to materialize existing or emerging ideology and to consolidate and extend the power of a dominant group (DeMarrais, Castillo, and Earle 1996).

Evidence of habitual or ritual activities associated with prepalatial Minoan cemeteries included the consumption or offering of food and drink and periodic clearing operations within tombs to make room for subsequent burials (Branigan 1987, 1993; Dickinson 1994; Hamilakis 1998; Marinatos 1993; Soles 2001; Watrous 1994). These events, which perhaps varied by site or region, may have been held in public as a part of community ritual and collective mourning, as is the case with mortuary rituals conducted in Greek villages in recent times (Danforth 1982). Public rituals associated with the treatment of skeletal material may have marked stages in the transition from corpse to the
realm of ancestor, as the dead became part of the collective identity of a community
(cf. Keswani 2004 on Bronze Age Cyprus; Metcalf and Huntington 1991; Murphy 1998;
Porter 2002 on third millennium BC Tell Banat in Syria; see also van Gennep 1960
(1908) on rites of passage and funerary ritual).

As Priscilla Keswani notes in her analysis of mortuary ritual in Bronze Age
Cyprus, periodic ceremonies related to the secondary treatment of human remains could
be planned in advance, allowing their organizers time to accumulate food and drink as
well as invite guests from outside the community (2004: 82). Repetitive ritual activity
such as this would surely enhance the status of the sponsors, perhaps even strengthening
alliances among communities (Day and Wilson 2002: 160; Keswani 2004: 82). It would
also reinforce the social memory of ancestors long departed (Chesson 2001), allowing a
community to “reaffirm its sense of unity and continuity” (Halbwachs 1992)

Outdoor enclosures have been found in conjunction with prepalatial cemeteries in
south-central Crete (e.g., Platanos and Koumasa) and east Crete (e.g., Mochlos and
perhaps Hagios Antonios). Gold jewelry has been recovered from tombs connected with
these spaces. Enclosed, paved, or pebble-surfaced courtyards were probably constructed
for rituals connected with the burial of the dead or the veneration of ancestors, and may
have been gathering places for community-wide events such as harvest festivals and other
annual celebrations.

Outdoor spaces provided a “focus for kin-group and village expressions of
community and stability” and would have been appropriate places for festivals and
celebrations before the construction of the palaces (Branigan 1993: 137; 1998b; see also
Marinatos 1993: 30 on harvest festivals and feasting in prepalatial Crete). Public
gatherings would have been appropriate occasions for adornment with gold jewelry, as prominent members of the community – individuals with high religious, political, or economic status – took part in associated activities. People are bound to each other by common rituals, especially those that reinforce a shared ideology. Ritual is also the way that cultural traditions and beliefs are taught to younger members of a community.

Ritual drinking, ritual feasting, and other ceremonial activities probably took place (Branigan 1993; Hamilakis 1998). Ceramic models of dancers and musicians suggested to Keith Branigan that paved areas may have been designed for dancing accompanied by the playing of music, perhaps related to spring and fall festivals associated with a vegetation goddess later identified as Ariadne (1993: 130-136). Dancing was also depicted on later Minoan pottery, wall paintings, seals, and rings (German 1999: pl. 60; Immerwahr 1990: 33, pls. II, 23, 43; Mandalaki 2007). No direct evidence exists to indicate the exact nature of festivals that took place in prepalatial Crete. However, music and dancing were likely part of these activities. Gold jewelry – diadems with swaying antennae and dangling pendants and leaves – would have accentuated the movements of dancers and others participating in these events.

Finds of golden leaves and flowers at Mochlos and in the Mesara, used as attachments to diadems or perhaps placed in the hair, may indicate that perishable leaves and flowers, corresponding with seasonal harvesting activities, preceded durable gold ornaments as adornments for the body. Three sprays of leaves from Mochlos (MO 19) may represent olive leaves, with olives generally harvested in the late fall and early winter. Crocuses (see MO 16) may have also been cultivated for seasonal harvesting (see Doumas 1992: fig. 166 ff, depicting crocus-gathering). Gold flowers and leaves
continued as popular motifs as the Bronze Age progressed, as they were used for adornment for the head and hair well into the Mycenaean period (e.g., Karo 1930/33: pl. 11; Mylonas 1966: pl. 100) and beyond.

*The Power of Gold Jewelry*

Power – control, authority, or influence over others – is exercised by individuals and groups. Power is also imbued in material culture: objects and places that exert a special force or energy and perhaps trigger a reaction among those who come in contact with them (DeMarrais, Castillo, and Earle 1996). The power inherent in things and places can be transferred to those who own or are closely associated with them. However, material culture, and the power it maintains, is not static; meaning and value may change as an artifact moves between spatial or temporal contexts (Myers 2001; Myers and Kirshenblatt-Gimblett 2001).

The power of gold jewelry in prepalatial Crete may be understood in several ways: by its connection with exotic lands and foreign elites; by special properties associated with the metal; and by its use not only as adornment in life but also as an offering in death.

*Cultural Implications of the Arrival of Gold in Crete*

During the prepalatial period, Crete was at the margin of Eastern Mediterranean exchange networks (Broodbank 2000: 284, fig. 93). Objects recovered from northern coastal sites such as Archanes-Phourni and Hagia Photia indicated interaction with the Cyclades. Silver was also imported from Siphnos (McGeehan-Liritzis and Gale 1988; Stos-Gale 1985; Stos-Gale and Gale 1984) (see chapter 4). However, extant
archaeological evidence of direct or indirect long-distance foreign contact was limited to metals, obsidian, exotic raw materials such as hippopotamus ivory, and a few small, manufactured objects, e.g., Egyptian scarabs found at Lebena (Alexiou and Warren 2004) and a probable Syrian cylinder seal from Mochlos (Aruz 1984; Seager 1912: 22, fig. 36.I.n; see also Wiener 1991: 325 ff on "goods which leave no trace").

Using the terminology of a world system model (Frank 1993; Rowlands 1987; Sherratt 1993, 1994a; Wallerstein 1974), a move from margin (prepalatial period) to periphery (old palace period) to core (new palace period) may have been stimulated by a desire for luxury goods (Sherratt and Sherratt 1991: 354, 358) such as gold and ivory. The Sherratts propose that exchange during this period was a dynamic process, leading to increased production of commodities for export and greater interaction with urban centers of the Near East (1991: 354-355).

During the prepalatial period, Crete may have traded textiles, goods associated with animal husbandry (see Sherratt 1981 on the "secondary products revolution"), or agricultural products such as cereal crops, olive oil, and wine (Dickinson 1994: 46-47; Renfrew 1972a: 280 ff; Tzedakis and Martlew 1999 on the early production of olive oil and wine; Whitelaw 2004). Contact at this time was also facilitated by improvements in seafaring (see Broodbank 1989; 2000; Cherry and Knapp 1991; Knapp 1985; Renfrew 1972a for a discussion of changes in the early Aegean related to longboat technology).

By the mid-third millennium BC, the culture of EBA Crete was in transition, as evidenced by growing populations (Renfrew 1972b: 394, table 3), settlement development and expansion (Branigan 1972; Warren 1972: 268; Watrous 1994: 701; Watrous, Hadzi-Vallianou, and Blitzer 2004: 226), rising agricultural production (see
Renfrew 1972a: 280 on the "Mediterranean triad" of wheat, vines, and olives;
Watrous, Hadzi-Vallianou, and Blitzer 2004: 239-240 on EM II evidence of the
cultivation of olives, grapes, barley, and wheat), and increasing domestic and long-
distance trade (Day and Wilson 2002: 152; Schoep 2006: 58; Sherratt and Sherratt 1991:
367). Whether cause or effect, these factors were connected with an increased pace of
societal development (see Renfrew 1972a: 36 ff. on the "multiplier effect"). The arrival of
new, exotic raw materials – such as precious metals and ivory – and the power of
advanced foreign cultures embedded in these materials, allowed for an acceleration and
materialization of power in Minoan society. Suddenly, there were tangible, enduring,
even spectacular ways to demonstrate and display status. This is no better illustrated than
by the first appearance of gold jewelry and ivory seals in the archaeological record.

Part of the power contained in foreign objects and raw materials relates to the
culture they represent, and the transfer of these objects and materials accelerates the
transfer of culture (Urban 2001). The social relations that naturally accompany the
exchange process are also crucial and may be more significant in the long run than the
goods traded. Mary Helms (1988; 1993) suggests that political-ideological knowledge
 gained through long distance contact is as important as economic benefits obtained
through trade in material goods, with both contributing to cultural change. Potent
symbolism is associated with geographical distance, with the “status, power, and
authority” of those who control knowledge of foreign places legitimized and enhanced
(Broodbank 2000; Helms 1988: 11; 1993: 3). Elites or individuals of influence,
associated with increased access to material and social resources (Schoep 2006: 50), are
frequently connected with foreign goods and knowledge (see also Wiener 1984: 17).
Links between these individuals “provide the paths along which…decorative and
dress fashions…spread” (Sherratt 1994b: 253 on EBA Europe; see also Treherne 1995:
114). In the case of EM Crete, this would include raw materials such as metals, semi-
precious stones, and ivory as well as the information on how these materials might be
transformed to differentiate and objectify status.

The Special Properties of Gold

Although the physical properties of gold are discussed in detail elsewhere in this
work (see chapter 4), certain characteristics may be suggested as responsible for the
special regard in which gold is held and the power imbued in gold jewelry. Like
gemstones, no intrinsic value exists in precious metals except as it relates to their modern
use in science and industry. It is humans who give gold nuggets, gold ingots, and
manufactured objects their value. The desirability of finely-crafted gold jewelry may be
due to the metal’s warm, sunny color as well as its scarcity. Gold does not tarnish like
silver; it retains its luminosity even when buried for thousands of years.

Gold jewelry is a common family heirloom (Lillios 1999), perhaps because it
maintains or increases its value through time. Individual pieces of jewelry often have
strong, sentimental connections and social memories associated with them; this writer
wears two rings that were worn by her grandmothers. With minimal care, gold jewelry
maintains its form in perpetuity and provides its original owner with a kind of
immortality, as it is passed down through generations. Gold also has transformative
powers: with the addition of a golden crown and scepter, an ordinary woman becomes a
queen.
Gold Jewelry in Action and Repose

With newly constructed, monumental tombs, suitable places now existed for the deposition of valuable objects associated with venerated ancestors. Upon its burial, the power of the jewelry was passed from the domain of the living to the realm of the ancestors. Even if jewelry was initially buried with individuals, this personal association ended when skeletal remains and grave goods were moved within tombs. Just like the bones, the jewelry became part of the collective identity of the clan or community, providing a message of permanence and continuity.

Richard Seager believed that the burials at Mochlos were secondary (1912: 15, 32-34), with bones and grave goods moved from elsewhere (see also Davaras 1975: 111). However, it is unknown whether the initial interment took place nearby (e.g., objects found in Tomb 2 were originally buried in Tomb 1 of same complex) or whether skeletal remains and offerings were moved from a more distant location.

Deposits of gold jewelry were recovered from each of the largest tombs at Mochlos. Tomb Complex 1/2/3 contained the richest deposit, with numerous diadems, pendants, and other objects recovered from a deep, partly constructed cavity in the back of the tomb (Seager 1912: 23). The second group of objects were found carefully packed inside a silver cup associated with the Tomb 4/5/6 complex (Davaras 1975: 101; Soles 1992: 58). The gold jewelry in these hoards may have been gathered up and relocated by those that also moved the bones. Alternatively, these groups of objects may have had a special purpose as votive hoards, collected together at the time of reburial and re-deposited for ritual or ceremonial reasons (cf. Eluère 1983: 82; Harding 2000: 354 on
Bronze Age Europe). Places of burial, shrines, and deep pits are all quite suitable for votive hoards (Bradley 1990: 11).

Evidence of a ritual deposit in a mortuary context has been identified in Gournia in east Crete: EM II bones and other grave goods were relocated to a pit dug inside a new MM IA tomb (Soles 1992: 8-9, 31; 2001: 233). In central Crete, c. 1800 BC, skeletal remains and grave goods from an entire community were moved to the Hagios Charalambos Cave (Betancourt, personal communication). In south-central Crete, a small compartment was identified that had been built against an interior wall in Tomb II at Lebena: EM I vases and a marble figurine may have been part of a hoard associated with a founder of the community (Alexiou and Warren 2004: 192, see chapter 2)

Gold jewelry was a potent form of adornment during the prepalatial period in Crete. Diadems and other ornaments were likely worn in ritual contexts, perhaps at ceremonies associated with the primary or secondary burial of members of the community and at annual events such as harvest festivals. The power of gold, with its connection to exotic foreign places, may have helped to establish and reinforce the status of individuals who were involved in local ideological, political, and economic life.

Emerging elites may have been instrumental in the building of monumental tombs for corporate groups, of which they were members, simply because they had the economic and political means to do so. Perhaps these same persons of influence commissioned the crafting of gold jewelry for use in ritual display with its later deposition in collective tombs. “Communality and group identity” (Treherne 1995: 107) would be maintained, while the power of certain individuals, the opportunity for prestige
display, and the creation and reinforcement of social memory might be demonstrated in a socially-productive way. This may have been especially significant at a time of transition – that period preceding the building of large palace centers. No evidence exists to indicate that the power exerted by emerging elites during this period was oppressive. Indeed, perhaps these early markers of cultural change were employed for the good and toward the continuity of the community.
Part IV: Prepalatial Minoan Jewelry in Perspective:
Jewelry from the Aegean, the Eastern Mediterranean, and the Balkans

During the second half of the third millennium BC, gold or silver jewelry and ornaments were manufactured in Crete, the Cyclades, mainland Greece, and the Troad. The EBA was a time of expanding contact and trade, with the movement of precious metals contributing to a florescence of gold working not only in the Aegean but also in many other parts of the Eastern Mediterranean and beyond. Traditionally known as the Early Bronze Age, this period might more aptly be described as the “Early Gold Age” (Bass 1966: 26).

Part IV will begin with a review of Aegean gold and silver jewelry that dates to the period directly preceding the EBA: the Final Neolithic (FN) period, c. 4500 – 3300 BC. Early Minoan jewelry will then be compared with jewelry crafted from precious metals found at primarily third millennium BC sites in the Aegean as well as selected sites in Western Asia, Mesopotamia, Egypt, and the Balkans (see maps 2 and 3 for key sites mentioned in text). The use of gold versus silver, manufacturing methods, classes of objects, iconography, and other evidence will be evaluated with the purpose of providing a comparative overview. The objective of this analysis is not to locate a single source of inspiration for early Minoan jewelry but to illuminate how prepalatial jewelry fit into the first widespread use of precious metals for personal adornment.
10. The Aegean

Neolithic Aegean Jewelry

Although the deposition of gold and silver jewelry in Aegean burials and hoards occurred more frequently as the third millennium BC progressed, objects made from precious metals were also recovered from Neolithic contexts. The earliest gold and silver ornaments in the Aegean appeared toward the end of the fifth millennium BC (Muhly 2002: 77). Jewelry dated to the FN (c. 4500 – 3300 BC) (Pl. 47) included perforated rectangular and oval strips, disks, pendants, wire bracelets, and beads. Most of these objects were plain and crafted from sheet metal or wire. A few pieces were decorated with punched dots, perhaps the first examples of dot repoussé.

Ring pendants – sometimes referred to as “idols” or anthropomorphic pendants – appeared to be a signature class of jewelry in the FN period (e.g., Pl. 47C-D). Although widely distributed during the FN, they were rarely found in contexts dated after the beginning of the EBA. These pendants were usually flat circles of sheet gold with a central opening and a tab perforated for suspension. Ring pendants were manufactured in various shapes and sizes in gold, silver, copper, lead, clay, bone, and stone (cf. Demakopoulou 1998: 51-67; Makkay 1989: 42, fig. 2).

The Cyclades

All but one piece of jewelry from the EBA Cyclades – a single gold bead – was manufactured in silver. However, a few objects dated to the Neolithic have been recovered in gold. A perforated gold strip was found in the LN Zas Cave on Naxos
In 2002, a gold ring pendant was discovered during an excavation at Ftelia, a beach on Mykonos (Neolithic Gold on Myconos [24 December] 2002).

**Mainland Greece**

The earliest metal jewelry from mainland Greece was also dated to the Neolithic period. Numerous gold ornaments were recovered from FN sites in Macedonia in northern Greece. A hoard of six objects from Aravissos near Pella contained two perforated oval strips (Pl. 47B) that resembled the gold strip found in the Zas Cave in Naxos as well as strips recovered from Varna, Bulgaria (Demakopoulou 1996: 196; 1998: 63, #58-60; Muhly 1996: 79; Papathanassopoulos 1996: 339, #301; Zachos 1996a: 167). Other gold objects in the Aravissos hoard included two ring pendants (Pl. 47C), a disk with a single perforation in the center (according to Makkay 1989: 41, a broken pendant), and a small strip that was identified as a finger ring, all produced from sheet gold (Makkay 1989: fig. 1, #1-6; Papathanassopoulos 1996: 340, #302-303; Zachos 1996a: 167). The precise location of the find spot was not known; however, the nature of the objects suggested that the hoard may have been an ensemble of jewelry associated with a burial from a nearby cemetery (Zachos 1996a: 167).

A single gold cylindrical bead was found at phase III (c. 4600 – 3500 BC) Sitagroi (date from Elster and Renfrew 2003: xxvii, preface table 1; Muhly 1985: 112; 1996: 79; Muhly 2006: 158; Papathanassopoulos 1996: 339, #300; Renfrew and Slater 2003: 304-305, 315, fig. 8.1e, pl. 8.4), while two gold beads and possibly a gold hook
were recovered from FN contexts at Dimitra (Grammenos 1997: 270; Muhly 2006: 156; Zachos 1996a: 167 indicates that one bead was found).

A collection of FN gold ring pendants (Pl. 47D), pendants in other shapes, disks, bosses, strips, and beads have been identified and studied by Demakopoulou (1998: 51-62). A few of the bosses were decorated with a dot repoussé border. Although lacking provenance, these objects were similar to pendants and beads that were recovered as stray finds from several locations on the mainland. For example, in 2006, a Greek hiker found a FN gold ring pendant in a field in northern Greece (Kantouris 2006). Gold ring pendants have also been recovered at Sesklo and Platomagoules in Thessaly (Demakopoulou 1998: 62, #56; Zachos 1996a: 167, 339, #299) as well as from the Theopetra Cave (Demakopoulou 1998: 63, #57; Kyparissi-Apostolika 1999: 145, fig. 12.4).

Kyparissi-Apostolika (1999: 145) noted that silver ring pendants were recovered from the Euripides Cave on Salamis (Demakopoulou 1998: 64, #62) and from Poliochni on Lemnos (Bernabò - Brea 1964: 376, pls. 170.3, 177.25, dated to the Red Period, EBA I-II). Further south, a group of silver objects (Pl. 47E) – a ring pendant, bracelets, and beads – were found in a secure FN context: the sealed Alepotrypa Cave in the Peloponnese (Demakopoulou 1998: 65; Pápathanassopoulos 1996: 227, #41-43).

**Crete**

A silver ring pendant (Pl. 47F) was found with a silver wire ring, perhaps a hair ring, and a silver spool-shaped bead at the Amnissos Cave in Crete; these objects were grave goods associated with a burial near the cave (Betancourt and Marinatos 2000: 213-214; Vasilakis 1996: 90, 154, 187, photos 8d, 69, 92e). The Cretan pendant was different
from other examples, as it contained a small, punched central perforation rather than a larger opening (cf. Pl. 47C and Pl. 47F). Although the shape of the pendant suggested that it should be dated to the FN period, it may be from the EM period (Betancourt and Marinatos 2000: 213; Muhly 1985: 112; 1996: 79, citing Hood 1978: 190). Demakopoulou proposed a date of 4000 – 3000 BC for the pendant (1998: 64, #63).

The earliest ring pendants were associated with Neolithic sites in the Balkans. The first ring pendants, perforated strips, and other ornaments of gold were found in several graves at late fifth millennium BC Varna, on the Black Sea in Bulgaria (Pl. 64A-E, also see chapter 14) (Gimbutas 1977; Ivanov 1991; Misch-Brandl 1994; Renfrew 1978, 1986b). Ring pendants and linked wire coils were recovered further inland in Bulgaria at Hotnitsa (or Hotnica), also dated to the late fifth millennium BC (Chokhadzhiev and Chokhadzhiev 2005). One gold ring pendant as well as gold beads, earrings, nails, and a spiral were found in a later Chalcolithic cemetery near Durankulak, Bulgaria (Avramova 1991: 45-46).

The Tiszaszölös and Moigrad hoards, associated with the Bodrogkeresztúr culture of Chalcolithic Hungary, both contained gold ring pendants with wide perforated tabs for suspension (Pl. 65B-C). The pendant from the Moigrad treasure, perhaps better described as a breast-plate, is the largest of this type at 31.1 cm long (Makkay 1989: pls. 8.1, 9). Bronze Age finds from İkiztepe in Anatolia included two ring pendants – one of gold, dated EB II (Pl. 55D), and the other of lead, dated EB III – that likely indicated a connection with the Balkans (Bilgi 1984: 74, figs. 16.199, 18.265-266; Makkay 1989: figs. 2.1, 2.4 [2.4 misidentified]). A tiny, gold ring pendant (diameter 1.2 cm) was also
recovered from an Early Dynastic tomb at Tell Bi’a in northern Syria (Strommenger and Kohlmeyer 1998: 68, pl. 90.16).

One of the most common Neolithic metal jewelry types – the ring pendant – is not found in Aegean contexts that date after the FN, with perhaps the exception of the silver pendant from the Amnissos Cave in Crete. There are also no wide, perforated strips like those found in the Cyclades, northern Greece, and Varna. Why did these classes of jewelry disappear in the Aegean after the Neolithic period?

Muhly (2002: 78; 2006: 157) argues for a Balkan origin of Greek Neolithic metallurgy, supported by the “dominant Balkan character” of Aegean FN metal finds. The discovery of ring pendants in the Balkans, which date to earlier periods than those found in the Aegean, would indicate that the earliest gold and silver jewelry in Greece may have been imported from the north rather than manufactured locally. Perhaps the importation of finished objects such as ring pendants and strips ended when Aegean communities began to exploit local sources of precious metals (the Cyclades and parts of the mainland) or began to receive gold and silver as raw materials in trade (the mainland and Crete). This was the beginning of localized production and regional variation in jewelry-making that extended into the Bronze Age.

_Early Bronze Age Aegean Jewelry_

_The Cyclades_

Silver was the preferred precious metal for jewelry production in the EBA Cyclades. This was most likely due to the existence of a local source of silver on the Cycladic island of Siphnos (Gale, Stos-Gale, and Davis 1984: 390, see chapter 4 for a full
discussion on sources of EBA silver). Only one gold bead, from Phyrrhojes on Naxos (Papathanassopoulos 1981: 136, #63; Papathanassopoulos 1961-62: 138, pl. 71a), was securely dated to the EBA. A fragmentary gold diadem, manufactured using the cut-out ajouré technique, was reported from Ayia Irini on Keos (Overbeck 1989: 199, pls. 22c, 104), but this piece probably dated to early in the Middle Cycladic (MC) period.

Silver jewelry from the Early Cycladic (EC) period has been found on four Cycladic islands: Syros (Tsountas 1899), Amorgos (Tsountas 1898), Naxos (Marangou 1990; Papathanassopoulos 1961-62), and Antiparos (Fitton 1999). Most of this jewelry falls into four classes: well-made diadems, stick pins with small finials, thick wire bangles, and beads. Manufacturing methods were similar to those employed in prepalatial Crete, with objects made from sheet metal and a few pin heads cast in the shape of vases (Doumas 1977: 125, pl. 49.h, from Naxos; Tsountas 1899: pl. 10.10, from Syros) or animals (Pl. 48E) (Papathanassopoulos 1981:135, #62.5, from Amorgos ; Tsountas 1898: pl. 8, from Amorgos). A necklace comprised of 200 small, silver discoid beads and a larger silver cylindrical bead was recovered from an EC I grave at Louros, Naxos (Pl. 48A) (Gale and Stos-Gale 1981b: 181; Papathanassopoulos 1981: 138, #66; Papathanassopoulos 1961-62: pl. 67).

Of the three diadems associated with the Cyclades, two are worthy of detailed description. A long, wide diadem from Kastri, Syros (Pl. 48B-C), decorated in dot repoussé, depicts dogs with collars, rosettes, and standing bird-like figures with upraised wings or arms (Papathanassopoulos 1981: 132-133, #61; Tsountas 1899: pl. 10.1; Vermeule 1972: 54 suggests that the birds may be protective goddesses). The second better-preserved silver diadem, from Dokathismata, Amorgos (Pl. 48D), includes evenly
cut openwork zigzags in ajouré (Papathanassopoulos 1981: 140-141, #68; Tsountas 1898: pl. 8); this diadem may surely be called a crown. A third undecorated silver diadem, unpublished yet observed in the Naxos Museum, is said to be from Apeiranthos (Higgins 1980: 48). Numerous silver vessels are also associated with the Cyclades (Gale and Stos-Gale 1981b: 183).

Considering the proximity of Crete and the Cyclades, one would expect to find more similarity in EBA metal jewelry, especially between the Cyclades and sites on the north Cretan coast. The choice of silver over gold indicated that gold was not imported to the Cyclades in any measurable quantity or that it was not deposited as frequently in graves or in hoards. However, it may be simply that silver was more readily available and consequently favored over gold.

The metallurgical techniques used in the processing of silver ores in the Cyclades were more complicated than simple hammering or melting, probably all that was required for the gold used in Cretan jewelry (see chapter 4 for a discussion of the processing of ores containing silver). Also, the craftsmanship of some objects appeared superior in the Cyclades, especially in the production of diadems and pins. Some similarities existed in the selection of motifs with the representation of vases, dogs, and other animals. In addition, diadems of bright silver or gold were a new form of personal adornment and perhaps ceremonial display in both the Cyclades and Crete at this time.

Mainland Greece

Discoveries of gold or silver jewelry were made at three Early Helladic (EH) sites in southern mainland Greece: Zygouries (Blegen 1928) and Thyreatis (Greifenhagen 1970; Platz-Horster 2001; Reinholdt 1993) in the Peloponnese; and Kolonna, Aegina
(Reinholdt 2003, 2004), part of the Saronic Gulf island chain. Jewelry was also recovered from two Ionian islands off the coast of western Greece. These western sites included Steno, Levkas (Dörpfeld 1927) and Pelikata, Ithaca (Heurtley 1934-35).

Except for the use of gold and silver and the prevalence of objects from sheet metal, there were no similarities between jewelry found at Zygouries and ornaments from prepalatial Crete. Carl Blegen, the excavator at Zygouries, suggested that several objects, including what may have been silver diadem fragments with remnants of dot repoussé and a silver pin with a spiraliform head, resembled jewelry recovered by Tsountas at Syros, perhaps indicating a connection with the Cyclades (1928: 181, pl. 20.9). Small gold wire hoops and two gold pendants of simple design were also found by Blegen (1928: pl. 20.7, 20.11, 20.14; Higgins 1980: 49).

Objects from the Thyreatis hoard (Greifenhagen 1970: pls. 1, 2; Platz-Horster 2001: 12-13; Reinholdt 1993: figs. 1-2) included a multi-part necklace, a pin, beads, and other ornaments, all in gold (Pl. 49A-C). It was possible that the necklace was actually a diadem (Reinholdt 1993: fig. 47) that was worn around the head in a fashion similar to that proposed for the diadems at Troy. This well-crafted necklace or diadem (Pl. 49A-B) consisted of several unusual types of beads as well as 23 small triangular pendants hanging from simple chains. Other than the simple chain from Mochlos (MO 20), this was the only site in the Aegean where this type of chain was found.

Aspects of the design and construction of some of the Thyreatis objects were reminiscent of jewelry found elsewhere in the Aegean. Papadatos (2005: 40-41) has noted that four ring beads from Archanes Γ (AR 17A-D) are similar to beads from the Thyreatis necklace as well as to beads from Troy. A gold pin with a whimsical head, in
the form of a bull or ram with curving horns (Pl. 49C), and a tiny jug that was probably a pin head (Reinholdt 1993: figs. 14 and 12.B3) show more affinity with Cycladic pins. Only one piece – a disk – includes a dot repoussé border.

Gold and silver jewelry was found in a hoard recovered in 2000 from beneath an EH III house in Kolonna, Aegina (Reinholdt 2003: 260). The hoard included bangles, pendants, beads, and pins (Reinholdt 2004: pl. 14); only the simple wire bangles resembled those from EM Crete. Three pendants were decorated with dot repoussé and retained a unique tubular threading device, which provided the means for attachment to a wire or string (Reinholdt 2003: 261). Since excavators dated the hoard to EH II, one pendant with a simple filigree design (Pl. 49D) appeared to be the first example of filigree in the Central Aegean (Reinholdt, personal communication). Etched carnelian beads from the hoard suggested the presence of a trade network that indirectly linked the island of Aegina to as far east as the Indus Valley (Paul Collins in Aruz 2003b: 261).

Gold and silver jewelry, dated to the mid-third millennium BC, was recovered from graves in a cemetery of tumuli at Steno, located on the island of Levkas (or Lefkada) in the Ionian Sea (Pl. 49E-G). Although some tombs in the cemetery may date to a later period, the jewelry made from precious metals has all been associated with EH II-III interments (Dörpfeld 1927: pls. 60, 61; Hood 1978: 193, fig. 189; Konstantinidi 2001: 120). Objects included many hollow beads of gold (Pl. 49E) (Renfrew 1972a: 334) and three pairs of small annular gold earrings. Two matching ornaments (Pl. 49F) were each comprised of three linked rings of gold wire. This last pair of rings have been described as earrings, perhaps because they resembled earrings on head-shaped pendants depicted in the later Jewel fresco from Knossos (Evely 1999: 164; Hood 1978: 194, fig.
The rings of wire were also similar to objects recovered from Anatolia and Mesopotamia, e.g., silver coils from Arslantepe (Pl. 53D) and Tell Brak (Pl. 58A), which have been described as hair rings or perhaps even early currency (see chapters 11 and 12 for a discussion of these sites). Gold hilt covers and silver bracelets – one bracelet containing eight spirals of thick wire and expanded terminals (Pl. 49G) – were also found at Steno.

Two small gold ornaments were recovered from Pelikata, Ithaca, also in western Greece. Although the specific find spot was unclear, these objects were probably associated with the remains of a pithos burial. The two pieces included a tiny “disc or sequin” with a hole in the center and a perforated fragment of gold leaf that was decorated in dot repoussé (Heurtley 1934-35: 37, pl. 9.167-168). Branigan (1974: 183, #2155) indicated that the decorated fragment may have been part of a diadem. Tiny scraps of gold were also found in the area.

With the exception of the possible diadem fragments from Zygouries and Ithaca, diadems of a traditional headband type were not recovered from EH sites with gold or silver jewelry. Indeed, apart from the components of the necklace or diadem from Thyreatis and perhaps the beads from Levkas, most objects were not of elaborate manufacture. This may be due to accidents of discovery, to a generally less advanced state of jewelry-making, or perhaps to a difference in the types of jewelry preferred in mainland Greece.

The Troad

If one sees few similarities between jewelry from prepalatial Crete and jewelry from the EBA Cyclades and mainland Greece, there exists even more of a contrast when
the EBA Troad in Western Anatolia is brought into the picture (Pls. 50, 51). At the
northeast corner of the Aegean, extensive collections of gold jewelry were recovered
from hoards at Troy (Antonova, Tolstikov, and Treister 1996; Mellink 1966: 9, nos. 35-
39; Schliemann 1875, 1884, 1885) and from Poliochni on the island of Lemnos (Bernabò
- Brea 1957a, b, 1964, 1976; Cultraro 1999; Tiné and Traverso 2001). Another group of
objects, currently owned by the University Museum, University of Pennsylvania, lacked
provenance but appeared to be primarily from this region as well (Bass 1966, 1970).

Gold jewelry from the Troad is different from prepalatial jewelry in numerous
ways. Several classes of objects are represented here that do not appear in Crete: lobed
crescent earrings (Pl. 50B) and basket-shaped earrings with pendants on chains (Pls. 50C,
51A-B) (Antonova, Tolstikov, and Treister 1996: 48-52, 71-73 ff; Bernabò - Brea 1957a:
figs. 12-15; 1957b: figs. 26 & 27; Schliemann 1874: pl. 196; 1875: 336, pl. 20; 1885:
579); pins with complex heads (Pls. 50D, 51E) (Antonova, Tolstikov, and Treister 1996:
182-184; Bernabò - Brea 1957a: fig. 6; 1957b: fig. 3); hair rings with multiple lobes of
wire (Pls. 50F, 51F) (Antonova, Tolstikov, and Treister 1996: 53-71 ff; Bernabò - Brea
1957a: fig. 5; 1957b: figs. 30-31; Schliemann 1875: 339); and buttons (Pl. 51H) (Bernabò
- Brea 1957a: fig. 8; 1957b: figs. 33-34; Maxwell-Hyslop 1971: 53, fig. 37d,e;
Schliemann 1875: 336, pl. 20).

The northeastern Aegean material exhibits evidence of advanced craftsmanship
with multiple components and sophisticated design and construction. In contrast to the
gold work from Crete, many objects from the Troad are comprised of numerous smaller
elements, resulting in individual pieces of great complexity. According to Betancourt
(2006: 90), the Troad production group “is defined by its use of multiple joins using a
specific set of [small] individual elements: wires, leaves, pendants, circular rings, small sheets, S-spirals, gold granulation, rods with incised lines, and a few other elements.” While many of these components are attached with the use of heat, mechanical joining techniques are also employed.

Two diadems from Troy include loop-in-loop chains with pierced leaves or pendants, which are attached to a chain or to an undecorated gold band (e.g., Pl. 50A). The larger diadem has over 16,000 separately-made links or elements (Antonova, Tolstikov, and Treister 1996: 39; Schliemann 1875: 335, pl. 19). The nature of the objects and the quality of their construction argue for full-time jewelry-makers, perhaps independent contractors or more likely goldsmiths attached to an established elite class. The mass production of some elements – such as the tiny leaves used in one diadem, the minute golden spheres required for granulation, and the links for loop-in-loop chains – suggests the presence of a workshop with master goldsmiths and apprentices.

The technology used for jewelry-making in the Troad was also far ahead of that seen in EM Crete. While a few small objects from late prepalatial Crete contained the rudimentary beginnings of granulation and filigree, these processes were commonly employed in the decoration of jewelry from Troy and Poliochni. In a recently published study of joins in Trojan jewelry utilizing PIXE analysis, clear evidence was found indicating that copper diffusion bonding was the joining technique employed by craftsmen in the Troad (Betancourt 2006; see also Duval et al. 1989) (for a discussion of this technique, see chapter 5).

Granulation and filigree can be seen on basket earrings, crescent earrings, and pins (Pls. 50B-E, 51A-B, 51E). One bracelet from Troy, made from wide sheet gold,
contained rosettes and numerous “spectacle-shaped double spirals” arranged in even rows (Pl. 50E) (Antonova, Tolstikov, and Treister 1996: 114-115). Another technique, absent in the southern Aegean, was cloisonné; the petals of a pin from Troy appeared to have been designed to accept inlays (Antonova, Tolstikov, and Treister 1996: 184; Maxwell-Hyslop 1971: 56, fig. 41).

Objects from the Troad used substantially more gold in their manufacture than those from Crete, suggesting that gold was more easily obtained in this region or that elites in the Troad could afford to purchase greater quantities of gold. For example, the largest diadem from Troy weighed 193.47 grams and a gold sauceboat weighed over 600 grams (Antonova, Tolstikov, and Treister 1996: 32, 39). While bangles from Crete were made from easily twisted thin wire, those from the Troad were much thicker with the ends carefully finished as pyramidal hooks (Antonova, Tolstikov, and Treister 1996: 78; Bernabò - Brea 1957a: 199, fig. 11; 1957b: 212, fig. 32; Schliemann 1875: 337).

There are, however, a few similarities between jewelry from EM Crete and that of the Troad. Except for the thin wire finger rings found in Crete, there are no rings of note from Crete and none at all from the northeastern Aegean hoards. Loop-and-loop chains are frequently used in conjunction with pendants in both the Troad and Crete. Dot repoussé is employed extensively in EM Crete. Pendants from Troy and Poliochni and a diadem from Troy are also decorated using this method. The iconography of both regions includes zoomorphic images, leaves, and vases.
Anatolia

In addition to Troy, jewelry was recovered from many other locations in EBA Anatolia. Gold or silver jewelry and ornaments were found at cemetery sites in central Anatolia that date to the second half of the third millennium BC including Alacahöyük (Arik 1937; Kosay 1938, 1951; Özyar 1999), Kültepe (Özgüç 1950, 1963, 1986a, b), Horoztepe (Özgüç 1964; Özgüç and Akok 1958), and Arslantepe (Frangipane 2001, 2006; Frangipane et al. 2001). A hoard from Eskişapar (Özgüç and Temizer 1993) contained gold and silver ornaments. Jewelry was also associated with tombs at Karataş-Semayük in Lycia, southwest Anatolia (Mellink 1969), and Tarsus in south-central Anatolia (Goldman 1956). A few gold objects were found at İkiztepe, located on the north-central coast (Bilgi 1984). Silver ornaments were recovered from Beycesultan, Alisharhöyük, and Korucutepa (Prag 1978; Van Loon 1973).

What one takes away from even a brief review of these sites is that craft specialization in jewelry-making, associated with chiefdoms and perhaps more advanced societies, had taken hold throughout Anatolia. Precious metals were now readily available over a widespread area. Although gold and silver were in use prior to this period, this is the beginning of their widespread deposition in burials as well as hoards. Objects such as gold and silver diadems – some resembling crowns – reflected elite status in life as well as in death.

Gold work from the sites of Alacahöyük and Eskişapar showed a strong similarity to objects recovered from the Troad (Temizsoy in Bingöl 1999: 7). Quadruple-spiral
beads (Pl. 52D) were found at Alacahöyük and Troy as well as other sites throughout the Near East (Aruz 2003b: 243, fig. 73). Gold shell earrings and basket earrings from Eskiyapar (Pl. 54B-C) were virtually identical to those from Troy and Poliochni. A torque from Eskiyapar, designed with turned-back pyramidal ends (Pl. 54G-H), was so similar to bracelets from the Troad that the group of objects could be a set. However, none of these types or classes of objects made their way to prepalatial Crete.

The most spectacular finds were surely from Alacahöyük. Numerous forms of well-crafted gold jewelry were recovered *in situ* from tombs with individual burials (Pl. 52). Except for the lack of granulation and filigree, the skill level of the goldsmiths was similar to that seen at Troy. Objects included diadems (Pl. 52A-B); bangles and bracelets (Pl. 52C); twisted gold bands resembling diadem ties; anthropomorphic and circular pendants (Pl. 52D); pins with small, exquisite heads (Pl. 52E); twisted hair ornaments; figure-of-eight hair or dress ornaments; belt ornaments (Pl. 52F); ear plugs; disks; beads; and many appliqués in various shapes and sizes. Although most jewelry was made from sheet metal, some pin heads and other small objects appeared to have been cast. Ajouré, repoussé, dot repoussé, and chasing were employed as decorative techniques. Metal vessels and figurines – in both gold and silver – were also recovered from these tombs. Maxwell-Hyslop suggested that the jewelry from Alacahöyük, “while showing some links with western Anatolian work, [was] remarkable for its local character and its lack of Mesopotamian influence” (1971: 42).

In relation to the study of Minoan jewelry, a few pieces are worthy of a more detailed description. Although no direct parallels exist between jewelry from Alacahöyük and that of EM Crete, the diadems share some characteristics. Five gold diadems were
recovered from separate tombs at Alaca; four were found on the heads of skeletons and one was found near the face (Oscar Muscarella in Aruz 2003b: 280). One diadem was a simple band with attachment holes and a border of dot repoussé (Bingöl 1999: 51), quite similar to some diadems from prepalatial Crete. The decoration of a second diadem was carefully measured and exceptionally well-crafted (Pl. 52A); this large crown (height 5.5 cm, diameter 19.2 cm) was manufactured using the openwork technique – ajouré – with accents in dot repoussé (Bingöl 1999: 52; Kosay 1938: pl. 82). Another narrow diadem (Pl. 52B) was also created with evenly cut openwork triangles, but this diadem had four strips with rounded ends that hung down over the hair or over the neck and back of the wearer (Bingöl 1999: 49; Kosay 1951: pl. 129). Similar strips were found on another plain gold diadem of the same design (Bingöl 1999: 50; Kosay 1951: pl. 185). These last two diadems were worn with separately made attachments, confirmed by the fact that they were found this way in situ on skeletal remains.

Gold jewelry was also recovered from EBA Kültepe. Two objects were described as “foreign to Centrol [sic] Anatolia” (Özgüç 1963: 13, pl. 7.1-2). A lunate earring as well as a pendant with filigree and granulation (Pl. 53A), both found in a grave, resembled objects from Mesopotamia and may have been manufactured by a traveling goldsmith (Bingöl 1999: 136, #146; Edgü 1983: 119, A.266, A.277; Maxwell-Hyslop 1971: 47, pl. 37b). Other objects recovered from EB II funerary contexts included a gold pendant made with coils of twisted wire, a pair of electrum hair rings, a pierced silver strip or frontlet, several gold beads, and a flat electrum pendant (Özgüç 1986a: 42-45, figs. 3.36-3.41).
The EBA cemetery at Horoztepe yielded objects of gold, silver, and electrum. One small gold strip (Pl. 53B), decorated with dot repoussé lozenges (Özgüç 1964: fig. 25; Özgüç and Akok 1958: 50, pl. 14.3), resembled a diadem from Mochlos (MO 8). Other gold ornaments included a lattice-work object with dot repoussé (Özgüç 1964: fig. 26; Özgüç and Akok 1958: 50, pl. 14.12) and a pin with a convex head (Özgüç 1964: 8, fig. 6). Silver objects included a scepter head, rings or bands, and vessels (Özgüç 1964: 1; Özgüç and Akok 1958: 50-51). Electrum, more common at this site than gold or silver, was not used for jewelry but for objects such as a spindle whorl (with a gold tip), a possible ceremonial knife, and what may have been stamp seals (Özgüç and Akok 1958: 51). An unusual feature of the burials at Horoztepe, discovered during two different excavations, was what appeared to be the deliberate destruction of grave goods including furniture, metal vessels, and the electrum knife.

Another site of note was an isolated early third millennium BC tomb discovered at Arslantepe (Pl. 53C-D). A man – perhaps a chief or local ruler – was buried adorned with ornaments made from precious metals including silver quadruple-spiral pins and necklaces with carnelian, rock crystal, gold, and silver beads (Frangipane 2006; Frangipane et al. 2001). Of special interest was a cache of objects that was placed behind the back of the man. Among the objects in the hoard were copper tools, weapons, and vessels; silver and gold bangles and coils (perhaps finger rings or hair rings); and a folded copper-silver alloy diadem (Frangipane 2001: 7, figs. 19-20). Two of four additional individuals – perhaps all sacrifices – were found on stone slabs covering the primary burial. They were also buried with silver hair spirals, copper pins, and copper-silver diadems (Frangipane 2001: figs. 14-15; Frangipane et al. 2001: 111, fig. 19). The style
and technique of decoration on the diadems resembled that of diadems from Mochlos (MO 81, MO 82) – with diagonal and vertical rows of dot repoussé and attachment holes at the ends.

