Livari Skiadi

A Minoan Cemetery in Southeast Crete

I. Excavation and Finds

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by

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with contributions by

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Introduction and Acknowledgments

This is the first of a two-volume final report on the excavation of the Minoan cemetery and associated finds at Livari Skiadi, near Goudouras, at the southeastern end of Crete. The cemetery was unearthed during a rescue excavation performed by the 24th Ephorate of Prehistoric and Classical Antiquities of the Hellenic Ministry of Culture, under the direction of Chrysa Sofianou, who was at that time responsible for the antiquities of the Siteia prefecture, and with the participation of Yiannis Papadatos, together with a small group of archaeology students from the Department of History and Archaeology of the National and Kapodistrian University of Athens. The excavation lasted three consecutive summers, from 2008 until 2010, and it revealed a tholos tomb and burial rock shelter used in the Prepalatial period, a house tomb dated to the Neopalatial period, and deposits of funerary material in open areas surrounding these tombs.

The study and analysis of the material followed immediately, allowing the full publication of the remains and the associated finds to be completed within five years of the completion of the excavation, while a second volume on the organic materials (e.g., human remains, ecofacts) and the final conclusions is in preparation. The quick advance of the excavation, study, and final publication is the result of generous funding provided by several institutions, and the hard work of a large number of colleagues, students, and friends, to whom we owe much.

Principal funding for the excavation and study throughout all stages of the project was provided by the Institute for Aegean Prehistory (INSTAP). Significant financial support also came from the 24th Ephorate of Prehistoric and Classical

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List of Abbreviations

a	angular
B	miscellaneous finds catalog number
cm	centimeter(s)
CW	coarse ware
dia.	diameter
dims.	dimensions
DBW	Dark Burnished ware
DGBW	Dark Gray Burnished ware
DOLW	Dark-on-Light Painted ware (Prepalatial)
DOL	Dark-on-Light Painted Lustrous ware (Neopalatial)
EBA	Early Bronze Age
EC	Early Cycladic
EM	Early Minoan
FGW	Fine Gray ware
FN	Final Neolithic
h.	height
ha.	hectare(s)
J	jewelry catalog number
km	kilometer(s)
L.	length
LIV	petrographic sample
LM	Late Minoan
LOD	Light-on-Dark Painted ware
m	meter(s)
M	metal artifact catalog number
max.	maximum
MM	Middle Minoan
MW	Monochrome ware
No.	number
NV	no vitrification
OBBW	Orange-Buff Burnished ware
P	pottery catalog number
PPL	plane-polarized light
pXRF	portable X-ray fluorescence spectroscopy
PW	plain ware
r	rounded
RBBW	Red-Brown Burnished ware
RBW	Red Burnished ware
R/BSW	Red/Black Slipped ware
RSBW	Red Slipped and Burnished ware
S	seal catalog number
sa	subangular
SEM	scanning electron microscopy
sr	subrounded
Str.	stratum

TCFs	textural concentration features	w.	width
th.	thickness	WODW	White-on-Dark Painted ware
Tr.	trench	wr	well rounded
V	stone vase catalog number	WW	Wiped ware
VW	Vasiliki Ware	XP	cross-polarized light

PART I

Site, Excavation, and Architecture

1

The Site

by

Chrysa Sofianou

1.1. Topography

Livari (Λιβάρι) is a small coastal plain on the southern coast, at the southeastern corner of Crete (Figs. 1–3; Pl. 1A). It lies 5.7 km east of Goudouras and 3.6 km southeast of Hagia Triada, which are the closest inhabited modern settlements. The closest large centers of Minoan habitation are Zakros, ca. 14 km directly northeast, and Diaskari and Makrygialos, ca. 17 km directly west, but smaller sites have been identified at Xerokambos and Hagia Irini, a few kilometers to the northeast. The plain is also opposite the islet of Kouphonisi, ancient Lefki, which is situated only 3.8 miles offshore. The area is accessible on foot and by car via a dirt road that ascends toward the sea from the west, following a small ravine; this was probably the main access route in the past, connecting Livari with the main road that joined Ziros and Hagia Triada with Goudouras.