Beautifully designed and crafted gold and silver beads, pins, earrings, bracelets, vessels, and other objects were found when the EB III “treasure” of Eskiyapar was excavated from beneath the floor of an EBA house that had been destroyed by fire (Özgüç and Temizer 1993: 613). Jewelry made from gold, silver, and semi-precious stones was found in two hoards – one large and one small – that were buried in pits in the same room (Pl. 54). Treasure A, found in a jug, included three types of earrings (Pl. 54B-D); shell earrings and basket earrings resembled those found at Troy and Poliochni, while earrings with “abstract animal heads” were unique to Eskiyapar (Özgüç and Temizer 1993: 615, figs. 1-10, pls. 106-109). A wire bangle, a torque with incised pyramidal ends (Pl. 54G-H), and a pin with an incised globular head were also recovered from the jug. Many types of gold and silver beads (e.g., Pl. 54E-F), all of unusual design and expert craftsmanship, were also part of Treasure A (Özgüç and Temizer 1993: figs. 11-20, 22-38, 41-42, pls. 110-115). The smaller hoard, Treasure B, contained gold and silver shell earrings; gold and silver pins; two thick, silver wire bracelets; and numerous gold, silver, and stone beads (Özgüç and Temizer 1993: figs. 21, 39-40, pls. 107, 118-120). Eskiyapar was one of many sites, ranging from Aegina in the western Aegean to as far east as the Indus Valley, where flat gold beads with tubular, mid-rib string holes were recovered (example from Poliochni, Pl. 51G) (Aruz 2003a: fig. 72).

The site of Karataş-Semayük in southwestern Anatolia, excavated by Machteld Mellink, yielded silver and gold jewelry associated with burials in large pithoi and jars
Silver strips – plain, with openwork cut-outs, and with repoussé dots – were recovered, along with silver pins and a perforated disk. One silver toggle pin (Pl. 55A) was manufactured with a finial shaped like the head of a wild boar (Bingöl 1999: 197.219). Flat beads with tubular, mid-ring string holes, mentioned above in association with Eskiyapar, were found in both gold and silver. Other gold objects included additional beads as well as ear studs or stoppers (Pl. 55B), the latter resembling thick, short nails with incised conical ends (Bingöl 1999: 219). Many objects of precious metal were recovered from the burial of a child including a diadem made from tiny beads. Gold ear stoppers, manufactured by forming sheet metal over a core of dark material, were found in two child burials (Mellink 1969: 323).

The two remaining Anatolian sites with gold jewelry – Tarsus in the south and İkiztepe in the north – included a small number of gold objects. Lobed gold earrings or hair rings, a pin, and a bead (Pl. 55C) were recovered from EB II – III Tarsus (Goldman 1956: 300-301, figs. 434.1-6). Two gold objects were associated with burials at EB II İkiztepe (Pl. 55D). The gilded copper or bronze pin resembled a pin with a flanged head from Alacahöyük (cf. Pl. 52E). Two ring pendants – one of gold and the other of lead – may have indicated a connection with the Balkans (Bilgi 1984: 74, figs. 16.199, 18.265-266, lead pendant from EB III context; Makkay 1989: 41-43, figs. 2.1, 2.4 [2.4 misidentified]). Gold and bronze jewelry was also recovered from a child burial at İkiztepe, dated to the transition between EB III and the Old Hittite periods (Mellink 1977: 294).

Gold ring pendants, perforated disks, a pectoral, a bracelet, and beads comprised a hoard of jewelry currently in the Burton Y. Berry Collection at the Indiana University Art
Museum (Rudolph 1995: 26-34). Although the hoard lacked provenance, it may be from Chalcolithic/EBA (c. 3400 – 2700 BC) northern Anatolia; reports associated with the purchase of the hoard indicated that it was recovered from the Trabzon area on the south coast of the Black Sea (Rudolph 1978: 6).

Several additional sites in Anatolia contained silver jewelry. A simple, undecorated silver ring, dated c. 3000 – 2900 BC, was recovered from Beycesultan level XXXIV (Prag 1978: 39; Stronach 1962: 282, fig. F.8.15). Two silver earrings were recovered from an infant pot burial at Alisharhöyük that also contained copper bracelets, a flint blade, and part of a serpentine mace head (Prag 1978: 39; von der Osten 1937: 51, fig. 43.2238-2239). Two well-appointed graves at Korucutepe, also dated c. 3000 BC, contained silver jewelry. A double grave included one skeleton, assumed to be male, buried with an iron ore mace head and a copper dagger; on his arm, he wore a silver bracelet with spirals. The second skeleton, thought to be female, wore an unusual silver stamp seal, engraved with the image of a wild goat, affixed to a bracelet-like band of silver (Pl. 55E) (Prag 1978; Van Loon 1973: 360, pls. 4.1-2, 4.5, 5.4). The second grave at Korucutepe contained the skeleton of a young woman. She wore a garment decorated with thousands of limestone beads, and her jewelry included a silver crescent-shaped “gorget” (necklace or throat covering), two silver hair rings, and a silver head band adorned with red and white beads (Van Loon 1973: 360-361, pls. 5.1-3).

Differences exist between jewelry recovered from central and southern Anatolia and jewelry recovered from Crete. The level of craftsmanship at some sites in Anatolia was significantly higher, illustrated especially by objects found in tombs at Alacahöyük and in the two hoards from Eşkiyapar. Common grave goods not found in Crete included
pins, spiral hair rings, and several types of earrings. Diadems were not as widespread in central Anatolia as they were in Crete. Diadems were only recovered from three central Anatolian sites: Alacahöyük, Arslantepe, and Korucutepe. A perforated silver strip, perhaps a frontlet, was also recovered from Kültepe. Of the 13 Anatolian sites described (including Troy), most of the metal jewelry was made of gold or electrum. However, objects made from silver, copper-silver, or lead were also recovered from 11 of these sites.

Cyprus

Located in southern Cyprus, Sotira Kaminoudhia included both a settlement and a cemetery. Gold and electrum earrings or hair rings were recovered from EBA burial contexts at the site (Swiny 1989: 189; Swiny, Rapp, and Herscher 2003). A pair of electrum spiral earrings (Pl. 57D) were found attached to each other by the feet of a skeleton (Swiny 1985: 122; Swiny, Rapp, and Herscher 2003: 7, pls. 8.1d-e). An identical pair of earrings, made of copper and tin bronze, had been worn by the same individual. The electrum earrings formed an “antithetical pair with the spirals turning…in opposite directions” (Swiny, Rapp, and Herscher 2003: 378, emphasis by author); they would have appeared the same on each ear whether viewed from the front or the side. This suggested to the excavators that the objects were indeed earrings (however, see Lapithos below). Although the bones were of a young adult, the sex of the skeleton was not determined (Campbell in Swiny, Rapp, and Herscher 2003: 415-417).

Gold and silver ornaments were recovered from an Early Cypriot III rock-cut chamber tomb on the north coast of Cyprus at Lapithos (Grace 1940: fig. 31.26, pl. 12)
Tomb 6A contained at least three burials, one of which was associated with the jewelry. An antithetical pair of gold hair rings or earrings was found near the head; this type, probably meant to be worn on the left and right sides of the face, appeared to be unique to Cyprus, as no other pairs of similar design have been identified in this study except the pair from Sotira Kaminoudhia described above (cf. Pl. 57D, F). Virginia Grace (1940: 44) suggested that these ornaments may have secured hair in front of the ears “in imitation of the ‘Minoan lock’.” Other recovered jewelry included a gold leaf, decorated with incised lines and dot repoussé that resembled leaves from Mochlos; a pair of silver pins with flat, hammered tops; and fragments of at least one silver diadem with scalloped edges. A bronze or copper pin and green-glazed faience beads were also associated with this burial.

Grace offered evidence of a Minoan connection at Lapithos, suggesting “there was a wind blowing from Crete to Cyprus during the Early Cypriote III period” (1940: 52). A Minoan White-on-dark Ware vase, dated EM III – MM IA, was recovered from Tomb 6 along with pottery fired to achieve a mottled effect, similar to Minoan Vasiliki Ware (1940: 24-29, figs. 1, 18, 20). Also, a trough-spouted bowl (1940: 15, note 1, fig. 9) resembled bowls found in the Pyrgos Cave in Crete. Apparently, at least an indirect trade relationship existed between Cyprus and Crete during the prepalatial period.

Fragments of a gold band were also recovered from an Early Cypriot I – II chamber tomb located to the east of Lapithos at Vounous (Tomb 164B in Stewart and Stewart 1950). The excavators believed the band to be part of the head of a staff or whip (1950: 239.40, 370, pl. 107f). However, the object may have been an ornament for the
hair; it was found near the skull and was decorated with impressed dots and incised
lines in a zigzag pattern, identical to the hair rings from Lapithos described above.

Northern Syria and the Levant

Both Sinclair Hood (1978: 189) and Reynold Higgins (1992: 44) suggested that
the “antecedents” of the earliest metal jewelry in Crete may lie in Syria or in
Mesopotamia, reaching Crete through Syria. With that in mind, sites in northern Syria
will be discussed: the cemetery at Tell Umm el-Marra (Schwartz 2007; Schwartz et al.
2003; Schwartz et al. 2006; Schwartz, Curvers, and Stuart 2000), the palace and royal
tombs at Ebla (Archi 2002; Matthiae 1980a, b, 1984; Matthiae, Pinnock, and Scandone
Matthiae 1995), a tomb at Tell Banat (McClellan and Porter 1999; Porter 2002), and the
tombs at Tell Bi’a (Strommenger 1994; Strommenger and Kohlmeyer 1998). Finds from
Byblos (Montet 1928; Prag 1978; Tufnell and Ward 1966), further down the Levantine
coast, will be described. The earliest gold in the Levant, from the Nahal Qanah Cave in
ancient Canaan (present-day Israel), will be briefly reviewed (Gopher 1996; Gopher and
Tsuk 1991; Gopher et al. 1990) as well as finds from EB I – III burial caves in the same
region (Amiran 1993; Ilan 2002).

Gold and silver jewelry was recovered from an EBA mortuary complex at Umm
el-Marra, thought to be the ancient city of Tuba (Pl. 56). The cemetery, dated c. 2500 –
2200 BC, contained at least eight tombs that may have held the remains of dynastic
families. Evidence of ritual sacrifice – of infants, puppies, and donkeys – was found at
the site. Tomb 1, discovered in 2000, was elevated and contained three layers of
skeletons. The richest layer of the tomb was the top layer, which held two women and
two babies (Schwartz et al. 2006). Gold jewelry associated with one female burial included a plain diadem, a disk, a pendant with a filigree design on a short loop-in-loop chain (Pl. 56B), a bracelet, and beads; silver bracelets and pins were also found with this burial. Gold and silver beads, a gold toggle pin, and objects made from lapis lazuli were found with the second female burial. The three men and an infant interred in the two levels below the women were buried with silver objects (Pl. 56A): a diadem with incised decoration, a bracelet, pins, and a cup (Schwartz, Curvers, and Stuart 2000: 771-772, figs. 2,3,6). A silver disk with a rosette design may have been attached to the diadem or used as a frontlet (Schwartz, personal communication).

In subsequent excavations in 2002 and 2004, additional tombs were revealed. Grave goods – recovered from the burials of men, women, and children – included gold and silver toggle pins and beads; silver bracelets; a silver frontlet and headband; a silver torque; silver spirals and wire; numerous silver vessels; and lapis lazuli and carnelian beads (Schwartz et al. 2006: figs. 8, 20, 22, table 1). Two small gold strips from Tomb 4 were decorated with a lattice-work design (Pl. 56E); dots surrounding cut-out areas were made from gold tacks that were stuck through perforations in the sheet metal, perhaps in imitation of granulation (Schwartz et al. 2006: 611, note 31, fig. 15).

Ebla, modern Tell Mardikh, was the site of a palace – Royal Palace G – where a major archive of EBA (c. 2400 – 2250 BC) administrative, economic, diplomatic, and literary documents was discovered. Cuneiform tablets described large quantities of precious metals received by the palace each year in the form of tribute, taxes, and other forms of payment (Archi and Biga 2003: 12; Bahnassi 1989: 145; Matthiae 1981: 178; Pettinato 1981, 1991). Records were kept of tribute paid by Elba as well, such as “gifts”
to Mari, apparently proffered to avoid invasion (Archi and Biga 2003: 2). Gold and silver offerings made to the gods, part of the religious cult at Ebla, were also recorded (Archi 1995b: 134).

In “Jewels for the Ladies of Ebla” (2002), Alfonso Archi, chief epigrapher at Ebla, described the occasions on which women associated with the palace received gifts of gold and silver jewelry. Jewelry was given to commemorate marriage (or the ordination of a priestess) and at death, with smaller gifts sometimes connected with childbirth. Gifts were of the same type for both marriage and death, with “their purpose…to testify to the rank of the receiver” (2002: 161). Specific gifts (e.g., gold beads shaped like grapes or acorns) and the weight of the gold or silver used in their manufacture were recorded on tablets stored in the archive, listed as expenditures associated with a particular year. Objects included frontlets, hair ribbons, hair pins, beads, earrings, necklaces, pectorals, pendants, toggle pins, bracelets, buckles, and small vessels. No finger rings were described. Archi noted that jewelry worn by women when they were alive remained the property of relatives or, in the case of priestesses, of the temple; at death, new jewelry was provided (2002: 178-179). Objects of gold, such as an ingot weighing 60 shekels or a belt decorated with gold, were noted on lists of funerary gifts for men. Archi indicated, however, that documents listing funeral gifts for some kings and ministers are incomplete or absent (2002: 181).

Although large quantities of gold and silver jewelry were described in late third millennium BC documents from Ebla, only a few extant objects of gold or silver survived from this period. Fragments of gold leaf, probably originally covering objects of wood, were found in Area G of the Acropolis of Royal Palace G (Matthiae 1980a: 264-265).
Other ornaments included a stone rosette with a gold center; the head of a lion in gold leaf; gold and silver coverings for a lion’s foot and a bull’s leg; gold nails; a wood and stone figure of a bull with a gold body and human face; and a gold covering for a pommel (Matthiae, Pinnock, and Scandone Matthiae 1995: 325-329, 331, #112-121, #125).

The only object that may confidently be described as gold jewelry was a pierced, mushroom-shaped pendant that was compared with feminine idols of Anatolia (Matthiae, Pinnock, and Scandone Matthiae 1995: 330, #124). Another small gold object with twisted wire and what appears to be a jump ring may also have been used as a pendant (Matthiae, Pinnock, and Scandone Matthiae 1995: 330, #123). Three circular, perforated gold ornaments, at least one decorated with granulation, were recovered from the Sacred Area of Ishtar of the Palace of the Cistern and have been dated c. 1850 – 1800 BC (Matthiae, Pinnock, and Scandone Matthiae 1995: 418, #277-279).

Later tombs that yielded gold jewelry were also located at Ebla. Since the gold objects dated to the beginning of the second millennium BC (c. 1825 – 1775 BC), they will only be mentioned briefly. Of the three major tombs in the “royal” necropolis, the earliest tomb – the Tomb of the Princess – contained a cache of jewelry. An annular earring or nose ring with granulation (Pl. 57A), six twisted bracelets with granulation, a toggle pin with a well-crafted star-head, and necklaces of gold and stone beads were recovered from this tomb (Matthiae 1980b: 14-15; 1984: 24-25; Matthiae, Pinnock, and Scandone Matthiae 1995: 468-470, 479-480, #390-394; Millard 1992: 9-10).

A mid-to-late third millennium BC coffin burial within a five-chamber tomb at Tell Banat contained approximately 1,000 gold beads as well as stone beads (Pl. 59F) (Aruz 2003b: 185; Porter 2002: 19). Additional objects associated with this burial or with
other skeletons found in the tomb included gold, carnelian, black stone, and lapis lazuli beads; mushroom-shaped pendants that were decorated with dot repoussé and attached to loop-in-loop chains; double-boss and shell pendants; a cast gold pendant with a filigree lozenge and stamped design; and small, perforated gold bars with an unknown use (Aruz 2003b: 184-186; McClellan and Porter 1999: figs. 9, 11).

Royal tombs dated to the Early Dynastic Period (c. 3000 – 2350 BC) were discovered in northern Syria at Tell Bi’a (also Tall Bi’a), ancient Tuttul (Strommenger 1994; Strommenger and Kohlmeyer 1998). This site, excavated under the direction of Eva Strommenger from 1980 to 1995, was located at the confluence of the Euphrates and Balikh Rivers. A complex of above ground tombs was thought to contain the rulers of Tuttul, who were likely associated with a nearby palace (Strommenger in Weiss 1997: 112-114). The six large tombs, designed for collective burial (Peltenburg 1999: 429), were looted in antiquity.

Human and animal bones, large assemblages of pottery, the remains of inlaid furniture, and jewelry were recovered from tombs with multiple rooms (Strommenger in Weiss 1997: 113). Tomb 3 contained silver pins, hair rings, a pendant with spirals, and a lump of silver (Strommenger and Kohlmeyer 1998: 56, pls. 69.2, 69.4, 69.8). Grave goods in Tomb 4 included silver hair rings and objects of gold: a pin, a fragment of rectangular sheet gold, two gold beads, and a tiny (1.2 cm diameter) ring pendant (Strommenger and Kohlmeyer 1998: 61-62, 66, 68, pls. 78.1, 78.3, 78.8-9, 90.3-4, 90.16). A silver tack and a gold bead with a bitumen core were recovered from Tomb 5, and a single silver hair ring was found in Tomb 6 (Strommenger and Kohlmeyer 1998: 72, 74, pls. 93.9-10, 95.11).
Numerous objects of silver (over 233) and fewer objects of gold (14) were recovered from 273 tombs at Byblos dated to the second half of the fourth millennium BC (Dunand 1973: 319-322, figs. 191-195; Prag 1978: 36-37). Since only 13% of the burials have been published, the total number of silver and gold ornaments is unknown. Recovered silver jewelry, primarily from jar burials, included beads; rings (hair rings, ornaments from headdresses, and one finger ring); wire earrings; bracelets; and perforated head bands, some decorated with dot repoussé. Although many of the head bands were probably worn as diadems, others – found in multiples of two or three, along with silver rings – may have decorated headdresses (for several bands in situ on a skull, see Chéhab 1949-1950: pl. 1; Prag 1978: 36-37). Silver tubes or handles, apparently elements of ceremonial scepters or maces, were also recovered from three tombs (Prag 1978: 37). A gold ring with an associated carnelian bead as well as 13 gold beads were found in three tombs (Dunand 1973: figs. 191, 195; Prag 1978: 37).

Gold and silver ornaments were among the 1,000 objects recovered from a covered jar found standing in the sand at Byblos. Known as the Montet jar, after the excavator who discovered it, the jar and its contents were dated c. 2130 – 2000 BC (Maxwell-Hyslop 1971: 102; Tufnell and Ward 1966: 225). The jewelry and other objects from the jar confirmed interconnections between Byblos and Mesopotamia as well as between Byblos and Egypt, illustrating the extent and direction of trade routes at this time.

Although many of the ornaments appeared to have been made in Egypt, a few pieces were thought to be inspired by Mesopotamian craftsmanship. Of the latter, one object was a beautifully-made, circular, medallion-type pendant decorated with
granulation and inlaid stones (Pl. 57B); at the center of the pendant was a six-petal flower surrounded by crescent moons (Maxwell-Hyslop 1971: 102, pl. 69; Tufnell and Ward 1966: fig. 4). With the exception of jewelry from the Troad and Ur, this pendant was among the earliest objects decorated with granulation, possibly created about the same time as the granulated objects found in prepalatial Crete. A silver finger ring with a filigree design (Pl. 57C) resembled rings recovered from Ur (Tufnell and Ward 1966: 206, fig. 7.192). Egyptian gold jewelry and ornaments included small repoussé amulets in the form of a human head and an ibis (Tufnell and Ward 1966: 192-193, figs. 4.87, 4.88). A gold disk – apparently decorated with a dot repoussé border – and silver beads and torques may have been manufactured locally or may have come from Mesopotamia or Egypt.

The earliest gold artifacts from the southern Levant were dated to the Chalcolithic period – the fourth millennium BC. Eight gold, ring-shaped objects were associated with a burial from the Nahal Qanah (or Nahal Kana) Cave in Israel (Bachmann 2006: 37, pl. 36; Gopher 1996; Gopher and Tsuk 1991; Gopher et al. 1990). The rings were cast, and deep marks of hammering were evident on all surfaces (Pl. 57G); the largest ring had a maximum outer diameter of 5.04 cm, an inner diameter of 3.13 cm, and a thickness of 0.82 to 1.13 cm (Gopher et al. 1990: figs. 1, 3, table 1). The excavators indicated that the rings may have been ingots, perhaps originally strung together at the time of burial (Gopher et al. 1990: 441).

Gold and silver objects were also recovered from EBA I – III burial caves in Canaan. The EB II – III Kinneret Cave, south of the Sea of Galilee, contained a circular gold plaque (Pl. 57H), perforated in the center and decorated with bosses and dot
repoussé (Amiran 1993: pl. 5.1); hundreds of beads made from gold, silver, semi-precious stones, and other materials were also found in this cave (Ilan 2002: 99). Small objects of gold and silver were recovered from EB I caves in the same region: a gold earring and a gold bracelet from Ein Hanatziv; a gold earring from EB I Azor; and a silver cup from Tell el-Far’ah North (Ilan 2002: 96-98).

One does not see evidence in northern Syria or the Levant of a likely predecessor to prepalatial Minoan jewelry. However, it is surely possible that gold and other raw materials passed through this region on east to west trade routes. Objects like the gold leaf and the Minoan vase from Lapithos in Cyprus also support a west to east orientation in trade. The concept of jewelry made from precious metals may have come from sites in eastern Syria (northern Mesopotamia). The closest comparison might be between sites in Crete and Umm el-Marra; tombs at this Syrian site produced several diadems (one with a probable rosette disk attachment), a filigree pendant on a loop-in-loop chain, and small strips decorated in ajouré. However, jewelry from Umm el-Marra was often manufactured in silver and included classes of objects and decorative techniques not found in Crete.
When one speaks of the widespread appearance of gold and silver jewelry in the third millennium BC Aegean and Near East, the importance of Mesopotamia must be stressed. Jewelry and ornaments from Mesopotamia represented some of the finest, early gold working. Artisans successfully incorporated gold and silver with semi-precious stones such as lapis lazuli and carnelian to create striking necklaces, bracelets, and other ornaments. New techniques in manufacturing were also introduced.

This review of ancient Mesopotamian jewelry begins with hoards that date to the third millennium BC – specifically the Early Dynastic (c. 3000 – 2350 BC) and Akkadian (c. 2350 – 2100 BC) periods. A description of finds from selected burial contexts, dated from the late fourth millennium through the third millennium BC, follows. Due to the great number and variety of gold and silver ornaments from the Royal Cemetery of Ur, an emphasis will be placed on a description of objects from that site.

In his search for comparanda for a hoard recovered in 1994 from Tell Brak in northern Mesopotamia (northeastern Syria), excavator Roger Matthews provided a comprehensive list of third millennium BC hoards with gold or silver jewelry. Generally buried under the floors of private houses, hoards were found at Tell Taya, Tell Asmar, Khafajah (or Khafaje), and Mari; three hoards were also recovered from earlier excavations at Tell Brak (Matthews 1994).

Matthews’ 1994 discovery, originally placed in a sealed bag inside a sealed jar (Pl. 58A-C), included silver ingots, scrap sheet metal, and rods; silver coils of various
sizes, which may have served as an early form of currency (1994: 299; see also Powell Jr. 1978); a lapis lazuli and gold pendant; a gold repoussé pendant; large gold beads; a silver horse figurine; and beads and small ornaments made of semi-precious stones (Matthews 1994: 293-295, figs. 5-14). The other hoards from Tell Brak, also dated to the late third millennium BC, included gold and silver pendants, bangles, and beads; silver coils, some with lunate ends that gave the appearance of earrings or hair rings; silver lumps, strips, and wire; and objects made from lapis lazuli, carnelian, and agate (Mallowan 1947: 176-180, pls. 32-36; see also Maxwell-Hyslop 1971: 27-32). Silver ingots or lumps, sheet metal scraps, and rings, as well as gold or silver beads were also recovered from hoards at Tell Taya (Reade 1968: 248), Tell Asmar (Delougaz, Hill, and Lloyd 1967: 223), and Khafajah (Delougaz, Hill, and Lloyd 1967: 17, 45; Matthews 1994: 297).

In addition to silver coils and rings, the hoard or “Treasure of Ur” from Mari consisted of a gold bracelet, pendant (Pl. 58D), and beads; lapis lazuli and carnelian beads; and pins of bronze, ivory, silver, and gold (Aruz 2003b: 143-147, figs. 85c, 86; Margueron 2004: 212-214, 297-299, figs. 287, 289, pls. 78, 93; Parrot 1965: 217-220, figs. 20-21). A foundation deposit recovered from the Temple of the Lions, dated by the excavators to c. 2300 – 2000 BC, included an incised, gold leaf pendant (Margueron 2004: 392, fig. 380.6, pl. 95).

Hoards were found in a private house and on the main level of the Northern Palace at Tell Asmar (Delougaz, Hill, and Lloyd 1967: 169, 190, 223, 245). The hoard from the private house, recovered packed inside a pot, contained numerous silver ornaments, lumps of silver, one gold bead, and other objects of value (Delougaz, Hill,
and Lloyd 1967: 223). The large hoard from the Northern Palace contained elaborate silver jewelry and lumps of silver as well as ornaments made from carnelian and lapis lazuli; silver objects included a large disk with filigree, rolls of silver ribbon, beads, frog pendants, spacer beads with disk pendants, chains, wire, an Imdugud amulet, and a silver lion head (Delougaz, Hill, and Lloyd 1967: 190, 245; Matthews 1994: 296; Maxwell-Hyslop 1971: 33).

Based on the nature of the objects recovered, Matthews concluded that these hoards were not ritual deposits but likely represented the personal wealth of the individuals or families who buried them, wealth clearly hidden with the expectation of recovery (1994: 298-299). According to the excavators, the hoard found at Khafajah may have belonged to a silversmith (Delougaz, Hill, and Lloyd 1967: 17). Also, it is possible that hoards from Mari were actually foundation deposits (Margueron 2004: 212, 392).

Although dated later to the Old Babylonian period (early second millennium BC), a metal hoard found at Larsa had initially been associated with a goldsmith (Arnaud, Calvet, and Huot 1979). The hoard was comprised of three separate deposits that were buried in the same room of a temple. Objects recovered from a jar and two pits included tools, metal scrap (gold, silver, and copper), jewelry (gold, silver, stone, and shell, including well-crafted gold pendants with granulation), cylinder seals, sealings, cuneiform tablets, stone weights, and stone scrap (Bjorkman 1993: 1-2, table 1). Except for a pair of bronze/copper tweezers, all tools and objects of metal were found in the jar. In a detailed analysis of the finds, the possible circumstances surrounding their burial, and the nature of the room where the hoards were located, Bjorkman (1993: 4-7) offered three hypotheses as to the owner of these objects: 1) a temple administrator or priest, with
metal scrap and jewelry serving as gifts to the temple; 2) a merchant, as evidenced by the presence of weights; or 3) a jeweler, stone carver, or another type of craftsman. She concluded that Room 13, where the hoard was found, was too large and unsuitable for the workshop of a goldsmith; evidence is lacking for a source of fire as well as tools and equipment that would have been necessary for gold working (1993: 17-19).

Jewelry made from precious metals was recovered from numerous burial contexts in Mesopotamia. The earliest finds are from several late fourth millennium BC tombs at Tepe Gawra, a northern site that Maxwell-Hyslop (1971: 1) connected with trade in lapis lazuli (see also Rothman 2002: 11). Numerous pierced gold rosettes were found at Tepe Gawra (Pl. 59A) (Tobler 1950: pls. 58a-b, 59a); these objects show a striking similarity to daisy pins from Mochlos (e.g., MO 83, MO 84). Some of the rosettes were buried with children and adolescents, while gilded beetle-shaped pendants were found with infants as well as adults (Speiser 1935: 136, pl. 84.24; Tobler 1950: 199, pls. 58, 59a,107, 108, 175). In one tomb, a rosette and an engraved disk were found near the head of a child. Additional gold ornaments from this site included a pin; a plain diadem, pierced for attachment, found in situ on a skull; curious objects described as studs by the excavator (Pl. 59A); a necklace of beads; appliqués; gold and lapis lazuli ornaments; bangles; and an electrum wolf’s head pendant (Pl. 59B) that may have served as an amulet (Peasnall 2002: 218-232; Rothman 1988: 348-349; 2002; Tobler 1950: 199, pl. 59b).

A silver disk found at Early Dynastic Uruk (Warka), which the excavator described as a breastplate (Pl. 59C), was decorated with loops of carefully-arranged filigree (Lenzen 1964: 130). Early Dynastic burials at Mari and Kish also contained jewelry made from precious metals (Maxwell-Hyslop 1971: 14-16).
tomb (Tomb 300) at Mari contained a collection of well-crafted gold, silver, and lapis lazuli jewelry (Pl. 59D) including a fragment of a perforated diadem or strip ornamented with repoussé rosettes and a dot border; rosette appliqués; two circular disks decorated with bosses or cones and a very even dot repoussé border; and two necklaces with beads and small pendants of various shapes and materials (Jean-Marie 1999: 132-133, pl. 45; Parrot 1938: pl. 2.3).

Later Shakkanakku (Akkadian) burials at Mari also contained jewelry: gold and silver pins, rings, and beads; silver hair rings; and different sizes of gold lobed earrings with multiple crescents (Jean-Marie 1999: pls. 118, 138, 149, 187, 216, 218). The burial in Tomb 1082 contained many objects of adornment (Pl. 59E): a gold diadem; gold-capped beads made of lapis lazuli and carnelian; and numerous ornaments of gold, silver, and electrum (Jean-Marie 1999: 194-195, pl. 242; Margueron 2004: pls. 57, 82-85, 87).

Diadems and other ornaments were recovered from burials contemporary with Cemetery A at Kish (Watelin 1934: 50, pl. 35). An oxidized silver diadem was found in situ on the skull of a woman in Burial 344; she also wore a necklace of triangular gold and lapis lazuli plaques as well as a necklace of carnelian and other stone beads strung on a gold wire. Additional ornaments included silver pins and a rosette pendant as well as copper pins, rings, and bracelets. Another female at this site was buried with a thin, pierced gold diadem; copper and stone objects; and gold wire bracelets.

Early Dynastic burials at Tell Abu Salabikh (Martin, Moon, and Postgate 1985) contained jewelry made from precious metals. Five graves and a jug buried near a grave contained jewelry or ornaments. The richest burial, Grave 1, included silver beads and several pairs of coiled wire and plain silver rings; three of these rings were found in situ
on finger bones. Two silver roundels with openwork flowers were recovered, one from each side of the skeleton’s head; they may have been worn as a “headdress” in conjunction with a silver ribbon and pins (Martin, Moon, and Postgate 1985: 11-12, 21-22, 27-30, figs. 9c, 145). A silver finger ring (Grave 26), a piece of silver wire (Grave 31), and three corroded silver rings that may have been a double spiral (Grave 88) were also found (Martin, Moon, and Postgate 1985: 70, 82, 163, fig. 145.26:49). Gold beads were recovered from a jar buried adjacent to Grave 51 (Martin, Moon, and Postgate 1985: 4, fig. 60, #1). Grave 176 also contained jewelry, including gold beads and at least one gilded copper pin head (Postgate 1982: pl. 3b).

Hoard from Khafajah and Tell Asmar in the Diyala region have previously been discussed. However, many additional objects made from precious metals were also recovered from these sites. Primarily silver but also gold objects were associated with private houses at Khafajah, with some jewelry found in simple pit graves located below occupation floors (Delougaz, Hill, and Lloyd 1967: 58). Fragments of gold leaf, a few pieces of gold jewelry, and silver beads and other small objects were found in Houses 1, 2, and 3 (Delougaz, Hill, and Lloyd 1967: 33, 35, 42, 48-49). Ten graves contained jewelry, generally one or two silver spiral rings; Grave 92 also contained the remains of a silver headband (Delougaz, Hill, and Lloyd 1967: 99, 115, 117-119, 121, 123-125, 132). A lump of silver and ten small silver objects were found in the area of the private houses at Tell Asmar; a large (5.4 cm diameter) silver disk with filigree was found in a room in the Northern Palace (Delougaz, Hill, and Lloyd 1967: 185, 214, 220, 227, 232, 234, 240-242). Isolated finds, totaling about ten pieces plus beads, were also recovered from buildings or houses near the Northern Palace (Delougaz, Hill, and Lloyd 1967: 248-254).
The most impressive jewelry from ancient Mesopotamia was surely that recovered from burial contexts at Ur (Woolley 1934, 1963 [1954]; Zettler and Horne 1998). Gold and silver jewelry from the cemetery, excavated by C. Leonard Woolley from 1926 to 1931, was associated with Early Dynastic and later Sargonid period tombs (Pls. 60-61). The jewelry, especially from the earlier burials, included numerous classes of objects for personal adornment that were manufactured with the most advanced techniques known at the time. Raw materials used in the production of this jewelry – from precious metals to semi-precious stones – all had to be imported, confirming southern Mesopotamia’s participation in long-distance trade networks (Hansen 1998: 43; Zettler 1998a: 5).

During the Early Dynastic period, c. 3000 – 2350 BC, the main patrons of craft production, especially of gold work and other high prestige goods, were probably temples and palaces (Postgate 1992: 229; see also Stein 1996: 27). Records from Nippur suggested the presence of a “well-developed, private (probably market dominated) sector of the economy” as well (Zettler 1990: 85; 1992: 219, 236). This would mean that votive objects and other luxury goods were likely also commissioned by elite individuals in the private sector (see Diakonoff 1984: 372 on various segments of society in the ancient Near East; Zettler 2003: esp. 13-16 on biases in documentary sources toward state domination of the economy, as compared to the role played by the private sector).

As evidenced by jewelry from the Royal Cemetery, craft specialization led to outstanding design, including the harmonization of separate objects and various raw materials; expert sheet metal work; and the use of new decorative techniques such as filigree and cloisonné. The metallurgical skills of Ur goldsmiths also included depletion
gilding, a process by which base metals were removed from objects made from a gold alloy, artificially enhancing the surface of the pieces (for a detailed description of this process, as it relates to chisels found in Puabi’s tomb, see La Niece 1995).

Two tiny gold objects with granulation were recovered from Queen Puabi’s tomb: a ring made from six granules (diameter two mm) and a fragment of a gold strip, also with six granules (see chapter 5 for a discussion of this technique). These were the only examples of granulation assigned to early contexts at Ur (Lilyquist 1993: 33; Maxwell-Hyslop 1977: pls. 1a-b; Plenderleith 1934: 297). The granulated strip was poorly manufactured (see photograph in Maxwell-Hyslop 1977: pl. 1b), with the granules unevenly placed and melted metal visible at the joins; this was a surprising departure for jewelry produced at Ur.

It is curious why other objects with true granulation were not recovered, especially since a form of proto-granulation – utilizing gold nail studs – was employed in the decoration of a dagger from the site (Weber and Zettler 1998b: 169, #146, see also Pl. 60E here). It may be that goldsmiths from Ur had not yet mastered this technique, so chose to create the same effect using an alternative method. Lilyquist (1993: 33) indicates that, other than the two examples from Ur, the earliest granulation in Mesopotamia may be a granulated silver bead with a three mm diameter recovered from a hoard at Tell Brak (Mallowan 1947: 176-177); this bead had parallels from “Troy II – III, the Sargonid cemetery at Ur, and the palace at Tell Asmar of the Akkadian period (ca. 2334 –2154 B.C.E.).” (see chapter 15 for a further discussion of granulation in Mesopotamia and the Troad).
Jewelry was found with women, men, and children buried in the Royal Cemetery. Woolley noted that gold was not only associated with royalty but was also found “in the graves of ordinary people” (1934: 394). Of the 1,850 graves excavated, the 16 richest graves were described as the “Royal Tombs” (Pollock 1991: 173-175; Woolley 1934: 33; Zettler 1998b: 21). These tombs were of two types: those with a burial chamber and those “for which only the approach pit was located” (Moorey 1977: 25). Woolley described the approach pits as “death pits” because of the many sacrificial victims found there.

The most noteworthy tombs were PG 755, a single male inhumation with many gold and silver objects, including a gold helmet (Pl. 60A) (see Cohen 2005: 138-140 on evidence of "military might" in this tomb; Müller-Karpe 1993: 249-250 for a discussion of the possible royal status of the burial); PG 789, referred to by Woolley as the King’s Grave; PG 800, the tomb of Queen Puabi (or Queen Shub-ad); and PG 1237, called the “Great Death Pit,” but without an associated high status or royal burial.

Attendants found in death pits and tombs were dressed in finery and adorned with jewelry. Musical instruments, decorated vessels, figurines, cylinder seals, tools, and weapons – all made from precious metals or other exotic raw materials – were also recovered from these chambers. Recent research, including CAT scans of two skulls from the Great Death Pit (Baadsgaard 2007), indicated that these attendants may not have died in place by drinking poison as Woolley had suspected (1934: 35). Perhaps as many as 73 attendants from PG 1237 may have been killed above ground, mummified, and then carried down into the pit (Avril 2007).
Numerous classes of jewelry were represented by finds from the tombs: diadems, necklaces, pins, pendants, amulets, earrings, finger rings, and ornaments for the hair including ribbons, combs, wreathes, and rings. These objects were made of gold, silver, lapis lazuli, and carnelian. Other semi-precious stones and shell were also used for beads and inlays. Most jewelry recovered in situ was worn on the upper part of the body (Pittman 1998: 87), and much of this jewelry was worn by women. Four distinct types of adornment sets that were worn by the dead, including various combinations of objects, have been identified (Gansell 2007).

Some male burials, designated as male by associated grave goods such as daggers (Pollock 1991: 175), were found with brims (Pl. 60F) – long, thin beads of gold or semi-precious stones, which were worn with chains, perhaps at the forehead (Gansell 2007: 34; Pittman 1998: 101). Brims, made from less exotic materials when found in poorer graves, may have held head cloths in place (Woolley 1934: 243-244). Males were also found with odd numbers of small earrings, generally of the lunate type (Gansell 2007: 36), silver hair rings, silver pins, and occasionally belts made of long silver strips that had been sewn onto leather (Woolley 1934: 243).

According to Woolley, Queen Puabi’s headdress (Pl. 61A-B) was a “more splendid and elaborate version of the court head-dress worn by the women” who attended the royal burials (1934: 84, pls. 43b, 127-129). Wrapped around Puabi’s head were gold ribbons, the ends coiled into loops and secured by short pins or thread (Maxwell-Hyslop 1971: 3; Pittman 1998: 102). Wreathes, which also encircled her head, were made from strings of beads decorated with gold leaves with incised veins and rosettes inlaid with semi-precious stones; a series of gold rings hung down over her forehead (Pittman 1998:...
90-91; Quick 2004: 147 described gold rings suspended from beaded chains as "frontlets"). Puabi wore a gold hair comb topped with rosettes, large lunate earrings, and coiled hair rings. In addition to the headdress, she was buried with a beaded belt and cloak, gold pins, ten gold finger rings, amulets, and a necklace of gold and lapis lazuli beads with a pendant set with carnelian.

Woolley identified a beaded diadem, which had been placed on a table near Puabi’s body (1934: 85-89, pls. 130-131; 1963 [1954]: 67). However, a more recent study of the lapis lazuli and gold beads that comprised the “diadem” indicated that this may have been a “coordinated ensemble” of up to six separate objects (Pittman 1998: 92), with gold beads in the form of plants and animals (Miller 2000). Less ornate versions of the hair combs, wreathes, earrings, and other objects – in gold, silver, and sometimes copper – were found in other tombs.

Of the approximately 70 to 80 gold and silver diadems and smaller oval strips listed in the excavation catalogue (the latter referred to by this writer as frontlets; see also Gansell 2007: 36; Woolley 1934: pl. 219), many were undecorated oval plaques that were perforated for attachment and worn over the forehead (Pl. 61C). Frontlets were recovered from Early Dynastic contexts; however, they appeared to be more common in the later Sargonid period (Woolley 1934: 246). One Early Dynastic diadem from PG 153, which had been repaired in antiquity, was decorated with incised rosettes, figures of humans and animals, and a punched dot border (Woolley 1934: 299, pl. 139; Zettler 1998b: 65, #11). A gold diadem from PG 1284 (Pl. 61D), a later Sargonid burial, also contained a border of dot repoussé (Woolley 1934: 504-505; Zettler and Horne 1998: 106, #53). Although six other diadems or frontlets contained dot borders, it is surprising that a simple
technique such as dot repoussé – prevalent in prepalatial Crete and elsewhere – was not used more frequently to decorate jewelry at Ur. While veins on EM gold leaf attachments were indicated with dots, veins on Ur leaves were incised.

Numerous later Sargonid graves also contained gold or silver jewelry. Ornaments associated with female Sargonid burials included small lunate earrings, sometimes worn as multiples in the same ear; gold or silver frontlets that were tied around the head by wire; spiral hair rings; hair ribbons; and toggle pins (Woolley 1934: 241-242, 246-247, pl. 219). Men were also found with frontlets or ribbon-like diadems, spiral hair rings, and single lunate earrings.

Many objects of adornment – especially from the Royal Tombs – included motifs borrowed from the natural world that may have been connected with fertility or regeneration (Hansen 1998: 49). Amulets and beads were crafted in the form of animals such as bison, wild sheep, gazelle, and deer (Cohen 2005: 130-131, fig. 18; Miller 2000: 151). Leaves and flowers, some decorated with colorful stone inlays, adorned the headdresses of Queen Puabi, her female attendants, and women found in other large tombs. Identified plant forms included the leaves of willow and poplar trees, the flowering (male) and fruiting (female) branches of date-palms, and perhaps apples (Miller 2000: 149, 152-154). In particular, dates and apples – both needing two trees for cross-pollination – were “natural symbols of procreation…associated with sexuality, abundance, and the goddess Inanna…” (Cohen 2005: 129). Texts, such as Descent of Inanna and The Death of Urnammu, also revealed that “jewelry…played an important role in the ritual associated with the entry of the deceased into the underworld” (Pittman 1998: 88; see also Pollock 1991: 180; Tinney 1998: 28).
Textual evidence – lacking for the EBA Aegean – provided additional information on precious metals in ancient Mesopotamia and the Near East, especially on craft production and the use of silver as a medium for exchange. According to late third millennium BC archives from Ur III and elsewhere, craftsmen with various skills were organized into departments with the supply of raw materials and distribution of finished goods controlled by the state bureaucracy. Craft specialists – metalworkers, goldsmiths, leatherworkers, felters, lapidaries, woodworkers, and reed weavers – worked together to create luxury goods (Moorey 1999: 14-15; Van De Mieroop 1997: 181, see Loding below). According to records associated with government-run Isin workshops (c. 2000 BC), objects of perishable material were also regularly sent out from some government workshops to goldsmiths for decoration (Moorey 1999: 15).

In her analysis of the craft archive from Ur, Darlene Loding (1974) described inventory and receipt texts related to the activities of artisan workshops, including those of goldsmiths and silversmiths. Personal names of workers were also identified on attendance lists. Receipts were quite specific and included the names of individuals providing and receiving raw materials and manufactured products; techniques, such as melting metals and plating stone objects with precious metals, were also described (Loding 1974: 271). To Loding, this supported the presence of an organized bureaucracy and suggested the importance of luxury goods to the Ur temple economy (1974: 18-19, 27). However, it is inconclusive as to whether luxury craft production in Ur was controlled entirely by the temple (Loding 1974: 33).
Although some craftsmen were attached to the state, others surely acted as independent contractors (Van De Mieroop 1997: 179; Zettler 1990, 1996). At Nippur, temple ration lists did not include metalworkers. Zettler (1992: 157) suggested that these workers were probably part of independent groups, with the temple hiring them on a “fee-for-service basis.” The Inanna temple texts described three different smiths who worked copper and bronze, with both distributions to and deliveries from each smith recorded (Zettler 1992: 227, table 5). One document from Nippur (6 NT 39) described a transaction with a goldsmith; the smith received deliveries of gold from the temple and other sources – with some gold objects clearly destined for recycling – for the express purpose of “putting a new ‘skin’ on the statue of Inanna” (Zettler 1990: 86, 88; 1992: 231).