The plain is oriented west–east (Fig. 3), looking south toward the Libyan sea, and it covers an area of about 5 ha (280 m long and 180 m wide). It is enclosed by six low, steep hills: Cheromylia (Χερομύλια), Kastrokephalaki (Καστροκεφαλάκι), and Katharades (Καθαράδες) to the west; Strouphomata (Στρουφώματα) and Sopatakia (Σωπατάκια) to the north; and Chlios (Χλιός) to the east (Pl. 1B). The plain is cut by several streams that are dry for most of the year. The largest streams are Alogaras (Αλογαράς) to the west and Ankastaras (Αγκασταράς) to the east. Both have created relatively deep gorges that flood during heavy rains. The area has a constant water supply, even during the dry summer months, from a small spring at the foothills of Strouphomata next to the Ankastaras stream.

The plain is relatively flat, descending smoothly to the sea. Aeolian and sea erosion has exposed large areas of the natural bedrock, namely a Miocene conglomerate consisting of limestone, dolomite, and chert (IGME 1959). Limited soil deposits of the Holocene include a small alluvial deposit with sand at the mouth of the Alogaras gorge and an extended colluvial deposit south of the Ankastaras gorge consisting of talus and slope fan debris.

The climate is very dry, with limited annual rainfall. The hills that seem to protect the area from north winds actually strengthen them and, as a result, the area is rather windy.

Apart from three small, recently grown olive groves, the area is not cultivated. Until a few decades ago, the plain was exploited by a couple of families from the settlement of Hagia Triada, mainly for cereal cultivation, as indicated by the presence of several threshing floors. There are a few old deserted stone-built houses and huts owned by inhabitants of Hagia Triada that are used for seasonal occupation (μετόχια), a few animal pens, a small fisherman's house (χιόνα), and three recently built houses used during the summer months. It seems clear that in recent times the area was never the focus of intense, continuous habitation.

The cemetery is located at Skiadi (Σκιάδι), about 50 m from the seashore, near the pointed edge of a small rocky promontory of triangular shape, protruding ca. 150 m into the sea (Fig. 3; Pls. 2A, 2B). The promontory is at the mouth of the Alogaras gorge, at the southern edge of the Livari plain. Due to aeolian and sea erosion, the soil deposits are very thin, and the rough natural bedrock is exposed almost everywhere. In the middle of the promontory the bedrock rises abruptly, creating an elliptical hump ca. 3 m high and 20 x 10 m in extent. Three interconnected irregular chambers were formed inside this hump, which were used for burials and seasonal sheltering over the centuries.

1.2. History of Research

Being in a remote area, far from the major centers of Minoan archaeology, it is not surprising that Livari did not become the focus of archaeological attention until very recently. Fritz Schachermeyr (1938, 479) was the first to report the presence of eroded sherds that could be dated to the Minoan period. Paul Faure visited the area in 1958 because of his interest in the Alogaras cave, located high on the steep western cliffs above the gorge. The cave was closed by a well-built Venetian wall, probably dating to the 17th century A.D., and, despite the later disturbance, Faure reports the existence of Middle Minoan (MM) III sherds from inside the cave (Faure 1958, 515 n. 3). Both Schachermeyr's and Faure's reports were reproduced by Teresa Wroncka in her gazetteer of archaeological sites in the Siteia area (1959, 533), without providing any additional information.

A more systematic surface survey of the area was carried out intermittently by Norbert Schlager between 1987 and 2008, with intervals (Schlager et al. 2001; Schlager 2011). Schlager's team has identified, recorded, and documented a large number of sites and structures dated from the Neolithic to the modern era. The prehistoric sites identified by Schlager include: (a) the Early Minoan (EM) tholos cemetery at Skiadi; (b) a Final Neolithic (FN) settlement on top of the steep hill of Katharades, 650 m north of the cemetery; (c) a FN–EM II settlement on the southern and eastern slopes of Kastrokephalaki, 350 m north of the cemetery; and (d) a MM–Late Minoan (LM) settlement on the southern slopes of Cheromylia, 200 m west of the cemetery.

After 2004, the construction of a large power station at nearby Atherinolakkos changed the area completely. The old roads from Goudouras and Ziros were improved and laid with asphalt, and the area ceased to be as isolated as before. Ideas for the development and exploitation of the area emerged, along with real estate companies interested to invest. The usual anxiety arose among the locals that the possible presence of antiquities might prevent the development of the area. In 2007 the owner of the land, Georgios Kalogerakis, made unauthorized constructions in the area of the cemetery: he blocked the entrance of the largest rock shelter with a built wall, laid a cement floor inside, and constructed minor earth works in the area adjacent to the tholos tomb. Finally, in 2008 some locals informed us about the visits of "tourists" with what seemed to be metal detectors, and in the summer of the same year a few pits were observed by the personnel of the 24th Ephoreia in the area of Skiadi, indicating possible looting efforts.

It was clear that the cemetery was going to be the target of illicit excavations in the immediate future, and the 24th Ephoreia therefore carried out immediate rescue excavations to prevent looting. The excavations were directed by Chrysa Sofianou, archaeologist of the ephoreia responsible for the Siteia prefecture, with the collaboration of Yiannis Papadatos, lecturer of Prehistoric

Archaeology in the Department of History and Archaeology at the University of Athens.

The excavations revealed (Fig. 4): (1) a circular tholos tomb of the Mesara type and a burial rock shelter used during the Prepalatial period (EM I–III), excavated in 2008 and 2009, respectively; (2) a house tomb of the Neopalatial period (LM IA), excavated in 2009; and (3) deposits in the intervening open areas, excavated in 2009 and 2010.

2

Excavation and Stratigraphy

by

Chrysa Sofianou and Yiannis Papadatos

Before excavation, a square grid of 36 x 36 m was defined in the area of the cemetery (Fig. 5). The grid comprised nine squares (A–I) measuring 12 x 12 m each. Square A was defined around the tholos tomb and consisted of four trenches measuring 6 x 6 m each. The remaining eight squares (B–I) were each divided into nine smaller trenches (1–9) measuring 3 x 3 m each. All trenches of Square A and most of Square B were excavated down to bedrock; only select trenches were excavated in Squares C–I. Detailed lists of pottery and small finds can be found in Tables 1 and 2. All object measurements are given in centimeters unless otherwise indicated.

2.1. The Tholos Tomb

2.1.1. Description and Method of Excavation

Due to erosion, the circular wall of the tomb was clearly visible long before the excavation (Pl. 3A). Large quantities of eroded sherds, dated to the EM and LM periods, and fragments of human skeletal remains were found scattered inside the tomb and in the surrounding area, clearly suggesting that this circular structure was a Prepalatial tomb of the Mesara type (Schlager et al. 2001, 207–211), rather than just one of the many threshing floors that operated in the area until a few decades ago. The impression that this circular structure was not an ancient one but an old, destroyed threshing floor was probably the main reason why it was left untouched throughout the years.

The tomb was excavated in August and September of 2008. With an internal diameter of 4.4 m, it covers an area of 14.7 m^2 (Fig. 6; Pls. 3B, 4A). Before the excavation, the interior was divided into four quarters, Sector A in the northeast, Sector B in the southeast where the entrance lies, Sector C in the northwest, and Sector D in the southwest (Fig. 5). A fifth sector, Sector E, was defined in the area of the entrance between the two doorjambs. The five sectors were excavated separately in thin horizontal layers of soil, ca. 10 cm thick, while also following the stratigraphy of the soil fill when necessary. Pottery sherds were collected in separate groups from each sector and layer (see Concordance B for the list of pottery groups and contexts from each excavated area). When necessary, smaller pottery groups were collected separately from special areas. Depths were recorded regularly for finds and layers. The findspot was recorded for all the finds except for those that came from the sieve; in these cases it was possible to know only the sector from which each find originated. All the soil was dry sieved, and flotation samples, each measuring about nine liters, were collected from all layers except for the topsoil. Finally, all the skeletal material was collected, including the smallest fragments found in the sieve.

2.1.2. Stratigraphy

Before the excavation the ground surface had a slight inclination of about 0.35 m from southwest to northeast. This was partly because it followed the inclination of the natural bedrock, but it was also because of the preservation of the tomb wall. More specifically, the section of the wall to the northeast had been destroyed and was missing, causing the deposits in this part of the tomb to slide outside the tholos. The soil fill of the tomb varied in thickness between 0.6 m in the southwest and 0.3 m in the northeast. The fill was divided into four separate strata (Strata I–IV) on the basis of criteria related to the texture of the soil, its stone inclusions, and its depth (Fig. 7).