Extensive textual evidence exists on the use of silver as a form of payment or early currency. For example, third millennium BC texts from the Iraq Museum described shekels of silver (and other goods such as barley, wool, and oil) that were used to purchase houses, orchards, fields, and slaves (Steinkeller and Postgate 1992: 13 [IM 14182], 25 [IM 11053/156], 86-87 [IM 43612]). Records from the Temple of Inanna at Nippur indicated that grain and silver were paid to the temple as rent on fields; the temple may have also used silver as payment for various goods such as honey, copper, or bitumen (Zettler 1984: 245-246; 1992: 106 , 110).

Although barley, wool, and other commodities were common forms of compensation for work in the ancient Near East, land allotments and payments in silver were also recorded (Powell 1987; Waetzoldt 1987: 118). In one case, shekels as well as grains of silver were referenced as wages for a slave; equivalents were given in these
texts, with one shekel of gold equaling three shekels of silver (Steinkeller and
Postgate 1992: 47 [IM 13377], 63 [IM 5592/17], 91 [IM 10604]). Somewhat later texts
from Mari also referenced silver and gold. Precious metals were used for the purchase of
grain and as tribute; inventories of gold- and silver-plated furniture and lances were
recovered from Mari (Heimpel 2003: 271 [#26 247], 292 [#26 305], 324 [#26 370]).
Likewise, “treasures” described on records from Nippur list jewelry associated with
deities and living individuals as well as gold and silver objects that were held by the
temple or given to the temple by the king (Zettler 1984: 270 ff.; 1992: 146-147).
Inventories of gold jewelry and other objects, described as “votive gifts and tithes from
the sea-going traveling commission merchants,” were also included in texts from the Ur
archive (Loding 1974: 12-13).
13. Egypt

The prepalatial period in Crete coincided roughly with the end of the Naqada II period (pre-3000 BC) into the First Dynasty (c. 2920 – 2770 BC) and through the beginning of the Twelfth Dynasty (c. 1900 BC) in Egypt. This covers the concluding years of the Predynastic period, the Early Dynastic or Archaic period, the Old Kingdom, the First Intermediate period, and part of the Middle Kingdom (chronology according to Baines and Málek 1988; see also Kitchen 1991; Shaw 2000; Tiradritti 1999, as specifics of chronology continue to be discussed by scholars of ancient Egypt).

With local sources of gold (see chapter 4) and semi-precious stones (see chapter 3), Egypt was well equipped to produce many finely-crafted objects including solid gold and inlaid jewelry, golden vessels, and gilded furniture and other objects (e.g., Tiradritti 1999: 31, 32, 52, 64, 141). Manufactured by goldsmiths associated with royal workshops, extant jewelry was recovered exclusively from burial contexts (Pls. 62-63). Although some classes of jewelry that existed in prepalatial Crete – such as diadems, bangles, and beads – were also present in Egypt, the craftsmanship in Egypt was superior and the iconography reflected local religious beliefs.

Most distinctive to ancient Egypt were beaded collars, pectorals, and girdles (Wilkinson 1971: 196), forms of royal personal adornment not found elsewhere in this study. Earrings and finger rings – rare in EM Crete – were also uncommon in Egypt at this time (Feucht 1999: 386; Markowitz 2001: 205-207). Although some jewelry showed signs of wear that indicated use during the lifetime of the owner, many other objects were
made of very thin sheet metal or gilded wood or copper and were clearly manufactured for sepulchral purposes.

It has been suggested that contact between Egypt and Crete was established by the middle of the third millennium BC (Crete, Egypt: 3 Millennia of Cultural Interactions, 1999: 5). Xanthoudides referenced what he saw as many “points of resemblance” between the EBA Mesara and Egypt (1924: 128). However, there is no evidence to indicate direct contact and nothing to suggest that gold dust, gold ingots, or manufactured jewelry was imported directly to Crete. The earliest indication of Egyptian imports to Crete – in the form of stone vessels and scarabs – is dated to MM IA (Whitelaw 2004: 241), the very end of the prepalatial period. The contextual analysis of prepalatial Minoan gold revealed two Egyptian scarabs recovered from tholoi at Lebena in south-central Crete – dated to the Eleventh and early Twelfth Dynasties (see chapter 2).

Gold jewelry was recovered from burials that dated from Predynastic Naqada II, c. 3200 – 3000 BC. A diadem from this period, made from tiny beads of gold and semi-precious stones (Pl. 62A), was found in situ on the head of a woman at Abydos (Capel and Markoe 1996: 87; Wilkinson 1971: 11-12), apparently holding a veil over her face (Andrews 1991: 43, fig. 31). In the Early Dynastic cemetery at Naga-ed-Dër, gold jewelry including a plain ribbon-like diadem, beads, foil rings, thick wire bracelets, pendants, and animal amulets (Pl. 62B) were recovered (Andrews 1991: 19, fig. 11; Reisner 1908: pl. 9; Smith 1988 (1958): 45-46, fig. 27).

Wilkinson indicated that the “most famous jewels” of the Early Dynastic Period were four bracelets from Abydos (1971: 16). These bracelets (Pl. 62C), dated to the First Dynasty, included several types of gold and semi-precious stone beads: falcons perched
on rectangular *serekh* plaques, coiled wire, balls, reels, hour glasses, and spheres; they were recovered from the disembodied, linen-wrapped arm of a mummy thought to be a wife of King Zer (or Djer) (Smith 1988 (1958): 44-45, fig. 26; Tiradritti 1999: 42-43; Wilkinson 1971: 17, figs. 8-12). Beads on one of these bracelets were strung with the use of gold threads twisted with animal hair (Andrews 1991: fig. 10; Wilkinson 1971:17, fig. 12), perhaps from the tail of a giraffe (Tiradritti 1999: 43).

Small silver ornaments were associated with contexts that date to the second half of the fourth millennium BC. Silver beads, buttons, a ring, and an armlet were recovered from Naqada graves, along with a silver lid, a spoon, and a hawk figurine; silver beads were found at el Mahasna (Prag 1978: 38-39). Silver tools, weapons, and vessels were found in graves at el Amra, Hamra (or Homra) Dom, and Ballas (Prag 1978: 38-39). A silver and gold pendant was also associated with Hamra Dom. Although the silver-gold alloy electrum occurred naturally in the mountains of the Eastern Desert and Nubia (Shaw and Nicholson 1995: 270), native silver and silver ores were not available in this area, with “white metal” or “white gold” likely imported from the Near East (Lacovara and Markowitz 2001: 286-287).

Discoveries of jewelry were made at the Old Kingdom sites of Giza and Saqqara. A gilded wooded box that originally held 20 silver bracelets (Pl. 62D) was recovered from the Fourth Dynasty tomb of Queen Hetepheres I (Arnold 1999: fig. 27; Reisner and Smith 1955: 43-44, pls. 36-38; Tiradritti 1999: 65; Wilkinson 1971: 24, fig. 20). The bracelets, probably worn on the forearm in life, included images of butterflies inlaid with carnelian, turquoise, and lapis lazuli (Reisner and Smith 1955: 44). The tomb of an adult woman, also at Giza, contained two necklaces or collars with gold beads (Pl. 62E-F) and
a gold-covered copper diadem (Pl. 63A-B); the diadem included decorative ornaments in the form of flowers and ibises (Andrews 1991: fig. 22; Hassan 1936: 149, pls. 50-53). Near a burial chamber at Saqqara, a cache of jewelry was found containing gold bracelets, beads, and other gold objects (for a gold and carnelian necklace, see Emery 1949: pl. 99). Collars of beads made from gold, shell, and semi-precious stones were also recovered from Fourth Dynasty contexts at Giza and Saqqara (Wilkinson 1971: 32).

Although gold jewelry in Egypt was always exceptionally well-crafted, new levels of artistry were reached in the Twelfth Dynasty. Gold, lapis lazuli, carnelian, turquoise, feldspar, and other raw materials were incorporated into complex designs in the manufacture of pectorals, necklaces, bracelets, diadems, and other objects. Noteworthy collections of ornaments were recovered from tombs associated with Princess Khnumet, in the funerary complex of Amenemhet II (c. 1929 – 1892 BC); Queen Weret, buried in the funerary complex of Senusret III (c. 1929 – 1841 BC); and Princess Sit-Hathor, also buried in the funerary complex of Senusret III (c. 1878-1841 BC), all located at Dahshur (Tiradritti 1999: 142-149). Shaw and Nicholson (1995: 144) described a “bull mosaic” pendant buried with Princess Khnumet that was thought to be Cretan-influenced.

The last group of objects to be described were from a Middle Kingdom hoard associated with the temple complex at Tôd in upper Egypt, dated c. 1900 BC (Bisson de la Roque, Contenau, and Chapouthier 1953; Lilyquist 1993: 51; Sherratt and Taylor 1997: 437). The Tôd treasure – primarily of silver – consisted of over 150 silver vessels; three types of silver ingots; gold ingots; small objects manufactured from lapis lazuli,
gold, and silver; and uncut pieces of lapis lazuli (e.g., Bisson de la Roque 1950: pls. 4, 6-9, 21; Bisson de la Roque, Contenau, and Chapouthier 1953: pls. 2, 3, 12, 45, 46). Although it has been suggested that the vessels resembled Minoan ceramic shapes (Bisson de la Roque, Contenau, and Chapouthier 1953), Ellen Davis (1977: 69-79) saw a stronger connection with Anatolia (as described in Warren 1980: 495-496, although he sees evidence of Minoan influence in some vessels). Sherratt and Taylor (1997: 437) suggested a Levantine or perhaps a Cretan source for the silver vessels. Since some of the vessels were folded or crushed (Lacovara and Markowitz 2001: 287), and many ingots were included, this hoard may have represented silver, gold, and lapis lazuli that was intended to be worked or reworked. Only a few objects could be described as jewelry: small rings, flower pendants, and a bracelet.

Sculptures, reliefs, and paintings also provided information on the types of jewelry worn in Egypt. One type of diadem, with a knot or bow in the back (Pl. 63C), was sometimes decorated with streamers and real or metal flowers (Andrews 1991: fig. 52; Borchardt 1913: pl. 16; Wilkinson 1971: 42). Another floral diadem was depicted on an Old Kingdom limestone relief (Pl. 63D); Wilkinson indicated that this diadem was painted yellow, representing gold (1971: 42). Limestone statues (Pl. 63E) also portrayed women wearing diadems decorated with a floral motif.

During the third millennium BC, most of the manufacturing techniques employed in prepalatial Crete were also used to produce jewelry in Egypt. However, the objects produced by Egyptian workshops were exceptionally well-made compared to the simple pieces crafted in Crete. Colorful stone beads and inlays were incorporated into Egyptian jewelry, with a tri-color motif of red (carnelian), deep blue (lapis lazuli), and blue-green
(turquoise) frequently used in addition to gold for royal jewelry (Markowitz 2001: 202). Surprisingly, granulation and filigree were not used to decorate jewelry or other ornaments in Egypt until the Twelfth Dynasty, after 1991 BC. Andrews suggested that, since granulation was in use elsewhere hundreds of years earlier, this technique must have been introduced to Egypt from abroad (1991: 88).

Scenes from tomb paintings and reliefs that date from the Fourth Dynasty onward illustrated jewelry-makers performing tasks such as weighing metals, melting gold, drilling beads, annealing worked objects, creating individual pieces, and displaying finished goods in a workshop setting; tribute of gold rings and other luxury objects was also depicted (Andrews 1991: 45, 71, 73, 74-77, figs. 33, 51, 53-56; Bryan 2000: 259). Wilkinson (1971: 1) indicated that metalsmiths and others involved in the production of gold work were identified on amulets, statues, and tomb inscriptions; in one New Kingdom example, Neferronpet – named as the Chief of the Makers of Thin Gold – owned a Book of the Dead that was embellished with gold leaf.

Although dated later to the fourteenth century BC, the Amarna letters provided information on diplomatic relations between Egyptian pharaohs and their counterparts in Western Asia and the Aegean. The 382 tablets, which were found on the Amarna plain at Akhetaten and were primarily letters received (Moran 1992: xiii, xv, xvii), included requests for unworked gold as well as objects made of gold and silver. Phrases like “send me much gold” (Moran 1992: 18, EA 9 [6-18]) and “in my brother’s country, gold is as plentiful as dirt” (Moran 1992: 44, EA 19 [59-70]) indicated how abundant gold must have been in Egypt at this time. Among the gifts sent to Egypt in return were lapis lazuli, jewelry, wooden chariots, horses, and brides.
14. The Balkans

Since the Balkans have been mentioned as a possible source of gold to prepalatial Crete (Branigan 1974: 63), it is worthwhile to examine finds of early gold jewelry from this region (for the earliest Balkan sites with gold, see Bailey 2000: 219-221; for a review of Early Aegean metallurgy and the Balkans, see Muhly 2006: 156-160; for early metallurgy in southeastern Europe, see Parkinson 2004). Shell jewelry found in the Balkans, made from Mediterranean *Spondylus gaederopus* (spiny oyster) and *Dentalium vulgare* (tusk shell), indicates that raw materials or manufactured goods moved between these two areas as early as the Neolithic period (Demoule and Perlès 1993: 395, 403; for examples of shell beads, pendants, and bracelets, see Papathanassopoulos 1996: 335, #286, 337, #294, #296; Zachos 1996a: 166). Also, the Balkans and the Aegean share a distinct form of FN metal jewelry: the ring pendant (see chapter 10), a type that is also found in stone, bone, and clay (Demakopoulou 1998: 66, #67-70; Makkay 1991: 119; Papathanassopoulos 1996: 336, #290, 338, #298; Rudolph 1978: 16).

Objects from lands that encompass modern Albania, Macedonia (the prefecture in northern Greece), Bulgaria, and Romania will be described. A few finds from the area previously known as Yugoslavia (currently Serbia and Montenegro; Bosnia and Hertzegovina; Croatia; and Slovenia) will also be reviewed as well as some early gold work from Hungary. No gold ornaments have been identified from the modern country known as FYROM, the Former Yugoslav Republic of Macedonia.

It is not an easy task to put forward a chronology for prehistoric southeastern Europe, as the Balkans contained numerous cultural groups with their own ceramic
sequences (Steadman 1995: 16). Even Slavic scholars of Balkan archaeology differ in their assignment of dates to various segments of the prehistoric period (e.g., Nikolova 1999: 7-11, table 2.1; Panayotov 1995: 247-248). This is further complicated by different names given by archaeologists to cultural assemblages that overlap borders of modern countries (Bankoff 2004: 12).

In Hungary and western Romania, the period c. 4500 – 3000 BC is called the Copper Age or Chalcolithic, while this same period in Bulgaria, Macedonia, Albania, and the former Yugoslavia is often referred to as the Eneolithic or Aeneolithic (Parkinson 2004: 334). The Eneolithic is sometimes seen as a “bridge” between the Neolithic and the EBA in this region (Bankoff and Winter 1990: 175; see also Pernicka et al. 1997: 41).

The Chalcolithic or Eneolithic period in the Balkans appears to have been contemporary with the LN Aegean (Elster and Renfrew 2003: xxv). Although this is consistent with Nikolova’s dates for later periods in the Balkans – EB I (c. 3600/3400 – 3000 BC), EB II (c. 3000 – 2500/2450 BC), and EB III (c. 2500/2450 – 2000 BC) (1999: 175, 199, 225) – many scholars have suggested that the EBA began later – at the beginning of or during the third millennium BC (e.g., Bankoff and Winter 1990; Korkuti and Petruso 1993; Makkay 1995).

For the purposes of this study, objects manufactured from precious metals will be included if they appear to date to the late Chalcolithic or to the EBA. Gold jewelry and ornaments from a few earlier sites – such as the cemetery at Varna in Bulgaria – will also be described, as these finds represent some of the earliest extant gold objects.
Albania

In prehistoric Albania, the Chalcolithic has been dated to the second half of the third millennium BC, c. 2600 – 2100 BC; consequently, the EBA was substantially shorter in duration and began later than in the Aegean: c. 2100 – 1800 BC (Jacques 1995: 8, 11; Korkuti and Petruso 1993: fig. 2). The first objects manufactured from precious metals dated to the EBA (Jacques 1995: 8, 11). Although no specific information was given on the classes of ornaments recovered, Jacques (1995: 12) stated that gold work was associated with the largest of seven burial mounds at Pazhok; ceramic evidence indicated that this tumulus was in use to c. 2000 BC. No other early sites with gold or silver have been identified in Albania (e.g., see figs. 4.1 and 7.1 in Bailey 2000; map ix in Nikolova 1999). This may be due to geographical location. Albania, in the western Balkans, was at a great distance from known sources of precious metals in the eastern part of the region. Westward interactions were likely facilitated by the proximity of the Adriatic Sea and southern Italy. However, finds of early gold and silver jewelry may increase as more excavation of prehistoric Albanian sites takes place.

Greek Macedonia

Gold beads, ring pendants, and perforated strips have been recovered from FN sites in northern Greece (see chapter 10). In W.A. Heurtley’s overview of early twentieth century excavations in Macedonia (1939), only one small object of gold was associated with an EBA (third millennium BC) context. The object was a plain ring of gold with a diameter of two to three cm, recovered from Saratsé, in the Lankadás Basin, northeast of modern Thessaloniki. The ornament may be a hair ring formed by overlapping circular-
section wire (Heurtley 1934-35: 88, 203, fig. 67qq). It should be noted that gold slag was also found in EBA levels at Saratsé as well as at Vardaróphtsa in the Axiós Valley (Davies 1939: 253).

**Bulgaria**

The earliest gold jewelry in the world was recovered from Varna, a necropolis on the western coast of the Black Sea in Bulgaria (Bailey 2004; Gimbutas 1977; Ivanov 1991; Misch-Brandl 1994; Renfrew 1978, 1986b). Dated to the late fifth millennium BC, the cemetery contained both human burials and cenotaphs with gold jewelry and ornaments (Pl. 64A-E). Grave goods also included ceramic vessels decorated with powdered gold or gold leaf (Bailey 2000: 205; Sherratt and Taylor 1997: 432; Todorova 1995: 88). Of the more than 3,000 gold objects recovered, 1,400 objects were found in three “symbolic” cenotaph graves (Chernykh 1991: 389). Grave 43, described by Chernykh and others as a chieftain’s grave (1991: 390), contained 990 gold objects or 1.5 kg of gold (Bailey 2000: 204; Renfrew 1978: 199). Although women and children were also interred in the cemetery, grave goods were concentrated in adult male burials and “bodiless burials” (Bailey 2004: 342).

Some classes of jewelry represented in the Varna tombs were reminiscent of objects recovered from prepalatial Crete. This similarity may be due to the simplicity of manufacturing related to the Varna jewelry’s early date. Among the grave goods were gold diadems, perforated strips, bosses, disks, armlets, thick bracelets, beads, and appliqués (Gimbutas 1977: figs. 9-15). Wire rings may have been earrings, hair rings, or finger rings. In one cenotaph, a human face – modeled in unfired clay – contained five
rings stuck through a pseudo-ear (Pl. 64C) (Gimbutas 1977: fig. 19; Misch-Brandl 1994: vii- viii). Other objects included scepters (Pl. 64D) and ring pendants (Pl. 64E), the latter similar to pendants recovered from FN sites in Greece. The most unusual gold ornament found at Varna must have been the gold penis sheath from Grave 43 (Pl. 64B), which was manufactured with an “open head and holes at the base for attachment to the body” (Bailey 2004: 341). Another curious ornament was a solid gold perforated astragalus or animal anklebone from Grave 36 (Pl. 64D, lower left) (Bailey 2000: 219; 2004: 341).

Although the majority of ornaments from Varna were made from hammered sheet gold with some dot repoussé decoration on bosses and appliqués, a few pieces appeared to have been cast, perhaps utilizing the lost-wax process (Misch-Brandl 1994: viii). Uniformity in the design and production of the Varna material suggested the presence of experienced craftsmen and perhaps a workshop dedicated to gold working. The great quantity of gold jewelry found at this site suggests a close and easily accessible source of gold.

Another site, further inland from Varna, also contained gold ornaments that were dated to the late fifth millennium BC. Jewelry was recovered from Hotnitsa (or Hotnica), a tell settlement in the Veliko Tarnovo (or Turnovo) region. The objects were of simple design and construction and resembled finds from Varna. The Hotnitsa jewelry, which appeared to constitute a hoard, included perforated ring pendants, coils or rings of gold wire, and a spiral bracelet; most of the coils were linked together to form chains (Bailey 2000: 220; Chokhadzhiev and Chokhadzhiev 2005). A gold spiral was recovered in 2006;
tests on the spiral indicated that the proportion of gold to silver was 95.42 : 3.21 (Cholakov and Chukalev 2008: 156).

Gold work was associated with periods that followed the Neolithic: the Eneolithic, the Transitional period, and the EBA (for suggested chronologies for Bulgaria, see Boyadziev 1995: 179; Panayotov 1995: 247-248). Garaşanin indicated that anthropomorphic “idols” made of bone as well as gold were recovered from Gumelniţa, associated with the Eneolithic period (1982b: 145, figs. 23.14-16); burials from the Gumelniţa-Kodža Dermen group also included gold masks, buttons, pendants, and gilded pottery (1982b: 147).

A late Eneolithic cemetery near the modern village of Durankulak included 16 burials with gold ornaments (Avramova 1991; Bailey 2000: 206-207). While beads were the most common type of gold jewelry recovered, earrings, nails, and a single example each of a ring pendant and a spiral of wire were also found (Avramova 1991: 45, table 2). The greatest variety of objects was recovered from graves of women; however, men, adolescents, and children were also buried with gold. Although the cemetery included cenotaph burials, none of them contained gold work (Bailey 2000: 206). Avramova (1991: 45) indicated that the classes of jewelry associated with this cemetery were similar to those found at Varna, Devnja, Vinica, and Radingrad (for a discussion of additional sites, see Bailey 2000: 220; for copper finds at Durankulak, see Pernicka et al. 1997: 59-64).

During the Transitional period (c. 4000 – 3500 BC), a “complete cultural caesura” or break occurred, perhaps as a result of catastrophic climate change that resulted in
rising sea levels and other natural disasters; the “brilliant development” of the previous periods, as exemplified by finds from Varna, ended c. 4000 BC (Todorova 1995: 89-90).

In her summary of excavated sites that dated to the fourth and third millennia BC, Nikolova (1999) described 12 contexts in Bulgaria associated with the recovery of gold or silver ornaments. One find spot was a cave and the remaining 11 locations were cemeteries with one or more tumuli. An electrum wire ring, torque, and bracelet as well as a silver torque were recovered from the Emenska cave, which was dated to EB III (Nikolova 1999: 305, 308). Approximately 50 objects were found in tumuli in the EB II Goran-Slatina cemetery; “pendants” (sometimes also referred to by Nikolova as earrings, most of which appeared to be spirals of wire; see Pl. 65A for typology), wire rings, and beads were found primarily in silver but also in gold (1999: 61-63, 306-308, 381). The richest burial in this cemetery, which included five objects made from precious metal, was that of a child (1999: 381).

Other EB II or EB III burial contexts referenced by Nikolova included Kalugeritsa (silver pendant and wire ring in female grave); Lovech (gold earring and dagger with gold rivet); Mednikarovo (silver pendant and 14 silver beads; beads recovered from adolescent female grave); Plachidol (two silver pendants in male grave) (Bailey 2000: 247 described two silver beads); Troyanovo (pairs of silver and gold earrings); Turnava (three gold pendants, one associated with a female grave); Zheglartsi (silver pendant); and Madara (three silver pendants associated with child burial) (1999: 63-64, 66, 68-69, 305-308, 384, 391). Sites that may have dated to the late Chalcolithic or to the EBA included Pet Mogili (silver earrings) and Golyama Detelina (silver ring) (1999: 66, 306).
With the exception of the Goran-Slatina cemetery, only a few objects were recovered from each context.

A more recent discovery of EBA gold jewelry, still unpublished, has been made in the Karlovo region of central Bulgaria near the village of Dubene (or Dabene) (Cholakov and Chukalev 2008: 153-154; Keys 2005; Maugh II 2005; Morgan 2006: 36; Thracian Treasures Unearthed in Bulgaria [27-28 August] 2005). A Bulgarian archaeologist, Vasil Nikolov, dated the finds to c. 2300 BC, which was confirmed in a recent brief report on the site (Cholakov and Chukalev 2008: 153-154). More than 15,000 tiny, well-crafted ornaments (Pl. 64F-G) as well as a gold dagger and a silver dagger were unearthed from a series of tumuli that contained at least three cremations. Again, the occurrence of so many small, identical pieces may indicate that they were produced in a workshop. The great majority of objects were associated with one burial (Maugh II 2005).

Romania

The first gold ornaments in Romania were, in some cases, quite similar to gold work from Varna in Bulgaria (Bailey 2000: 220). Gold objects continued to be deposited in graves and hoards that date to the Eneolithic or Chalcolithic period (Dumitrescu, Bolomey, and Mogoşanu 1982: 16, 21 for a chronology). Toward the end of this period, hammered gold objects described as “stylized feminine figures” were connected with the Bodrogkeresztúr culture in Transylvania (for gold hoards associated with this culture in Hungary, see Makkay 1989), and a gold pendant was found in the settlement at Traian; ornaments made of copper and silver – “including the oldest lock-rings of Romania” –
were recovered from mid-third millennium tumulus burials in western Romania (Dumitrescu, Bolomey, and Mogoșanu 1982: 36, 42; Makkay 1989).

Burials at the EBA cemetery site of Beba Veche contained gold disks, spiral earrings, and a “boat-like” earring (Kovács 1977: 33, fig. 14.2 for gold disk; Nikolova 1999: 57). Gold foil was found at EBA sites of the Glina-Schneckenberg culture in Muntenia, located in southeast Romania; graves with gold beads and gold and silver hair rings were excavated at Sărata Monteoru, part of the Monteoru culture that extended into the Middle Bronze Age (Dumitrescu, Bolomey, and Mogoșanu 1982: 54-55). In her survey of excavated sites that dated to the fourth and third millennia BC, Nikolova mentioned two EBA sites in Romania with silver jewelry: Verbița (silver ring found in child burial in tumulus) and Gurbănești (silver spiral) (1999: 69, 306, 385). Sites that may date to the late Chalcolithic or to the EBA included Tumulus “Presnei” (quotes by Nikolova, silver spiral pendant); Plenița (silver pendant in male burial); and Ploiești (silver pendant in child burial) (Nikolova 1999: 62, 67, 307).

Gold hoards and bronze hoards were also associated with the Sighișoara-Wietenberg culture of Transylvania and the Otomani culture of Crișana (western Romania), both of which began in the EBA and continued into the LBA (Dumitrescu, Bolomey, and Mogoșanu 1982: maps 4, 5).

Former Yugoslavia

A tumulus from the Kotor Bay coast of western Montenegro, just north of Albania, yielded objects made from precious metals. According to Garaşanin, a grave from the EBA (c. 2750 – 1900 BC) burial site of Tivat contained a gold dagger as well as
a silver axe and ring (1982a: 174). A gold diadem that had been placed around the forehead of a female aged 25 to 30 years was recovered from a single grave at the EBA site of Zemun-Šljunkara (Nikolova 1999: 59). At EB II Bare, located in present-day central Serbia, a tumulus burial of an adult with a severed head was found; “golden adornment” was placed over the chest (Nikolova 1999: 60, 392). The gold work found at Bare (or Barama), dated by the excavator to c. 2300 BC, included five pendants (two on what appeared to be short loop-in-loop chains), four perforated “buttons” or disks, 156 beads, and three “rectangular plaques” or spacers; in a reconstruction, Srejović suggested that the pendants, beads, and spacers may have been part of a larger object such as a necklace (1976: 121, 128, fig. 2, pls. 4.1, 4.4).

In her summary of late Chalolithic and EBA sites, Nikolova described three additional sites in Yugoslavia, although it was unclear into which period they should be placed: Vajska (two gold pendants); Uljama (two gold spiral pendants or rings in an adolescent burial); and Vojlovica (pair of silver earrings) (1999: 58-60, 68-69, 308, 385, 392).

Hungary

The most famous early assemblages of gold objects recovered from the Carpathian Basin were surely the Tiszaszölös Treasure and the Moigrad Treasure. These hoards were associated with the Bodrogkeresztúr culture of the Chalcolithic period, which Makkay (1995: 72) suggested was contemporary with EB II in the northern Aegean. Only a few pieces from the Tiszaszölös hoard can be identified with certainty today, as most of the objects were apparently sold or hidden by local landowners soon
after the treasure was discovered in 1839. Valuable finds were revealed when the
flooding Tisza River washed out objects from the hoard as well as an unrelated well-
appointed burial from a later period (Makkay 1989: 17, 35). Surviving gold objects
included a large perforated pendant or breast-plate, three spiral bracelets, and several
beads and other small ornaments (Pl. 65B) (Makkay 1989: pl. 8). The two segmented
tubular beads are remarkably similar to beads recovered from EM Archanes (AR 18A-N)
(Papadatos 2005: fig. 25, pl. 20, #J1, J4). Other gold work, described in early documents
associated with the hoard, consisted of one or two additional large pendants, small
objects such as beads and perhaps arm rings, a gold “helmet” or diadem-like object,
clasps, and other small ornaments (Makkay 1989: 23, 43ff, 51).

The Moigrad Treasure – a hoard lacking provenance (but perhaps from modern
Romania) and apparently representing gold work from two different time periods –
included jewelry and other ornaments also identified with the Chalcolithic
Bodrogkeresztúr culture. According to Makkay (1989: 59-65, pls. 9ff), the Chalcolithic
portion of the treasure contained a wide variety of gold objects: a very large ring pendant
or breast-plate, 31.1 cm in length (Pl. 65C); a smaller ring pendant; beads; T-shaped
anthropomorphic pendants or diadems (Pl. 65D); strips, some incised or decorated with
dot repoussé; longer perforated bands that appeared to be diadems; and strips of curved,
incised metal that may have covered the shaft of a scepter. Other objects that may have
been associated with the treasure included 204 simple wire rings; arm rings or bracelets;
fragments of sheet gold that may have covered objects that have perished; and an unusual
fork with five prongs, at 102.8 cm in length (Pl. 65E). Neutron activation analysis
indicated that all of the Moigrad objects described here – with the exception of the fork,
which was not analyzed – were made from gold with the same composition of trace
elements; other analyzed objects, manufactured from gold with a different composition,
appeared to date to the sixth century AD (Makkay 1989: 67-68).

Makkay has proposed that the Moigrad Treasure was actually the missing portion
of the Tiszaszölös Treasure, and that the entire hoard had been owned by a powerful
family or group (Makkay 1989: 99, 102). If scientific analysis of the Tiszaszölös material
indicated that the gold contained the same composition of trace elements as the Moigrad
objects, Makkay’s theory would be validated. Similar gold pendants of the
Bodrogkeresztúr culture were also recovered from the cemetery at Jászladány (Makkay
1989: 9). However, gold working in the Carpathian Basin declined toward the end of the

Although gold was occasionally employed to create figurines or to decorate
ceramic pots in the Balkans, precious metals were used primarily for personal
ornamentation. Metal vessels, such as those associated with the Vulchitrun (or
Vulchetrun) Treasure in Bulgaria (Bonev 1995; Sherratt and Taylor 1997; Venedikov
1987), date to later periods. The first florescence of gold working in the world occurred
in this region during the fifth millennium BC. Beads, ring pendants, disks, appliqués, and
other ornaments were found at numerous sites, especially in Bulgaria and Romania, with
fewer finds in Greek Macedonia. Certain assemblages of objects, especially ornaments
from Varna and the Tiszaszölös/Moigrad hoards, were comparable to jewelry found in
prepalatial Crete, in both design and manufacturing.
After 4000 BC, in contrast to earlier periods in the Balkans, the overall “number and range [of metal objects was] very small” (Bailey 2000: 250; see also Todorova 1995). Many find spots were tumulus burials. This depositional context is reminiscent of the collective burials – caves, house tombs, and tholoi – common in Crete during the third millennium BC.
15. Prepalatial Jewelry in Perspective: Discussion

Textual and Pictorial Evidence for the Use of Precious Metals

Texts from Ebla, Mari, Ur, and Nippur provide insight on economic and technological aspects of the use of gold and silver in antiquity. Tablets from EBA Ebla (Archi 1995a; Archi and Biga 2003; Bahnassi 1989; Bermant and Weitzman 1979; Matthiae 1981; Pettinato 1981, 1991) indicate that silver was the standard of exchange in the northern Levant, with gold considered a more valuable commodity. Silver was also an accepted form of payment in third millennium BC Mesopotamia (Heimpel 2003; Steinkeller and Postgate 1992; Zettler 1984, 1992). Precious metals were appropriate offerings to the gods and were used for tribute and for royal gift exchange. Gold jewelry, gold-plated furniture, and gold ingots were recorded on temple inventories. Records indicate that silver was used to pay for the rental of land and the purchase of houses, fields, slaves, and various commodities.

In Egypt, silver may have been more valuable than gold, as gold was more readily available from deposits in the Eastern Desert and Nubia. Harris (1961) suggested that the relative value of silver to gold was 2:1 in Egypt, at least until the middle of the second millennium BC (as cited in Lacovara and Markowitz 2001: 287). Shaw and Nicholson (1995: 270-271) also believed that silver was considered more valuable, as evidenced by an Old Kingdom (c. 2686 – 2181 BC) list of goods, with silver objects listed above those made from gold.

Gold and silver were converted into ingots, as indicated by documents from ancient Ebla (Archi 2002: 181) as well as by extant objects recovered from hoards in
northwestern Anatolia (Schliemann 1880: 470), Mesopotamia (Matthews 1994: 293), and Egypt (Bisson de la Roque, Contenau, and Chapouthier 1953: pls. 2, 3). Gold ring ingots were found in a fourth millennium BC cave in Israel (Gopher et al. 1990). Ring ingots were also depicted in a much later Eighteenth Dynasty Egyptian wall painting, as tribute to Thutmose IV (Andrews 1991: 73; Bryan 2000: 259; Wilkinson 1971: 1ff.). Finds from Mesopotamian and Anatolian hoards show that silver was stored or traded as coils of thick wire (Frangipane 2001: fig. 19; Matthews 1994). Standardization – creating ingots in the form of bars and rings and transporting metals as sheets or coils of wire – must have become a necessity as precious metals played a more frequent and important role in regional and international trade.

Egyptian wall paintings, especially those from the New Kingdom, depict various stages in jewelry and vessel manufacturing from the initial weighing of metal to the crafting and display of objects. Workshops show artisans with many different skills working in the same setting. Texts from Ur indicate that Mesopotamian goldsmiths and silversmiths operated in at least two ways: working alongside other craftsmen to create luxury goods in temple settings (Loding 1974), and operating as independent contractors (Moorey 1999: 15; Zettler 1990), creating and embellishing objects for the temple and the private sector.

In addition to information provided by texts and wall paintings, exceptionally well-crafted royal jewelry from sites in Western Asia, Mesopotamia, and Egypt provides physical evidence that goldsmiths were employed in workshops that employed highly skilled artisans and apprentices. Even the earliest gold work from Varna shows a
consistency in manufacturing that would suggest it was produced by an established workshop.

Choice of Raw Materials

Although small objects and a few cups were manufactured in silver, the favored precious metal for jewelry in prepalatial Crete was clearly gold. Silver jewelry and ornaments were found more frequently at sites north and east of Crete – in the Aegean, Anatolia, the Levant, and Mesopotamia – often in the same tombs or hoards that contained gold jewelry. Some areas showed a preference for a particular metal, most likely due to its availability. For example, virtually all Cycladic jewelry was silver. Yet gold was the principal precious metal in mainland Greece, the northeast Aegean, the Balkans, and Egypt – all areas that had proximity to natural deposits of gold.

Well-crafted gold and silver vessels were recovered from various sites, particularly those with large quantities of jewelry such as Troy (Antonova, Tolstikov, and Treister 1996: 32-37; Schliemann 1875: 325-326, nos. 237-240) and Ur (Weber and Zettler 1998a: 125-137, #96-111; Woolley 1934: pls. 41b, 42a, 58a, 160-163). However, in all regions of the Eastern Mediterranean and the Aegean, including the island of Crete, precious metals were used primarily for objects of personal adornment: jewelry that decorated the body and ornaments attached to clothing. East and south of the Aegean, semi-precious stones were commonly employed along with gold and silver in the construction of more elaborate jewelry. Stones such as lapis lazuli and carnelian were associated with jewelry production most frequently in Mesopotamia and Egypt.
Manufacturing Methods

At sites throughout the Eastern Mediterranean, the level of skill evident in jewelry-making was often greater than that found in prepalatial Crete. Less developed Minoan craftsmanship was exemplified by the uncomplicated design of many ornaments, the uneven cutting or decoration of sheet metal objects, and resultant production marks left on some finished pieces (e.g., MO 4, MO 84). Prepalatial craftsmen did not incorporate other foreign raw materials such as ivory (which was imported, available, and used for seals and other objects) or semi-precious stones into inlays affixed to ornaments made from gold. One lapis lazuli bead was found at Koumasa (Xanthoudides 1924: 31). Carnelian, sometimes referred to as sard, and amethyst beads were also found at Mochlos and in the Mesara (see discussion in chapter 3). In all cases, these stones were used for small beads.

The scarcity of semi-precious stones may indicate that artisans who produced the first gold jewelry in Crete did not have access to a variety of exotic raw materials. Also, the level of craftsmanship would suggest that at least some of the first Cretan goldsmiths were not trained or experienced in their craft and were not associated with established workshops.

Throughout the Aegean, casting was reserved primarily for tiny objects such as beads or the heads of pins, as exemplified by pins from Syros (Tsountas 1899: pls. 10.10, 10.14) and Naxos (Doumas 1977: 125, pl. 49.h). To conserve precious metal, small ornaments, such as the ear stoppers from Karayaş-Semayük in Anatolia (Mellink 1969: fig. 16) (Pl. 55B), were created by pressing gold foil over a core of wood, bitumen,
copper, or bronze. Chasing, repoussé, and dot repoussé were often employed as decorative techniques, especially at sites in western and central Anatolia (e.g., Troy, Poliochni, Alaca, and Arslantepe). However, dot repoussé was only used occasionally to decorate jewelry at Ur, perhaps because a wide selection of colorful stones and more advanced manufacturing techniques were available. Ajouré – creating cut-outs on diadems or strips, as seen at Kalathiana in Crete (Pl. 8B-C) – was practiced in the Cyclades (Amorgos, Pl. 48D), Anatolia (Alaca, Pl. 52A-B), Mesopotamia (Ur), and the Levant (Umm el-Marra, Pl. 56E).

The techniques of granulation and filigree, employed in the decoration of gold beads, a pendant, and perhaps a disk that may date from late prepalatial contexts in Crete, likely originated in Western Asia. However, it is unknown whether these methods – especially granulation – were first practiced in Mesopotamia or in the Troad. A few objects with proto-granulation – gold tacks or nails hammered through sheet metal, perhaps in imitation or anticipation of granulation – were recovered from Ur (Woolley 1934: pl. 151) (Pl. 60E) and more recently from Umm el-Marra (Schwartz et al. 2006: fig. 15) (Pl. 56E). The use of another technique, resulting in what Maxwell-Hyslop described as “repoussé spikes” (1960: 114, pl. 11.1; Politis 2001: 162-163), also produced jewelry with a granulated effect (e.g., Pl. 52C) (cf. Bingöl 1999: 173, bracelets from Alaca; Woolley 1934: pl. 138, U.10409, earring from Larsa period at Ur).

Only two tiny objects from Ur – a six-granule ring and a strip fragment with six attached granules – contained true granulation (Lilyquist 1993: 33; Maxwell-Hyslop 1977: pls. 1a, b; Ogden 1992: 51). Lilyquist (1993: 33) indicated that the ring was formed “by fusion, and part of a second ring was apparently attached to a gold sheet by a copper
salt.” Although the ring is quite small at just two mm in diameter, the gold spheres are all of uniform size, and the piece looks carefully produced. However, the decorated strip is not well manufactured; the gold spheres are unevenly placed with some hanging over the edge of the sheet metal (see photograph in Maxwell-Hyslop 1977: pl. 1b). The technical skill so evident in jewelry from the Royal Cemetery is not apparent in the small strip. Perhaps goldsmiths at Ur abandoned the use of granulation after initial experimentation, as they had found other techniques that were more easily controlled and produced a uniform result.

In contrast, numerous pieces from Troy and Poliochni included granulation (e.g., Pls. 50B, 51B), indicating that the first extensive use of this technique might have occurred c. 2500 – 2300 BC in the northeast Aegean. The possibility that granulation was first employed as a decorative technique in the Troad may be supported by the earlier date (c. 2500 BC) recently proposed for Treasure A (Priam’s Treasure) by Manfred Korfmann (2001: 380, as cited and discussed by Muhly 2006: 175). If the c. 2500 BC date is correct, gold work from Troy and the Royal Cemetery of Ur (with the Royal Cemetery alternatively dated by Aruz 2003b, c. 2550-2400 BC; by Zettler and Horne 1998, c. 2600-2500 BC) may have been manufactured at approximately the same time (Muhly 2006: 175), with the technique of granulation fully developed in the Troad.

Filigree, and what appeared to be granulation, decorated a later pendant from Kültepe (Maxwell-Hyslop 1971: pl. 37b) (Pl. 53A). A medallion from Byblos (Pl. 57B), dated c. 2130 – 2000 BC, also contained granulation (Tufnell and Ward 1966: fig. 4). As stated previously, granulation did not appear in Egypt until the early second millennium BC (Andrews 1991: 88). Filigree, on the other hand, was used widely and preceded
granulation in some areas. In addition to beads recovered from late prepalatial Minoan contexts, objects decorated with filigree were found in third millennium BC Aegina, Troy, Poliochni, Eskiyapar, Umm el-Marra, Mari, Byblos, Tell Asmar, Tell Banat, Uruk, and Ur.

**Classes of Objects**

The most common classes of jewelry from third millennium BC burials and hoards throughout the Eastern Mediterranean were beads, simple wire bangles, and diadems. Outside of Crete, pins – often toggle pins – hair rings, and earrings were recovered from many sites. Some earrings – such as those from Troy in western Anatolia (Pl. 50B-C), Eskiyapar in central Anatolia (Pl. 54C), and Ur in Mesopotamia (Pls. 60D, 61B) – were of elaborate construction and were clearly an important component of personal adornment.

Loop-in-loop chains, recovered from east Crete (Sphoungaras, Mochlos) and south-central Crete (Platanos), had a wide distribution. Aside from Crete, they were found in the Troad, Mesopotamia, the Levant, the Balkans, and Egypt. Loop-in-loop chains were an important component of earrings at Troy (Antonova, Tolstikov, and Treister 1996: 48-52, #13-16) (Pl. 50C) and Poliochni (Bernabò - Brea 1976: pls. 241, 242) (Pl. 51A-B), and diadems at Troy (Antonova, Tolstikov, and Treister 1996: 39-45, #10-11) (Pl. 50A). These chains were used with brims at Ur (Zettler and Horne 1998: 105, #52) (Pl. 60F) and with pendants at Tell Banat (Aruz 2003b: 185) (Pl. 59F), Umm el-Marra (Schwartz, Curvers, and Stuart 2000: 771, fig. 3) (Pl. 56B), and Bare (Srejovic 1976: fig. 2). Also, Petrie (1923: 86, fig. 94) indicated that loop-in-loop chains dated to
the 6th Dynasty in Egypt, c. 2323 – 2152 BC. In most cases, pendants hung from chains that may have been attached to diadems or earrings. Simple chains were quite rare, found only at Mochlos (Seager 1912: 32, fig. 10.II.36) (Pl. 16G-I) and at the mainland Greek site of Thyreatis (Reinholdt 1993: 3, figs. 1,2) (Pl. 49A-B).

A class of prepalatial Minoan jewelry that is not found elsewhere includes plain, gold strips without perforations (e.g., AR 2, MO 63). Perhaps the strips from Crete were broken portions of hair ribbons, similar to the complete ribbons found in many burials at Ur (Zettler 1998b: 102, #44) (Pl. 60C-D). The Cretan strips may have also been glued as inlays to objects that have perished. Since gold was likely not plentiful in Crete, perhaps small strips from thin sheet metal had special significance as funerary offerings, a significance embedded in their value as gold.

Although forms varied – from perforated, ribbon-like strips to complicated headbands with multiple components – diadems were found throughout the Eastern Mediterranean and beyond. Diadems were manufactured primarily in gold, but they were also found in silver (Schwartz, Curvers, and Stuart 2000: 771, fig. 6; Tsountas 1898: pl. 8; 1899: pl. 10.1) (Pls. 48B-D, 56A) and copper-silver (Frangipane 2001: 18, fig. 14) (Pl. 53C). No prepalatial Minoan diadems were found in situ on skeletal remains. However, abundant evidence exists from many third millennium BC sites beyond Crete indicating that diadems were worn by women, men, and, to a lesser extent, children (see discussion below). In the Troad (Pl. 50A), Mesopotamia (Pl. 61B), and Egypt (Pl. 63C-D), pendants on chains, hair ornaments, and other jewelry were used in conjunction with or attached to diadems, resulting in complex headdresses.
Elements from the natural world were common decorative motifs on prepalatial Minoan jewelry. Diadems from Lebena (LE 1) and perhaps Mochlos (MO 1) included attachments in the form of flowers or leaves. An unexpected finding from the review of other sites with jewelry indicated that floral elements also decorated or were attached to diadems from many other locations. The silver diadem from Syros, in the Cyclades (Pl. 48B-C), was decorated with dot repoussé rosettes (Tsountas 1899: pl. 10.1).

At Troy, tiny leaves were a major decorative element of the most dramatic headdress (Antonova, Tolstikov, and Treister 1996: 38-41; Schliemann 1875: pl. 19, #277) (Pl. 50A). At Umm el-Marra, a silver rosette appeared to have been attached to a silver diadem (Schwartz, Curvers, and Stuart 2000: 771, fig. 6) (Pl. 56A). A diadem fragment from Mari (Pl. 59D, top) included embossed flowers (Parrot 1938: pl. 2.3). Numerous headdresses from Ur (Pls. 60D, 61B) contained separate floral elements (Woolley 1934: pls. 128-130, 135-136). Rosettes were also incised on each end of the gold diadem from Ur that included animals and human figures (Zettler and Horne 1998: 65, #11). In Egypt, a diadem from Giza was decorated with flowers (Hassan 1936: pl. 51) (Pl. 63B), and another from the tomb of Princess Khnumet at Dahshur was decorated with inlaid rosettes and gold leaves (Tiradritti 1999: 145). Egyptian painted reliefs and a limestone statue also depicted women wearing diadems decorated with flowers (Andrews 1991: fig. 81; Borchardt 1913: pl. 16) (Pl. 63C-E). An alabaster statue of a woman from Ur wore a diadem that may have been decorated with flowers (Woolley 1955: pl. 37).

Although geographically outside of this study, floral headdresses were worn on female terracotta figurines from the Indus Valley (c. 2600 – 1900 BC) (Aruz 2003b: 391, #278b; Kenoyer 1998: 19; Weiner 1984: fig. 191). Gold diadems with floral attachments,
dated to the late fourth to early third millennium BC, were also found in the Maikop kurgan in North Caucasus, Russia (Aruz 2003b: 295, #156 a, b). Apparently, the tradition of wearing perishable flowers or leaves in one’s hair, perhaps associated with social or religious custom, existed in various regions of the Eastern Mediterranean during the late third millennium BC. One way to make these hair ornaments and headdresses more valuable, dramatic, and durable was to execute these ornaments in gold or silver.

Depositional Contexts

All prepalatial Minoan gold and silver jewelry was recovered from burial contexts: tholos tombs, house tombs, caves, in-ground built tombs, and one funerary deposit without associated skeletal remains. Tombs were the most common depositional context for jewelry throughout the Eastern Mediterranean, Western Asia, and the Balkans as well. Jewelry was recovered from multiple burials with an abundance of grave goods (e.g., Ur, Um el-Marra) as well as from single inhumations or jar burials with just a few gold or silver objects (e.g., Alaca, Alishar Hüyük, Zemun-Šljunkara). Jewelry was included in hoards from mainland Greece (Thyreatis, Aegina), the Troad (Troy, Poliochni), central Anatolia (Eskiyapar), the Levant (Byblos) and Mesopotamia (Tell Brak, Tell Taya, Tell Asmar, Khafaje). Since the burial of precious metals in hoards suggested the presence of a potential or perceived threat, the absence of hoards in Crete during the late third millennium BC may indicate that the prepalatial period was a time of general stability on the island.

Caches of jewelry were found in house tombs at Mochlos on Crete. Another third millennium BC site – Arslantepe in Anatolia – contained a similar deposition of jewelry
within a grave (Frangipane 2001; Frangipane et al. 2001). Behind the back of the principal burial was a collection of metal objects including gold, silver, and copper-silver alloy jewelry. A diadem of copper-silver, pierced for attachment and decorated in dot repoussé, was found folded, most likely so that it could not be used again. The most common objects in the Arslantepe cache were plain spirals of wire in various sizes (Pl. 53D): hair rings, bangles, finger rings, or coils, perhaps deposited strictly for their metal value (Frangipane 2001: fig. 19). The Arslantepe hoard proved that not all jewelry deposited in tombs decorated bodies. Grave goods associated with high status individuals may have included precious metals that were valued more as bullion than as personal adornment.

Gold jewelry from prepalatial Mochlos was cut, folded, and crushed. Armlets from Tomb 1/2/3 were cut apart, and antennae from the same tomb were torn from a diadem (Seager 1912: 26-27, 31, figs. 8.II.18a-h, 8.II.4, 9.II.4). Seager noted that many objects from this house tomb were “crumpled up into little balls,” and a few diadems were “rolled or folded up in a sort of tight packet” (1912: 34). This evidence of destruction may have been associated with the ritual “killing” of objects (Davaras 1975; Seager 1912). The deliberate destruction of jewelry does not appear to be common in other areas of the Eastern Mediterranean. Other than the folded diadem from Arslantepe, only one other site showed similar treatment of grave goods made from precious metals: Horoztepe in north-central Anatolia. An electrum object of unknown purpose, perhaps a “ceremonial parade knife,” was deliberately broken at the tip (Özgüç and Akok 1958: 51); also, furniture was crushed and metal vessels were flattened and folded.
Sex and Age of Individuals Buried with Jewelry

Excavation methods in the first half of the twentieth century, combined with the communal nature of most contexts where prepalatial Minoan jewelry was recovered, have resulted in a total lack of information regarding the sex or age of those who were interred with jewelry. Data on sex and age is also unavailable for burial contexts with jewelry throughout the Aegean. Although one must take care in drawing general analogies between Crete and other areas discussed here, as cultural beliefs and depositional practices may have differed by region, it is still instructive to note this type of evidence when it is available for the same time period.

Skeletal material from many early excavations throughout the world was frequently sexed based on the nature of grave goods: tools and weapons for men and jewelry for women. Although it has been suggested that jewelry was worn by both men and women in the tombs at Alacahöyük (Maxwell-Hyslop 1971: 45), Oscar Muscarella states that only one attempt was made to sex remains at that site, and the determination that the bones were female was “based on an interpretation of the artifacts” (2003: 278). In addition, the small size of some ornaments has led to conclusions that these objects were worn by children (e.g., Fitton 1999: 76-77 on bangles from Antiparos; Tufnell and Ward 1966: 208-209 on a torque from Byblos; Wilkinson 1971: 19 on bangles from Abydos). Although some of these assumptions may be correct, it is far better to conduct a scientific analysis of the bones. Fortunately, unequivocal evidence related to sex and age, in the form of biologically-sexed skeletal remains and child burials with jewelry recovered in situ, does exist from more recent excavations. Representations of jewelry on statuary and in other media also provide information on those who wore jewelry in life.
Evidence from Anatolia, the Levant, Mesopotamia, Egypt, and the Balkans indicates that women, men, and children were all buried with jewelry made from precious metals. Many individuals buried with jewelry were female (e.g., Abydos in Frankfort 1930; Giza in Hassan 1936; Kish in Watelin 1934; Ur in Woolley 1934). However, at Arslantepe in Anatolia (Frangipane 2001; Frangipane et al. 2001) and Umm el-Marra in Syria (Schwartz et al. 2003; Schwartz et al. 2006; Schwartz, Curvers, and Stuart 2000), both men and women were interred with jewelry or ornaments made of gold or silver. In the case of Arslantepe, the skeleton with the most jewelry was male (Frangipane 2001: 6). At Umm el-Marra, an excavation that is still underway, the burials with the most jewelry have been female (Schwartz et al. 2006: table 1).

At Ur, women appeared to wear more jewelry than men. Although this is most likely an accurate assessment, it must be kept in mind that Sir Arthur Keith (1934) only reported the sex and approximate age of 18 individuals, with further assumptions based on similar associated grave goods. According to Woolley (1934: 240-244), headdresses and large earrings were reserved for women (Pls. 60D, 61B), while men wore brims and single earrings (Pl. 60F) (see also Gansell 2007). Some male burials at Ur contained other objects made from precious metals: a gold helmet (Pl. 60A), silver belts, and gold daggers (Pl. 60E). Small lunate earrings, frontlets, and hair rings were associated with both sexes during the later Sargonid period.

In Egypt, women wore diadems and other jewelry at Giza (Hassan 1936; Reisner and Smith 1955), Abydos (Frankfort 1930), and Dahshur (Tiradritti 1999). Women with headdresses were also depicted on relief carvings (e.g., Borchardt 1913: pl. 16). However, limestone statues from 4th Dynasty contexts confirm that both men and women
wore jewelry (Smith 1988 (1958): fig. 78). Men and women were also buried with
gold jewelry at the late Eneolithic site of Durankulak in Bulgaria, although a greater
variety of ornaments were found in female burials at this site (Avramova 1991: table 2).

Since the skeletons of children can be easily identified by non-specialists,
evidence of gold or silver jewelry associated with child or infant burials has been noted
from several sites. This would indicate that wealth and perhaps status were inherited and
not only achieved through the efforts of the individual. In Anatolia, tombs at Karataş-
Semayük (Mellink 1969: 323) and İkiztepe (Mellink 1977: 294) contained child burials
with jewelry. A variety of gold and silver ornaments included gold ear stoppers from at
least two burials at Karataş (Pl. 55). Silver earrings were found in an infant pot burial at
Alisharhüyük (von der Osten 1937: 51, fig. 43.2238-2239). At Umm el-Marra, in the
Levant, children from two different tombs were interred with gold or silver ornaments
(Schwartz et al. 2006: table 1).

Among the burials at Ur, Woolley described an inhumation that contained a
young child who had been buried wearing a “remarkable” diadem of gold and semi-
precious stones (Pl. 61E), three gold earrings, and a filigree pendant; other grave goods
from this tomb included many silver vessels and “four brîms, the normal man’s head-
dress,” which Woolley considered to be offerings (1934: 167-168, emphasis by author,
pls. 133, 138). Gold rosettes (Pl. 59A) and pendants were also found in burials of infants
and children at Tepe Gawra in northern Mesopotamia (Speiser 1935; Tobler 1950).

In the Balkans, gold and silver were recovered from child burials in Bulgaria. At
Durankulak, a gold earring was recovered from a child’s grave and 12 gold beads were
found in the grave of an adolescent (Avramova 1991: table 2). Silver objects, including
beads and spiral pendants or hair rings, were also associated with child and adolescent burials at Madara and Mednikarovo (Nikolova 1999: 64, 306).

The custom of burying children with gold or silver jewelry may have also existed in Crete during this period. Small, perforated strips, perhaps diadems for children (MO 12, MO 13), and bangles sized to fit a child’s arm (PY 5, PY 6, KR 3, KO 1) have been recovered from prepalatial contexts.

Women, men, and children were all buried with gold or silver jewelry during the third millennium BC throughout the Eastern Mediterranean. This may have been the case in prepalatial Crete as well. According to Sinclair Hood, both women and men wore jewelry during the later second millennium BC in Crete and on mainland Greece (1978: 202). Burials of children were also associated with gold jewelry during that period (Konstantinidi 2001: 244). Although the majority of figures wearing jewelry on EBA–LBA Aegean three-dimensional objects and wall paintings appear to be female (see chapter 7), representations do exist from this period showing men and children wearing jewelry.
Concluding Remarks

Only a small fraction of the jewelry that was crafted in prepalatial Crete has survived to be studied. All Minoan jewelry discussed here was found in burial contexts. However, not all early gold and silver ornaments were deposited in tombs. As objects were broken or fashion changed, metals were recycled, and new jewelry was created. Authorized removal of objects in antiquity and extensive looting during both ancient and modern times have emptied many tombs of their wealth in gold. In addition, prepalatial cemeteries or tombs within cemeteries surely existed that have not yet been identified; some await future discovery, while others may be buried under modern towns, perhaps including sites in western Crete. Consequently, conclusions reached here are based on incomplete evidence. New finds, especially from an excavation conducted using modern techniques and including analysis of skeletal remains, could alter the picture regarding the early use of gold and silver in Crete.

Jewelry Production in Crete

The earliest Cretan jewelry made from precious metals was recovered from the Amnissos Cave on the northern coast (Betancourt and Marinatos 2000). A silver ring pendant, a wire ring, and a bead may have dated from the FN, c. the fourth millennium BC (Demakopoulou 1998: 64, #63). However, the first widespread use of precious metals on the island did not occur until perhaps hundreds of years later.

The appearance of gold and silver jewelry in Crete during the third millennium BC was an indigenous development with regional and site-specific variation. Although
some common classes of jewelry and decorative motifs were found throughout the Eastern Mediterranean, there is no evidence that anything more than raw materials, maybe a few silver cups, and perhaps the idea of making jewelry from precious metals were imported to Crete. This may have changed toward the end of the prepalatial period, as small objects of foreign manufacture – such as Egyptian scarabs and possibly the gold frog pendant with granulation found at Koumasa – began to arrive on Cretan shores.

Distinct regional styles preclude the notion of centrally-organized production. Diadems, which are found at many sites in prepalatial Crete, vary from plain gold bands recovered from the Pyrgos Cave to bands with built-in vertical projections from Lebena to elaborate diadems with separate attachments from Mochlos. Although we must be aware of biases inherent in the archaeological record, a comparison of objects from Mochlos, where finds are abundant compared to other sites, suggests an improvement in quality as skill levels increased and craft specialization took hold (e.g., cf. MO 4 and MO 3 [Pls. 13B-C, 14A-B]; MO 57 and MO 16 [Pls. 23A-B, 16A-C]). While the earliest jewelry was likely created by non-specialists that were provided with raw materials by their patrons, skilled craft production may have developed by the end of the prepalatial period to supply a growing market for gold jewelry.

Jewelry found in north-central Crete was of significantly less skillful manufacture than objects recovered elsewhere. No loop-in-loop chains or complex diadems were recovered, and decoration on objects was minimal. Perhaps better quality objects were not placed in tombs or have been removed. Alternatively, prepalatial tombs associated with sites such as Knossos or Malia may remain undiscovered. It may also be that Knossos and Malia – important early settlements in north-central Crete – were involved
in a different trajectory of growth. Whereas sites such as Mochlos and Lebena probably served as gateway communities, receiving and redistributing exotic raw materials from abroad, sites surrounded by rich agricultural land such as Knossos and Malia may have had an internal focus, concentrating more on improving agricultural production than on establishing and maintaining foreign contacts (cf. Whitelaw 2004 on trade-based vs. agricultural production models in prepalatial Crete).

Gold was used exclusively for the production of jewelry and ornaments. Although two silver cups were recovered from house tombs at Mochlos, there is no evidence indicating that gold was employed in the manufacturing of metal vessels in Crete. Indeed, the two silver cups may very well have been imports. Cups and bowls made from gold and silver, probably manufactured in palace workshops, were recovered from hoards or tombs at Troy, Alacahöyük, and Ur. Gold sauceboats have also been associated with EH II southern mainland Greece (Betancourt 2007: fig. 4.8) and with Troy (Antonova, Tolstikov, and Treister 1996). Greater technical skill was required to raise vessels from flat sheet metal, perhaps a skill level or specialization that had not yet been reached in Crete. It may also be that Minoans had a limited amount of gold and preferred to create objects of a more personal nature, objects that could be used to adorn the body.

Gold and silver jewelry from EBA Crete was simple in design and less complicated in construction than jewelry recovered from many third millennium BC sites in the Eastern Mediterranean. Early Minoan objects were frequently manufactured from very thin sheet gold or were gilded, techniques that maximized the impact of a smaller quantity of gold. There is no evidence that jewelry-making was associated with supported workshops in prepalatial Crete. Consequently, a steady supply of precious metals and
other exotic raw materials may not have been maintained. Also, workshop environments – established at sites such as Troy, Ur, and Abydos – employed a hierarchy of craftsmen, allowing senior artisans to perfect their craft while apprentices handled the mundane work of making sheet metal, wire, chains, and other components for jewelry. In contrast, jewelry production in prepalatial Crete appeared to occur on a local level at individual sites, with perhaps only a few people involved in the process at each location. Objects such as the later MM IIB Bee pendant from Chrysolakkos at Malia (Betancourt 2007: fig. 5.31; Hood 1978: fig. 191) was created with beautifully executed filigree and granulation. This pendant is an example of just how far jewelry-making was able to advance as goldsmiths’ skills improved, perhaps as a result of increased jewelry production or the advent of palace-supported workshops.

*Foreign Connections*

Where did precious metals used in the manufacturing of Cretan jewelry come from? Although all silver jewelry was recovered from northern sites, silver also made its way south, as evidenced by non-jewelry finds such as rivets and daggers in Mesara tombs. Lead-isotope analysis confirmed that EBA sources of silver included the Cycladic island of Siphnos and the mainland site of Laurion. This was supported by the more frequent finds of silver jewelry and other silver objects close to the north coast of Crete. However, tests on the Koumasa daggers were inconclusive, indicating that the silver in the daggers may have been recycled or may have come from other sources. Although some silver used in Crete was definitely of Aegean origin, silver may have also come from elsewhere, perhaps directly from Anatolia or indirectly through the Levant.
The situation with gold is more complex. Following the trail of ring pendants during the FN (c. 4500 – 3500/3300 BC), it appears that manufactured jewelry was traded southward from the Balkans into the Aegean over land and sea. However, no gold jewelry has been recovered that dates to secure late fourth millennium BC Aegean contexts, c. 3500/3300 – 3000 BC. Finds of gold pick up again in the EB II period, although the signature FN ring pendants and perforated strips are replaced by objects of local design and production. This gap may be due to disruptions in down-the-line exchange between the Balkans and the southern Aegean, perhaps causing the cessation of an ancient trade route. Production of these early objects in the Balkans may have also been affected by an interruption in the supply of raw materials at the point or points of manufacture.

When gold and silver jewelry reappeared in the Aegean, it was all distinctly different and clearly of local manufacture. Silver used for jewelry and vessels in the EBA Cyclades was from nearby sources: Siphnos and Laurion. However, gold jewelry recovered from the rest of the Aegean – with only one gold bead from the Cyclades – had to be crafted from an imported raw material that came from a greater distance.

No definitive sources of gold to prepalatial Crete can be identified. Finds of gold jewelry exclusively at sites located on the eastern half of the island strongly suggest an eastern orientation in trade. It is probable, however, that different regions of Crete received gold from different sources, with these sources changing as the EBA progressed. Precious metals likely arrived at coastal ports, perhaps on both the north and south coasts, moving inland via local networks of exchange.
Gold was plentiful in Egypt and Nubia during the third millennium BC. Although no evidence existed of direct contact between Egypt and Crete until MM IA (Whitelaw 2004: 241), gold may have come indirectly from Egypt as it made its way, perhaps with hippopotamus ivory and semi-precious stones, up the Levantine coast before reshipment through a port city such as Byblos. Gold may have also come from Northern Greece or Anatolia, and ivory may have come from Syria-Palestine. It is likely that EBA ships sailed circuits, picking up and dropping off goods – including gold nuggets, sheets, ingots, or scrap metal – at emporia throughout the Eastern Mediterranean and Aegean. Materials like gold, ivory, and gemstones arrived at key intermediary locations via seaborne and overland trade routes, with the express purpose of being shipped out again.

The extensive and indirect nature of EBA trade networks, perhaps a continuation and expansion of Eastern Mediterranean routes established in the LN (van Andel and Runnels 1988: fig. 1), is no better illustrated than by the single bead of Afghan lapis lazuli found at Koumasa or the etched carnelian bead – perhaps originating as far east as the Indus Valley – recovered as part of an EH II hoard at Aegina. Gold and hippopotamus ivory, which appeared in Crete around the same time (EM IIA), were valuable foreign commodities with exotic associations, taking little space and easily hidden while in transit. Minoan and foreign traders would have quickly recognized the desirability of these new, easily worked raw materials to developing societies in prepalatial Crete.

A foreign connection that should be explored further includes the Minoan site of Mochlos in northeast Crete and third millennium BC sites in Mesopotamia and northern Syria. If raw materials such as gold and ivory did indeed come through ports in Syria-
Palestine (cf. Higgins 1992: 44; Hood 1978: 189 suggesting Syria), the Euphrates River and the seacoast of the Eastern Mediterranean would have been natural conduits for exotic raw materials and the transfer of technology and new ideas. The site of Mari is especially interesting, as the design of Cretan palaces, including a large central court, has been compared to the layout of the palace at Mari (see Margueron 2004: fig. 355, pl. 65 on the Shakkanakku palace; Warren 1975: 71).

Although it is not suggested that jewelry recovered from Mochlos tombs was manufactured in Mesopotamia or Syria, strong similarities do exist between forms of objects from these sites. Tombs in Mari (Pl. 59D-E, especially Tomb 300) and Umm el-Marra (Pl. 56) contained diadems perforated for attachment and separate rosettes or daisy-like flowers. Repoussé dots and rosettes decorated the diadem from Mari. According to an excavator of Umm el-Marra, a flower disk was probably fastened to a diadem or worn as a frontlet. Also, a bead found at Umm el-Marra is decorated with rows of tightly coiled wire, similar to an unusual bead recovered from Mochlos (cf. Pls. 23D and 56D). Headgear adorned with flowers and other types of attachments likely originated further south on the Euphrates at Ur. Perhaps the northern and westward transfer of culture related to elite adornment met up with the exportation of precious metals at emporia on the north Levantine coast, eventually making their way to prepalatial Crete.

**The Impact of Gold on Early Cretan Society**

Early Minoan pottery was traded among various regions in Crete, providing evidence of periodic contact. Virtually identical stone lids depicting Cretan dogs – clearly
made by the same artisan – were recovered from both Mochlos and Zakros, indicating that domestic trade also included fine stoneware. Small items of gold (and sheet gold or ingots) may have been traded or gifted as well, as evidenced by Platanos-type beads found at Mochlos (cf. PL 9 and MO 48 [Pls. 5E, 21C]) and a Mochlos-type leaf attachment found at Platanos (cf. PL 17 and MO 76 [Pls. 4A-#488, 26B, lower right]). Similar cone-shaped pendants on loop-in-loop chains also appear at both Platanos and Mochlos (cf. PL 4 and MO 22 [Pl. 34E, I]) (cf. Sbonias 2000: 293 on the gift exchange of seals during the late prepalatial period).

Perhaps peer-polity interaction (Renfrew 1975: 33; 1986a) was already at work in these early communities, as the exchange of goods and cultural information occurred at regular intervals. The new customs of adornment and subsequent burial with gold ornaments would be likely candidates for competitive emulation, especially if objects such as diadems and other gold jewelry began to be displayed in public ceremonies. The wide-spread manufacturing, use, and deposition of gold jewelry – one tangible example of a shared social identity – would surely follow.

Burial customs associated with the deposition of gold jewelry varied somewhat in prepalatial Crete. Caches of objects recovered from Lebena and Mochlos suggested that founder’s hoards or votive hoards may have been placed in some early tombs. The treatment of jewelry differed by site as well. At Lebena, a diadem was found virtually intact, with its thin gold ties still in place. However, at Mochlos, we find jewelry that is cut, crushed, and ripped apart, perhaps illustrating the custom of “killing” objects of value or of placing gold in tombs as bullion, with parts of objects retained to be recycled.
into new objects (cf. Woolley 1934: 372 on chunks of unworked lapis lazuli, perhaps
deposited as bullion in tombs at Ur).

When gold and silver jewelry began appearing as grave goods in EM II contexts,
other aspects of Minoan mortuary practices were changing as well. New tomb types were
introduced, as recently constructed monumental tombs were used in addition to or in
place of traditional caves and rock shelters. Other objects made from foreign raw
materials, such as ivory ornaments and metal daggers, were also placed in tombs at this
time. Large, permanent burial structures – tholos tombs and house tombs – provided local
communities with a suitable and perhaps safe place to deposit objects of value. This
would be especially important if these objects held a personal significance to departed as
well as living members of the community.

As social groups moved toward greater complexity, as was the case in the period
leading up to the construction of palaces in Crete, public display and ritual may have
taken on added importance. Ceremonies were a way to demonstrate collective identity
and shared cultural beliefs and were a means to maintain social relations during times of
transition. Gold jewelry found in early Crete – especially diadems and other forms of
adornment for the head – was surely used in a public manner. The active nature of gold
jewelry and its connection with distant, foreign lands and cultures must have elevated the
status of those who commissioned it, made it, wore it, and were buried with it. However,
it is unknown whether this jewelry was associated with emerging elites at a time of
increasing individualism or with community leaders focused on demonstrations of shared
ideology. Individuals of influence who managed the affairs of the community may have
worn the jewelry themselves or simply decided who did.
No evidence from the prepalatial period connects gold or silver jewelry directly with religious, political, or economic institutions. When one examines depictions of jewelry in other media, however, it is tempting to see a religious association: the Goddess of Myrtos, the Poppy Goddess, the Snake Goddesses, and the Mistress of Animals with her necklaces of ducks and dragonflies. But we must remember that these designations with their strong religious associations may be nothing more than modern filters on ancient material culture. Perhaps, as Gregory Possehl (2006) has pointed out, institutions were not as bounded in antiquity as they are today. Shared ideology and the extant remains of the ritual that supported it may have been based on religion, politics, and the economy – overlapping aspects of an integrated belief system.

Evidence of Ranked Society in Prepalatial Crete

In the course of investigating jewelry made from precious metals, additional evidence was revealed that strongly supports the existence of social stratification in EBA Crete (see Appendix B for a discussion of archaeological evidence of rank). One could argue that the mere presence of gold jewelry in some tombs and not others provides evidence of a ranked society. However, the recovery of objects that are clear symbols of prestige or authority – especially diadems, a scepter, and disks or appliqués that decorated clothing – offers further support for this point. Finds of suspected heirlooms – in the form of well-worn and repaired jewelry – indicates that some objects may have been inherited, adorning multiple generations before being deposited in tombs.

In addition to gold jewelry, a second line of evidence for ranked society in EM Crete was demonstrated by the construction of large tholoi and house tombs. These
monumental tombs communicated a message of permanence and stability, which would surely have affected and supported cultural change (Earle 2004). Within each community, an individual or a group of individuals organized efforts to design, fund, build, and maintain the tombs. The organizers of these endeavors – perhaps the beginning of a managerial class – must have been ranked higher than those who prepared the site and hauled the stones.

Within sites, some tombs were clearly larger than others and were placed in more prominent positions, suggesting the greater importance of individuals buried there. This is no better exemplified than by Tombs 1/2/3 and 4/5/6 at Mochlos, tombs that were not only substantially larger and built on a cliff above the other tombs, but also contained the majority of objects made from gold and other foreign raw materials.

Specific types of grave goods found with gold jewelry also suggested that some individuals had achieved or inherited greater status than others. A few objects were of certain foreign manufacture: the Syrian cylinder seal from Mochlos and the Egyptian scarabs recovered from Lebena. These finds, along with other objects such as ivory seals and copper or bronze daggers were likely owned and worn by only some individuals – those individuals of influence or higher rank. Before their deposition in tombs, ivory seals may have been connected with early administrative functions.

By the end of the prepalatial period or perhaps earlier, evidence indicates that craft specialization had been established in Crete. This is another indicator of ranked society, as individuals with specialized talents (themselves more highly ranked?), are supported economically by other members of the community. Ranking among various
types of specialists – either full-time or part-time workers – might indicate the presence of a hierarchical or a heterarchical society.

Craft specialization in prepalatial Crete was associated with the production of luxury items such as gold and silver jewelry, fine stone vases, and seals. This implied an ongoing market comprised of high status individuals for these non-utilitarian goods. The production of metal tools and weapons, pottery, and textiles may have also become specialized activities by this point, with various skill levels and greater or lesser artistic ability associated with craftsmen of higher or lower rank.

The presence of differentiated or ranked social groups or lineages within communities was suggested by the existence of more than one contemporary collective tomb at several sites in prepalatial Crete. At Archanes-Phourni, Tombs Γ and E were constructed and used at the same time. However, Tomb Γ contained a greater number of valuable objects and what appeared to be a stronger connection to the Cyclades. At Mochlos, most gold jewelry was recovered from the two largest and most prominent house tombs, with smaller tombs containing fewer or no objects made from precious metals. At Lebena in the Mesara, Papoura Tombs 1 and 1β also overlapped in use, but in this case, gold was only recovered from Tomb 1. This demonstrates that two or more lineages or clans may have existed at these sites, with one group holding higher social status.

Further Research

Further research will provide additional information on prepalatial jewelry and the important transitional period in Crete in which the jewelry was manufactured and worn.
X-ray fluorescence (XRF), a non-destructive testing method, would be useful in comparing the composition of gold in objects found at Platanos and Mochlos. We may learn that beads from both locations contained the same percentages of gold, silver, copper, and other trace elements, indicating that the beads were made from the same supply of gold. Proton induced X-ray emission (PIXE), also non-destructive, has proven to be an excellent method for the examination of joins. The few beads with filigree from Platanos and Kalathiana might be tested to determine if copper diffusion bonding or another technique was employed in their manufacture.

The cemetery at Lebena in the Mesara has recently been published in great detail. However, the analysis of skeletal material associated with this site has yet to be completed. Tombs I and Iβ at Papoura were both constructed in EM IIA, with prepalatial gold recovered from Tomb I. DNA analysis of remains from the Papoura tombs may reveal whether different family groups or lineages were buried in the adjacent tombs. It would also be worthwhile to know the number of individuals buried in the tombs as well as information on age, sex, skeletal anomalies, and nutritional status. This information would contribute to the identification of individuals of higher rank and to a greater understanding of social life in prepalatial Crete.

Excavation of unexplored, stratified prepalatial sites and EBA levels at sites that also have MM and LM components may reveal additional evidence of ranking in early Crete. An EM settlement at Alykomouri and an associated burial cave at Hagios Antonios have been identified in east Crete. If permission could be obtained, perhaps this area would benefit from further exploration and excavation. Correlating data from an EM settlement and associated cemetery may provide important new information on the
pregalatial period. Several EM houses have been already been discovered and excavated at Mochlos, the most promising settlement in Crete for further investigation of this type.


Over 4,000 years ago, artisans in Crete crafted jewelry from a new raw material: gold. Many forms of jewelry – including diadems, pendants, hair pins, and beads – were worn in life and later buried with the dead. Although we can only speculate on the identity of those associated with this jewelry or the role jewelry played in the culture of those who lived on this island, its discovery has led to a lasting fame – a kind of immortality – for its makers and owners.
Appendix A: Catalogue of Jewelry

The catalogue is arranged by region: North-Central Crete, South-Central Crete, and East Crete. Within each region, sites are arranged in the order in which they appear in Part I of the text. The following abbreviations are used for each site:

North-Central Crete
AR: Archanes-Phourni
PY: Pyrgos Cave
KR: Krasi

East Crete
SP: Sphoungaras
PS: Pseira

MO: Mochlos
HA: Hagios Antonios

South-Central Crete
PL: Platanos
LE: Lebena
KO: Koumasa
KA: Kalathiana

HP: Hagia Photia
MA: Maronia Cave

Museum inventory numbers are given if known. Museums are abbreviated as Herakleion Museum (HM) and Hagios Nikolaos Museum (HNM). Measurements are in centimeters (cm) and grams (g). Dimensions, where known, are abbreviated as follows: H. = height; L. = length; W. = width; Th. = thickness; Wgt. = weight; Diam. = diameter; max. = maximum; min. = minimum; p. = preserved (e.g., p. W.); ext. = external; int. = internal; est. = estimated.

Occasionally, multiples of objects are included from the same context, e.g., six bosses from Archanes-Phourni Tomb Γ or five beads from Mochlos Tomb 4. Where descriptive copy is virtually the same, objects will be grouped together under the same catalogue number, i.e., AR 12A-F. However, on the summary charts, the total number of objects will be used.

The most important bibliography is given in abbreviated form, including the original publication and significant subsequent publications. Full bibliographical information can be found at the end of the text in the Bibliography section. The most complete existing catalogues for this material can be found in:


North-Central Crete

*Archanes-Phourni*

**AR 1**: Diadem or strip, Pls. 1A, 2.
- **Material**: Gold  
- **Museum number**: HM 1094  
- **Date**: EM IIA  
- **Context**: Tholos Γ, stratum III  
- **Excavator**: Sakellarakis  
- **Dimensions**: L. 12.4 cm; W. 1.2 cm.  
- **Description**: Rectangular strip made from thin sheet gold. Single perforation at each end; perforation at one end is large and irregular.  
- **Preservation**: Complete, but broken along edges.  
- **Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.27).  
- **Bibliography**: Sakellarakis 1972: pl. 28γ; Sakellarakis and Sakellaraki 1997: pl. 706; Vasilakis 1996: 96-97, fig. 8.2, pl. 16ζ; Papadatos 2005: 41, fig. 25, pl. 20 (J41).

**AR 2**: Strip, Pls. 1A, 2.
- **Material**: Gold  
- **Museum number**: HM 1095  
- **Date**: EM IIA  
- **Context**: Tholos Γ, stratum III  
- **Excavator**: Sakellarakis  
- **Dimensions**: P. L. 4.8 cm; W. max. .4 cm; W. min. .3 cm.  
- **Description**: Rectangular strip made from thin sheet gold. Wider at center. Cut very evenly. No perforations.  
- **Preservation**: Broken on both ends.  
- **Comparanda**: Pyrgos Cave (Xanthoudides 1918: 166, fig. 15).  
- **Bibliography**: Sakellarakis 1972: pl. 28γ; Sakellarakis and Sakellaraki 1997: pl. 706; Papadatos 2005: 41, fig. 25, pl. 20 (J44).

**AR 3**: Diadem or strip fragment, Pls. 1A, 2.
- **Material**: Gold  
- **Museum number**: HM 1097  
- **Date**: EM IIA  
- **Context**: Tholos Γ, stratum III  
- **Excavator**: Sakellarakis  
- **Dimensions**: P. L. 6.7 cm; W. .9 cm.  
- **Description**: Rectangular strip made from thin sheet gold. Single perforation in preserved end. Broken on one end, at point of what may be second perforation.  
- **Preservation**: Tears along horizontal edges and broken on one end.  
- **Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.27).  
- **Bibliography**: Sakellarakis 1972: pl. 28γ; Sakellarakis and Sakellaraki 1997: pl. 706; Vasilakis 1996: 97, fig. 8.3, pl. 16ε; Papadatos 2005: 41, fig. 25, pl. 20 (J42).

**AR 4**: Strip fragment, Pls. 1A, 2.
- **Material**: Gold  
- **Museum number**: HM 1096  
- **Date**: EM IIA  
- **Context**: Tholos Γ, stratum III  
- **Excavator**: Sakellarakis  
- **Dimensions**: P. L. 5.3 cm; W. .7 cm.
Description: Rectangular strip made from thin sheet gold, cut unevenly. No perforations. Another strip, of almost equal size, was recovered from the Area of the Rocks at Archanes-Phourni. This may be part of same strip.

Preservation: Broken on one end.

Comparanda: Pyrgos Cave (Xanthoudides 1918: 166, fig. 15).


AR 5: Strip fragment, Pls. 1A, 2.

Material: Gold Museum number: HM 1098 Date: EM IIA

Context: Tholos Γ, stratum III Excavator: Sakellarakis

Dimensions: P. L. 3.0 cm; W. .3 cm.

Description: Rectangular strip made from thin sheet gold. One edge cut straight. Broken on other end. No perforations. AR 5 and AR 6 may be part of same object (Papadatos 2005: 159).

Preservation: Broken on one end.

Comparanda: Pyrgos Cave (Xanthoudides 1918: 166, fig. 15).


AR 6: Strip fragment, Pls. 1A, 2.

Material: Gold Museum number: HM 1099 Date: EM IIA

Context: Tholos Γ, stratum III Excavator: Sakellarakis

Dimensions: P. L. 2.9 cm; W. .3 cm.

Description: Rectangular strip made from thin sheet gold. One edge cut straight. Broken on other end. No perforations. AR 5 and AR 6 may be part of same object (Papadatos 2005: 159).

Preservation: Broken on one end.

Comparanda: Pyrgos Cave (Xanthoudides 1918: 166, fig. 15).


AR 7: Strip or antenna fragment, Pl. 2.

Material: Gold Museum number: HM 1131 Date: EM IIA

Context: Tholos Γ, stratum III Excavator: Sakellarakis

Dimensions: P. L. 3.2 cm; W. .6 cm.

Description: Strip made from thin sheet gold. One end rounded; other end broken. No perforations.

Preservation: Broken on one end.

Comparanda: Pyrgos Cave (Xanthoudides 1918: 166, fig. 15).


AR 8: Strip or antenna fragment, Pl. 2.

Material: Gold Museum number: HM 1135 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: P. L. 5.5 cm; W. .6 cm.
Description: Strip made from thin sheet gold. One end rounded; other end broken. Single perforation in rounded end.
Preservation: Broken on one end.
Comparanda: Mochlos Tomb 2 (Seager 1912: 30).

AR 9: Strip fragment, Pl. 2.
Material: Gold Museum number: HM 1103 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: L. 1.1 cm; W. .4 cm.
Description: Rectangular strip made from thin sheet gold, decorated with incised herringbone pattern. No perforations. Perhaps “…used as a coating on fabric; edges turned backward” (Papadatos 2005: 41).
Preservation: Broken on one corner.
Bibliography: Sakellarakis and Sakellarakis 1997: pl. 640; Papadatos 2005: 41, fig. 25 (J40).

AR 10: Sheet gold fragment (classified as miscellaneous), Pls. 1A, 2.
Material: Gold Museum number: HM 1100 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: L. 1.4 cm; H. 1.6 cm.
Description: L-shaped (or J-shaped) piece of sheet gold. One end rounded; other end straight.
Preservation: Broken on straight end.

AR 11A-D: Sheet gold fragments (4) (classified as miscellaneous).
Material: Gold Museum number: HM 1568 ζ, στ, β Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: P. L. .4 -.7 cm; W. .2 -.3 cm.
Description: Small fragments of sheet gold. May be parts of strips.
Preservation: Broken on straight ends.
Bibliography: Papadatos 2005: 41-42 (J47, J48, J-58 [two fragments]).

AR 12A-F: Bosses (6), Pls. 1A, 2.
Material: Gold Museum number: HM 1101 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: Diam. .6 -.9 cm.
Description: Boss-shaped objects with flat edges. Four bosses have two equidistant perforations, and one has four uneven perforations (AR 12A-E). One object (AR 12F) resembles a rivet-head with no flat edges and no perforations.
Preservation: Complete.
Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57.494); Lebena Tomb 2 (Alexiou and Warren 2004: pl. 114, center); Mochlos Tomb 4 (Seager 1912: fig. 20.IV.8).

Bibliography: Sakellarakis 1972: pl. 289β; Vasilakis 1996: 139, pl. 50α-ζ; Sakellarakis and Sakellaraki 1997: pl. 729; Papadatos 2005: 41, fig. 25 (J49-54).

AR 13: Pendant, Pls. 1A and C, 2.
Material: Gold Museum number: HM 1090 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: H. 1.2 cm; W. 1.2 cm.
Description: Solid vase-shaped pendant with two horizontal handles. Top and bottom of object are closed, indicating that it was suspended by the handles. Produced by casting.
Preservation: Complete.
Comparanda: Silver pinheads from Naxos (Doumas 1977: pl. 49h; Marangou 1990: 62, 65; Papadatos 2005: 36); see chapter 10: EBA Cyclades.

AR 14A-M: Beads (13), Pls. 1C, 2.
Material: Gold Museum number: HM 1090 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: L. .2 cm; H. .3 cm; Diam. of suspension hole .1 cm.
Description: Thirteen hollow, biconical beads made from sheet gold. Papadatos (2005: 41) describes “incised decoration consisting of 7 grooves perpendicular to the axis of the suspension hole.”
Preservation: Complete.

AR 15: Bead, Pls. 1C, 2.
Material: Gold Museum number: HM 1090 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: L. .9 cm; H. .6 cm; Diam. of suspension hole .3 cm.
Description: Solid barrel-shaped bead with horizontal perforation. Produced by casting.
Preservation: Complete.

AR 16A-F: Beads (6), Pls. 1C, 2.
Material: Gold Museum number: HM 1090-1091 Date: EM IIA
Context: Tholos Γ, stratum III Excavator: Sakellarakis
Dimensions: L. .5 - .8 cm; H. .3 cm; Diam. of suspension hole .1 cm.
Description: Six hollow, barrel-shaped beads made from sheet gold. Three beads are .5 cm in length, three beads are .8 cm in length.
Preservation: Smaller beads are well-preserved. Larger beads are poorly preserved.

AR 17A-D: Beads (4), Pls. 1C, 2.
Material: Gold  Museum number: HM 1090  Date: EM IIA
Context: Tholos Γ, stratum III  Excavator: Sakellarakis
Dimensions: Ext. Diam. .6 - .8 cm; int. Diam. .4 - .5 cm; Diam. of suspension hole .1 cm.
Description: Four ring-shaped beads made from two or three wires. Suspension holes on opposite sides of ring, with string passing through center of open circle. One bead, AR 17D (J24), made of thicker wire, with suspension hole opened through wire.
Preservation: Complete.
Comparanda: Troy, Thyreatis hoard (Papadatos 2005: 38). For Thyreatis, see chapter 10 of this text. Also, see Mallowan 1947: pl. 35 for pendants from Tell Brak.

AR 18A-N: Beads (14), Pls. 1A-C, 2.
Material: Gold  Museum number: HM 1090-1091  Date: EM IIA
Context: Tholos Γ, stratum III  Excavator: Sakellarakis
Dimensions: L. 1.9 – 2.8 cm; Diam. .3 cm. Although .3 diameter is constant, nine different lengths are represented by 14 beads.
Description: Fourteen hollow tubular beads, constructed from rolled sheet gold. Incised decoration, including vertical line at each end and continuous spiral line down length of bead. Spiral crosses seam in rolled sheet gold, indicating that bead was decorated after being formed (see Pl. 1B). Papadatos 2005: 40 indicates that AR 18D (J4) is different from the other tubular beads. The spiral is “not incised but in relief, the seam almost invisible, and the material is of lighter color.”
Preservation: Complete.

AR 19: Pin (?) fragment.
Material: Silver  Museum number: HM 1569 α  Date: EM IIA
Context: Tholos Γ, stratum III  Excavator: Sakellarakis
Dimensions: P. L. 1.7 cm; Diam. .2 cm.
Description: Fragment of pin (?) in three pieces.
Preservation: Incomplete.
Bibliography: Papadatos 2005: 35, fig. 22 (C3).
Note: A silver scraper with a double-spiral decoration was also recovered from Archanes-Phourni Tholos Γ (Papadatos 2005: fig. 22.C2).