2.1.2.1. Stratum I: Topsoil

This stratum was the surface fill of the tomb, consisting of loose, soft soil of dark brown color and containing many organics and a few small stones, including gravel (Fig. 8:a; Pl. 3A). It had a mean thickness of 0.1 m.

2.1.2.2. Stratum II: Destruction Layer

This layer was a soil fill similar in texture to Stratum I, but it contained many undressed stones of medium and large size (Fig. 8:b; Pl. 4B). This stratum was primarily confined to the southern half (Sectors B and D) where it had a depth of ca. 0.1–0.15 m. It became thinner toward the northeast, covering part of Sector A, and it was almost absent in the northwest, covering a very small portion of Sector C. It was also absent from the area of the entrance (Sector E). The stones in the fill had probably fallen from the southern part of the tomb wall. A large stone slab was found in the southeastern quarter (Sector B) next to the entrance; measuring 0.8 x 0.6 m, the slab was perhaps one of the monolithic jambs of the entrance that had fallen inside the tomb.

2.1.2.3. Stratum III: Burial Stratum

The burial stratum consisted of rather compact soil, light in color, containing a few small-sized stones (Fig. 9; Pl. 4C). It covered the entire tomb, and its thickness varied between 0.1 m in the northeast, 0.2 m in the rest of the tomb, and up to 0.25 m in some areas, mainly in the center and the southeast.

2.1.2.4. Stratum IV: Subfill

Beneath the burial stratum was a thin layer of earth, consisting of pure soft soil without stones (Pl. 4A). It was an artificial layer laid on the bedrock in order to fill cavities and irregularities and create a relatively flat surface for the deposition of funerary material. The stratum covered the entire tomb, and its thickness varied significantly between a couple of centimeters up to 0.2 m in areas with deeper cavities.

2.1.3. Location of the Finds

2.1.3.1. Stratum I

This thin topsoil produced pottery sherds, human bones, a few animal bones, and shells found scattered throughout the tomb interior. Other finds included chipped stone tools in Sectors A and C, and a stone axe (**B1**) in Sector B (Fig. 8:a; Table 2; for a list of Siteia Museum, excavation, and catalog numbers, see Concordance A).

The cataloged pottery includes fragments of 14 vases (Table 1): **P5**, **P35**, **P85**, **P102**, **P106**, **P128**, **P129**, **P141**, **P224**, **P228**, **P231**, **P277**, **P278**, and **P323**. Most belong to EM I pyxides in Dark Gray Burnished ware (DGBW) and Dark-on-Light ware (DOLW), but other wares, shapes, and periods are also represented in smaller numbers. It should be noted, however, that no intact vase was found.

The uncataloged pottery consists of 516 sherds, in rather fragmented and eroded condition (Table 3). The vast majority of the diagnostic sherds belong to EM I–IIA, a few are dated to EM IIB–III, and there are also some modern sherds. A relatively large number of sherds had been burned to various degrees, some being completely deformed while others were simply scorched (Pl. 5). The dating of the burned sherds is difficult, but most of them belong to the EM I–IIA period. Although most of the sherds are dated within the time span of the tomb, their fragmentary condition, the presence of modern sherds, and the fact that they were found in the topsoil clearly suggest that the pottery of Stratum I is not related to the burials of Stratum III. The same applies to all finds from Stratum I.

2.1.3.2. Stratum II

The finds of Stratum II came from the areas that were covered by this destruction layer, namely Sectors B and D, part of Sector A, and a very small part of Sector C (Fig. 8:b). The stratum produced scattered pottery sherds, human bones, a few animal bones, and shells. Other finds included a clay animal figurine (**B2**) from Sector A; two stone beads (**J25**, **J26**) from Sector B; and chipped stone tools from Sectors A (**CS5**), B, and D (**CS11**) (Table 2).

The cataloged pottery includes fragments of 22 vases (Table 1): **P16**, **P86**, **P116**, **P117**, **P126**, **P127**, **P131**, **P134**, **P137**, **P157**, **P161**, **P180**, **P223**, **P275**, **P280**, **P281**, **P284**, **P312**, **P329**, **P333**, **P334**, **P362**, and **P363**. As with Stratum I, no intact vases were found. With the exception of two Neopalatial tripod cooking jars (**P362**, **P363**) and four EM IIB–III vases (**P312**, **P329**, **P333**, **P334**), the rest of the sherds are of EM I–IIA date. As with Stratum I, most cataloged vases belong to EM I pyxides in DGBW, Orange-Buff Burnished ware (OBBW), and DOLW, but other wares, shapes, and phases are also represented.