AR 20: Bead, Pl. 1C (left of green bead?).
Material: Gold  
Museum number: HM 1223  
Date: EM IIA
Context: Tholos E, lower level  
Excavator: Sakellarakis
Dimensions: Diam. .67 cm.
Description: Globular bead made from thin sheet gold, with single perforation.
Preservation: Complete.

AR 21A-B: Strip fragments (2).
Material: Gold  
Museum number: HM 1391, 1392  
Date: EM IIA
Context: Tholos E, lower level  
Excavator: Sakellarakis
Dimensions: P. L. .9 - .96 cm; W. .6 - .63 cm.
Description: Small, rectangular fragments of thin sheet gold.
Preservation: Incomplete.

AR 22: Strip.
Material: Gold  
Museum number: HM ?  
Date: MM IA
Context: Tholos B  
Excavator: Sakellarakis
Dimensions: unknown
Description: Folded gold band
Preservation: unknown

Pyrgos Cave

PY 1: Diadem fragment, Pl. 3A-B.
Material: Gold  
Museum number: HM 509  
Date: EM I – IIA
Context: Burial cave  
Excavator: Xanthoudides
Dimensions: Est. p. L. 7 cm; W. max. 1.7 cm.
Description: Fragment of diadem with six equidistant perforations, approximately 1 cm apart, along one long edge. Part of larger diadem. May be part of same diadem as PY 2, although perforations are differently spaced and ragged edges do not match. This fragment also appears slightly wider.
Preservation: Broken on both ends.
Comparanda: for perforations on long edge of diadem, Mochlos Tomb 19 (Seager 1912: fig. 41.XIX.13b).
Bibliography: Xanthoudides 1918: 165-166, fig. 15; Branigan 1974: 183, pl. 20.2151; Vasilakis 1996: 108, fig. 13.48 (right side).
PY 2: Diadem fragment, Pl. 3B.
Material: Gold  Museum number: HM 509?  Date: EM I – IIA
Context: Recess of burial cave  Excavator: Xanthoudides (1924-25)
Dimensions: Est. p. L. 7 cm; W. max. 1.7 cm.
Description: Fragment of diadem with nine equidistant perforations, approximately .8 cm apart, along one long edge. Part of larger diadem. May be part of same diadem as PY 1, although perforations are differently spaced and ragged edges do not match. Recovered by Xanthoudides during re-examination of the cave in 1924-1925.
Preservation: Broken on both ends.
Comparanda: for perforations on long edge of diadem, Mochlos Tomb 19 (Seager 1912: fig. 41.XIX.13b).

PY 3A-B: Strips (2) Pl. 3A.
Material: Gold  Museum number: HM 510 α, β  Date: EM I – IIA
Context: Burial cave  Excavator: Xanthoudides
Dimensions: A (510β) – L. 9.7 cm; W. .6 cm; B (510α) – L. 7.5 cm; W. .5 cm
Description: Two strips that appear to be complete. Longer strip (A) is rounded on both ends. Shorter strip (B) is straight on both ends, with one perforation. Branigan (1974: 184) describes these objects as “diadem ties.”
Preservation: A is complete; B is ragged along one long edge.
Comparanda: Archanes-Phourni Tomb Γ, various strips (Papadatos 2005: fig. 25, pl. 20).

PY 4: Strip or antenna, Pl. 3A.
Material: Gold  Museum number: HM 510 γ  Date: EM I – IIA
Context: Burial cave  Excavator: Xanthoudides
Dimensions: P. L. 4.8 cm ; W. .4 cm.
Description: Plain strip or antenna for diadem.
Preservation: May be broken on one end.
Comparanda: Archanes-Phourni Tomb Γ (Papadatos 2005: fig. 25, J56).
Bibliography: Xanthoudides 1918: 165-166, fig. 15; Branigan 1974: 184 (categorized as diadem/tie); Vasilakis 1996: 112, fig. 16.19, pl. 40α.

PY 5: Bangle, Pl. 3A-B.
Material: Gold  Museum number: HM 506  Date: EM I – IIA
Context: Burial cave  Excavator: Xanthoudides
Dimensions: Diam. 5.2 cm.
Description: Bangle made of twisted, circular-section wire. As originally published, approximately one and two-thirds rotations of wire. May have been worn around the wrist or the ankle.
Preservation: Complete?
Comparanda: Krasi (Marinatos 1929: 120-121, fig. 14.39); Amorgos and Antiparos (Renfrew 1967: pl. 2).
Bibliography: Xanthoudides 1918: 166, fig. 15; Branigan 1974: 188, pl. 22.2553; Vasilakis 1996: 179.

**PY 6**: Bangle, Pl. 3A-B.
**Material**: Gold  **Museum number**: HM 507  **Date**: EM I – IIA
**Context**: Burial cave  **Excavator**: Xanthoudides
**Dimensions**: Diam. 4.5 cm.
**Description**: Bangle made of plain, circular-section wire. Slight overlap in circle of wire. Diameter is quite small, indicating wire may have been opened for attachment to the wrist or the ankle. May have been worn by a child.
**Preservation**: Complete?
**Comparanda**: Krasi (Marinatos 1929: 120-121, fig. 14.39); Amorgos and Antiparos (Renfrew 1967: pl. 2).
**Bibliography**: Xanthoudides 1918: 166, fig. 15; Branigan 1974: 188, pl. 22.2554; Vasilakis 1996: 179.

**PY 7**: Bead, Pl. 3A.
**Material**: Gold  **Museum number**: HM 511  **Date**: EM I – IIA
**Context**: Burial cave  **Excavator**: Xanthoudides
**Dimensions**: Diam. .5 cm.
**Description**: Spherical bead with perforation.
**Preservation**: Complete.
**Bibliography**: Xanthoudides 1918: 166, fig. 15; Branigan 1974: 193 , pl. 24.3078; Vasilakis 1996: 194, pl. 940 (on right in photograph).

**PY 8**: Disk, Pl. 3A.
**Material**: Gold  **Museum number**: HM 508  **Date**: EM I – IIA
**Context**: Burial cave  **Excavator**: Xanthoudides
**Dimensions**: Diam. 2.2 cm ; Wgt. .41 g.
**Description**: Circular disk with four embossed, equally-spaced circles. Large hole in center and two small equidistant perforations.
**Preservation**: Broken on one edge.
**Bibliography**: Xanthoudides 1918: 166, fig. 15; Branigan 1974: 186, pl. 21.2421?; Vasilakis 1996: 143, fig. 17.92, pl. 49 δ.

**Krasi**

**KR 1**: Pendant, Pl. 3C.
**Material**: Silver  **Museum number**: HM 1427  **Date**: EM I – II
**Context**: Tholos tomb, lower level  **Excavator**: Marinatos
**Dimensions**: H. 2.3 cm; max. W. 2.0 cm.
**Description**: Pendant of solid silver in the shape of an anchor with a cone-shaped stem (Vasilakis 1996: 155). Appears to have been cast. Openings for suspension (two slanted
perforations) are in smaller end. Marinatos (1929: 121) states that the metal is hard lead with a percentage of silver.

**Preservation:** Complete.

**Bibliography:** Marinatos 1929: 120-121, figs. 14.38, 16; Branigan 1974: 185, pl. 19.2301; Vasilakis 1996: 155, fig. 18.24; pl. 650.

**KR 2:** Pendant, Pl. 3C.

- **Material:** Silver
- **Museum number:** HM 550
- **Date:** EM I – II
- **Context:** Tholos tomb, lower level
- **Excavator:** Marinatos
- **Dimensions:** L. 3.8 cm.
- **Description:** Pendant of flat silver sheet. Marinatos (1929: 121) describes two winged blades that project from stem. Vasilakis (1996: 155-156) describes two flippers on cylindrical stem with opening for suspension.
- **Preservation:** Complete.

**Bibliography:** Marinatos 1929: 121, fig. 14.41; Branigan 1974: 185, pl. 21.2353; Vasilakis 1996: 155-156, fig. 18.25; pl. 65ε.

**KR 3:** Bangle, Pl. 3C.

- **Material:** Silver
- **Museum number:** HM 552α
- **Date:** EM I – II
- **Context:** Tholos tomb, lower level
- **Excavator:** Marinatos
- **Dimensions:** Est. Diam. 4.5 cm.
- **Description:** Bangle of square-section (?) wire. Approximately one and one-half rotations of wire. Marinatos (1929: 120-121) describes as silver strip cut from sheet metal. Found with KR 4 and KR 5. May have been worn around the wrist or the ankle.
- **Preservation:** May be missing flat terminal, as illustrated on KR 4.

**Comparanda:** Amorgos and Antiparos (Renfrew 1967: pl. 2); Pyrgos Cave (Xanthoudides 1918; fig. 15).

**Bibliography:** Marinatos 1929: 120-121, fig. 14.39; Branigan 1974: 187-188, #2552; Vasilakis 1996: 177, pl. 8α.

**KR 4:** Bangle, Pl. 3C.

- **Material:** Silver
- **Museum number:** HM 552β
- **Date:** EM I – II
- **Context:** Tholos tomb, lower level
- **Excavator:** Marinatos
- **Dimensions:** Est. Diam. 6 cm.
- **Description:** Bangle of square-section (?) wire with one wide, flattened terminal. Two rotations of wire. Marinatos (1929: 120-121) describes as silver strip cut from sheet metal. Found with KR 3 and KR 5. May have been worn around the wrist or the ankle.
- **Preservation:** Complete?

**Comparanda:** Amorgos and Antiparos (Renfrew 1967: pl. 2); Pyrgos Cave (Xanthoudides 1918; fig. 15).

**Bibliography:** Marinatos 1929: 120-121, fig. 14.39; Branigan 1974: 187-188, pl. 22.2585; Vasilakis 1996: 177, pl. 8β.

**KR 5:** Finger Ring, Pl. 3C.

- **Material:** Silver
- **Museum number:** HM 553
- **Date:** EM I – II
Context: Tholos tomb, lower level  
Excavator: Marinatos

Dimensions: Est. Diam. 2 cm.
Description: Finger ring of square-section (?) wire with one wide, flattened terminal described by excavator as bezel. Approximately two rotations of wire. Found with KR 3 and KR 4.
Preservation: Complete.
Comparanda: Without bezel, Hagios Antonios (Hall 1914: fig. 107).

KR 6: Bead, Pl. 3C-D.
Material: Silver  
Museum number: HM 555  
Date: EM I – II
Context: Tholos tomb, lower level  
Excavator: Marinatos
Dimensions: P. L. 2 cm; Diam. max. .7 cm; Wgt. .46 g.
Description: Large bi-conical bead made from two pieces of sheet metal that have been joined at center of bead. Incised with parallel lines.
Preservation: Broken at one end and deterioration near center.
Comparanda: Kapros, Amorgos (Renfrew 1967: pl. 4).

KR 7A-D: Disks (4), Pl. 3C.
Material: Silver  
Museum number: HM 554  
Date: EM I – II
Context: Tholos tomb, lower level  
Excavator: Marinatos
Dimensions: Diam. 1.5 cm – 2.0 cm.
Description: Four disks, each with two central perforations. Each disk is somewhat different, either in diameter or in size/placement of perforations.
Preservation: Complete, except for some deterioration on disk with largest perforations.
Comparanda: In gold, Platanos Tomb A (Xanthoudides 1924: pl. 57.486).

KR 8: Sheet gold fragments (3), (classified as miscellaneous).
Material: Gold  
Museum number: HM ?  
Date: EM I – II
Context: Tholos tomb, lower level  
Excavator: Marinatos
Dimensions: unknown
Description: Three small fragments of sheet gold. Marinatos 1929: 121 suggests they may have been the covering for a bead of perishable material.
Preservation: Incomplete.
Comparanda: Mochlos Tombs 1, 2, 5, 6, and 21 (Seager 1912: 22, 32, 44, 56, 78).
Bibliography: Marinatos 1929: 121 ; Branigan 1974 : 201 (#3447).
Platanos

**PL 1**: Bead, Pl. 4A-C.
- **Material**: Gold
- **Museum number**: HM 475
- **Date**: EM II
- **Context**: Tholos A, lower level
- **Excavator**: Xanthoudides
- **Dimensions**: L. 1.8 cm; Diam. 1.4 cm; Wgt. 3 g.
- **Description**: Hollow nozzle-shaped bead with swirling olive leaf decoration in repoussé. Lip on top and bottom creates vase-like appearance. Opening on one end is wider. Xanthoudides (1924: 110-111) states that the bead is of paler gold, indicating silver content.
- **Preservation**: Complete.
- **Bibliography**: Xanthoudides 1924: 110-111, pls. 15.475, 57.475; Branigan 1970: fig. 15; Branigan 1974: 193, pl. 35.3091; Vasilakis 1996: 193, pl. 95 ζ.

**PL 2**: Bead, Pl. 4A.
- **Material**: Gold
- **Museum number**: HM 476
- **Date**: EM II
- **Context**: Tholos A, lower level
- **Excavator**: Xanthoudides
- **Dimensions**: L. 2.3 cm; Wgt. 4.9 g.
- **Description**: Plain, hollow amygdaloid bead made from sheet gold. Same shape as PL 3, although larger. Xanthoudides (1924: 110-111) states that the bead is of paler gold, indicating silver content.
- **Preservation**: Complete.
- **Bibliography**: Xanthoudides 1924: 110-111, pl. 57.476; Branigan 1970: fig. 15; Branigan 1974: 192, pl. 23.3026 (two beads under one number); Vasilakis 1996: 193, pl. 95 α.

**PL 3**: Bead, Pl. 4A.
- **Material**: Gold
- **Museum number**: HM 477
- **Date**: EM II
- **Context**: Tholos A, lower level
- **Excavator**: Xanthoudides
- **Dimensions**: L. 1.9 cm; Wgt. 2.2 g.
- **Description**: Plain, hollow amygdaloid bead made from sheet gold. Same shape as PL 2, although smaller. Xanthoudides (1924: 110-111) states that the bead is of paler gold, indicating silver content.
- **Preservation**: Complete.
- **Bibliography**: Xanthoudides 1924: 110-111, pl. 57.477; Branigan 1974: 192, pl. 23.3026 (two beads under one number); Vasilakis 1996: 193, pl. 95 β.

**PL 4**: Fluted pendant on chain, Pls. 4A, 5A-B.
- **Material**: Gold
- **Museum number**: HM 484
- **Date**: EM II
- **Context**: Tholos A, lower level
- **Excavator**: Xanthoudides
- **Dimensions**: L. 11.75 cm (pendant and chain); L. 3.35 cm (pendant only); Diam. 0.95 cm (bottom of pendant); Circumference 2.8 cm (bottom of pendant).
Description: Fluted pendant on loop-in-loop chain. The pendant is manufactured from a triangular piece of sheet metal that was rolled and creased to create a cone. Dot repoussé decorates the bottom edge. The chain consists of 36 links made from circular-section wire. Xanthoudides (1924: 110-111) states that the pendant is of paler gold, indicating silver content. See Chapter 5 for a detailed description of the crafting of this object.

Preservation: Complete, but with no jump ring or obvious means of attachment.

Comparanda: Mochlos Tomb 2 (Seager 1912: 32, figs. 10.II.30, 11.II.30).

Bibliography: Xanthoudides 1924: 111, pls. 15.484, 57.484; Branigan 1970: 71-73, 166-169, fig. 15; Branigan 1974: 185, pl. 21.2348; Vasilakis 1996: 158, pl. 74 β.

PL 5: Diadem, Pl. 4A.

Material: Gold  
Museum number: HM 481  
Date: EM III – MM I?

Context: Tholos A, upper level  
Excavator: Xanthoudides

Dimensions: L. 13.7 cm; W. 2.3 cm.

Description: Wide diadem with rounded ends. Decorated with dot repoussé border on top and bottom edges. Dots appear uneven on one edge, perhaps due to deterioration of sheet metal. Single perforations at each end for attachment around head or to perishable material. Additional perforation right of center may be for attachment, or it may have occurred during burial.

Preservation: Complete, except slight deterioration on one edge.

Comparanda: Mochlos Tomb 2, but slender (Seager 1912: fig. 8.II.2).

Bibliography: Xanthoudides 1924: 111, pl. 57.481; Branigan 1970: 71-73, 166-169; Branigan 1974: 183, pl. 20.2158; Vasilakis 1996: 106, fig. 11.39, pl. 34.

PL 6: Diadem, Pl. 4A.

Material: Gold  
Museum number: HM 482  
Date: EM III – MM I?

Context: Tholos A, upper level  
Excavator: Xanthoudides

Dimensions: P. L. 12.6 cm; W. 1.3 cm.

Description: Plain diadem with one curved end and one uneven, perhaps broken, end. Single perforations at each end for attachment around head or to perishable material.

Preservation: Almost complete. Appears broken at one end.

Comparanda: Mochlos Tomb 19, for shape (Seager 1912: fig. 41.XIX.13a-b).


PL 7: Diadem fragment, Pl. 4A.

Material: Gold  
Museum number: HM 483  
Date: EM III – MM I?

Context: Tholos A, upper level  
Excavator: Xanthoudides

Dimensions: P. L. 5.4 cm; W. 1.5 cm.

Description: Fragment of diadem or strip, broken or cut on one end. Preserved end narrows to a point. Although the excavator gave the same catalogue number to PL 7 and PL 8, the width of each fragment is different.

Preservation: Incomplete.

Comparanda: Mochlos Tomb 2, similar curved cut (Seager 1912: 27, fig. 8.II.7).
PL 8: Diadem fragment, Pl. 4A.
Material: Gold   Museum number: HM 483   Date: EM III – MM I?
Context: Tholos A, upper level   Excavator: Xanthoudides
Dimensions: P. L. 4.5 cm; W. 1.9 cm.
Description: Fragment of diadem or strip, broken or cut on both ends. Although the excavator gave the same catalogue number to PL 7 and PL 8, the width of each fragment is different.
Preservation: Incomplete.
Comparanda: Mochlos Tomb 2, similar curved cut (Seager 1912: 27, fig. 8.II.7).
Bibliography: Xanthoudides 1924: 111, pl. 57.483; Branigan 1974: 183, pl. 20.2157; Vasilakis 1996: 107, pl. 35α.

PL 9A-S: Beads (19), Pls. 4A, 5C and E.
Material: Gold   Museum number: HM 456-474   Date: EM III – MM I?
Context: Tholos A, upper level   Excavator: Xanthoudides
Dimensions: L. max. 2 cm; L. min. 1 cm.
Description: Described by Xanthoudides as “pendants or beads” (1924: 110), these objects are hollow and made from sheet gold. The beads are decorated with lines and grooves, either incised or fashioned utilizing the repoussé technique. Except for two beads that are cylindrical (#472, 473), all have a lip or rim on each end. The beads with rims resemble miniature vases. If the sheet gold had covered a perishable material, the filling would have been visible, as the openings at the ends of each bead are wide.
Preservation: Complete.
Comparanda: Mochlos Tomb 6 (Seager 1912: fig. 25.VI.27).

PL 10A-C: Beads (3), Pl. 4A.
Material: Gold   Museum number: HM 474   Date: EM III – MM I?
Context: Tholos A, upper level   Excavator: Xanthoudides
Dimensions: L. max. .7 cm.
Description: Three small, round beads, each with a single perforation.
Preservation: Complete.

PL 11A-B: Beads (2), Pls. 4A, 5C-D.
Material: Gold   Museum number: HM 454, 455   Date: EM III – MM I?
Context: Tholos A, upper level   Excavator: Xanthoudides
Dimensions: L. max. 1.5 cm; W. max. 1.4 cm.
Description: Described by Xanthoudides as “pendants or beads” (1924: 110), these objects are hollow and made from sheet gold decorated with filigree spirals. The beads
have a rim or lip at each end. As with PL 9A-T, the sheet gold may have covered a perishable material. If so, the filling would have been visible, as the openings at the ends of each bead are wide.

Preservation: Complete.

Comparanda: Filigree spiral decoration on cylindrical bead from Kalathiana Tomb K (Xanthoudides 1924: 82, pls. 8, 43.391).

Bibliography: Xanthoudides 1924: 110, pls. 15.455, 57.454-455; Branigan 1974: 193, pl. 35.3096; Vasilakis 1996: 192, pl. 97, left side.

**PL 12A-C:** Finger rings (3), Pl. 4A.

**Material:** Gold  
**Museum number:** HM 485  
**Date:** EM III – MM I?

**Context:** Tholos A, upper level  
**Excavator:** Xanthoudides

**Dimensions:** Diam. of two rings 1.5 cm; Diam. of one ring 1.8 cm.

**Description:** Three circles of thin gold wire. The diameter of each object would suggest that it is a finger ring.

Preservation: Complete.

Comparanda: Sphoungaras (Hall 1912: fig. 24); Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 21a, lower right); Mochlos Tomb 21 (Seager 1912: fig. 20.XXI.17a-b).

Bibliography: Xanthoudides 1924: 111, pl. 57.485; Branigan 1974: 188 (#2676-2678); Vasilakis 1996: 93, pl. 11α, δ, ε.

**PL 13A-U:** Disks (21), Pls. 4A, 5F

**Material:** Gold  
**Museum number:** HM 486  
**Date:** EM III – MM I?

**Context:** Tholos A, upper level  
**Excavator:** Xanthoudides

**Dimensions:** Diam. 1.8 cm.

**Description:** Disks made from thin sheet gold, each with two perforations for attachment. Most are complete. Eight have some deterioration on edges.

Comparanda: In silver, Krasi (Marinatos 1929: 121, fig. 14.42).


**PL 14:** Boss, Pl. 4A.

**Material:** Gold  
**Museum number:** HM 478  
**Date:** EM III – MM I?

**Context:** Tholos A, upper level  
**Excavator:** Xanthoudides

**Dimensions:** Diam. 3.7 cm.

**Description:** Boss with a curved surface made from sheet gold. Six evenly-spaced perforations for attachment.

Preservation: Complete.

Bibliography: Xanthoudides 1924: 111, pl. 57.478; Branigan 1974: 186 (#2472); Vasilakis 1996: 142, fig. 17.45, pl. 51δ.

**PL 15A-F:** Bosses (6), Pl. 4A.

**Material:** Gold  
**Museum number:** HM 494, 503  
**Date:** EM III – MM I?

**Context:** Tholos A, upper level  
**Excavator:** Xanthoudides
Dimensions: max. Diam. 1.4 cm.
Description: Six bosses with flattened edges. Perforated for attachment, through or near flattened edges. Xanthoudides (1924: 111) describes as “coatings of six convex rivet-heads.”
Preservation: Complete.
Comparanda: Archanes-Phourni Tomb Γ (Papadatos 2005: 41, fig. 25, pl. 20, J49-54); Lebena Tomb 2 (Alexiou and Warren 2004: pl. 114, center); Mochlos Tomb 4 (Seager 1912: fig. 20.IV.8).
Bibliography: Xanthoudides 1924: 111, pl. 57.494, 503; Branigan 1974: 187 (#2488-2493); Vasilakis 1996: 143, pl. 56 β, γ, δ, θ, ε, ζ.

PL 16: Mass of wire (classified as miscellaneous), Pl. 4A.
Material: Gold 
Museum number: HM 497 
Date: EM III – MM I?
Context: Tholos A, upper level 
Excavator: Xanthoudides
Dimensions: unknown.
Description: Mass of thin, twisted wire. Use unknown, perhaps hair ornament. May have been braided with or twisted around a perishable material like animal hair, human hair, or plant fibers.
Preservation: Incomplete?
Comparanda: Plaited gold wire and animal hair were used to make a c. 3000 BC Egyptian bracelet from the tomb of Djjer, Abydos (Andrews 1990: 19).
Bibliography: Xanthoudides 1924: 111, pl. 57.497; Branigan 1974: 184 (#2240, described as diadem tie).

PL 17: Leaf attachment or pendant, Pl. 4A.
Material: Gold 
Museum number: HM 488 
Date: EM III – MM I?
Context: Tholos A, upper level 
Excavator: Xanthoudides
Dimensions: unknown.
Description: Plain, small leaf on wire stem. May have been diadem attachment or pendant.
Preservation: Complete?
Comparanda: Mochlos Tombs 1/2/3 (Seager 1912: fig. 10.II.23) and 4/5/6 (Davaras 1975: 105, pls. 21c, 18b [object 18]); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Xanthoudides 1924: 111, pl. 57.488; Branigan 1974: 184 (#2249, described as diadem attachment).

PL 18: Ornament (classified as miscellaneous), Pl. 4A.
Material: Gold 
Museum number: HM 489 
Date: EM III – MM I?
Context: Tholos A, upper level 
Excavator: Xanthoudides
Dimensions: L. 3 cm.
Description: Crescent of thin sheet gold.
Preservation: Complete?
**PL 19**: Pin or diadem attachment (?), Pl. 4A.

**Material**: Gold  
**Museum number**: HM 487  
**Date**: EM III – MM I?

**Context**: Tholos A, upper level  
**Excavator**: Xanthoudides  
**Dimensions**: L. 2.2 cm; W. max. 1.3 cm; Wgt. 1.1 g.

**Description**: Ornament that may be pin or diadem attachment, manufactured from thin sheet gold. Design includes scalloped triangle that resembles a lily, crocus, or leaf with attached strip of metal (cut from sheet as one piece). Three-part scalloped edge appears carefully planned and decorated, with very even repoussé lines and dots.

**Preservation**: Complete?

**Bibliography**: Xanthoudides 1924: 111, pls. 15.487, 57.487; Branigan 1970: fig. 15; Branigan 1974: 185, pl. 20.2285 (described as pendant); Vasilakis 1996: pl. 100.

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**PL 20A-B**: Hoops or rims (2) (classified as miscellaneous), Pl. 4A.

**Material**: Gold  
**Museum number**: HM 479, 480  
**Date**: EM III – MM I?

**Context**: Tholos A, upper level  
**Excavator**: Xanthoudides  
**Dimensions**: Diam. 20A (#479) 2.8 cm; Diam. 20B (#480) 2 cm.

**Description**: Two rings manufactured from sheet gold. Metal is curved, as if beaten over a form. Xanthoudides (1924: 111) suggested that the rings “may have been the setting from the brim of a vase.”

**Preservation**: Incomplete, if gold rings are only parts of objects that have perished.

**Comparanda**: Mochlos Tomb 2 (Seager 1912: 30, fig. 8.II.13a, b) and Tomb 3 (Seager 1912: fig. 36.III.j).

**Bibliography**: Xanthoudides 1924: 111, pl. 57.479, 480; Branigan 1974: 185 (#2316-2317, described as pendants); Vasilakis 1996: 92-93, pl. 10 α, β.

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**PL 21A-C**: Diadems or strips (3), Pl. 4A.

**Material**: Gold  
**Museum number**: HM 491-493  
**Date**: EM III – MM I?

**Context**: Tholos A, upper level  
**Excavator**: Xanthoudides  
**Dimensions**: L. 6-7 cm; W. .65-.85 cm.

**Description**: Three thin gold diadems or strips roughly cut from sheet metal. Similar to diadem antennae, except all are perforated at both ends and appear to be complete as recovered. Two (491, 492) are decorated with a border of dot repoussé along one long edge. Xanthoudides (1924: 111) described but did not catalogue or illustrate “dozens of small strips of thin gold leaf, some of which have the usual decoration of dots along the edge, while others have attachment holes.”

**Preservation**: Complete.

**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 8.II.18i).

**Bibliography**: Xanthoudides 1924: 111, pl. 57.491-493; Branigan 1970: 71-73, 166-169; Branigan 1974: 183 (#2160-2161, listed as diadems); Vasilakis 1996: 107, figs. 11.42-43, 13.44, pl. 19 α, γ, δ (listed as diadems).
**LE 1**: Diadem, Pl. 6A-C.
Material: Gold  
Museum number: HM 749  
Date: EM II
Context: Papoura Tholos I  
Excavator: Alexiou
Dimensions: L. 21.2 cm; H. max. 3.5 cm; L. of each gold tie 36 cm.
Description: Diadem manufactured from sheet gold, with two horizontal leaf attachments placed through slits cut into band. Form of diadem includes double triangular projection with broken stem or vertical extension at top and smaller triangular projection on the bottom. Decorated with dot repoussé, including single dot border around edge of entire diadem and double dot “V” and border at center. Perforated for attachment at each end, with thin, twisted diadem ties also recovered. Ties may have been reinforced with animal hair, human hair, or plant fibers.
Preservation: Almost complete, with broken center vertical extension.
Bibliography: Alexiou 1960: 225; Branigan 1974: 183 (#2179); Vasilakis 1996: 97-98, fig. 9.7, pl. 20; Alexiou and Warren 2004: 36, pl. 10C.

**LE 2A-B**: Beads (2).
Material: Gold  
Museum number: HM ?  
Date: EM II – MM IA
Context: Papoura Tholos I (from sieving)  
Excavator: Alexiou
Dimensions: unknown.
Description: Two small, grooved cylindrical beads, one without context and the other from near floor level.
Preservation: Complete, but flattened.

**LE 3**: Boss, Pl. 6D.
Material: Gold  
Museum number: HM 1054  
Date: EM II – MM IA
Context: Gerokampos Tholos II  
Excavator: Alexiou
Dimensions: Diam. 1.65 cm.
Description: Boss with flattened edge. Incised lines decorate flat rim of boss. Six perforations for attachment (four large holes, two small holes).
Preservation: Complete.
Comparanda: Archanes-Phourni Tomb Γ (Papadatos 2005: 41, fig. 25, pl. 20, J49-54); Platanos Tomb A (Xanthoudides 1924: pl. 57.494); Mochlos Tomb 4 (Seager 1912: fig. 20.IV.8).

**LE 4A-V**: Beads (22), Pl. 6E.
Material: Gold  
Museum number: HM 760, 1055  
Date: EM II – MM IA
Context: Gerokampos Tholos II  
Excavator: Alexiou
Dimensions: Various sizes, specific dimensions unknown.
Description: Excavator describes 22 gold beads of various sizes and shapes (e.g., melon-shaped, cylindrical, round, and amygdaloid). Some beads are plain, and others are decorated with parallel lines or grooves, probably created by incising or repoussé. Some beads have no context, so cannot be clearly dated. The remainder were recovered from an EM II – MM I context.

Preservation: Complete.


LE 5: Strip.
Material: Gold               Museum number: HM ?               Date: EM II
Context: Zervou Tholos III     Excavator: Alexiou
Dimensions: L. 19.7 cm.
Description: Strip of twisted sheet gold, described by the excavator as similar to diadem ties from Tholos I. Broken, indicating strip was originally longer. May have been used to attach diadem (not recovered) to the head or may have been hair ribbon. Preservation: Length is not preserved.
Comparanda: Lebena Tomb 1, ties attached to diadem (Alexiou and Warren 2004: 36, pl. 10C).
Bibliography: Branigan 1974: 183 (#2180, listed as diadem); Alexiou and Warren 2004: 188 (no illustration).

Koumasa

KO 1: Bangle, Pl. 7A.
Material: Gold               Museum number: HM 215               Date: EM IIA
Context: Tholos A              Excavator: Xanthoudides
Dimensions: Diam. 4.2 cm; Wgt. 10.3 g.
Description: Plain gold bangle made from thick wire. Slight opening where ends of wire do not meet. Small size may indicate it was worn by a child. The object may also have been a ring used as a base for a stone vase. Note on date: Tholos tomb A has been described as a “closed EM IIA deposit” (Soles 1992: 157).
Preservation: Complete.
Bibliography: Xanthoudides 1924: 47.215, pl. 29b; Branigan 1974: 187 (#2531); Vasilakis 1996: 177.

KO 2: Diadem, Pl. 7A-B.
Material: Gold               Museum number: HM 216               Date: EM IIA
Context: Tholos A              Excavator: Xanthoudides
Dimensions: L. max. 12.3 cm; W. max. 7 cm; Wgt. 7.2 g.
Description: Diadem of thick sheet gold with a tongue-like extension in the center that either projected up above the forehead or down between the eyes. The diadem is decorated around the edges with a double row of dot repoussé. An additional chevron of impressed dots follows the shape of the center extension. One perforation at each end
allows for attachment around the head or to a perishable material. Shape of band is not symmetrical and appears to have been cut freehand. Note on date: Tholos tomb A has been described as a “closed EM IIA deposit” (Soles 1992: 157).

**Preservation:** Although complete, ragged tear indicates diadem was recovered in two parts. Small holes on either side of tear suggest that object was repaired in antiquity.

**Comparanda:** Built-in center projection on diadem from Lebena Tomb 1 (Alexiou and Warren 2004: 36, pl. 10C).

**Bibliography:** Xanthoudides 1924: 47.216, pl. 29b.216; Branigan 1970: 71-73, 166-169, fig. 15; Branigan 1974: 183, pl. 20.2178; Vasilakis 1996: 97, fig. 8.5, pl. 18.

**KO 3:** Pendant, Pl. 7C-D.

**Material:** Gold  
**Museum number:** HM 386  
**Date:** EM II – MM IA?

**Context:** Tholos B  
**Excavator:** Xanthoudides

**Dimensions:** Est. L. .8 cm; Wgt. 1.1 g.

**Description:** Pendant, bead, or amulet cast (?) in the shape of a frog or toad, with granulation on its back, perhaps to indicate warts. This pendant has also been described as a lion (Higgins 1980: 59). It has the head, eyes, and warts of an amphibian, but the front limbs and posture of a lion. This may indicate that the pendant is a composite creature. The length of the pendant is pierced with a very small hole. Xanthoudides (1924: 29) indicates that the underside “preserves part of the very fine wire of a design in cloisonné,” perhaps the remnants of filigree.

**Preservation:** Complete.

**Bibliography:** Xanthoudides 1924: 29, pl. 4.386; Branigan 1970: fig. 15; Branigan 1974: 185 (#2289); Hood 1978: fig. 186B; Higgins 1981: fig. 43; Vasilakis 1996: 155, pl. 71γ.

**KO 4:** Bead.

**Material:** Gold  
**Museum number:** HM 387  
**Date:** EM II – MM IA?

**Context:** Tholos B  
**Excavator:** Xanthoudides

**Dimensions:** unknown.

**Description:** Bead is described by the excavator as the “shape and size...[of] the seed capsule of the lilac (πασχαλία, syringa vulgaris)” (Xanthoudides 1924: 29).

**Preservation:** Complete?

**Bibliography:** Xanthoudides 1924: 29, no illustration; Branigan 1974: 194 (#3109); Vasilakis 1996: 188.

**KO 5A-B:** Strips (2).

**Material:** Gold  
**Museum number:** HM ?  
**Date:** EM II – MM IA?

**Context:** Tholos B  
**Excavator:** Xanthoudides

**Dimensions:** unknown.

**Description:** Strips are described by Xanthoudides (1924: 29) as “a few bands of gold sheeting” and by Branigan (1974: 184) as “two diadem ties.”

**Preservation:** ?

**Bibliography:** Xanthoudides 1924: 29, no illustration; Branigan 1974: 184 (#2239).
KO 6A-B: Beads (2).
Material: Gold  
Museum number: HM ?  
Date: EM II – MM IA?
Context: Tholos B  
Excavator: Xanthoudides
Dimensions: unknown.
Description: Beads are described by Xanthoudides (1924: 29) as “two small narrow elongated necklace beads.”
Preservation: ?
Bibliography: Xanthoudides 1924: 29, no illustration; Branigan 1974: 194 (#3116).

KO 7A-B: Disks (2).
Material: Gold  
Museum number: HM 388, ?  
Date: EM II – MM IA?
Context: Tholos B  
Excavator: Xanthoudides
Dimensions: unknown.
Description: Disks are described by Xanthoudides (1924: 29) as “two small pierced discs, one with a lip of raised granulations round the hole (#388).” Note: If #388 is decorated with granulation (and not repoussé dots), it would be one of the earliest examples of granulation in Crete, along with KO 3, the frog pendant.
Preservation: ?
Bibliography: Xanthoudides 1924: 29, no illustration; Branigan 1974: 186 (#2420-20A); Vasilakis 1996: 140.

Note: Three silver daggers were recovered from an EM IIA context within rectangular tomb Γ at Koumasa (Xanthoudides 1924: 47, pl. 29; Soles 1992: 157-158).

Kalathiana

KA 1: Diadem fragment, Pl. 8A-C.
Material: Gold  
Museum number: HM 394  
Date: EM II – MM I?
Context: Tholos K  
Excavator: Xanthoudides
Dimensions: P. L. 2.8 cm ;W. 2.0 cm.
Description: Fragment of openwork band cut from thin sheet gold, decorated with dot repoussé. Rectangles and triangles are cut out in the ajouré technique, creating the impression of plaited strips. Thin incised lines are visible near openwork, indicating that design was traced out before cutting.
Preservation: Incomplete, broken at both ends.
Comparanda: Ajouré diadems from Amorgos in the Cyclades (Tsountas 1898: pl. 8) and Alaca in Anatolia (Koşay 1938: pl. 82); early Middle Cycladic diadem from Keos (Caskey 1971: 396; Overbeck 1989: 199).
Bibliography: Xanthoudides 1924: 83, pls. 8.394, 43b.394; Branigan 1970: fig. 15; Branigan 1974: 183, pl. 20.2181; Vasilakis 1996: 97, fig. 3.4, pl. 17.

KA 2: Strip fragment, Pl. 8A, D.
Material: Gold  
Museum number: HM 395  
Date: EM II – MM I?
Context: Tholos K  
Excavator: Xanthoudides
Dimensions: P. L. 2.8 cm; max. W. 1.8 cm; Th. .05 cm.

Description: Two small pieces of thin sheet metal that may be part of a strip or diadem. Xanthoudides (1924: 83) describes “a design of repoussé dots and engraved lines.”

Decoration visible in modern drawings shows herringbone borders on either side of incised vertical lines (Branigan 1974: pl. 20.2154; Vasilakis 1996: fig. 21.3).

Preservation: Incomplete, two fragments recovered.


KA 3: Diadem (?) fragment, Pl. 8A.
Material: Gold  
Museum number: HM 396  
Date: EM II – MM I?
Context: Tholos K  
Excavator: Xanthoudides
Dimensions: P. L. 2.8 cm; P. W. 2.1 cm.

Description: Fragment of diadem (?) decorated with dot repoussé border and part of oval with three tail-like lines of dots. Circular area has been cut away. Shown on Xanthoudides 1924: pl. 43b, along with KA 4 and KA 5. The three objects indicated as catalogue #396 on pl. 43b are not described in text.

Preservation: Incomplete, broken on both ends.

Bibliography: Xanthoudides 1924: pl. 43b.396 (no description in text); Branigan 1974: 183, pl. 20.2152 (described as diadem).

KA 4: Diadem (?) fragment, Pl. 8A.
Material: Gold  
Museum number: HM 396  
Date: EM II – MM I?
Context: Tholos K  
Excavator: Xanthoudides
Dimensions: P. L. 2 cm; P. W. 2.6 cm.

Description: Fragment of diadem (?). Photograph of object (Xanthoudides 1924: pl. 43b) appears to indicate dot repoussé. Shown on Xanthoudides 1924: pl. 43b along with KA 3 and KA 5, but not described in text.

Preservation: Incomplete, appears broken on all four sides.

Bibliography: Xanthoudides 1924: pl. 43b.396 (no description in text); Branigan 1974: 183, pl. 20.2153 (described as diadem).

KA 5: Disk, Pl. 8A.
Material: Gold  
Museum number: HM 396  
Date: EM II – MM I?
Context: Tholos K  
Excavator: Xanthoudides
Dimensions: Diam. 1.2 cm.

Description: Disk (?) made from sheet gold. May also be rivet head or boss. Photograph of object (Xanthoudides 1924: pl. 43b) appears to indicate dot repoussé border. Shown on Xanthoudides 1924: pl. 43b along with KA 3 and KA 4, but not described in text.

Preservation: Complete.

Bibliography: Xanthoudides 1924: pl. 43b.396 (no description in text); Branigan 1974: 186 (#2412) (described as disk).

KA 6: Ring (classified as miscellaneous), Pl. 8A.
Material: Gold  
Museum number: HM 389  
Date: EM II – MM I?
KA 7: Piece of bent wire (classified as miscellaneous), Pl. 8A.
Material: Gold    Museum number: HM 390    Date: EM II – MM I?
Context: Tholos K    Excavator: Xanthoudides
Dimensions: L. 11 cm (straight); Wgt. 6.15 g.
Description: Length of bent gold wire that may have been a bangle or hair ornament. Wire may be thinner at ends.
Preservation: Complete, but bent?

KA 8: Boss, Pl. 8A.
Material: Gold    Museum number: HM 393    Date: EM II – MM I?
Context: Tholos K    Excavator: Xanthoudides
Dimensions: Diam. 1.3 cm; Wgt. .05 g.
Description: Boss or “gold coating of a convex stud-head” (Xanthoudides 1924: 83). Two perforations for attachment.
Preservation: Complete.
Bibliography: Xanthoudides 1924: 83, pl. 43b.393; Branigan 1974: 186 (#2470); Vasilakis 1996: 139-140, pl. 51α.

KA 9: Bead, Pl. 8A.
Material: Gold    Museum number: HM 392    Date: EM II – MM I?
Context: Tholos K    Excavator: Xanthoudides
Dimensions: L. max. .9 cm.
Description: Small hollow bead, described by Xanthoudides (1924: 82) as “not unlike the kernal of a nut, square in section coming to a point at the ends.”
Preservation: Complete.
Bibliography: Xanthoudides 1924: 82, pl. 43b.392; Branigan 1974: 193 (#3086); Vasilakis 1996: 188.

KA 10: Beads (multiple, exact quantity unknown).
Material: Gold    Museum number: HM ?    Date: EM II – MM I?
Context: Tholos K    Excavator: Xanthoudides
Dimensions: unknown.
Description: Xanthoudides (1924: 83) describes “some round beads of the thinnest gold leaf.” Perhaps seen on his pl. 43b, strung with stone beads.
Preservation: Complete?

Bibliography: Xanthoudides 1924: 83.

**KA 11:** Bead, Pl. 8A, E-G.

**Material:** Gold  
**Museum number:** HM 391  
**Date:** EM II – MM I?

**Context:** Tholos K  
**Excavator:** Xanthoudides

**Dimensions:** L. max. .96 cm; Diam. .6 cm.

**Description:** Hollow cylindrical bead made from thin sheet metal. Sheet metal was rolled to form a cylinder, as evidenced by visible verticle seam, and then capped with two perforated disks. Decorated with six filigree double spirals. Decoration appeared to be planned out, although artisan ran out of space, resulting in the overlapping of one double spiral over another.

**Preservation:** Complete, slightly crushed on ends.

**Comparanda:** Filigree beads from Platanos Tomb A (Xanthoudides 1924: 111, pls. 15, 57).

SP 1: Finger ring, Pl. 9A-B

Material: Gold  
Museum number: HM 437  
Date: EM II – III

Context: Deposit A  
Excavator: Seager/Hall

Dimensions: Est. Diam. 1.5 cm.

Description: Finger ring of twisted, circular-section gold wire.

Preservation: Complete.

Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57.485); Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 21a); Mochlos Tomb 21 (Seager 1912: fig. 20.XXI.17a-b).


SP 2: Bead, Pl. 9A-B

Material: Gold  
Museum number: HM 438  
Date: EM II – III

Context: Deposit A  
Excavator: Seager/Hall

Dimensions: unknown.

Description: Small pinched or crushed bead.

Preservation: Complete.

Bibliography: Hall 1912: 50, fig. 24; Vasilakis 1996: 194, pl. 14γ.

SP 3A-B: Pendants on chains (2), Pl. 9A-C

Material: Gold  
Museum number: HM 435, 436  
Date: EM II – III

Context: Deposit A  
Excavator: Seager/Hall

Dimensions: L. max. 8 cm.