The uncataloged pottery comprises 688 sherds (Table 4). The vast majority of the diagnostic sherds are dated to EM I–IIA and a few to EM IIB–III, and there is also a rather significant quantity of later sherds dated to the Neopalatial period. Most of these later sherds belong to the (at least) two tripod cooking pots (**P362**, **P363**). They were found in the soil excavated just above and between the fallen stones in the stratum. This means that they ended up inside the tomb after the collapse of the tholos wall, and therefore they have no relation to the burials of Stratum III. The fact that most of the sherds belong to only two cooking pots may suggest that they were not stray finds but the remains of an activity that took place after the collapse of the wall, either on top of the rubble of the destroyed tomb or in its immediate vicinity. This is not surprising considering that only 5 m to the south lies the Neopalatial house tomb. The Neopalatial sherds found in the destruction layer may suggest that the terminus ante quem for the collapse of the tholos wall is the Neopalatial period. As in the case of Stratum I, a relatively large number of sherds had been burned to various degrees (Pl. 5); some had been completely deformed, while others were simply scorched. Most of the burned sherds are dated to the EM I–IIA period.

2.1.3.3. Stratum III

The burial stratum covered the entire tomb, including the area of the entrance. It was thicker in the southern half (ca. 0.2–0.25 m in Sectors B, D, and E) and much thinner in the northern half (ca. 0.1 m in Sector C and less than 0.1 m in Sector A). This was because in Sector A most of the burial deposits had slid away from this area of the tomb. Scattered in all areas of the tomb were pottery sherds, human bones, and chipped stone tools. The distribution of the rest of the finds (Fig. 9) is presented below.

2.1.3.3.1. Sector A

The finds in the northeastern sector were relatively few due to the thinness of the burial stratum in this area (Table 2). They included a stone pendant (**J19**), a copper-silver alloy vase-shaped pendant (**J17**), and chipped stone tools. It is interesting to note that the silver pendant was not found inside the tomb, but during the clearance of the soil around the small stones that constituted the foundation of the tomb wall in the northeast. This reinforces the idea that part of the burial stratum in the northern half of the tomb slid outside after the destruction of the wall. No intact vases were found.

The cataloged sherds belong to four vases (Table 1), all of EM I date: **P104**, **P130**, **P166**, **P205**.

2.1.3.3.2. Sector B

Most of the finds and the pottery of Stratum III came from the southeastern sector (Tables 1, 2) where the burial stratum was thicker. In this area the burial stratum was excavated in three superimposed layers. The uppermost contained a sherd with adhered drops of copper (**B9**; Pl. 5), chipped stone tools, a silver pendant (**J4**), and a gold bangle (**J74**). The pottery of this layer included fragments of six vases dated to the EM I–IIA period: **P37**, **P103**, **P110**, **P153**, **P225**, **P259** (Pl. 6A).

The second layer also contained many chipped stone tools (**CS2**, **CS3**, **CS8**, **CS9**) and a silver pendant (**J18**). The pottery includes fragments of 15 vases: **P40**, **P84** (Pl. 6B), **P118**, **P132**, **P133**, **P135**, **P148**, **P154**, **P167**, **P196**, **P226**, **P227**, **P282**, **P307**, **P325**. With the exception of an EM IIB goblet (**P307**) and an EM III spouted bowl (**P325**), both very fragmentary, the rest are dated to EM I–IIA. They belong to a variety of wares and shapes, but most of them are pyxides.

From the lower layer came some chipped stone tools (**CS1**, **CS7**), one stone (**J21**) and one silver (**J16**) pendant, a stone bead (**J27**), a copper awl (**M7**), and a piece of pumice (**B10**). The pottery includes fragments of four vases, **P78** (Pl. 7A), **P119**, **P286** (Pl. 7B), and **P308**, dated to EM I, EM IIA, and EM IIB.

2.1.3.3.3. Sector C

In the northwestern sector the finds (Table 2) included a copper dagger (**M1**; Pl. 8A) and several chipped stone tools (**CS4**). The pottery (Table 1) included fragments of 11 vases: **P50**, **P80**, **P111**, **P115**, **P162**, **P197**, **P209**, **P229**, **P232**, **P248**, **P305**. Apart from an EM IIB cup (**P305**), the rest are dated to EM I and EM IIA.

2.1.3.3.4. Sector D

The southwestern sector, like Sector B, produced a relatively large quantity of finds and pottery (Tables 1, 2). The burial stratum here was excavated in two superimposed layers. The uppermost layer contained chipped stone tools (**CS6**) and a silver pendant (**J5**). The pottery comprises fragments from 12 vases: **P1**, **P51**, **P68**, **P92**, **P170**, **P215–P217**, **P296**, **P306**, **P322**. One is dated to FN (**P1**), two to EM IIB–III (**P306**, **P322**), and the rest to EM I–IIA. The lower layer also contained many chipped stone tools and a silver flat bead (**J72**). The cataloged pottery included fragments of four vases, all dated to EM I: **P74**, **P75**, **P200**, **P210**.

2.1.3.3.5. Sector E

This small area between the jambs and in front of the tholos entrance produced a small number of finds (Table 2) from two superimposed layers. The uppermost layer contained a copper awl (**M6**), a stone rhomboid bead (**J6**), a pendant made of shell (**J11**), and some chipped stone tools. The lower layer contained a stone pendant (**J20**), chipped stone tools, and fragments from two vases dated to EM I–IIA: **P69**, **P283** (Table 1).

2.1.3.3.6. Discussion

Stratum III contained most of the pottery from the tomb, comprising 1,400 uncataloged sherds (Table 5). Most are dated to EM I–IIA, with only a few belonging to EM IIB–III. The same picture is seen in the cataloged pottery (Tables 1, 6), which is also mostly of EM I, EM I–IIA, and EM IIA date. A significant portion of the pottery had been burned to various degrees, some completely deformed, while others were simply scorched (Pl. 5). Most of these are dated to the EM I–IIA period. Furthermore, many other finds also showed traces of burning, including the chipped stone tools, the animal bones, and a large percentage of the human bones.

As expected, the finds of Stratum III were concentrated in the southern half of the tomb where the burial stratum was thicker and was protected by the overlying destruction layer (Stratum II). In contrast, the northern half produced fewer finds because a large part of the burial deposit had been eroded and slid outside the tomb. This can clearly be seen by comparing the quantities of pottery found in the different sectors of the tomb (Tables 7–10). Sectors B and D, which correspond to the southern half of the tomb, produced double the quantity of sherds and cataloged pottery than Sectors A and C, which correspond to the northern half of the tomb. The picture given by the human bones and the pottery sherds does not suggest any special distribution. Human bones were found all over the tomb interior, and there were no particular concentrations or groupings of bones. The same applies to most of the finds, which were found scattered in the tomb. There are, however, three groups of objects that were found very close to each other (Fig. 9). The first group was in Sector C, immediately to the north of the entrance, and consisted of a gold bangle (**J74**), two jugs (**P37**, **P259**), a bowl (**P226**), a ring-footed bowl (**P40**), a stone pendant (**J21**), a sherd with adhered drops of copper (**B9**), and a silver pendant (**J16**). The second was also in Sector C, immediately to the west of the entrance, and included a pyxis lid with bird-shaped lugs (**P286**), a miniature biconical pyxis (**P78**), and a copper awl (**M7**). The third was in Sector D, in the center of the tomb, and consisted of a silver pendant (**J5**), a chalice (**P223**), a pyxis lid (**P215**), a ring-footed bowl (**P68**), two pyxides (**P74**, **P75**), and a flat silver bead (**J72**). It is not possible, however, to know if these objects were originally deposited together. This should not be excluded since most finds are preserved intact, suggesting minimal disturbance. However, in only the third group are the vases dated to the same phase (EM I), while the other two groups included a mixture of EM I, EM IIA, and EM I–IIA vases.

2.1.3.4. Stratum IV

A thin layer of soil was artificially laid across the entire tomb prior to the deposition of the burials. The quantity of the pottery and the finds was much smaller than that of the overlying strata. The finds (Table 2) included a limited quantity of human bones, a few animal bones, and a tiny stone bead (**J28**). The cataloged pottery included fragments of only two vases, both dated to FN (Table 1), reinforcing the idea that Stratum IV was formed before the erection of the tomb.