Description: Two plain pendants (or earrings) manufactured from thin sheet metal. Each pendant is affixed to a loop-in-loop chain, with a jump ring at the end of each chain for attachment to an object such as a diadem. Pendants are heart-shaped. A template was used to cut the basic heart shape, with footed bottom and small area at top-center cut freehand. The pendants are attached to chains by means of a cut stem that has been hammered into a wire, placed through the last loop on the chain, and twisted around. The excavator noted that the “pendants lay quite close to sherds of EM II red and black mottled ware [Vasiliki Ware]” (Hall 1912: 50).

Preservation: Complete. One pendant appears slightly crushed.

Comparanda: Method of attachment to chain similar to pendants from Platanos Tomb A (Xanthoudides 1924: pl. 15.484) and Mochlos Tomb 2 (Seager 1912: fig. 10.II.30); heart-shaped pendant from possibly later context at Hagia Triada (Vasilakis 1996: fig. 18.2, pl. 62β).

Pseira

**PS 1**: Strip or diadem fragment, Pl. 9D-E.
- **Material**: Gold
- **Object number**: PS 2049
- **Date**: EM II – III
- **Context**: Tomb 7
- **Excavator**: Betancourt and Davaras
- **Dimensions**: P. L. 2.5 cm.
- **Description**: Small fragment of strip or diadem, manufactured from sheet gold. Decorated with dot repoussé border and vertical and diagonal rows of dots. One pointed end is intact, and the other end is broken. No evidence of attachment holes in preserved end.
- **Preservation**: Incomplete. One end broken and deterioration along long edges.
- **Bibliography**: Betancourt and Davaras 1990: 32; Betancourt and Davaras 2003: 66, fig. 36.7.22.

Mochlos

**MO 1**: Eye diadem, Pls. 10, 12A-D.
- **Material**: Gold
- **Museum number**: HM 268
- **Date**: EM II – III
- **Context**: Tomb 2 (of 1/2/3)
- **Excavator**: Seager
- **Dimensions**: L. 29.5 cm; W. max. 3.5 cm; Wgt. 11.57 g.
- **Description**: Diadem manufactured from thick sheet gold. Two almond-shaped eyes with uneven pupils are depicted in repoussé. Left eye has extra row of dots at top, as if artisan changed direction while working. Diadem is wider in the middle and tapers to rounded ends. Single row of very even dot repoussé all around border. Two sets of three holes at each end and three sets of two smaller holes at top, perhaps all for attachment to a perishable material. Two small holes under eyes near edge, for the addition of pendants or for attachment to a perishable material. Approximately 3.5 cm to the left of the eyes, a group of ragged, symmetrical holes indicate that attachments (perhaps MO 16, two crocus pins, or MO 19, sprays of olive leaves) were stuck through diadem. Based on the direction of the excess metal around the holes, it appears that horizontal attachments were stuck in on the left and came back out on the right. This was done repeatedly, as metal has been stuck through many times. Poke marks are also visible, indicating that not every attempt to pierce the metal was successful. The metal band is creased vertically in this area, as if pinched to facilitate the insertion of attachments.
- **Preservation**: Complete, although slightly worn at one end.
- **Bibliography**: Seager 1912: 27, figs. 8.II.5, 9.II.5; Branigan 1974: 183, pl. 30.2166; Hood 1978: fig. 185A; Higgins 1981: fig. 38; Vasilakis 1996: 98, fig. 10.9, pls. 22, 22’.

**MO 2**: Dog diadem, Pls. 10, 13A.
- **Material**: Gold
- **Museum number**: HM 269
- **Date**: EM II – III
- **Context**: Tomb 2 (of 1/2/3)
- **Excavator**: Seager
- **Dimensions**: L. 32.3 cm; W. max. 2.9 cm; Wgt. 5.11 g.
- **Description**: Diadem manufactured from sheet gold, with metal broken away at three regular intervals at top. Dot repoussé decoration includes border, six vertical double rows
of dots, four dogs in opposing pairs (with incised outlines), and a central image that may indicate quarry or prey. Two pierced holes at each end for attachment around the head or to a perishable material. Diadem may have originally included three sets of antenna-like attachments that were ripped off, resulting in the notches at the top. See chapter 8 for description of steps required for the manufacturing of this diadem and evidence for the addition of the antennae.

Preservation: Complete, except for three notches of metal missing at top. Right side of diadem was broken and repaired in antiquity, as indicated by three pierced holes on either side of break.

Comparanda: Diadem from Mochlos Tomb 4/5/6 with antenna-like extensions (Davaras 1975: 103-104, fig. 3, pl. 18a [object 1]); dog motif on diadem from Syros (Tsountas 1899: pl. 10.1).


MO 3: Geometric diadem, Pls. 10, 13B-C.
Material: Gold
Museum number: HM 270
Date: EM II – III
Context: Tomb 2 (of 1/2/3)
Excavator: Seager
Dimensions: L. 19.3 cm; W. max. 3.3 cm; Wgt. 5.42 g.
Description: Diadem manufactured from sheet gold, with slight pedimental rise (or fall) in center. Very even single dot repoussé border on all sides. Dots also used to create carefully-measured, symmetrical geometric images including lozenges, rosettes, inverted triangles, and central three-part triangle. Three pierced holes at each end for attachment around the head or to a perishable material. Several sets of small holes and random pin holes, perhaps some for attachment to perishable material or to hang pendants. On left side, two sets of holes, pierced in and then out, in the fashion of those used for attachments in MO 2. Gold appears reddish in color, but this may be accident of preservation.

Preservation: Complete, although appears to have been crushed, with some deterioration on edges. Seager (1912: 26) described many pin holes and “signs of hard usage.”

Bibliography: Seager 1912: 26, figs. 8.II.3, 9.II.3; Branigan 1974: 183, pl. 20.2168; Hood 1978: fig. 185A; Vasilakis 1996: 99-100, fig. 10.11, pl. 24.

MO 4: Herringbone diadem, Pls. 10, 14A-C.
Material: Gold
Museum number: HM 271
Date: EM II – III
Context: Tomb 2 (of 1/2/3)
Excavator: Seager
Dimensions: L. 14.5 cm; W. max. 2.2 cm; Wgt. 3.73 g.
Description: Diadem manufactured from sheet gold. Although top and bottom cannot be determined with certainty, for purposes of discussion, bottom was cut straight and top was curved downward at the ends. Decorated with a dot repoussé border (very uneven at bottom) and horizontal line of dots down center, separating herringbone design. Design above line is even, comprised of seven sets of three (in one case, four) dot lines. Design below line, also seven sets of dots, is irregular, with some dots more in groups than in lines. Extra incised lines visible at bottom of object (see Pl. 14C). Two sets of three holes
(one hole broken) at each end for attachment around the head or to perishable material. Proximity of some dots to edge of object indicates that diadem may have been decorated before being cut from sheet metal. Dots punched from back, while incised lines on bottom are from the front.

**Preservation**: Almost complete. Some deterioration at one end near pierced hole.

**Comparanda**: Similar diadem MO 5 from same tomb (Seager 1912: 26 [object II.1a]), no illustration.

**Bibliography**: Seager 1912: 26, figs. 8.II.1, 9.II.1; Branigan 1974: 183, pl. 20.2148; Vasilakis 1996: 100, fig. 8.12, pl. 25α.

**MO 5**: Diadem.
- **Material**: Gold
- **Museum number**: HM 271a?
- **Date**: EM II – III
- **Context**: Tomb 2 (of 1/2/3)
- **Excavator**: Seager
- **Dimensions**: L. 14.5 cm; W. 2 cm (Branigan 1974: 183)
- **Description**: Seager (1912: 26) describes object as “similar strip of the same dimensions [to object II.1].” See MO 4, above.
- **Preservation**: ?
- **Comparanda**: Similar diadem MO 4 from same tomb.
- **Bibliography**: Seager 1912: 26 (object II.1,a); Branigan 1974: 183 (#2170).

**MO 6**: Curved diadem, Pl. 10.
- **Material**: Gold
- **Museum number**: HM 272
- **Date**: EM II – III
- **Context**: Tomb 2 (of 1/2/3)
- **Excavator**: Seager
- **Dimensions**: L. max. 27.1 cm*; W. max. 1.2 cm; W. min. .8 cm; Wgt. 3.41 g.
- **Description**: Diadem manufactured from sheet gold, now in three pieces (*L. of pieces are 6.5, 9.2, and 11.4 cm). Decorated with dot repoussé border on one long edge and irregular dots on other long edge and on two (?) segments of strip. Three clusters of pin holes evenly spaced on body of diadem. Object is wider on right side compared to left side. Diadem appears to have been cut freehand, because strip curves and has uneven dimensions. Single pierced hole in each end for attachment around the head or to a perishable material.
- **Preservation**: Complete (?), but in three pieces. Appears as one piece in Seager photograph, so may have been broken more recently.
- **Bibliography**: Seager 1912: 27-28, fig. 8.II.10; Branigan 1974: 183, pl. 20.2144; Vasilakis 1996: 103, fig. 12.22, pl. 29.

**MO 7**: Dot border diadem, Pls. 10, 14D.
- **Material**: Gold
- **Museum number**: HM 273
- **Date**: EM II – III
- **Context**: Tomb 2 (of 1/2/3)
- **Excavator**: Seager
- **Dimensions**: L. 17.4 cm; W. 1.4 cm; Wgt. 2.88 g.
- **Description**: Diadem manufactured from sheet gold. Double row of dot repoussé along one long edge and single row of dots along other long edge. Two very even pierced holes at each end for attachment around the head or to a perishable material. Three sets of three smaller holes at even intervals along edge with single row of dots, perhaps for pendants
or to attach to perishable material. Proximity of some dots to edge of object indicates that diadem may have been decorated before being cut from sheet metal.

Preservation: Complete, some deterioration near one set of small holes.
Comparanda: Sargonid diadem from Royal Cemetery of Ur (Zettler and Horne 1998: 91, #29); wider diadem with dot border from Platanos Tomb A (Xanthoudides 1924: pl. 57.481).

Bibliography: Seager 1912: 26, fig. 8.II.2; Branigan 1974: 183, pl. 20.2169; Vasilakis 1996: 100, fig. 8.13, pl. 26γ.

**MO 8:** Lozenge diadem, Pls. 10, 14E-F.
Material: Gold
Museum number: HM 274
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: P. L. 16.7* cm; W. max. 1.9 cm; Wgt. 2.1 g.
Description: Diadem manufactured from sheet gold, in two fragments (*12.3 and 4.4 cm) with one end missing. Small piece of narrow section on each fragment, adjacent to roughly circular cut-out, appears to be broken or cut away. Circular cut-out suggests that strip framed another object, perhaps a gold disk or irregularly-shaped object (to match the cut) made from a perishable material. Diadem is decorated with a dot repoussé border and lozenge pattern. Dot border was also created around edge of circular cut-out. Two pierced holes in preserved end for attachment around the head or to a perishable material. Additional pierced holes include one set of two holes and one set of three holes on small fragment, and cluster of four irregular holes and two single holes on large fragment.
Preservation: Incomplete. Two fragments, with one end of diadem missing.
Bibliography: Seager 1912: 27, figs. 8.II.7, 9.II.7; Branigan 1974: 183, pl. 20.2164; Vasilakis 1996: 100-101, fig. 8.14, pl. 21β.

**MO 9:** Plain diadem, Pls. 10, 15A.
Material: Gold
Museum number: HM 277
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. 20.7 cm; W. max. 2.9 cm; Wgt. 4.66 g.
Description: Plain diadem manufactured from sheet gold. Center portion has slight pedimental rise in center with circular cut-out directly under it. Two large perforations at each end for attachment around the head or to perishable material. Three sets of small holes along the top, perhaps for attachment to perishable material. Numerous clusters of irregular perforations. Many of the holes on the left side are quite ragged, as if used multiple times. These extra pierced holes may have held pins, pendants, or other diadem attachments. Gold appears reddish in color, but this may be accident of preservation.
Preservation: Complete, except deterioration on bottom, far right and far left; rip on right side of circular cut-out.
Bibliography: Seager 1912: 27, fig. 8.II.6; Branigan 1974: 183, pl. 20.2165; Vasilakis 1996: 101-102, fig. 9.17, pl. 27.

**MO 10:** Diadem, Pls. 11A, 15B.
Material: Gold
Museum number: HM 278
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. 11 cm; W. max. 1.4 cm.
Description: Small, plain diadem or strip manufactured from sheet gold. Two holes pierced at each end for attachment around the head or to a perishable material.
Preservation: Complete, except one attachment hole is ripped.
Comparanda: Archanes-Phourni Tomb Γ (Papadatos 2005: fig. 25, pl. 20, J41).
Bibliography: Seager 1912: 31, fig. 10.II.26; Branigan 1974: 183, pl. 20.2146; Vasilakis 1996: 102, fig. 12.18.

MO 11A-B: Incised diadems (2) or bangle, Pls. 11A, 15C.
Material: Gold  
Museum number: HM 279, 280  
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager  
Dimensions: L. 10 cm (each piece); W. 1 cm; est. Diam. 6 cm (if bangle).
Description: Two diadems or one two-part bangle manufactured from thick sheet gold. Decoration includes incised lozenge design. Each band maintains one perforation at each end. Seager (1912: 31) believed this to be a two-part armlet that had been riveted together. However, the total length of under 20 cm (after riveting) would likely have been too small to circle the upper arm, unless it was held to the arm with wire or string or worn by a child. These bands may be diadems or, attached together, they may have been worn around the wrist or ankle.
Preservation: Complete.
Bibliography: Seager 1912: 31, figs. 10.II.20-21, 11.II.20-21; Branigan 1974: 188, pl. 22.2573 (listed as bangle); Vasilakis 1996: 177, pl. 86 α, β.

MO 12: Diadem fragment, Pls. 10, 15D (top).
Material: Gold  
Museum number: HM 281  
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager
Dimensions: P. L. 8.0 cm; W. 1 cm.
Description: Fragment of diadem manufactured from sheet gold. Decorated with border of dot repoussé. Two holes at preserved end, for attachment around the head or to perishable material. One set of three small holes also preserved along top (?) edge.
Preservation: Incomplete, broken on one end.
Bibliography: Seager 1912: 31, fig. 8.II.18i; Branigan 1974: 183, pl. 20.2145; Vasilakis 1996: 102, fig. 12.19.

Material: Gold  
Museum number: HM 282  
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager
Dimensions: P. L. 7.2 cm; W. max. 1 cm.
Description: Small diadem or frontlet manufactured from sheet gold. Decorated with border of dot repoussé. Three holes in preserved end, for attachment around the head or to a perishable material. Three sets of two holes along one long edge, in area where dot border appears to stop. Seager (1912: 32) describes this object as a “miniature copy of the large diadems with similar holes along the upper edge and in the ends...probably intended solely for burial purposes...” This may also have served as a frontlet or a diadem for a child.
Preservation: Almost complete, broken on one end.  
Comparanda: Sargonid frontlets from the Royal Cemetery of Ur (Woolley 1934: pl. 147, right).  

Bibliography: Seager 1912: 27, figs. 8.II.8, 9.II.8; Branigan 1974: 183, pl. 20.2174; Vasilakis 1996: 103, fig. 12.21, pl. 83α.

**MO 14:** Diadem, Pl. 11A.  
Material: Gold  
Museum number: HM 283  
Date: EM II – III  
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager  
Dimensions: L. 9 cm; W. .8 cm.  
Description: Plain diadem or frontlet manufactured from sheet gold. Single hole at each end for attachment around the head or to a perishable material.  
Preservation: Complete.  
Comparanda: Sargonid frontlets from the Royal Cemetery of Ur (Woolley 1934: pl. 147, right); Archanes-Phourni Tomb Γ (Papadatos 2005: pl. 20, J41).  

Bibliography: Seager 1912: 31, fig. 10.II.27; Branigan 1974: 183 (#2147); Vasilakis 1996: 104, pl. 31δ.

**MO 15:** Arrow diadem, Pls. 10, 15E-F.  
Material: Gold  
Museum number: HM 284  
Date: EM II – III  
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager  
Dimensions: P. L. 14.5 cm; W. max. 1 cm; Wgt. 1.44 g.  
Description: Center portion of diadem manufactured from sheet gold. Carefully cut center is fragile, with the thickness of wire. “Wire” in center is slightly twisted, perhaps due to burial and movement. Clean breaks on both ends suggest object may have been deliberately cut before burial. Single hole and dot repoussé arrow-like motif on each side of wire center. Long edges of band are rough, as if cut with dull blade.  
Preservation: Incomplete. Broken on both ends.  

Bibliography: Seager 1912: 27, figs. 8.II.8, 9.II.8; Branigan 1974: 183, pl. 20.2174; Vasilakis 1996: 103, fig. 12.21, pl. 28.

**MO 16A-B:** Crocus pins or diadem attachments (2), Pls. 11A, 16A-C.  
Material: Gold  
Museum number: HM 265, 266  
Date: EM II – III  
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager  
Dimensions: L. 5.5 cm.  
Description: Matching pair of crocus pins or diadem attachments, cut from sheet of gold that was then rolled to replicate the natural petals of a flower (see Pl. 16C). Small three-part stamen was either part of cut-out or added as separate element.  
Preservation: Almost complete. Stamen missing from one flower.  
Comparanda: Daisy pins from Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: pls. 19a, 22d); Mochlos Tomb 19 (Seager 1912: fig. 41.XIX.11); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).  

Bibliography: Seager 1912: 32, fig. 10.II.29a-b, 11.II.29a-b); Branigan 1974: 183, pl. 19.2265-5A (listed as diadem attachments); Hood 1978: fig. 185.B1; Vasilakis 1996: 171, fig. 20.12, pl. 83 α, β (listed as pins).
MO 17A-C: Diadem attachments or hair ornaments (3), Pls. 11A.

Material: Gold  
Museum number: HM 324  
Date: EM II – III

Context: Tomb 2 (of 1/2/3)  
Excavator: Seager

Dimensions: Est. L. 6.3 cm; W. 1.2-1.8 cm.

Description: Three leaves manufactured from sheet gold. Dot repoussé border around edge of each leaf. Seager (1912: 31) states: “In all twenty such leaves were found some with a dotted border and some plain.”

Preservation: Complete.

Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57.488); Mochlos Tomb 4/5/6 (Davaras 1975: 105, pls. 18b, 21c).

Bibliography: Seager 1912: 31, fig. 10.II.23 a-c; Branigan 1974: 184, pl. 19.2253-5; Vasilakis 1996: 113-114, pl. 42α, η, κ.

MO 18A-B: Diadem attachments or hair ornaments (2), Pl. 11B.

Material: Gold  
Museum number: HM  
Date: EM II – III*

Context: Tomb 3 (of 1/2/3)  
Excavator: Seager

Dimensions: L. 5 cm; W. max. 2 cm.

Description: Two sprays of two leaves each, manufactured from sheet gold. Decorated with dot repoussé border. *Tomb 3 was also used during the MM period. However, Seager (1912: 37) indicates that these sprays were recovered from the “deepest southeast corner.”

Preservation: One spray complete. Bottom of two leaves broken on second spray.

Comparanda: Mochlos Tomb 4/5/6 (Davaras 1975: pl. 20a); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pl. 129).


MO 19A-C: Diadem attachments or hair ornaments (3), Pls. 11A, 16D-F.

Material: Gold  
Museum number: HM 319  
Date: EM II – III

Context: Tomb 2 (of 1/2/3)  
Excavator: Seager

Dimensions: L. max. 7 cm; L. max. (leaf only) 4.7 cm; L. (stem only) 2.3 cm;

Description: Three sprays of four olive (?) leaves, manufactured from sheet gold. Each leaf with stem was cut as one piece. Single row of dot repoussé around edge of leaves. Stems were twisted together, with leaves then opened up to create spray.

Preservation: Apparently complete, although displayed in Herakleion Museum as one spray each of three, four, and five leaves. Seager (1912: fig. 10) illustrates as two sprays of four leaves and one spray of three leaves, with one leaf missing at that time.

Comparanda: Mochlos Tomb 4/5/6 (Davaras 1975: pl. 20a); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pl. 129).

Bibliography: Seager 1912: 31, figs. 10.II.24a-c, 11.II.24a-c; Branigan 1974: 184, pl. 19.2262-4; Hood 1978: fig. 185C; Vasilakis 1996: 118, 99, pl. 46 (illustrated properly, with three sprays of four leaves each).
MO 20: Bell pendant on chain, Pls. 11A, 16G-I
Material: Gold  Museum number: HM 340  Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. (pendant and chain) 6.9 cm; L. (pendant to jump ring) 1.8 cm; W. max. (pendant) 1 cm; Wgt. 1.46 g.
Description: Bell-shaped pendant manufactured from sheet gold, suspended on simple round-section wire chain. Third element included small, flat clapper on stem, which was slipped through bell, then twisted to form ring for attachment to chain. Before being shaped into a bell, the pendant was incised at its base with three lines. Many joins (in gold) are visible on links of the chain. May have been used as attachment to diadem.
Preservation: Complete, although somewhat crushed.

MO 21: Leaf pendants on chain, Pls. 11A, 17A-C.
Material: Gold  Museum number: HM 337  Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. 7.1 cm (measured as is; chain is slightly twisted, which would reduce measured length); Wgt. 2.12 g.
Description: Seven plain leaf pendants manufactured from sheet gold, suspended at irregular intervals on loop-in-loop chain. Each leaf is made with a stem, which is inserted into a link and twisted two times around the leaf (see Pl. 17C). Circular jump ring at top of chain, to facilitate attachment to another object, perhaps a diadem. Chain is made of circular-section wire links, with visible joins.
Preservation: Complete.

MO 22: Cone pendant on chain, Pls. 11A, 17D-F.
Material: Gold  Museum number: HM 338  Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. 11.2 cm (measured as is: one or two links are broken, which makes length slightly longer); L. 2.4 cm (pendant to jump ring); W. max. .6 cm (pendant); L. 1.3 cm (leaf-shaped element); W. .4 cm (leaf-shaped element); Diam. of jump ring 1 cm; Wgt. 1.42 g.
Description: Plain, fluted pendant and leaf-shaped divider manufactured from sheet gold, suspended on loop-in-loop chain. Divider is placed near center of chain, which has a jump ring at the top. Elements are attached by inserting wire ends (of both pendant and divider) through link of chain and twisting wire around three to four times (see Pl. 17F). Compared to MO 21 (HM 337), the wire used to make the links in the chain is thinner, and the links are smaller. Visible joins on links.
Preservation: Complete, few broken links.
Comparanda: Leaf-shaped divider from Mochlos Tomb 19 (Seager 1912: 73, fig. 43.XIX.20); fluted pendant from Platanos Tomb A (Xanthoudides 1924: 111, pls. 15.484, 57.484).
MO 23A-B: Triangle pendants (2), Pls. 10, 17G.
Material: Gold     Museum number: HM 330, 331     Date: EM II – III
Context: Tomb 2 (of 1/2/3)     Excavator: Seager
Dimensions: MO 23A (HM 330) – H. 4.6 cm; Base 2.9 cm; Wgt. .92 g.
Description: Pair of plain triangles, perhaps diadem attachments or earrings, manufactured from sheet metal. Dimensions are slightly different on second (MO 23B: HM 331) pendant. One perforation for suspension at top of each pendant. Based on placement of perforation, it appears that pendants were not attached directly to chains, as links would have been too large. May have been suspended with wire, string, or a jump ring.
Preservation: Complete.
Comparanda: Triangular pendants from possibly later contexts at Hagia Triada (Banti 1930-31: fig. 63) and Trapeza Cave (Pendlebury, Pendlebury, and Money-Coutts 1939: pl. 15.I.1).
Bibliography: Seager 1912: 30, figs. 8.II.15, 9.II.15 a-b); Branigan 1974: 185, pl. 19.2322-3; Vasilakis 1996: 156, fig. 18, pl. 64α, β.

MO 24A-H: Leaf pendants (8), Pls. 11A, 17H-I.
Material: Gold     Museum number: HM 345     Date: EM II – III
Context: Tomb 2 (of 1/2/3)     Excavator: Seager
Dimensions: L. 2-3 cm; W. .4-.5 cm.
Description: Eight small, plain, leaf-shaped pendants manufactured from sheet gold. All are unique, although several are similar in shape. Recovered with jump rings in place. Seager (1912: 31) suggested that it was “possible that these belonged to the diadems and were fastened in the holes noticed in their upper edges.” If that is the case, the associated diadems have not been found, as no ripped holes were noted on extant diadems. Davaras (1975: 109-110) noted that it was unlikely that pendants would have been suspended over the nose or eyes. These pendants may have hung from a textile headband, which has not survived. It is also possible that they were earrings, attached to the ears by an organic substance such as string.
Preservation: Complete.
Comparanda: Mochlos Tomb 21 (Seager 1912: fig. 20.XXI.13a-f).
Bibliography: Seager 1912: 31, figs. 10.II.19a-h, 11.II.19 a-h; Branigan 1974: 186, pl. 21.2360-7.

MO 25: Boss or tack, Pl. 11B.
Material: Gold     Museum number: HM ?     Date: EM II – III
Context: Tomb 3 (of 1/2/3)     Excavator: Seager
Dimensions: Diam. 1.6 cm.
Description: Small boss or tack manufactured from sheet gold, perhaps shaped over a form. Branigan (1974: pl. 21.2512) illustrates this object with a tack-like pointed stem.
Preservation: Complete?
Bibliography: Seager 1912: 39, fig. 36.III.g; Branigan 1974: 187, pl. 21.2512 (listed as a boss).

MO 26: Boss, Pls.10, 18A, 18C.
Material: Gold  Museum number: HM 351  Date: EM II – III?
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: H. max. .7 cm; Diam. 1.7 cm.
Description: Circular, cone-shaped boss manufactured from thin sheet gold, perhaps pressed over a form or into a mold. Three seams observed, where flat sheet was folded over to create boss (see Pl. 18A). Decorated with double row of dot repoussé around edge, with some dots creating holes in metal. Appears to have been roughly cut out after forming. May be associated with one of the gold rims found in the same tomb (MO 31A-B, below). No attachment holes.
Preservation: Complete. Some deterioration at edges, top of boss slightly dented.

MO 27: Boss, Pls. 11A, 18D.
Material: Gold  Museum number: HM 350  Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: Diam. 2 cm.
Description: Circular boss manufactured from thin sheet gold, perhaps pressed over a form or into a mold. Decoration included double row of dot repoussé around edge and repousse leaf pattern in center. May be associated with one of the gold rims found in the same tomb (MO 31A-B, below). No attachment holes.
Preservation: Complete, slightly crushed.

MO 28: Disk, Pl. 11A.
Material: Gold  Museum number: HM ?  Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: Diam. 5 cm.
Description: Circular disk manufactured from sheet gold. Double row of dot repoussé and at least three perforations for attachment around edge.
Preservation: Complete, but crushed.
Comparanda: Mochlos Tomb 6 (Seager 1912: 55-56, object VI.36).

MO 29A-D: Fragments of four armlets or belts (8 pieces), Pls. 10, 18E-G.
Material: Gold  Museum number: HM 287 – 294 Date: EM II – III
Context: Tomb 2 (of 1/2/3)  Excavator: Seager
Dimensions: L. 7-10 cm; W. 1.6-2.2 cm.
Description: Eight fragments of rectangular, embossed sheet gold, comprising parts of four different armlets or belts (A = one fragment, HM 287; B = three fragments, HM
288-290; C = two fragments, HM 291-292; D = two fragments, HM 293-294). Cut from thick sheet gold, then most likely hammered over forms with different designs. Decoration included herringbone motif, roped design (half of herringbone?), and corrugated design. Seager (1912: 30-31) indicated that rivet holes were present on the ends of each strip. Seager also stated that the edges were turned in as if attached to a perishable material. If these strips were riveted or sewn to fabric or leather armlets or belts, they would have more easily circled the arm or waist without breaking. A single, long strip of metal would have likely bent or broken with repeated use.

**Preservation:** Incomplete, some ends cut and pieces missing.

**Comparanda:** For armlet, Mochlos Tomb 16 (Seager 1912: 68, fig. 38.XVI.13); for belt, Santa Eufemia belt, c. 330 – 330 BC (Williams and Ogden 1994: 209, #141).

**Bibliography:** Seager 1912: 30-31, fig. 8.II.18 a-h; Branigan 1974: 188, pls. 22.2590-3, 30.2591; Vasilakis 1996: 178-179, pls. 87-89.

**MO 30:** Ornament (classified as miscellaneous), Pls. 10, 18H.

**Material:** Gold  
**Museum number:** HM 334  
**Date:** EM II – III  
**Context:** Tomb 2 (of 1/2/3)  
**Excavator:** Seager  
**Dimensions:** L. 18 cm.  
**Description:** Thin bar of twisted gold, with single hole pierced at each end. Appears too rigid to be diadem. May have decorated clothing or container.  
**Preservation:** Complete.  
**Bibliography:** Seager 1912: 27, figs. 8.II.9, 9.II.9; Branigan 1974: 183 (#2173A, listed as diadem).

**MO 31A-B:** Hoops or rims (2) (classified as miscellaneous), Pls. 10, 18B-C.

**Material:** Gold  
**Museum number:** HM 356, 357  
**Date:** EM II – III  
**Context:** Tomb 2 (of 1/2/3)  
**Excavator:** Seager  
**Dimensions:** Diam. 1.9 cm (A) and 2.5 cm (B).  
**Description:** Two hoops of sheet gold, with the edges turned in. Seager (1912: 30) indicates that “they may be the rims of tiny porcelain vases which have perished…” He also suggests that two gold bosses (MO 26, MO 27) may have been covers for these vases.  
**Preservation:** Complete, although missing associated objects.  
**Comparanda:** Platanos Tholos A (Xanthoudides 1924: 111, pl. 57); Mochlos Tomb 3 (Seager 1912: fig. 36.III.j).  
**Bibliography:** Seager 1912:30, figs. 8.II.13a-b, 9.II.13a-b); Vasilakis 1996: 91, pl. 10 γ, ε.

**MO 32:** Ornament (classified as miscellaneous), Pls. 10, 19A-B.

**Material:** Gold  
**Museum number:** HM ?  
**Date:** EM II – III  
**Context:** Tomb 2 (of 1/2/3)  
**Excavator:** Seager  
**Dimensions:** L. max. 4.2 cm; W. max. 1.8 cm.  
**Description:** Ornament manufactured from sheet gold. Created by hammering over a form or in the repoussé technique, resulting in a curved, corrugated effect. One hole
pierced at each end for attachment. Seager (1912: 30) suggests that this was “probably an ornament from a dagger sheath of cloth or leather.”

Preservation: Complete.


**MO 33**: Strip cross (classified as miscellaneous), Pls. 11A, 19C-D.

**Material**: Gold
**Museum number**: HM 313
**Date**: EM II – III

**Context**: Tomb 2 (of 1/2/3)

**Excavator**: Seager

**Dimensions**: L. 4.9 cm (bottom strip); L. 5.6 cm (top strip); W. .8 cm; Wgt. .87 g.

**Description**: Two-part ornament in shape of cross or X, manufactured from sheet gold. Decorated with dot repoussé border, except in area where strips overlap. Four perforations allow for attachment to another object. Gold is brown in hue.

Preservation: Complete, with some slight worn areas on short edges of strips.


**MO 34**: Flower ornament (classified as miscellaneous), Pls. 10, 19E.

**Material**: Gold
**Museum number**: HM 332
**Date**: EM II – III

**Context**: Tomb 2 (of 1/2/3)

**Excavator**: Seager

**Dimensions**: L. 4 cm.

**Description**: Four-petal ornament manufactured from sheet gold. Decorated in dot repoussé on petals, near center. One perforation at edge of one petal. Center of piece appears scored, as if petals were slightly raised.

Preservation: Incomplete, one petal broken off.

Bibliography: Seager 1912: 30, figs. 8.II.11, 9.II.11 (restoration in fig. 8 is not correct); Branigan 1974: 184, pl. 19.2273; Vasilakis 1996: 141, fig. 17.27.

**MO 35**: Hoop or rim (classified as miscellaneous), Pl. 11B

**Material**: Gold
**Museum number**: HM 355
**Date**: EM II – III?

**Context**: Tomb 3 (of 1/2/3)

**Excavator**: Seager

**Dimensions**: W. .7 cm; Diam. 1.6 cm.

**Description**: Hoop or rim manufactured from sheet gold. Horizontal grooves suggest that it was hammered over a form or created using the repoussé technique. Seager (1912: 39) states that the edges were folded back, suggesting that the object covered a perishable core.

Preservation: Complete, although missing associated object.

Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57.479); Mochlos Tomb 2 (Seager 1912: fig. 8.II.13).

Bibliography: Seager 1912: 39, fig. 36.III.j; Branigan 1974: 183, pl. 30.2167; Vasilakis 1996: 99, fig. 10.10, pls. 23, 23’.

**MO 36**: Scraps of foil (classified as miscellaneous).

**Material**: Gold
**Museum number**: HM ?
**Date**: EM II – III

**Context**: Tomb 1 (of 1/2/3)

**Excavator**: Seager

**Dimensions**: unknown.
Description: Described as fragment of gold leaf.
Preservation: Incomplete.
Comparanda: Krasi (Marinatos 1929: 121); Mochlos Tombs 2, 5, 6, and 21 (Seager 1912: 32, 44, 56, 78).
Bibliography: Seager 1912: 22 (no illustration).

**MO 37**: Scraps of foil (classified as miscellaneous).
Material: Gold  
Museum number: HM ?  
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager
Dimensions: unknown.
Description: Seager (1912: 32) indicates that scraps of gold foil and pieces of many gold ornaments were recovered.
Preservation: Incomplete.
Comparanda: Krasi (Marinatos 1929: 121); Mochlos Tombs 1, 5, 6, and 21 (Seager 1912: 22, 44, 56, 78).
Bibliography: Seager 1912: 32 (no illustration).

**MO 38**: Drum bead, Pls. 11B, 19F-G.
Material: Gold  
Museum number: HM 367  
Date: EM II – III
Context: Tomb 1 (of 1/2/3)  
Excavator: Seager
Dimensions: H. max. .5 cm; Diam. 1.4 cm; Wgt. 1.89 g.
Description: Drum bead manufactured from three pieces of sheet gold: two disks, chased and decorated in repoussé, and a plain strip connecting the two disks. The edges of each disk are hammered over the strip, creating a lip. The strip contains two roughly cut rectangular perforations (.5 and .55 cm), which would have allowed a chain, string, or hoop to pass through the bead. Decorated on both sides with a four-petal rosette surrounding a double-circle center. Very even 1.2 cm diameter circle chased around circumference of both sides. The bead is of hollow construction and may have covered a core of wood, clay, wax, or resin.
Preservation: Complete; design around edge is worn on both sides.
Comparanda: Mochlos Tomb 19 (Seager 1912: 72, fig. 41.XIX.14).
Bibliography: Seager 1912: 22, fig. 36.I.m); Branigan 1974: 192 (#3048); Vasilakis 1996: 190, pl. 93α.

**MO 39**: Bead, Pl. 11B.
Material: Gold or electrum  
Museum number: HM ?  
Date: EM II – III
Context: Tomb 1 (of 1/2/3)  
Excavator: Seager
Dimensions: Diam. 1 cm.
Description: Lentoid bead.
Preservation: Complete.
Bibliography: Seager 1912: 22, fig. 36.I.o.

**MO 40A-F**: Beads (6), Pl. 11A.
Material: Gold  
Museum number: HM ?  
Date: EM II – III
Context: Tomb 2 (of 1/2/3)  
Excavator: Seager
Dimensions: unknown.
Description: Six beads manufactured from sheet gold. Two beads, which are slightly larger, are of very thin metal and appeared to have covered a perishable material. Preservation: Complete, except for perishable cores from two beads. Bibliography: Seager 1912: 31, fig. 10.II.22.

**MO 41A-B**: Beads (2), Pl. 11A.
Material: Gold over bronze   Museum number: HM ?  
Date: EM II – III
Context: Tomb 2 (of 1/2/3) Excavator: Seager
Dimensions: unknown.
Description: Two bronze beads covered with gold leaf.
Preservation: ?
Bibliography: Seager 1912: 32, fig. 10.II.37.

**MO 42A-P**: Antenna-like diadem attachments (16), Pls. 10, 11A, 19H-I.
Material: Gold   Museum number: HM 285, 295-300, 303, 305-310
Date: EM II – III (#310 includes two antennae), 312.
Context: Tomb 2 (of 1/2/3) Excavator: Seager
Dimensions: L. 6-15 cm, with most at 9-11 cm; W. .5-1 cm; Wgt. .45-1.36 g.
Description: Antenna-like diadem attachments manufactured from sheet gold. Some plain and others decorated with dot repousé borders or center line. Perforations at one or both ends. Generally, one end cut straight (sometimes folded over, with perforation through layers of sheet gold) and the other end rounded or pointed. Six matching antennae (Six antennae – HM 310 [3 pieces, comprising two antennae], 285, and 296-298 – may be associated with Dog diadem, MO 2 this catalogue. See chapter 8.)
Preservation: Some complete, some broken at bottom near area of attachment.
Comparanda: Mochlos 4/5/6 (Davaras 1975: 103-104, fig. 3, pl. 18a).
Bibliography: Seager 1912: 30, figs. 8, 9, 10, 11 (objects II.11 [b, stem only], II.16 a-f, II.17 a-b, II.31 a-b, II.34); Branigan 1974: 183-184, pls. 20.2185-5A, 20.2200-8; Vasilakis 1996: 109-110, figs. 14, 16.18, pls. 37-39.

**MO 43A-B**: Leaf pendants on chains (2), Pls. 20B, 21A.
Material: Gold   Museum number: HM 335, 336
Date: EM II – III
Context: Tomb 6 (of 4/5/6) Excavator: Seager
Dimensions: L. 11.5 cm (A) and 10.5 cm (B).
Description: Two plain leaf pendants manufactured from sheet gold, each attached to a loop-in-loop chain with a jump ring at the top. May have hung from a diadem or another object.
Preservation: Complete
Comparanda: Mochlos Tomb 4 (Seager 1912: 49, fig. 20.IV.14).
Bibliography: Seager 1912: 55, fig. 25.VI.31a-b; Branigan 1974: 186, pl. 21.2400-2401; Vasilakis 1996: 156, fig. 19.28, pl. 72α-β.

**MO 44**: Leaf pendant on chain, Pls. 20A, 21A.
Material: Gold   Museum number: HM 339
Date: EM II – III
Context: Tomb 4 (of 4/5/6)  
Excavator: Seager

Dimensions: L. 5 cm.

Description: Leaf pendant manufactured from sheet gold, attached to a loop-in-loop chain. Decorated with a border of dot repoussé. Top link of chain is broken, and there is no jump ring for attachment. May have hung from a diadem or another object.

Preservation: Incomplete, chain broken.

Comparanda: Mochlos Tomb 6 (Seager 1912: 55, fig. 25.VI.31a-b).


MO 45: Pendant, Pl. 20B.

Material: Gold  
Museum number: HM 343?  
Date: EM II – III

Context: Tomb 6 (of 4/5/6)  
Excavator: Seager

Dimensions: L. 1.3 cm.

Description: Seager (1912: 54) describes this object as similar to the pendant from Tomb 2 (object 36), which is MO 20, Bell pendant (Pl. 16G-I). Photograph in original publication may have been taken of underside of pendant.

Preservation: Incomplete, pendant crushed, chain missing.

Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.36).

Bibliography: Seager 1912: 54, fig. 25.VI.24; Vasilakis 1996: 158, pl. 74δ (?) .

MO 46: Strip.

Material: Gold  
Museum number: HM ?  
Date: EM II – III

Context: Tomb 5 (of 4/5/6)  
Excavator: Seager

Dimensions: L. 23.8 cm.

Description: Strip manufactured of thin sheet gold, recovered crushed inside a small stone pot.

Preservation: Crushed, unclear if strip was whole or fragmentary.

Bibliography: Seager 1912: 43, (object V.1, no illustration); Branigan 1974: 183 (#2149).

MO 47: Boss, Pls. 20A, 21B.

Material: Gold  
Museum number: HM 364  
Date: EM II – III

Context: Tomb 4 (of 4/5/6)  
Excavator: Seager

Dimensions: Diam. 1.2 cm.

Description: Small boss of gold with flattened edge, perhaps created over a form or in a mold. Two perforations on each of opposite sides.

Preservation: Complete.

Comparanda: Archanes-Phourni Tomb Γ (Papadatos 2005: fig. 25, J49-54); Platanos Tomb A (Xanthoudides 1924: pl. 57.494); Lebena Tomb 2 (Alexiou and Warren 2004: pl. 114, center).


MO 48A-O: Beads (15), Pls. 20B, 21C.

Material: Gold  
Museum number: HM 383  
Date: EM II – III
Context: Tomb 6 (of 4/5/6)  
Excavator: Seager  
Dimensions: Est. L. .8 – 1 cm (large beads); L. .4 cm (small beads); Diam. .2 cm (small beads).

Description: Three large beads and 12 small beads manufactured from sheet metal. Large beads were created over a form or core or by repoussé and appeared to have had a perishable interior. One large bead has a melon-shaped center section that is decorated with grooves. Small, undecorated beads are tubular, from rolled sheet gold. Small beads are identical to beads from Tomb 4 and 4/5/6 dump (see MO 49 and MO 59). Gold beads from Tomb 6 were found with rock crystal beads (see Pl. 21C).

Preservation: Complete.

Comparanda: Platanos Tomb A (Xanthoudides 1924: pls. 15, 57, objects 456-474).

Bibliography: Seager 1912: 55, fig. 25.VI.27; Branigan 1974: 192 (#3020); Vasilakis 1996: 191, pl. 96β.

**MO 49A-E**: Beads (5), Pl. 20A.

Material: Gold  
Museum number: HM 383?  
Date: EM II – III

Context: Tomb 4 (of 4/5/6)  
Excavator: Seager  
Dimensions: L. .4 cm; Diam. .2 cm.

Description: Five small, tubular beads, manufactured from rolled sheet gold. Identical to beads from Tomb 6 and 4/5/6 dump (see MO 48 and MO 59).

Preservation: Complete.

Bibliography: Seager 1912: 48, fig. 20.IV.11; Branigan 1974: 192, pl. 23.3018.

**MO 50**: Animal mask (classified as miscellaneous), Pls. 20B, 21D.

Material: Gold  
Museum number: HM 348  
Date: EM II – III

Context: Tomb 6 (of 4/5/6)  
Excavator: Seager  
Dimensions: W. max. 3 cm; Wgt. .4 g.

Description: Small mask of an animal, probably a feline, manufactured from gold leaf. Features include two cut-out eyes, nose, and ears. Seager (1912: 55) suggests that the mask may have originally covered “a lion’s head of wood or porcelain.”

Preservation: Incomplete, deterioration on edges.

Comparanda: Human mask from Mochlos Tomb 21 (Seager 1912: fig. 20.XXI.18).

Bibliography: Seager 1912: 55, fig. 25.VI.28; Branigan 1974: 194 (#3147); Vasilakis 1996: 198, pl. 99β.

**MO 51**: Disk.

Material: Gold  
Museum number: HM 317  
Date: EM II – III*

Context: Tomb 6 (of 4/5/6)  
Excavator: Seager  
Dimensions: Diam. 15 cm; Wgt. 6.5 g.

Description: Large disk manufactured from thin sheet gold. Decorated with dot repoussé border. *Seager (1912: 55-56) indicates that the disk was found between the MM III wall of Tomb 6 and the cliff, along with fragments of fine stone vases; it was probably thrown out with soil when the tomb was cleared during the MM III period. Seager proposes that the date of the object should be EM II, based on the style of the disk and the use of dot repoussé.
Preservation: Incomplete with parts missing, deterioration along edges, crumbled.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.25).
Bibliography: Seager 1912: 55-56, (object VI.36, no illustration); Branigan 1974: 186 (#2461); Vasilakis 1996: 197, pl. 98α.

MO 52: Ornament (classified as miscellaneous), Pl. 20B.
Material: Gold  Museum number: HM 352  Date: EM II – III
Context: Tomb 6 (of 4/5/6)  Excavator: Seager
Dimensions: L. max. 6 cm; W. max. 2 cm; Wgt. .3 g.
Description: Piece of thin sheet gold or gold foil, cut in the shape of a triangle.
Preservation: Complete?
Bibliography: Seager 1912: 55, fig. 25.VI.32; Vasilakis 1996: 199, pl. 98β.

MO 53: Top of a staff or scepter (classified as miscellaneous), Pls. 21E-H, 27A.
Material: Gold  Museum number: HM 327  Date: EM II – III
Context: Tomb 5 (of 4/5/6)  Excavator: Seager
Dimensions: L. max. 5 cm (single leaf with stem); Diam. of cap 2 cm.
Description: Hollow cap manufactured from sheet gold, with four* suspended leaves that each have embossed edges and an embossed center vein. Vasilakis (1996: 169-170) indicates that a silver square-section wire pin extends down from the cap which covers a core of hard material (κάλυπτε πυρήνα από σκληρό υλικό). *A total of six matching leaves have been recovered, which all may have originally hung from the cap. It is also possible that the two extra leaves had a different purpose or that there was more than one staff. One leaf was found in Tomb 21 (see MO 97, below). The findspot of the sixth leaf is unknown. Leaves were attached to the cap with cold joins, including the folding over of metal tabs (see Pl. 21F). If the staff had been twisted front to back, the leaves would have swung around.
Preservation: Incomplete, with broken leaves.
Bibliography: Seager 1912: 43, fig. 41.V.k; Branigan 1974: 184, pl. 32.2261 (listed as diadem attachment); Vasilakis 1996: 169-170, pl. 78.

MO 54: Scraps of foil (classified as miscellaneous).
Material: Gold  Museum number: HM ?  Date: EM II – III
Context: Tomb 5 (of 4/5/6)  Excavator: Seager
Dimensions: unknown.
Description: Seager (1912: 44) indicated that “many scraps and fragments of gold foil were found.”
Preservation: Incomplete.
Comparanda: Krasi (Marinatos 1929: 121); Mochlos Tombs 1, 2, 6, and 21 (Seager 1912: 22, 32, 56, 78).
Bibliography: Seager 1912: 44 (no illustration).

MO 55: Scraps of foil (classified as miscellaneous).
Material: Gold  Museum number: HM ?  Date: EM II – III
Context: Tomb 6 (of 4/5/6)  Excavator: Seager
Dimensions: unknown.
Description: Seager (1912: 56) indicated that “shapeless fragments or scraps of gold foil” were recovered.
Preservation: Incomplete.
Comparanda: Krasi (Marinatos 1929: 121); Mochlos Tombs 1, 2, 5, and 21 (Seager 1912: 22, 32, 44, 78).
Bibliography: Seager 1912: 56 (no illustration).

**MO 56A-B**: Pendants or earrings (2), Pl. 20B.
Material: Silver
Museum number: HM 381a-b
Date: EM II – III
Context: Tomb 6 (of 4/5/6)
Excavator: Seager
Dimensions: L. 1.3 cm; Wgt. .9 g (each).
Description: Two small, silver ball pendants that may have been used as earrings. Manufacturing method unknown, perhaps cast.
Preservation: Complete?
Bibliography: Seager 1912: 54, fig. 25.VI.25a-b; Branigan 1974: 185 (#2309-10); Vasilakis 1996: 136.

**Note**: A silver cup (H. 3.2 cm; Diam. 5.6 cm) with rows of beading was also recovered by Richard Seager (1912: 52, fig. 22.VI.8) from Tomb 6 (of 4/5/6).

**MO 57**: Daisy pin or hair ornament, Pls. 22A, 23A-B.
Material: Gold
Museum number: HNM 3109
Date: EM II – III?
Context: Tomb 4/5/6 dump (earth spoil)
Excavator: Davaras
Dimensions: Est. L. 7 cm (stem only, straight); Diam. 2.2 cm (flower).
Description: Daisy pin or hair ornament in two parts, manufactured from sheet gold and wire. Flower head has eight roughly-cut petals of variable size and shape (see Pl. 23B). Petals are bent slightly to resemble the natural curve of flower petals. Second part of object includes a boss-like center and long wire stem; the stem is bent back almost in half, perhaps to secure attachment to clothing, a diadem, or hair. End point of wire stem is rounded and not sharp.
Preservation: Complete, slight deterioration in two places on one petal. Visible cut mark on this petal, as if artisan’s knife slipped while cutting out object (see Pl. 22B).
Comparanda: Mochlos Tomb 19 (Seager 1912: fig. 41.XIX.11a-d); crocus pins from Mochlos Tomb 2 (Seager 1912: fig. 10.II.29); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).
Bibliography: Davaras 1975: 106, pls. 19a, 22d, right (object 21); Vasilakis 1996: 171.

**MO 58**: Finger ring (?), Pls. 22A, 23C.
Material: Gold
Museum number: HNM 4367
Date: EM II – III?
Context: Tomb 4/5/6 dump (earth spoil)
Excavator: Davaras
Dimensions: Diam. 1.6 cm.
Description: Plain ring, perhaps finger ring, of gold wire.
Preservation: Complete.
Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57.485).
Bibliography: Davaras 1975: 106, pl. 21a, lower right (object 25); Vasilakis 1996: 92.

MO 59A-B: Beads (2), Pls. 22A, 23C.
Material: Gold  
Museum number: HNM 4366a-b  
Date: EM II – III?
Context: Tomb 4/5/6 dump (earth spoil)  
Excavator: Davaras
Dimensions: L. .4 cm; Diam. .2 cm.
Description: Two small, tubular beads, manufactured from rolled sheet gold. Identical to beads from Tombs 4 and 6 (see MO 48 and MO 49).
Preservation: Complete.
Bibliography: Davaras 1975: 106, pl. 21a, lower left (object 24); Vasilakis 1996: 192.

MO 60: Coil bead, Pls. 22A, 23D-E.
Material: Gold  
Museum number: HNM 3107  
Date: EM II – III?
Context: Tomb 4/5/6 dump (earth spoil)  
Excavator: Davaras
Dimensions: L. .5 cm; Diam. .5 cm.
Description: Cylindrical bead manufactured from three coils of gold wire. Attached to sheet gold base utilizing filigree technique.
Preservation: Complete.
Comparanda: Similar technique of coiled wire used on bead with flanges from Tell Umm el-Marra (Aruz 2003: 181-182); bronze pin heads from Syros (Tsountas 1899: figs. 10.18, 10.21).

MO 61: Lily bead, Pls. 22A, 23F.
Material: Gold  
Museum number: HNM 3108  
Date: EM II – III?
Context: Tomb 4/5/6 dump (earth spoil)  
Excavator: Davaras
Dimensions: L. max. 1.1 cm; W. max. 1.1 cm.
Description: Davaras (1975: 106) describes this bead as “lily-shaped...perforated along its horizontal portion and decorated with striations.” Bead, perhaps from a necklace, may have been manufactured from sheet gold, created over a form or by the repoussé technique.
Preservation: Complete.

Note: Objects MO 62 to MO 79 were recovered packed inside a crushed silver cup. Costis Davaras (1975: 102) indicates that the cup was one-handled with a diameter of c. 7.5 cm (see Pl. 22B).

MO 62: Agrimi diadem, Pls. 22A, 24A-D.
Material: Gold  
Museum number: HNM 4313  
Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  
Excavator: Davaras
Dimensions: L. 29.4 cm (diadem); W. max. 3.7 cm (diadem); W. min. .9 cm (diadem); H. 9.5-9.7 cm (antennae); W. .7-1.2 cm (antennae).
Description: Diadem with six antenna-like vertical projections (three pairs), manufactured from sheet gold. Antennae were not attached to the diadem when it was recovered, but all elements were packed inside a silver cup; the diadem was carefully folded. The top edge of the diadem is decorated with a double row of dot repoussé. The diadem is also decorated with three horned animals (and the top of what may be the horn from a fourth animal), also in dot repoussé with incised outlines. Davaras (1975: 103) suggests that the animals may be “agrimia (the Cretan ibexes).” Antennae are decorated with three lines of dot repoussé and a small dotted figure at the tip that may represent the “minature figures of animals” (Davaras 1975: 104). The diadem has one hole at each end for attachment around the head. The bottom portion of the band has been cut off, resulting in a diadem with a wider center and tapered ends. An incised line is visible at the bottom of the diadem adjacent to the edge that was cut. Antennae were originally attached to the diadem by means of small, horizontal slits cut into the sheet gold (see Pl. 24D).

Preservation: Incomplete, portion cut off on bottom of diadem. Dark discoloration may be due to chemicals used during cleaning.

Comparanda: Diadem from Mochlos Tomb 1/2/3, reconstructed with antenna-like extensions (Seager 1912: fig. 8.II.4).

Bibliography: Davaras 1975: 103-104, fig. 3, pl. 18a (object 1); Higgins 1981: pl. 36; Vasilakis 1996: 104-105, fig. 11.36; de Checchi 2006: 20-22, figs. 1, 5-8.

MO 63A-H: Strips (8), Pls. 22A, 25A.

Material: Gold  
Museum number: HNM 4305-4312  
Date: EM II – III

Context: Tomb 6 (in silver cup from 4/5/6)  
Excavator: Davaras

Dimensions: P. L. 1.6-5.3 cm; P. W. .7-1 cm.

Description: Eight strips of thin gold foil. One strip is decorated with three lines of dot repoussé (third from bottom on Pl. 25A), and the remaining seven strips are plain. Three strips have irregular pierced holes in one ragged end. Davaras (1975: 104) suggests that they may be miniature diadems, parts of armlets or clothing ornaments, or designed for supulchral use.

Preservation: Incomplete, deterioration on long and short edges.

Bibliography: Davaras 1975: 104, pl. 21b (object 6); Vasilakis 1996: 104.

MO 64: Chain fragment, Pls. 22A, 25B.

Material: Gold  
Museum number: HNM 4302  
Date: EM II – III

Context: Tomb 6 (in silver cup from 4/5/6)  
Excavator: Davaras

Dimensions: P. L. 5.6 cm.

Description: Fragment of loop-in-loop chain, missing attachment mechanism at both top and bottom. Loops are more tightly constructed than those from pendant and chain (MO 66), also recovered from silver cup.

Preservation: Incomplete.

Comparanda: Loop-in-loop chains from Platanos Tomb A (Xanthoudides 1924: pl. 15.484); Mochlos 1/2/3 (Seager 1912: fig. 10.II.35).

Bibliography: Davaras 1975: 104, pl. 21a, upper left (object 2); Vasilakis 1996: 158; de Checchi 2006: 24-25, figs. 4, 12.
MO 65: Antenna fragment, Pls. 22A, 26A (upper left).
Material: Gold  Museum number: HNM 4342a  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: P. L. 2 cm; W. 1 cm.
Description: Upper portion of antenna, similar to those associated with Ibex diadem (MO 62). Decorated with dot repoussé border and dotted figure. Pointed tip filled in with dots.
Preservation: Incomplete, tip only.

MO 66: Pendant on chain, Pls. 22A, 25B.
Material: Gold  Museum number: HNM 4301  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: P. L. 1.8 cm (twisted chain); L. 1.8 cm (pendant); W. max. 1.8 cm (bottom of pendant).
Description: Fan-shaped pendant manufactured from thin sheet gold, suspended on fragment of loop-in-loop chain.
Preservation: Incomplete. Apparently pendant was recovered in two pieces, as modern repair is evident. Edges of pendant are broken and deteriorated; some links in chain are broken.
Comparanda: Loop-in-loop chains from Platanos Tomb A (Xanthoudides 1924: pl. 15.484); Mochlos 1/2/3 (Seager 1912: fig. 10.II.35).
Bibliography: Davaras 1975: 104, pl. 21a, upper right (object 3); Vasilakis 1996: 158.

MO 67A-B: Armlets or belts (2), Pls. 22A, 25D-E.
Material: Gold  Museum number: HNM 4303, 4304  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 12 cm (each); W. 2.3 cm (each).
Description: Two bands manufactured from thick sheet gold. Four parallel groves, producing a corrugated effect, were created in the center of each piece, perhaps by hammering over a form or by repoussé. Design on both bands is the same, although the grooves are slightly different. Above and below the grooves are dense fields of large repoussé dots. MO 67A has two attachment holes at each end. MO 67B has two holes at one end and one hole at the opposite end. MO 67B has two additional perforations at one end that may have occurred during burial. The bands may be separate objects or part of the same armlet or belt.
Preservation: MO 67B has worn region at the end missing the attachment hole and along one long edge. Dark discoloration may be due to chemicals used during cleaning.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 8.II.18); Mochlos Tomb 16 (Seager 1912: fig. 38.XVI.13).
Bibliography: Davaras 1975: 104, pl. 22a (objects 4, 5); Vasilakis 1996: 179.

MO 68: Carinated cylinder (classified as miscellaneous), Pls. 22A, 25C.
Material: Gold  Museum number: HNM 4300  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: H. 1.6 cm; Diam. 2-2.6 cm.
Description: Carinated cylinder, open on the top and the bottom, manufactured from thick sheet gold that had been hammered over a form or created using the repoussé technique. Davaras (1975: 104) calls this object a “collared globular bead.” The open ends indicate that it was part of an object or covered a material that has perished. Metal is folded inward at top and bottom .2 to .3 cm, as if it gripped another material. Divided in half by relief line, with oblique lines forming a swirling design above and below center. Spray of four gold leaves (MO 71) was found inside this object.
Preservation: Complete, but crushed.
Comparanda: Platanos Tomb A (Xanthoudides 1924: pl. 57, upper row, fourth from right, classified by excavator as a bead or pendant).

MO 69: Diadem attachment or hair ornament, Pl. 22A.
Material: Gold  Museum number: HNM 4343a  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 1.2 cm; W. .3 cm.
Description: Spray of four leaves manufactured from sheet gold. Davaras (1975: 105) indicates that at least one leaf is “decorated with fish-bone striations with a double line down the centre.” Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary,” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.
Preservation: Incomplete, crushed, parts of leaves missing.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Davaras 1975: 105, pl. 20a (object 13b); Vasilakis 1996: 119.

MO 70: Diadem attachment or hair ornament, Pls. 22A, 26A (upper right).
Material: Gold  Museum number: HNM 4344a-4345a  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 4.4 cm (leaf without stem); W. 1.6 cm.
Description: Two leaves manufactured from sheet gold, decorated with dot repoussé borders and center veins. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary,” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Davaras 1975: 105, pl. 18b (object 10); Vasilakis 1996: 120.
**MO 71**: Diadem attachment or hair ornament, Pls. 22A, 23B (center right), 23D.

**Material**: Gold  
**Museum number**: HNM 4346a  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: Est. W. 7.3 cm (total spray); est. L. 3.8 cm (leaf); W. 1.5 cm (leaf).  
**Description**: Spray of four leaves manufactured from sheet gold. This spray was found intact inside the carinated cylinder (MO 68) with the stems twisted together. The leaves are not flat but are curved gently to resemble actual leaves. Decorated with dot repoussé borders.  
**Preservation**: Complete.  
**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).  
**Bibliography**: Davaras 1975: 105, pls. 18b, 20c (object 8); Vasilakis 1996: 119.

**MO 72**: Diadem attachment or hair ornament, Pls. 22A, 26B (center), 26C.

**Material**: Gold  
**Museum number**: HNM 4347a, 4348a  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: L. 4.5 – 4.8 cm (leaf); W. 2.0 cm.  
**Description**: Two leaves manufactured from sheet gold. Decorated with dot repoussé borders and veins. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary,” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.  
**Preservation**: Complete.  
**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).  
**Bibliography**: Davaras 1975: 105, fig. 2c, pls. 18b, 19b (object 14); Vasilakis 1996: 122.

**MO 73**: Diadem attachment or hair ornament, Pls. 22A, 26B (upper left), 26C.

**Material**: Gold  
**Museum number**: HNM 4347-4349  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: L. 4.4 cm (leaf); W. 1.6 cm (leaf).  
**Description**: Spray of three leaves with pointed tips, manufactured from sheet gold. Decorated with dot repoussé borders and center veins. Although leaves are almost identical, a template does not appear to have been used. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary,” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.  
**Preservation**: Complete.  
**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).  
**Bibliography**: Davaras 1975: 105, fig. 2b, pls. 18b, 20d (object 9); Vasilakis 1996: 120.
MO 74: Diadem attachment or hair ornament, Pls. 22A, 26A (center), 26C.
Material: Gold  Museum number: HNM 4349a, 4350, 4351  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 4.4-4.8 cm (leaf); W. 1.9 cm (leaf).
Description: Spray of three leaves manufactured from sheet gold. Decorated with dot repoussé borders. One leaf does not appear as well-crafted as the other two, as it is cut unevenly and decorated with some smaller and more shallow dots. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Davaras 1975: 105, fig. 2a, pls. 18b, 20b (object 15); Vasilakis 1996: 122.

MO 75: Diadem attachment or hair ornament, Pls. 22A, 26B (lower left), 26C, 26E.
Material: Gold  Museum number: HNM 4352-4355  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 4.8-5 cm (leaf); W. 1.4 cm (leaf).
Description: Spray of four leaves, resembling olive leaves, manufactured from sheet gold. Decorated with dot repoussé borders. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Davaras 1975: 105, fig. 2e, pls. 18b, 21d (object 16); Higgins 1981: fig. 42; Vasilakis 1996: 122.

MO 76: Diadem attachment or hair ornament, Pls. 22A, 26B (lower right).
Material: Gold  Museum number: HNM 4356-4358  Date: EM II – III
Context: Tomb 6 (in silver cup from 4/5/6)  Excavator: Davaras
Dimensions: L. 2.4 cm (leaf); W. 1.1 cm (leaf).
Description: Spray of three plain leaves manufactured from sheet gold. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).
Bibliography: Davaras 1975: 105, pls. 18b, 21c (object 18); Vasilakis 1996: 120-121.

**MO 77**: Diadem attachment or hair ornament, Pls. 22A, 26A (lower right).
**Material**: Gold  
**Museum number**: HNM 4359-4362  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: L. 4.8-5 cm (leaf); W. 1.4 cm (leaf).  
**Description**: Spray of four leaves manufactured from sheet gold. Decorated with dot repoussé borders. Based on size and decoration, several sets of leaves have been combined to form sprays. Although Davaras (1975: 103) states that these groups may be “somewhat arbitrary” as the leaves could have been grouped differently, this catalogue follows Davaras’ publication on these objects.  
**Preservation**: Complete.  
**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).  
**Bibliography**: Davaras 1975: 105, pl. 18b (object 17); Vasilakis 1996: 121.

**MO 78**: Diadem attachment or hair ornament, Pls. 22A, 26B (upper right), 26C.  
**Material**: Gold  
**Museum number**: HNM 4341a  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: L. 3.4 cm (leaf without stem); W. 2.2 cm.  
**Description**: Single broad leaf with stem, manufactured from sheet gold. Decorated with dot repoussé border and center vein.  
**Preservation**: Complete.  
**Comparanda**: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129).  
**Bibliography**: Davaras 1975: 105, fig. 2d, pls. 18b, 19d (object 12); Vasilakis 1996: 120.

**MO 79**: Diadem attachment or hair ornament, Pls. 22A, 26B (top center), 26C, 26F.  
**Material**: Gold  
**Museum number**: HNM 4340a  
**Date**: EM II – III  
**Context**: Tomb 6 (in silver cup from 4/5/6)  
**Excavator**: Davaras  
**Dimensions**: L. 2.2 cm (without stem); W. max. 1.6 cm.  
**Description**: Heart-shaped ornament with stem, manufactured from sheet gold. Decorated with dot repoussé border and center line.  
**Preservation**: Complete.  
**Comparanda**: Heart-shaped pendants from Sphoungaras (Hall 1912: fig. 24) and from possible later context at Hagia Triada (Vasilakis 1996: fig. 18.2, pl. 62β).  
**Bibliography**: Davaras 1975: 105, fig. 2f, pls. 18b, 19c (object 11); Vasilakis 1996: 119.
MO 80: Armlet, Pls. 20A, 28A-B.
Material: Gold          Museum number: HM 267       Date: EM II – III*
Context: Tomb 16          Excavator: Seager
Dimensions: L. 18 cm; W. 4.4 cm; Wgt. 12.3 g.
Description: Armlet manufactured from thick sheet gold. Decorated with four sets of parallel grooves interspersed with three sets of herringbone lines. Hammered over a form or created in repoussé. Two attachment holes at each end. Seager (1912: 68) indicates that this armlet is “identical” to those found in Tomb 2 (see MO 29, Pl. 18F-G). Edges are folded back, indicating the band was attached to a perishable backing such as leather.
*Seager dates this tomb to EM II, although one MM I jug was found here. The EM II date is supported by the similarity of the bands in Tomb 2 and Tomb 16.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 8.II.18a-h).

MO 81: Diadem, Pls. 27A, 28D (top).
Material: Gold          Museum number: HM 275       Date: EM II – III
Context: Tomb 19          Excavator: Seager
Dimensions: L. 14.4 cm; W. 1.8 cm.
Description: Diadem manufactured from sheet gold. Decorated with a double row of dot repoussé along one long side and at both ends, one vertical row of double dots, and five diagonal rows of double dots. Two attachment holes at each end. This diadem is virtually identical to MO 82 and is similar in shape to MO 4, except that MO 81 has additional perforations along one long edge for the addition of pendants or other diadem attachments or for attachment to a perishable material.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: figs. 8.II.1, 9.II.1).
Bibliography: Seager 1912: 72, fig. 41.XIX.13b; Branigan 1974: 183, pl. 20.2172; Vasilakis 1996: 101, fig. 12.15, pl. 25β.

MO 82: Diadem, Pls. 27A, 28C, 28D (bottom).
Material: Gold          Museum number: HM 276       Date: EM II – III
Context: Tomb 19          Excavator: Seager
Dimensions: L. 14.5 cm; W. 1.9 cm.
Description: Diadem manufactured from sheet gold. Decorated with a double row of dot repoussé along one long side and at both ends, and five diagonal rows of double dots. Attachment holes at each end near long edge with dot border. One or two additional perforations along long dotted edge, perhaps for the addition of pendants or for attachment to a perishable material. This diadem is virtually identical to MO 81 and is similar in shape to MO 4, except that MO 82 has fewer perforations along one long edge and has one less double row of vertical dots.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: figs. 8.II.1, 9.II.1).
MO 83A-B: Daisy pins or hair ornaments (2), Pls. 27A, 29A-B.
Material: Gold  
Museum number: HM 260-261  
Date: EM II – III
Context: Tomb 19  
Excavator: Seager
Dimensions: L. 5.2-5.4 cm (flower and stem); Diam. 2.8 cm (flower); Diam. 0.5 cm (center of flower); Wgt. 1.47-1.5 g.
Description: Pair of daisy pins or hair ornaments, each in two parts, manufactured from sheet gold and wire. Flower heads have eight petals. Second part of each flower includes a boss-like, hammered center and a wire stem. No decoration on petals. Incised line visible around edges of some petals, perhaps remnant of cutting guide.
Preservation: Complete.
Comparanda: Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 19a); crocus pins from Mochlos Tomb 2 (Seager 1912: fig. 10.II.29); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).
Bibliography: Seager 1912: 72, figs. 41.XIX.11, 42.XIX.11; Branigan 1974: 184 (of #2274-7); Hood 1978: fig. 185.B2; Higgins 1981: fig. 41; Vasilakis 1996: 170, fig. 20.7, pl. 79α, β; Betancourt 2007: fig. 3.23.

MO 84: Daisy pin or hair ornament, Pl. 29C.
Material: Gold  
Museum number: HM 262  
Date: EM II – III
Context: Tomb 19  
Excavator: Seager
Dimensions: L. 5 cm (flower and stem); Diam. 2.5 cm (flower); Wgt. 1.57 g.
Description: Daisy pin or hair ornament in two parts, manufactured from sheet gold and wire. Flower head has seven evenly-cut petals and a single, central perforation. Second part of flower includes a flat, hammered center and a wire stem. Single row of dot repoussé around center of flower. The two elements have come apart, showing that pressure welding may have been the method used to attach the two pieces to form the flower, perhaps with the addition of glue. Incised line visible around edges of some petals, likely the remnant of a cutting guide.
Preservation: Complete.
Comparanda: Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 19a); crocus pins from Mochlos Tomb 2 (Seager 1912: fig. 10.II.29); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).
Bibliography: Seager 1912: 72 (object XIX.11, although this specific daisy cannot be identified on Seager fig. 41); Branigan 1974: 184 (of #2274-7); Vasilakis 1996: 170, fig. 20.7, pl. 80.

MO 85: Daisy pin or hair ornament, Pls. 29A, 29D.
Material: Gold  
Museum number: HM 263  
Date: EM II – III
Context: Tomb 19  
Excavator: Seager
Dimensions: L. 7.5 cm (flower and stem); Diam. 3.2 cm (flower); Wgt. 2.27 g.
Description: Daisy pin or hair ornament in two parts, manufactured from sheet gold and wire. Flower head has eight evenly-cut petals. Second part of flower includes a boss-like,
hammered center and a wire stem. Single row of dot repoussé around center of flower and around edges of four petals. Incised line visible around edges of some petals, perhaps remnant of cutting guide.

Preservation: Complete.

Comparanda: Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 19a); crocus pins from Mochlos Tomb 2 (Seager 1912: fig. 10.II.29); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).

Bibliography: Seager 1912: 72 (object XIX.11, although this specific daisy cannot be identified on Seager fig. 41); Branigan 1974: 184, pl. 32.2277; Vasilakis 1996: 170, pl. 81; Betancourt 2007: fig. 3.23.

MO 86: Daisy pin or hair ornament, Pls. 27A, 29E.

Material: Gold  
Museum number: HM 264  
Date: EM II – III

Context: Tomb 19  
Excavator: Seager

Dimensions: unknown.

Description: Daisy pin or hair ornament in two parts, manufactured from sheet gold and wire. Flower head has 15 small petals of uneven size, with four sets of petals connected. Second part of flower includes a flat, hammered center and a short wire stem.

Preservation: Complete.

Comparanda: Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: 106, pl. 19a); crocus pins from Mochlos Tomb 2 (Seager 1912: fig. 10.II.29); flower hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-130).

Bibliography: Seager 1912: 72, fig. 41.XIX.11d; Branigan 1974: 188, pl. 22.2589; Vasilakis 1996: 179, fig. 21.18, pl. 90.

MO 87A-B: Armlet or belt fragments (2), Pls. 27B, 29F.

Material: Gold  
Museum number: HM 315, 316  
Date: EM II – III

Context: Tomb 19  
Excavator: Seager

Dimensions: P. L. 5 cm; p. W. 1.7-2cm.

Description: Two armlet or belt fragments manufactured from thin sheet gold. Decorated in relief, perhaps hammered over a form, with two rows of a herringbone design flanking a field of diagonal lines.

Preservation: Incomplete, deterioration on edges, crushed.

Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 8.II.18a-h) and Tomb 16 (Seager 1912: fig. 38.XVI.13).

Bibliography: Seager 1912: 73, fig. 43.XIX.17a-b; Branigan 1974: 188, pl. 22.2589; Vasilakis 1996: 179, fig. 21.18, pl. 90.

MO 88: Triangular pendant on chain, Pls. 27B, 30A (right).

Material: Gold  
Museum number: HM 341  
Date: EM II – III

Context: Tomb 19  
Excavator: Seager

Dimensions: L. 7.5 cm; Wgt. 1.8 g.

Description: Small triangular pendant made from sheet gold and twisted wire, attached to heavy loop-in-loop chain. Jump ring at top for attachment to another object.

Preservation: Complete.
MO 89: Spherical pendant on chain, Pls. 27B, 30A (left), 30B.  
Material: Gold  
Museum number: HM 342  
Date: EM II – III  
Context: Tomb 19  
Excavator: Seager  
Dimensions: L. 7.3 cm; Wgt. .9 g.  
Description: Spherical pendant of gold with small rim running around its center, resembling Saturn. Gold wire stuck through pendant and attached to loop-in-loop chain. A small, leaf-shaped pendant divides the chain into two parts. A jump ring is retained at the top.  
Preservation: Complete.  
Comparanda: Similar leaf-shaped divider on pendant from Mochlos Tomb 2 (Seager 1912: fig. 10.II.30).  
Bibliography: Seager 1912: 73, fig. 43.XIX.22; Branigan 1974: 185 (#2303); Vasilakis 1996: 157, pl. 75α.

MO 90: Leaf pendant, Pls. 27B, 30C.  
Material: Gold  
Museum number: HM 344  
Date: EM II – III  
Context: Tomb 19  
Excavator: Seager  
Dimensions: L. 3.2 cm; Wgt. .6g.  
Description: Plain, leaf-shaped pendant manufactured from sheet gold. Sheet gold is extended into wire that is wrapped around and attached to a jump ring.  
Preservation: Complete.  
Comparanda: Leaf pendant from a possible later context at Hagia Triada (Banti 1930-31: fig. 63).  
Bibliography: Seager 1912: 173, fig. 43.XIX.19; Branigan 1974: 185, pl. 19.2304; Vasilakis 1996: 158, fig. 18.37, pl. 62α.

MO 91A-B: Antenna-like diadem attachments (2), Pls. 27B, 30D-E.  
Material: Gold  
Museum number: HM 295, ?  
Date: EM II – III  
Context: Tomb 19  
Excavator: Seager  
Dimensions: L. 16 cm (A); L. 24 cm (B).  
Description: Two antenna-like diadem attachments manufactured from sheet gold. MO 91A (Seager XIX.21) is decorated with a dot repoussé border; one end is straight and the other end is pointed, with pierced holes in at least the straight end. Vasilakis (1996: fig. 14.8) also shows a perforation in the pointed end. Seager (1912: 73) describes the second antenna (MO 91B, XIX.24) as similar to the first strip, but without a dotted border. These objects are virtually the same as those used as vertical extensions on the Dog diadem (MO 2) and the Ibex diadem (MO 62), although no diadems that would have supported the attachments were found in this tomb.  
Preservation: MO 91A appears complete but broken into two pieces. Preservation of MO 91B is unknown.  
Comparanda: Mochlos Tomb 2 (Seager, figs. 8-11) and Tomb 6 (Davaras 1975: fig. 3, pl. 18a).
Bibliography: Seager 1912: 73, fig. 43.XIX.21 (object XIX.24 was not illustrated); 
Branigan 1974: 183-184, pl. 20.2186 and object #2187;Vasilakis 1996: 110, fig. 14.8, pl. 37ζ.

MO 92: Lozenge-shaped ornament (classified as miscellaneous), Pls. 27B, 30F.
Material: Gold 
Museum number: HM 329 
Date: EM II – III 
Context: Tomb 19 
Excavator: Seager 
Dimensions: L. 2.7 cm; W. max. 1.4 cm. 
Description: Small ornament manufactured from sheet gold, with dot repoussé border and perforation in pointed end. Similar to tip of antenna-like diadem attachments, but much larger and apparently complete as recovered. 
Preservation: Complete. 
Bibliography: Seager 1912: 72, fig. 43.XIX.16a-c; Branigan 1974: 184, pl. 19.2256-8; Vasilakis 1996: 117, fig. 16.29-16.31, pl. 44.

MO 93A-C: Flower-shaped ornaments (3) (classified as miscellaneous), Pls. 27B, 30G.
Material: Gold 
Museum number: HM 333 
Date: EM II – III 
Context: Tomb 19 
Excavator: Seager 
Dimensions: Diam. 2.7 cm. 
Description: Three flower- or star-shaped ornaments manufactured from sheet gold. Each flower is cut with six petals and contains a lozenge-shaped embossed center. The petals are decorated with dot repoussé. At the end of each petal is a perforation for attachment, perhaps intended for clothing or another type of perishable material. Note: Although both Seager and Branigan describe three ornaments, Vasilakis (1996: 141, pl. 54) indicates that there were four ornaments.
Preservation: Complete. 
Bibliography: Seager 1912: 72, fig. 43.XIX.16a-c; Branigan 1974: 184, pl. 19.2278 (three objects, #2278-2280, listed as diadem attachments); Vasilakis 1996: 141, fig. 17, pl. 54 (shows four ornaments).

MO 94: Diadem attachment or hair ornament, Pls. 27B, 30H.
Material: Gold 
Museum number: HM 322a-c 
Date: EM II – III 
Context: Tomb 19 
Excavator: Seager 
Dimensions: L. 2.5 cm (leaf); W. 2 cm. 
Description: Three identical leaves that may have originally been a spray of leaves, manufactured from sheet gold. Each leaf is decorated with a border of dot repoussé. 
Preservation: Complete. 
Comparanda: Mochlos Tomb 6 (Davaras 1975: pl. 18b); Platanos Tomb A (Xanthoudides 1924: pl. 57.488); leaf hair ornaments from the Royal Cemetery of Ur (Woolley 1934: pls. 128-129). 
Bibliography: Seager 1912: 73, fig. 43.XIX.23a-c; Branigan 1974: 184, pl. 19.2256-8; Vasilakis 1996: 117, fig. 16.29-16.31, pl. 44.

MO 95: Drum bead, Pls. 27A, 31A-B.
Material: Gold 
Museum number: HM 368 
Date: EM II – III
Context: Tomb 19
Excavator: Seager

Dimensions: H. max .5 cm; Diam. 1.4 cm.
Description: Drum bead manufactured from three pieces of sheet gold: two disks, chased and decorated in repoussé, and a plain strip connecting the two disks. The edges of each disk are hammered over the strip, creating a lip. The strip contains two roughly cut rectangular perforations (approximately .5 cm in length), which would have allowed a chain, string, or hoop to pass through the bead. Decorated on both sides with a petaloid design: five petals swirling around a double-circle center. Very even 1.1 cm diameter circle chased around circumference on both sides. The bead is of hollow construction and may have covered a core of wood, clay, wax, or resin.
Preservation: Complete; design around edge is worn on both sides.
Comparanda: Mochlos Tomb 1 (Seager 1912: fig. 36.I.m).
Bibliography: Seager 1912: 72, fig. 41.XIX.14; Vasilakis 1996: 190, pl. 93β.

MO 96A-F: Leaf pendants (6), Pl. 20.
Material: Gold
Museum number: HM ?
Date: EM II – III
Context: Tomb 21
Excavator: Seager
Dimensions: L. 1.5-2 cm.
Description: Six small, plain, leaf-shaped pendants manufactured from sheet gold. All are unique, although several are similar in shape. Recovered with jump rings in place. Seager (1912: 31) suggested that similar pendants from Tomb 2 may have “belonged to the diadems and were fastened in the holes noticed in their upper edges.” If that is the case, the associated diadems have not been found, as no ripped holes were noted on extant diadems. Davaras (1975: 109-110) noted that it was unlikely that pendants would have been suspended over the nose or eyes. These pendants may have hung from a textile headband, which has not survived. It is also possible that they were earrings, attached to the ears by an organic substance such as string.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.19a-h).

MO 97: Leaf (classified as miscellaneous, cf. MO 53), Pl. 20A.
Material: Gold
Museum number: HM 327
Date: EM II – III
Context: Tomb 21
Excavator: Seager
Dimensions: L. 4.5 cm; W. max. 1.5 cm.
Description: Leaf manufactured from sheet gold. Embossed border and center vein. Leaf is identical to those associated with top of staff or scepter (MO 53), recovered from Tomb 5.
Preservation: Complete.
Comparanda: Leaves from scepter, Mochlos Tomb 5 (Seager 1912: fig. 41.V.k).
Bibliography: Seager 1912: 77, fig. 20.XXI.16; Branigan 1974: 184, pl. 19.2252; Vasilakis 1996: 169-170 (assigns this leaf, along with other elements of MO 53, to Tomb 5; MO 97 is leaf depicted on Pl. 21E as unattached whole leaf.)
MO 98: Diadem attachment or hair ornament, Pls. 20A, 31C.
Material: Gold  
Museum number: HM 326  
Date: EM II – III
Context: Tomb 21  
Excavator: Seager
Dimensions: L. 3.6 cm (leaf); L. 5.2 cm (leaf with stem); W. max. 1.5 cm; Wgt. .73 g.
Description: Single leaf manufactured from sheet gold. Decorated with border of dot repoussé. Top of stem folded back, as if the leaf hung from a diadem or another object.
Preservation: Complete.
Comparanda: Mochlos Tomb 2 (Seager 1912: fig. 10.II.23).
Bibliography: Seager 1912: 77, fig. 20.XXI.15; Branigan 1974: 184, pl. 19.2251;
Vasilakis 1996: 116, fig. 16.26, pl. 43β (listed as from Mochlos Tomb 3).

MO 99A-B: Finger rings (2), Pls. 20A, 31D-E.
Material: Gold  
Museum number: HM 369, 370  
Date: EM II – III
Context: Tomb 21  
Excavator: Seager
Dimensions: Diam. 1.7-1.9 cm.
Description: Two hoops manufactured from plain gold wire that may have been used as finger rings.
Preservation: Complete.
Comparanda: Mochlos Tomb 4/5/6 earth spoil (Davaras 1975: pl. 21a, lower right).
Bibliography: Seager 1912: 77, fig. 20.XXI.17a-b; Branigan 1974: 188, pl. 23.2672-3;
Vasilakis 1996: 91-92, pl. 11β, γ.

MO 100: Ornament (classified as miscellaneous), Pls. 20A, 31F.
Material: Gold  
Museum number: HM 334  
Date: EM II – III
Context: Tomb 21  
Excavator: Seager
Dimensions: Diam. 7 cm; Wgt. 1.1 g.
Description: Cross-shaped appliqué manufactured from sheet gold. Decorated with dot repoussé border and dots around center boss. Four incised lines radiating out from center. One perforation visible at top (?) of ornament. Seager (1912: fig. 20.XXI.15) shows this object with fragments of small trefoils, which are not included in more recent photographs (Vasilakis 1996: pl. 55α) or as part of the object in the Herakleion Museum (Pl. 31F). May have decorated clothing or another object made of perishable material.
Preservation: Incomplete, broken at ends, sheet gold is ripped through center portion of object.
Bibliography: Seager 1912: 77, fig. 20.XXI.15; Branigan 1974: 184, pl. 19.2245A (listed as diadem attachment); Vasilakis 1996: 141, pl. 55α.

MO 101: Human mask (classified as miscellaneous), Pls. 20A, 31G.
Material: Gold  
Museum number: HM 347  
Date: EM II – III
Context: Tomb 21  
Excavator: Seager
Dimensions: H. .7 cm; Wgt. 1 g.
Description: Tiny human mask manufactured from gold foil. Must have covered a core of wood or another perishable material.
Preservation: Missing top portion of head.
Comparanda: Animal mask from Mochlos Tomb 6 (Seager 1912: fig. 25.VI.28).
Bibliography: Seager 1912: 78, fig. 20.XXI.18; Branigan 1974: 194 (#3146); Vasilakis 1996: 197, pl. 71β.

**MO 102**: Beads (74), Pls. 20A, 31H-I.
Material: Gold  
Museum number: HM 366α-λε, λστ-οδ  
Date: EM II – III  
Context: Tomb 21 (and 20*)  
Excavator: Seager  
Dimensions: unknown.
Description: Seventy-four beads that may have formed a necklace, consisting of 35 tubular beads and 39 flat disk beads. Seager (1912: fig. 20.XXI.19), Vasilakis (1996: pl. 91γ), and the Herakleion Museum show the necklace with a large, incised gold bead and two globular beads in the center (see Pl. 31 I), although these three beads are not described in Seager’s text (however, cf. Vasilakis 1996: 190, objects 305-307). Seager (1912: 78) describes the tubular beads as “very like the common porcelain ‘mummy’ beads of Egypt.” *Some of the beads were recovered from Tomb 20, a tomb that cut into the earlier Tomb 21.
Preservation: Complete?
Bibliography: Seager 1912: 78, fig. 20.XXI.19; Branigan 1974: 192 (#3019); Vasilakis 1996: 189-190, pl. 91γ.

**MO 103**: Scraps of foil (classified as miscellaneous).
Material: Gold  
Museum number: HM ?  
Date: EM II – III  
Context: Tomb 21  
Excavator: Seager  
Dimensions: unknown.
Description: Seager (1912: 78) describes “great numbers of scraps and fragments of gold foil” recovered from Tomb 21.
Preservation: unknown.
Comparanda: Krasi (Marinatos 1929: 121); Mochlos Tombs 1, 2, 5, and 6 (Seager 1912: 22, 32, 44, 56).
Bibliography: Seager 1912: 78 (no illustration).

**MO 104**: Beads (130), Pls. 20A, 31H.
Material: Gold  
Museum number: HM 365α-ρλα  
Date: EM II – III  
Context: Tomb 23  
Excavator: Seager  
Dimensions: Wgt. 4 g (all beads).
Description: One hundred and thirty tiny gold beads that apparently formed a necklace.
Preservation: Complete?
Bibliography: Seager 1912: 79, fig. 20.XXIII.b; Branigan 1974, pl. 24.3107; Vasilakis 1996: 189, pl. 91β.

_Hagios Antonios_

**HA 1**: Disk, Pl. 32A
Material: Silver  
Museum number: HM ?  
Date: EM II – III
Context: cave burial
Excavator: Hall
Dimensions: Est. Diam. 2.3 cm.
Description: Small silver disk with dot repoussé around the circumference and two perforations in the center. Hall (1914: 184) describes “central and marginal perforations,” while Branigan (1968: 228) indicates that the disk has a “punched row of dots around circumference and two perforations at the centre.”
Preservation: Complete.
Comparanda: Silver disks from Krasi (Marinatos 1929: 120-121, fig. 14.42).
Bibliography: Hall 1914: 184, fig. 107; Branigan 1968: 228; Branigan 1974: 186, pl. 21.2433; Vasilakis 1996: 139 (listed as from Kavousi, Hagios Antonios).

HA 2A-B: Finger rings or hair rings (2), Pl. 32B.
Material: Silver
Museum number: HM ?
Date: EM II – III
Context: cave burial
Excavator: Hall
Dimensions: Est. Diam. 1.2-1.4 cm.
Description: Two small distorted rings of silver wire, with overlapped ends. May be finger rings or hair rings.
Preservation: Complete.
Comparanda: Silver ring from Krasi (Marinatos 1929: 120-121, fig. 14.40).
Bibliography: Hall 1914: 184-185, fig. 107; Branigan 1968: 228; Branigan 1974: 191 (#2950-1, described as hair rings); Vasilakis 1996: 175 (listed as from Kavousi, Hagios Antonios).

 Hagia Photia

HP 1: Pendant, Pl. 32C-D.
Material: Silver
Museum number: HNM 4684
Date: EM I – IIA
Context: Tomb 200
Excavator: Davaras
Dimensions: L. 4.4 cm (body is 3.2 cm); H. max. 1.5 cm; Diam. of string hole .3 cm.
Description: Silver zoomorphic pendant, cast using the lost wax process. Small quadruped with horns and tail, perhaps a sheep or bull. Very long body and short legs. Body is pierced above front legs for suspension.
Preservation: Complete.
Comparanda: Ivory pig pendant from Hagios Antonios (Hall 1914: 184, fig. 108).

 Maronia Cave

MA 1: Bead, Pl. 32E.
Material: Gold
Museum number: HM 733
Date: EM II – III
Context: cave burial
Excavator: Platon
Dimensions: L .8 – 1.0 cm.
Description: Bullet-shaped bead, manufactured from cast gold.
Preservation: Complete.

Exploring the development of ranked society in EBA Crete is central to understanding the level of social complexity achieved before the palaces were constructed. One could argue that controlled access to goods manufactured from rare or foreign raw materials – as exemplified by the presence of jewelry made from precious metals – indicates that some individuals were of higher social status than others. However, the communal context of the finds provides no information on who specifically commissioned or wore the jewelry. Additional evidence on ranking should be sought elsewhere – evidence that might be associated with the same sites where gold and silver jewelry was recovered.

It must be noted that the presence of ranking does not necessarily equate with political leadership (Brown 1981) or a single, centralized, hierarchical authority. Traditional chiefdoms, with “institutionalized offices of leadership: the chief and his associates” (Peebles and Kus 1977: 422) may have existed in some of these communities (see also Service 1971 [1962]). Political or religious authority, maintained by a small group of individuals, may have been inherited across generations or achieved by personal accomplishment. However, various aspects of social, political, and religious organization may also have been ordered in a heterarchical fashion, with different individuals or groups sharing responsibility, authority, and power (Brumfiel 1995; Crumley 1987; Crumley 1995). Heterarchies – characterized by elements of a society that are unranked or ranked in different ways – would have allowed for the sharing of power and more flexibility as local situations changed.
How does one find evidence of ranked society in the archaeological record? Although the amount and quality of data vary greatly by site, the criteria described below, applied in a comparative manner, are a means to better understanding the level of complexity achieved by various communities.

Numerous books and articles were consulted in the investigation of this topic. However, two sources stand out as the most comprehensive general studies of this subject: an article by Christopher Peebles and Susan Kus entitled “Some Archaeological Correlates of Ranked Society” (1977) and Paul Wason’s book *The Archaeology of Rank* (1994). Also, Jeffrey Soles’ “Social Ranking in Prepalatial Cemeteries” (1988) was especially informative on evidence for ranking in EBA Cretan contexts.

**Mortuary Contexts**

The study of mortuary practices is useful in distinguishing ranked from egalitarian societies. Indeed, “treatment in death is closely related to social position in life” (Keswani 1989, as referenced in Wason 1994: 67) and is influenced by a society’s shared ideology and world view. Ethnographic studies show that higher ranked individuals are linked to greater expenditures of energy in burial ritual (Tainter 1977); this may be identified in the archaeological record in numerous ways, such as in the construction of the tomb or the distribution of grave goods.

Different statuses are illustrated in choices made related to burial. Some tombs may be situated in exclusive or more desirable locations or segregated from other smaller tombs (Brown 1981; see Soles 1988 and Maggidis 1998 for a discussion of ranking in prepalatial and protopalatial cemeteries in Crete). Grave enclosures may be larger and
better constructed, or separate monuments honoring the deceased may be built.

Strategically located open space adjacent to specific tombs may indicate that public or private ceremonies, perhaps associated with feasting and dancing, were a part of local burial customs (Branigan 1993).

Evidence of ritual related to the treatment of the body at the time of interment or subsequent handling of skeletal remains may be identifiable. When skeletal remains are available, comparative information may be obtained on diet and nutrition, muscle use and stress-related injuries, disease, trauma, and the age/sex distribution of burials (for example, see Angel 1971; Chapman and Randsborg 1981; Hallager and McGeorge 1992; Liston 1995). DNA analysis may provide information on the relationship of those buried in the same tomb or in the same cemetery.

Collective burials, as distinguished from mass graves resulting from disease or warfare, often contain kin groups and “the fact of collective burial itself might suggest that status is not graded on a purely individual basis, but that social groups (such as lineages) are ranked” (Wason 1994: 90). Collective burials indicate that identification with a particular social group is an important status marker in death as well as in life. Conversely, individual burial implies “that group membership is not as important a part of status in death, or that it is important but not marked by the practice of communal burial” (Wason 1994: 92). A move from communal to individual burial may signify evolving social strategies, as achieved status replaces hereditary status and some individuals gain authority over others (Renfrew 1974; Wason 1994).

Variation in grave goods is perhaps the most universal indicator of different statuses. Objects in some burials may be more plentiful, more carefully manufactured,
crafted from exotic raw materials, or imported from distant locations via regional or long distance trade networks. In some societies, men and women may be buried with distinct sets of objects such as weapons or jewelry. Children buried with exotic grave goods suggest the presence of inherited, i.e., ascribed status, rather than achieved status.

Objects may be described as utilitarian or non-utilitarian. Utilitarian grave goods such as weaponry or tools may provide evidence of occupation or trade practiced in life. Objects such as scepters, elaborately decorated weapons, and crowns are likely symbols of authority, indicating political or religious power (Brown 1981; Peebles and Kus 1977). Cross-culturally, some grave goods appear to be restricted to persons of elite status: distinctive personal adornment (especially gold ornaments), headdresses, and stools or seats (Wason 1994).

*Settlement Contexts*

Examination of the built environment provides an expanded picture of life in early Aegean communities. If a settlement has been systematically excavated and published, several factors can be assessed. Settlement size and plan may be established; a planned community, with standardized features such as streets of the same width, blocks of houses of similar design, drainage systems, or segregated communities of craft specialists, might indicate the presence of a central authority.

Population density estimates may also be calculated (for example, see Whitelaw 1983), although caution should be exercised in equating larger populations with increased complexity without other corroborative data. Within a region, establishing a hierarchy of settlements, related to size and type, as well as identifying land used for agriculture or
other purposes, may be instructive (Peebles and Kus 1977; e.g., see Watrous, Hadzi-Vallianou, and Blitzer 2004 on the Mesara region in Crete).

Larger or prominently-located structures may be identified as elite dwellings, buildings associated with commercial activities, or centers for community-wide use. Building function may be determined by layout, special features, room proportions and proposed use, concentrations of specific types of artifacts, and the employment of certain building materials in construction (Wason 1994). Open public areas, such as central courts or plazas, may represent marketplaces or space used for communal gatherings; religious and political events such as annual festivals or ceremonies reinforce a sense of continuity and cohesion among the local population while supporting and enhancing the status of community leaders.

Tools, molds, unfinished objects, and manufacturing debris indicate the presence of craft activity; specialization in the production of non-utilitarian goods such as gold jewelry or ivory seals implies an elite local market and/or a means for exportation. As with objects recovered from mortuary contexts, effort and skill employed in the manufacturing of finished goods should be considered: did a particular class of objects require the talent of a specialist? Was manufacturing conducted by individuals within their dwellings or does the presence of a workshop suggest a managerial class?

Hoards recovered from settlements may be the stock of an artisan or peddler or may be personal possessions, buried during a time of unstable political conditions (Bradley 1990; Branigan 1969; Matthews 1994; Miksic 1999). Instability within a community may also be suggested by indications of conflagration or destruction, especially if associated with evidence of weapons and human skeletal remains. Although
the presence of walls may be connected with the raising of livestock, formidable walls might be a demonstration of status or indicate a concern for safety. Collections of objects recovered from structures may also have ritual associations such as caches related to the dedication of a building.

Production facilities or large stores of raw material, such as metal ores or obsidian, may indicate access to and/or management of valuable or scarce natural resources (see Fried 1960 on changes in social organization due to control of resources). Finds of foreign raw materials or imported goods suggest that down-the-line exchange, regional exchange, or long-distance trade was taking place. The presence of a constructed harbor or a natural harbor with trade-related facilities or artifacts indicates sea trade. Evidence of trade implies the presence of traders, individuals who were responsible for the supply of goods and negotiation related to the exchange of goods, as well as any necessary organizing mechanisms and supporting institutions (Dalton 1961; Polanyi 1957).

Major building projects, such as the construction of monumental tombs, defensive walls, irrigation systems, road networks, dams, or other public facilities – especially those that require upkeep – suggest planning and management. Large-scale granaries or storage magazines, if properly identified, may indicate redistribution of foodstuffs associated with a centralized authority.
MAP 1: Minoan Sites with Gold or Silver Jewelry Referenced in Text
MAP 2: EBA Aegean Sites with Gold or Silver Jewelry
MAP 3: Eastern Mediterranean and Balkan Sites with Gold or Silver Jewelry
(see next page for key to numbered sites)
Key to Numbered Sites on Map 3

**Anatolia**
1. Alacahöyük
2. Kültepe
3. Horoztepe
4. Arslantepe
5. Eskiçayar
6. Karataş-Semayük
7. Tarsus
8. İkiztepe
9. Beycesultan
10. Alisharhöyük
11. Korucutepe

**Egypt**
32. Abydos
33. Naga-ed-Dêr
34. Mahasna
35. Amra
36. Hamra Dom
37. Ballas
38. Giza
39. Saqqara
40. Dahshur
41. Tôd

**Balkans**
42. Pazhok, Albania
43. Saratsê, Greece
44. Varna, Bulgaria
45. Hotnitsa, Bulgaria
46. Gumelniţa, Bulgaria
47. Durankulak, Bulgaria
48. Goran-Slatina, Bulgaria
49. Dubene, Bulgaria
50. Traian, Romania
51. Beba Veche, Romania
52. Tivat, Montenegro
53. Tizaszölös, Hungary
54. Moigrad, Romania

**Cyprus**
12. Sotira Kaminoudhia
13. Lapithos
14. Vounous

**Northern Syria and the Levant**
15. Tell Umm el-Marra
16. Ebla
17. Tell Banat
18. Tell Bi’a
19. Byblos

**Canaan**
20. Nahal Qanah Cave
21. Kinneret Cave

**Mesopotamia**
22. Tell Brak
23. Tell Taya
24. Tell Asmar
25. Khafajah
26. Mari
27. Tepe Gawra
28. Uruk
29. Kish
30. Tell Abu Salabikh
31. Ur

**Additional Sites**
55. Indus Valley
56. Maikop, Russia
Prepalatial Minoan Crete: Chronology

Final Neolithic: End c. 3650/3500 BC
Early Minoan I: 3650/3500 – 3000/2900 BC
Early Minoan II: 2900 – 2300/2150 BC
Early Minoan III: 2300/2150 – 2160/2025 BC
Middle Minoan IA: 2160/1979 – 20th century BC


Abbreviations

Crete: FN = Final Neolithic
       EM = Early Minoan
       MM = Middle Minoan
       LM = Late Minoan
Cyclades: FN = Final Neolithic
          EC = Early Cycladic
          MC = Middle Cycladic
          LC = Late Cycladic
Mainland: FN = Final Neolithic
          EH = Early Helladic
          MH = Middle Helladic
          LH = Late Helladic

EBA: Early Bronze Age
MBA: Middle Bronze Age
LBA: Late Bronze Age

Measurements: m = meter
              cm = centimeter
              mm = millimeter
              g = gram
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<thead>
<tr>
<th>Chart 1: Gold Ornaments by Region, Site, and Context</th>
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<tr>
<td><strong>Finger Beads</strong></td>
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<tr>
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</tr>
<tr>
<td>Archanes E-lower level</td>
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<tr>
<td>Archanes B</td>
</tr>
<tr>
<td>Pyrgos Cave</td>
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<tr>
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</tr>
<tr>
<td>S-C Total</td>
</tr>
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</tr>
<tr>
<td>Platanos A-lower level</td>
</tr>
<tr>
<td>Platanos A-upper level</td>
</tr>
<tr>
<td>Lebena I-level C deposit</td>
</tr>
<tr>
<td>Lebena I-all levels/sieving</td>
</tr>
<tr>
<td>Lebena II</td>
</tr>
<tr>
<td>Lebena III-lower levels</td>
</tr>
<tr>
<td>Kounas A</td>
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<tr>
<td>Kounas B</td>
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<tr>
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<tr>
<td>S-C Total</td>
</tr>
<tr>
<td>EAST</td>
</tr>
<tr>
<td>Sphoungaras</td>
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<tr>
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<tr>
<td>Mochlos 4/5/6</td>
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<td>Mochlos 4/5/6-dump</td>
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<td>Mochlos 16</td>
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<td>Hagia Photia</td>
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<td>East Total</td>
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<td>CLASS TOTALS</td>
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* counted as part of Pendant class, without duplication as Earrings

Grand total: 253 gold ornaments plus 338+ beads
## Chart 2: Silver Ornaments by Region, Site, and Context

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*counted as part of Pendant class, without duplication as Earrings

Grand total: 16 silver ornaments plus 1 bead.
### Chart 3: Exotica Recovered from Same Context as Jewelry, by Region

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<thead>
<tr>
<th>Region</th>
<th>Date</th>
<th>Gold Ornaments</th>
<th>Silver Ornaments</th>
<th>Objects</th>
<th>Bronze</th>
<th>Ivory</th>
<th>Vessels</th>
<th>Figurines</th>
<th>Obsidian</th>
<th>Miscellaneous</th>
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<tr>
<td>Archanes Γ-lower level</td>
<td>EM IIA</td>
<td>▲ 21 + 38 beads</td>
<td>▲ 1 tools, nails</td>
<td>▲ ☉ ▲ ☉ ▲ ▲</td>
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<tr>
<td>Archanes E-lower level</td>
<td>EM IIA</td>
<td>▲ 2 + 1 bead</td>
<td></td>
<td>▲ ☉ ▲ ☉ ▲ ▲</td>
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<tr>
<td>Archanes B</td>
<td>MM IA</td>
<td>▲ 1</td>
<td></td>
<td>▲</td>
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</tr>
<tr>
<td>Pyrgos Cave</td>
<td>EM I-II</td>
<td>▲ 8 + 1 bead</td>
<td></td>
<td>▲</td>
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<td></td>
<td>▲</td>
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<td>Cycladic pottery</td>
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<tr>
<td>Krasí</td>
<td>EM I-II</td>
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<td>▲ 9 + 1 bead</td>
<td>▲ ☉ ☉ ☉</td>
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<tr>
<td>Platanos A-lower level</td>
<td>EM II</td>
<td>▲ 1 + 3 beads</td>
<td>rivets</td>
<td>▲ ☉ ☉ ☉</td>
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<td>EM III-MM I?</td>
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<td>▲ ☉ ☉</td>
<td>☉ ☉ ☉</td>
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<td>▲ ☉ ☉</td>
<td>☉ ☉ ☉</td>
<td>☉ ☉</td>
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<td>▲ 2 beads</td>
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<td>☉ ☉ ☉</td>
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<td>☉ ☉ ☉</td>
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<td>EM II-MM IA</td>
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<td>▲ ☉ ☉</td>
<td>☉ ☉ ☉</td>
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<td>☉ ☉ ☉</td>
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<td>11th Dynasty Egyptian scarab, stone pommel, lead/rock crystal beads</td>
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<td>▲ 1</td>
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<td>Lapis lazuli and carnelian/cord beads, stone pommel</td>
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<tr>
<td>Sphoungaras</td>
<td>EM II-III</td>
<td>▲ 3 + 1 bead</td>
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<td>▲ ☉ ☉ ☉</td>
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<td>Pseira</td>
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<td>Makronissos Cave</td>
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<td>▲</td>
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<td>Cycladic pottery</td>
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**KEY**

▲ = present

† = includes triangular daggers

‡ = includes seals
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<th>Silver Ornaments</th>
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<th>Vessels</th>
<th>Figurines</th>
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GOLD BEFORE THE PALACES:

CRAFTING JEWELRY AND SOCIAL IDENTITY IN MINOAN CRETE

Plates 1 – 65

Jane Hickman 2008
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Note: For personal use only. Do not reproduce.
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A. Selected gold jewelry
(after Papadatos 2005: pl. 20)

B. Detail of seam on AR 18 bead
(Herakleion Museum)

C. Gold and stone beads
(Herakleion Museum)

PLATE 1: Archanes-Phourni Tomb Γ
AR 13: Pendant
(after Papadatos 2005: fig. 23.A20)

(Beads, after Papadatos 2005: fig. 25.J1, J4, J15, J21, J24)

AR 14A-M, AR 15, AR 10, AR 9, AR 1
(Beads, sheet gold fragments, diadem/strip, after Papadatos 2005: fig. 25.J25, J38, J39, J40, J41)

AR 3, AR 4, AR 2
(Diadem/strip and strips, after Papadatos 2005: fig. 25.J42, J43, J44)

AR 5, AR 6, AR 12A-E
(Strip, bosses, after Papadatos 2005: fig. 25.J45, J46, J49-53)

AR 12F, AR 7, AR 8
(Boss, strips/antennae, after Papadatos 2005: fig. 25.J54, J56, J57)

PLATE 2: Archanes-Phourni Tomb Γ
A. Gold jewelry from Pyrgos Cave
Diadem fragment PY 2 not included
(after Xanthoudides 1918: 165, fig. 15)

B. Jewelry from Pyrgos Cave
(Herakleion Museum)

C. Silver jewelry from Krasi
Sheet gold fragments KR 8 not included
(after Marinatos 1929: 120, fig. 14)

D. Krasi bead (KR 6)
Note incised decoration.
(after Vasilakis 1996: pl. 92ζ)

PLATE 3: Pyrgos Cave and Krasi
A. EM II – MM I gold jewelry from Platanos Tomb A
(after Xanthoudides 1924: pl. 57)

B. EM II Bead (PL 1)
(after Xanthoudides 1924: pl. 15)

C. EM II Bead (PL 1)
(Herakleion Museum)

PLATE 4: Platanos
A. EM II Pendant (PL 4)
B. EM II Pendant detail (PL 4)

C. EM III – MM I Beads (PL 9, PL 11)
Note PL 11: filigree beads
(Herakleion Museum)

D. Filigree bead (PL 11)
(after Xanthoudides 1924: pl. 15)

E. EM III – MM I Beads (PL 9)
(Herakleion Museum)

F. EM III – MM I Disks (PL 13)
(Herakleion Museum)

PLATE 5: Platanos
A. EM II Diadem with leaf attachments and ties (LE 1)  
(Herakleion Museum)

B. Diadem worn by Cretan girl in The Illustrated London News  
(after Alexiou 1960: 225)

C. Diadem detail  
(Herakleion Museum)

D. EM II – MM IA Boss (LE 3)  
(after Alexiou & Warren 2004: pl. 114)

E. EM II – MM IA Beads (LE 4)  
(after Alexiou & Warren 2004: pl. 115)

PLATE 6: Lebena
A. Diadem (KO 2) and bangle (KO 1)  
(after Xanthoudides 1924: pl. 29b)  

B. Diadem (KO 2), inverted  
as it may have been worn  
(Herakleion Museum)  

C. Frog pendant (KO 3), Est. L. .8 cm  
(photograph by V. Voutsas, Herakleion Museum)  

D. Frog pendant (KO 3)  
(after Xanthoudides 1924: pl. 4)  

PLATE 7: Koumasa
A. EM II – MM I gold jewelry
(after Xanthoudides 1924: pl. 43b)

B. and C. Diadem fragment (KA 1)
(photo: Herakleion Museum; drawing
after Xanthoudides 1924: pl. 8)

D. Strip fragment
(KA 2) (after
Vasilakis 1996: fig. 21.3)

E. Filigree bead (KA 11)

F. Bead detail (KA 11)

G. Filigree bead (KA 11)

PLATE 8: Kalathiana
A. Sphoungaras gold jewelry
(after Hall 1912: fig. 24)

B. Sphoungaras gold jewelry
(after Vasilakis 1996: pl. 14)

C. Sphoungaras pendants detail (SP 3)
(Herakleion Museum)

D. Pseira strip fragment (PS 1)
(after Betancourt and Davaras 2003: fig. 36.7.22)

E. Pseira strip fragment (PS 1)
(courtesy of Costis Davaras and Philip P. Betancourt)

PLATE 9: Sphoungaras and Pseira
Gold jewelry from Tomb 2
(after Seager 1912: fig. 8)

PLATE 10: Mochlos Tomb Complex 1/2/3
A. Gold jewelry from Tomb 2  
(after Seager 1912: fig. 10)

B. Gold jewelry from Tombs 1 and 3  
(other objects not in study)  
(after Seager 1912: fig. 36)

PLATE 11: Mochlos Tomb Complex 1/2/3
A. Eye diadem (MO 1)

B. Eye diadem
(after Seager 1912: fig. 9.II.5)

C. Eyes detail

D. Perforations on lower left, detail

PLATE 12: Mochlos Tomb Complex 1/2/3
A. Dog diadem (MO 2), also see Plates 44-45

B. Geometric diadem (MO 3)

C. Geometric diadem
   (after Seager 1912: fig. 9.II.3)

PLATE 13: Mochlos Tomb Complex 1/2/3
A. Herringbone diadem (MO 4)

B. Herringbone diadem (after Seager 1912: fig. 9.II.1)

C. Detail, incised lines at edge

D. Dot border diadem (MO 7)

E. Lozenge diadem (MO 8)

F. Lozenge diadem (after Seager 1912: fig. 9.II.7)

PLATE 14: Mochlos Tomb Complex 1/2/3
A. Plain diadem (MO 9)

B. Small diadem (MO 10)
(Herakleion Museum)

C. Diadems or 2-part bangle (MO 11)
(Herakleion Museum)

D. Small diadems (top: MO 12, MO 13)
(Herakleion Museum)

E. Arrow diadem (MO 15)

F. Arrow diadem (after Seager 1912: fig. 9.II.8)

PLATE 15: Mochlos Tomb Complex 1/2/3
A. and B. Crocus pin (MO 16)  
(photograph after Vasilakis 1996: pl. 83a;  
drawing after Seager 1912: fig. 11.II.29a)

C. Crocus, as it may have  
been cut from sheet gold  
(after Evely 2000: fig. 163)

D. and E. Spray of leaves (MO 19)  
(drawing after Seager 1912: fig. 11.II.24c)

F. Spray of leaves  
detail, twisted stems

G. and H. Bell pendant (MO 20)  
(drawing after Seager 1912: fig. 11.II.36)

I. Detail, pendant and  
attachment mechanism

PLATE 16: Mochlos Tomb Complex 1/2/3
A. Leaf pendants on chain with jump ring (MO 21)  
B. Pendants on chain  
  (after Seager 1912: fig. 11.II.35)  
C. Detail, chain and attachment to pendant  
D. Cone pendant on chain (MO 22)  
E. Pendant on chain  
  (after Seager 1912: fig. 11.II.30)  
F. Detail, pendant and attachment mechanism  
G. Triangle pendant (MO 23)  
H. Small leaf pendants (MO 24)  
  (Herakleion Museum)  
I. Leaf pendants  
  (after Seager 1912: fig. 11.II.19)  

PLATE 17: Mochlos Tomb Complex 1/2/3
PLATE 18: Mochlos Tomb Complex 1/2/3

A. Boss (MO 26)

B. Rim (MO 31)
(Herakleion Museum)

C. Boss and rim, possibly used as a cover for vase that has perished (after Seager 1912: fig. 9.II.12, 13b, 12a)

D. Boss with leaves (MO 27)
(after Vasilakis 1996: pl. 55γ)

E. Fragment of armlet or belt (MO 29)
(Herakleion Museum)

F. Fragments of armlet or belt (MO 29)
(Herakleion Museum)

G. Fragments of armlet or belt
(after Branigan 1974: pl. 22.2590)

H. Bar of twisted gold (MO 30)
(after Seager 1912: fig. 9.II.9)
A. Corrugated ornament (MO 32) (Herakleion Museum)
B. Corrugated ornament (MO 32) (after Seager 1912: fig. 9.II.14)
C. Strip cross (MO 33)
D. Strip cross (MO 33) (after Seager 1912: fig. 11.II.33)
E. Ornament (MO 34) (after Seager 1912: fig. 11.II.31b)
F. Rosette drum bead (MO 38)
G. Drum bead, detail of construction
H. Antennae (MO 42) (after Vasilakis 1996: pl. 37 α, β)
I. Antenna (MO 42) (after Seager 1912: fig. 11.II.31b)

PLATE 19: Mochlos Tomb Complex 1/2/3
A. Jewelry from Tombs 4, 16, 21, and 23
(after Seager 1912: fig. 20)

B. Jewelry from Tomb 6
(after Seager 1912: fig. 25)

PLATE 20: Mochlos Tomb Complex 4/5/6 and Tombs 16, 21, and 23
PLATE 21: Mochlos Tomb Complex 4/5/6

A. Leaf pendants (MO 43, MO 44) (after Vasilakis 1996: pls. 72, 56α)
B. Boss (MO 47) (Herakleion Museum)
C. Tiny beads from Tomb 23 (top, MO 104) Large and small beads from Tomb 6 (MO 48) (Herakleion Museum)

D. Animal mask (MO 50) (after Vasilakis 1996: pl. 99β)
E. Top of staff or scepter (MO 53) (after Vasilakis 1996: pl. 78)
F. Scepter leaf attachment detail (Herakleion Museum)

G. Top of staff or scepter (MO 53), displayed with four of six leaves (Herakleion Museum)
H. Scepter detail (Herakleion Museum)
A. Jewelry recovered from silver cup and earth spoil
   (Hagios Nikolaos Museum)

B. Crushed one-handled silver cup

PLATE 22: Mochlos Tomb Complex 4/5/6
A. Daisy pin (MO 57)  
B. Daisy pin detail, roughly-cut petals  

C. Finger ring (MO 58) and tubular beads (MO 59)  

D. Coil bead, side (MO 60)  
E. Coil bead, top  
F. Lily bead (MO 61)

PLATE 23: Mochlos Tomb Complex 4/5/6 (dump/earth spoil)
A. Agrimi diadem (MO 62)

B. Agrimi diadem (MO 62)
(after Davaras 1975: fig. 3)

C. Antenna tip detail
D. Top edge detail

PLATE 24: Mochlos Tomb Complex 4/5/6 (from silver cup)
PLATE 25: Mochlos Tomb Complex 4/5/6 (from silver cup)
A. and B. Diadem attachments or hair ornaments, with most leaves arranged as sprays

C. Leaf shapes (from left, MO 79, MO 75, MO 74, MO 73, MO 72, and MO 78) (after Davaras 1975: fig. 2)

D. Leaf spray, as recovered (MO 71)

E. Leaf spray (MO 75)

F. Heart-shaped leaf (MO 79)

PLATE 26: Mochlos Tomb Complex 4/5/6 (from silver cup)
A. Gold jewelry and ornaments from Tombs 5 and 19 (other objects not in study) (after Seager 1912: fig. 41)

B. Gold jewelry from Tomb 19 (after Seager 1912: fig. 43)

PLATE 27: Mochlos Tombs 5 (of 4/5/6) and 19
A. Armlet (MO 80)
(Herakleion Museum)

B. Armlet (MO 80)
(after Seager 1912: fig. 38)

C. Diadem (MO 82)
(Herakleion Museum)

D. Diadems (MO 81 [top] and MO 82)
(after Vasilakis 1996: fig. 12.15-16)

PLATE 28: Mochlos Tombs 16 and 19
A. Daisy pins or hair ornaments (MO 85, MO 83)             B. Daisy pin (MO 83) (after Seager 1912: fig. 42)

C. Daisy pin detail (MO 84)                      D. Daisy pin detail (MO 85)

E. Daisy pin (MO 86) (after Vasilakis 1996: pl. 82)                                              F. Armlet fragment (MO 87) (Herakleion Museum)

PLATE 29: Mochlos Tomb 19
A. Pendants on chains (MO 89 [left], MO 88) (after Vasilakis 1996: pl. 75)
B. Spherical pendant (MO 89) detail (Herakleion Museum) (MO 90) (after Vasilakis 1996: pl. 62α)
C. Leaf pendant (after Vasilakis 1996: pl. 37ζ)
D. Antenna-like diadem attachment (MO 91) (after Vasilakis 1996: fig. 14.8)
E. Antenna-like diadem attachment (MO 91) (after Vasilakis 1996: pl. 43ε)
F. Lozenge ornament (MO 92) (after Vasilakis 1996: pl. 43ε)
G. Flower-shaped ornament (MO 93) (Herakleion Museum) (MO 94) (after Vasilakis 1994: pl. 44α)

PLATE 30: Mochlos Tomb 19
A. Drum bead (MO 95), top
B. Drum bead (MO 95), side
C. Leaf (MO 98)
D. and E. Finger rings (MO 99) (Herakleion Museum)
F. Ornament (MO 100) (Herakleion Museum)
G. Human mask (MO 101: H. .7 cm) (after Vasilakis 1996: pl. 71β)
H. Beads (outside: MO 102, inside: MO 104) (after Vasilakis 1996: pl. 91β, γ)
I. Larger beads from necklace (MO 102) (Herakleion Museum)

PLATE 31: Mochlos Tombs 19, 21, and 23
A. Silver disk (HA 1) (after Hall 1914: fig. 107)

B. Silver finger rings or hair rings (HA 2) (after Hall 1914: fig. 107)

C. Silver pendant (HP 1) (copper pendant in front, not in study) (courtesy of Costis Davaras and Philip P. Betancourt)

D. Silver pendant (HP 1), three-quarter view (Hagios Nikolaos Museum)

E. Gold bead (MA 1) (after Vasilakis 1996: pl. 92i)

PLATE 32: Hagios Antonios, Hagia Photia, and Maronia Cave
A. Simple and loop-in-loop chains (after Ogden 1992: fig. 32 a, b)
B. and C. Repoussé and chasing, by modern jewelry-maker (after McGrath 1995: 44-45, figs. 4, 7)
D. Ajouré (Kalathiana KA 1) (Herakleion Museum)
E. Gilding, Hagios Onouphrios pendant (gold leaf over cast bronze)
F. Granulation (Koumasa KO 3) (photograph by V. Voutsas, Herakleion Museum)
G. Filigree (Kalathiana KA 11)

PLATE 33: Manufacturing techniques
PLATE 34: The crafting of a pendant from Platanos
A. Hoard from room 11 at Kastri, Syros  
(after Bossert 1967: fig. 1)

B. Stone pestle  
C. Pestle with lead covering

PLATE 35: Toolkit from Kastri, Syros
A. Incised designs from EM IIA Fine Gray Ware  
(after Betancourt 1985: 41, fig. 21)

B. White-on-dark Ware motifs  
(after Betancourt 1985: 58, fig. 37)

C. Mochlos White-on-dark Ware cup  
(after Davaras 1982: 25.18)

D. Mochlos jug with double spiral  
(after Seager 1912: fig. 19.V.a)

E. Zakros stone pyxis with dog  
(after Sakellarakis 1993: 15, #2719)

F. Marathokephalo ivory seal with flower and leaves  
(after Krzyszowska 2005: 65, #108a-b)

PLATE 36: Jewelry motifs in other media
PLATE 37: Early Minoan objects with jewelry

A. Goddess of Myrtos  
(photograph by G. Xylouris, Herakleion Museum)

B. Goddess of Myrtos headband detail  
(Hagios Nikolaos Museum)

C. Koumasa clay vase  
(after Xanthoudides 1924: pl. 19)

D. Zinta figurine  
(Herakleion Museum)

E. Zinta figurine detail  
(Herakleion Museum)

F. Mochlos clay vase  
(after Seager 1912: fig. 34)

G. Platanos ivory  
(Herakleion Museum)
A. EBA Cycladic figurine (after Getz-Preziosi 1985: fig. 42)
B. Chamaizi figurine (after Davaras 1982: 38, fig. 35)
C. Knossos Snake Goddesses (after Sakellarakis 1993: 37, #63, 65)
D. Snake Goddess necklace detail (Herakleion Museum)
E. Hagia Triada Chieftain cup (after Sakellarakis 1993: 67, #341)
F. Knossos sealing (after Kofou 1992: 44, fig. 38)
G. Zakros sealing (after Hood 1978: 221, fig. 223G)

PLATE 38: EBA – MBA Aegean objects with jewelry
PLATE 39: LBA Aegean objects with jewelry

A. Knossos figurine
(after Michailidou 1994: fig. 85)

B. Poppy Goddess
(after Rethemiotakis 2001: figs. 38b, 38a)

C. Poppy Goddess detail

D. Mycenae and Tiryns figurines
(after Demakopoulou 1988: cover)

E. Mycenae head
(National Museum, Athens)

F. Mycenae ivory trio
(National Museum, Athens)

G. Mycenae ivory
(after Demakopoulou 1988: 74-75, #2)

H. Mycenaean signet ring
(photograph by G. Fafalis)
A. Knossos Jewel fresco  
(Cameron restoration, after Evely 1999: 164)

B. Knossos Grandstand fresco detail  
(Cameron restoration, after Evely 1999: 90)

C. Knossos Grandstand or Temple fresco  
(after Kontorli-Papadopoulou 1996: color pl. 1)

D. Knossos Priest-King fresco  
(Gilliéron [left] and Cameron restorations, after Evely 1999: 123)

E. Knossos Ladies in Blue fresco  
(after Evans 1921: fig. 397)

PLATE 40: Wall paintings from Crete
A. Knossos Cupbearer fresco
   (after Sakellarakis 1993: 117)
B. Knossos Female Taureador fresco
   (after Kontorli-Papadopoulou 1996: color pl. 8)
C. Pseira Seated Woman fresco
   (after Seager 1910: pl. 5)

D. Hagia Triada sarcophagus
   (Herakleion Museum)
E. Hagia Triada sarcophagus detail
   (Herakleion Museum)

PLATE 41: Wall paintings and a painted sarcophagus from Crete
A. Boxing Boys detail  
(after Doumas 1992: 112, fig. 79)

B. House of the Ladies detail  
(after Doumas 1992: 41, fig. 10)

C. Young Priestess detail  
(after Doumas 1992: 56, fig. 24)

D. Adorants detail  
(after Doumas 1992: 138, fig. 101)

E. Saffron-gatherers detail  
(after Doumas 1992: 152, fig. 116)

F. Mistress of Animals detail  
(after Doumas 1992: 162, fig. 125)

PLATE 42: Wall paintings from Thera
A. Mycenaean Lady or “Mykenaia”  
(after Mylonas 1993: 49, #33)  
(National Museum, Athens)

B. Goddess with Sheaves: Mycenae  
(National Museum, Athens)

C. Lady with the Lily: Mycenae  
(National Museum, Athens)

D. Processional woman: Tiryns  
(National Museum, Athens)

E. White Goddess: Pylos  
(Chora Museum)

PLATE 43: LBA mainland wall paintings
A. Dog diadem, as recovered in two pieces from Mochlos Tomb 2

B. Dog diadem
(after Seager 1912: fig. 9.II.4)

C. Detail near center, dogs and (?) prey
D. Detail, dogs and (?) prey

E. Ivory seal from Mochlos Tomb 2
(after Seager 1912: fig. 11.II.42a-b)

F. Stone cover from Mochlos Tomb 1
(after Seager 1912: fig. 5)

PLATE 44: Mochlos Dog Diadem
A. Dog on silver diadem from Syros
(after Paphianassopoulou 1981: 132-133, fig. 61)

B. Repaired break (note perforations)

C. Tray of antennae
(Herakleion Museum)

D. Attachment mechanism
on antenna

E. Mochlos Dog diadem, as reconstructed

PLATE 45: Mochlos Dog Diadem
A. Dog diadem (MO 2) depicted as part of headdress
Perforations at tips of vertical extensions indicate that they were attached to another material, perhaps leather or cloth. Shape of headdress and addition of feathers are speculative. However, later diadems or headdresses include similar elements, e.g., the Snake Goddess with outstretched arms, the Poppy Goddess, the Priest-King, and women from the Hagia Triada sarcophagus (see Plates 38-41). The drawing of the woman is inspired by Mark Cameron’s illustration of the “Priest-King” as female (Evely 1999: 123).

B. Eye diadem (MO 1) with possible attachment
Attachments were repeatedly stuck through holes on the left side of the Eye diadem. Although no attachments were found in place, they may have included two crocus pins (MO 16) or up to three sprays of olive leaves (MO 19), all of which were recovered from the same context as the diadem. The size and shape of the perforations indicated that two to three elements were attached. Only one spray of olive leaves was available when this photograph was taken.

C. Pendants (MO 24) on headband
Eight small, leaf-like gold pendants, all recovered with jump rings in place, may have hung from a headband made from cloth or leather. Cross-culturally, pendants commonly hang over the ears or the forehead.

PLATE 46: Adornment for the head
PLATE 47: Final Neolithic Aegean jewelry

A. Zas Cave strip
(after Demakopoulou 1998: 63, #59)

B. Aravissos hoard strip
(after Demakopoulou 1998: 63, #59)

C. Aravissos hoard ring pendant
(after Demakopoulou 1998: 63, #58)

D. Ring pendants
(after Demakopoulou 1998: 3)

E. Alepotrypa Cave jewelry
(after Demakopoulou 1998: 65, #64-66)

F. Amnissos Cave pendant
(after Demakopoulou 1998: 64, #63)
A. Naxos silver necklace
(after Papathanassopoulos 1981: 138, #66)

B. Syros silver diadem

C. Syros silver diadem
(after Renfrew 1972: fig. 18)

D. Amorgos silver diadem

E. Amorgos silver pin

PLATE 48: The Cyclades
PLATE 49: Mainland Greece

A. Thyreatis necklace  
(after Reinholdt 1993: ill. 1)  
(B. Thyreatis necklace detail  
(courtesy of Claus Reinholdt)

C. Thyreatis pin  
(after Reinholdt 1993: ill. 14a,b)  
D. Aegina pendant  
(after Reinholdt 2004: pl. 15.3)

E. Levkas beads  
F. Levkas wire rings  
G. Levkas bracelet
A. Diadem
(after Schliemann 1875: pl. 19, #277)

B. Lobed crescent earring

C. Basket earring
(after Antonova et al. 1996: 136)

D. Pin
(after Antonova et al. 1996: 182)

E. Bracelet
(after Antonova et al. 1996: 114)

F. Hair rings
(after Antonova et al. 1996: 64, #45-46)

PLATE 50: Troy
A. Basket earrings
B. Basket detail
C. Poppy earring
D. Poppy earring detail
E. Top of pin
F. Hair rings, as recovered
G. Flat beads with tubular mid-rib string holes
H. Buttons

PLATE 51: Poliochni
A. Diadem
(after Aruz 2003: 280, #183)

B. Diadem
(after Bingöl 1999: 49, #10)

C. Bracelet
(after Aruz 2003: 281, #185)

D. Quadruple-spiral beads with pendant
(after Bingöl 1999: 106, #102)

E. Pin
(after Aruz 2003: 281, #184)

F. Belt ornaments
(after Bingöl 1999: 203, #229)

PLATE 52: Alacahöyük
A. Kültepe pendant
(after Bingöl 1999: 136, #146)

B. Horoztepe strip
(after Özgüç 1958: pl. 14.3)

C. Arslantepe diadem
(after Frangipane 2001: fig. 14)

D. Arslantepe coils
(after Frangipane 2001: fig. 19)

PLATE 53: Objects from sites in Anatolia
A. Treasure A and jug
(after Özgüç and Temizer 1993: pl. A.3)

B. Shell earrings or hair rings
(after Bingöl 1999: 56, #18)

C. Basket earrings
(after Bingöl 1999: 86, #72)

D. Earrings with “animal heads”
(after Bingöl 1999: 62, #30)

E. Spoon beads or pendants
(after Bingöl 1999: 108, #105)

F. Double-spiral beads or pendants
(after Bingöl 1999: 110, #107)

G. Torque
(after Bingöl 1999: 150, #165)

H. Torque detail
(after Özgüç and Temizer 1993: pl. A.4)

PLATE 54: Eskiyapar
A. Karataş-Semayük pin
(after Bingöl 1999: 197, #219)

B. Karataş-Semayük ear stoppers
(after Bingöl 1999: 219, #243)

C. Tarsus pin, bead, and earrings
(after Goldman 1956: ill. 434)

D. İkiztepe gold pin and pendant
(after Bilgi 1984: figs. 16.199, 18.265)

E. Korucutepe seal bracelet
(after Van Loon 1973: pl. 4.1)

PLATE 55: Objects from sites in Anatolia
A. Silver diadems, rosette disk, and bracelet  
(after Schwartz et al. 2000: 771, fig. 6)

B. Filigree pendant  
(after Aruz 2003: 181, #118)

C. Triangular pendant  
(after Aruz 2003: 183, #121b)

D. Bead with flanges  
(after Aruz 2003: 181-182, #119)

E. Lattice-work ornaments  
(after Schwartz et al. 2006: 616, fig. 15)

PLATE 56: Umm el-Marra
A. Ebla earring or nose ring
(after Millard 1992: 10)

B. and C. Byblos medallion and ring
(after Tufnell and Ward 1966: figs. 4, 7.192)

D. Sotira Kaminoudhia
hair rings or earrings
(after Swiny et al. 2003: 7, pls. 8.1d-e)

E. and F. Lapithos gold leaf and hair rings
(after Grace 1940: pl. 12)

G. Nahal Qahah Cave rings
(after Bachmann 2006: 37, pl. 36)

H. Kinneret Cave plaque
(after Amiran 1993: pl. 5.1)

PLATE 57: Objects from the Levant and Cyprus
A. Tell Brak hoard
(after Matthews 1994: fig. 14)

B. Tell Brak repoussé pendant
(after Matthews 1994: figs. 10-11)

C. Tell Brak jewelry
(after Aruz 2003: 231-232, #158a-e)

D. Mari pendant with roundels
(after Aruz 2003: 145, #86)

PLATE 58: Objects from hoards in Mesopotamia
PLATE 59: Objects from burial contexts in Mesopotamia
PLATE 60: The Royal Cemetery of Ur

A. Tomb PG 755 helmet  
   (after Bachmann 2006: 59, pl. 58)

B. Necklace with quadruple-spiral pendant  
   (after Aruz 2003: 129-130, #78)

C. Hair ribbon  
   (after Zettler and Horne 1998: 102, #44)

D. Collar, ribbon, earrings, and wreath  
   (after Aruz 2003: 122-123, #72a,b,d,e)

E. Dagger with proto-granulation  
   (after Zettler and Horne 1998: 169, #146)

F. Brims  
   (after Zettler and Horne 1998: 105, #52)
A. Queen Puabi’s headdress *in situ*  
(after Woolley 1934: pl. 43b)

B. Queen Puabi’s headdress  
(after Zettler and Horne 1998: 91, #29)

C. Sargonid frontlet  
(after Woolley 1934: pl. 147, right)

D. Sargonid diadem with dot repoussé  
(after Zettler and Horne 1998: 106, #53)

E. Child’s head ornament  
(after Woolley 1934: pl. 133, bottom)

F. Filigree bead  
(after Aruz 2003: 128, #75)

PLATE 61: The Royal Cemetery of Ur
A. Abydos beaded diadem (outer object)  
(after Andrews 1991: fig. 31)

B. Naga-ed-Dêr pendants and amulets  
(after Andrews 1991: fig. 11)

C. Abydos bracelets  
(after Andrews 1991: fig. 10)

D. Giza bracelets  
(after Arnold 1999: fig. 27)

E. Giza beetle-amulet collar  
(after Hassan 1936: pl. 52.2)

F. Giza beetle detail  
(after Wilkinson 1971: fig. 17)

PLATE 62: Egypt
A. Giza diadem *in situ*  
(after Hassan 1936: pl. 50)

B. Giza diadem: note copper band under diadem in top photograph  
(after Hassan 1936: pl. 51)

C. 12th Dynasty limestone relief (c. 1930 BC)  
(after Andrews 1991: fig. 52)

D. Sahure limestone relief  
(after Borchardt 1913: pl. 16)

E. 4th Dynasty limestone statue  
(after Andrews 1991: fig. 81)

PLATE 63: Egypt
A. Varna jewelry and ornaments
(after Misch-Brandl 1994: ii)

B. Reconstruction of Varna “chieftain” grave
(after Misch-Brandl 1994: 9)

C. Varna cenotaph grave: note
five earrings on right
(after Misch-Brandl 1994: vii)

D. Varna cenotaph objects
(after Misch-Brandl 1994: 2)

E. Varna ring pendant
(after Misch-Brandl 1994: cover)

F. Dabene hair rings
(after AP online, 19 Aug 2005)

G. Dabene beads and spacers
(after msnbc.com, 17 Aug 2005)

PLATE 64: Bulgaria
A. Balkan “earrings/pendants”  
(after Nikolova 1999: 307, fig. 15.7)

B. Objects from the Tiszaszőlős hoard  
(after Makkay 1989: pl. 8)

C. Moigrad pendant (31.1 cm L)  
(after Makkay 1989: pl. 9)

D. Moigrad anthropomorphic pendants  
(after Makkay 1989: pl. 11)

E. Moigrad gold fork: bent, straight, detail  
(after Makkay 1989: pl. 17.10)

PLATE 65: The Balkans
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