In total, the uncataloged pottery comprises only 208 sherds (Table 11). No intact vases were found, and all the sherds are fragmented and very worn. As in all strata, most of the sherds are dated to EM I–IIA, but there are also many sherds dated to the FN period. The FN sherds are fragmented and heavily worn, suggesting that they were stray finds that existed in the area before the erection of the tomb. It is also interesting to note the lack of sherds dated to EM IIB–III.

2.2. The Burial Rock Shelter

2.2.1. Description and Method of Excavation

About 10 m west of the tholos tomb is a large projecting mass of natural bedrock, namely a Miocene conglomerate consisting of limestone and dolomite (Pls. 2B, 8B, 9A). This formation has an elliptical shape. It measures 20 x 10 m, with a southeast–northwest orientation (Fig. 4). It rises almost vertically up to 3 m from the surrounding ground. The interior of this formation is partially hollow with three chambers connected to each other through small openings.

Chamber 1 is the largest. It has a wide opening to the east, overlooking the tholos tomb, it covers an area of 37.4 m^2, and it is 10 m wide and 4 m deep. Its height varies between 2 m at the entrance down to a few decimeters at the back. Chamber 2 lies north of Chamber 1, and it is significantly smaller. The two chambers are connected through a narrow opening 1.6 m wide and 1 m high, which was recently blocked by a wall built by the land owner. Chamber 2 covers an area of 12 m^2; it is up to 2.5 m wide and 5 m deep, and its height varies between 0.5 and 1.5 m. The main access to Chamber 2 was through a low opening to the north, 2.5 m wide and 1.5 m high. Finally, Chamber 3 is very narrow and low. It covers an area of 10.5 m^2; it has a maximum width of 2.5 m, a depth of 7 m, and a height of less than 1 m. Access is through a small opening to the west measuring 2 x 1.5 m. Chambers 2 and 3 are connected through a narrow and low opening that measures 1.5 x 1 m.

Excavation of Chamber 1 was impossible because the owner of the land had blocked the entrance and laid a cement floor inside. Access to the soil deposits beneath the cement floor was possible to a limited extent through the excavation of neighboring Chamber 2 (Trench 6; Pl. 9B). The excavation of Chamber 3 produced absolutely no finds. Its soil was loose, soft, and sandy, clearly indicating that its deposition was not the result of human activities but that of natural processes like erosion, wind, water, and animal activity. The picture was entirely different in Chamber 2, which was used for burial activities over a long period, hence the name "burial rock shelter."

The burial rock shelter was excavated in August of 2009. Before the excavation a large number of stones were removed from the opening of Chamber 2 in order to facilitate access to its interior. The surface was covered by a thick loose soil fill, with little evidence for any human activity in the past. The interior of the chamber was divided into nine irregular trenches (Trenches 1A, 1B, 2A, 2B, 3A, 3B, 4A, 4B, 5) covering an area of ca. 0.5–1 m^2 each (Fig. 10). A tenth trench (Trench 6) was defined in the area beneath the foundation of the flimsy wall that blocked the opening between Chamber 1 and Chamber 2.

The free space inside Chamber 2 was only 0.5–0.7 m high, which created many practical problems during the excavation and made movement very difficult (Pls. 10A, 10B). For this reason, it was impossible to remove horizontal layers from all the areas of the rock shelter at the same time. Therefore, the excavation started first with the removal of the entire soil fill from the entrance (Trenches 1A, 1B, 2A, 2B) and gradually proceeded to the areas further inside the rock shelter. Only the lower layers of Trenches 4A, 4B, and 5 were excavated at the same time. Thin layers of 0.1 m were removed, following the stratigraphy of the soil fill when necessary. As in the case of the tholos tomb, pottery sherds were collected in separate groups from each trench and layer. In several cases smaller pottery groups were collected separately. The findspot was recorded for all the finds, except for those that came from the sieve, and the depths were recorded regularly. All the soil was dry sieved and flotation samples (measuring nine liters each) were collected from each trench and layer (except the topmost). Finally, all skeletal material was collected, including the smallest bone fragments from the sieve.

2.2.2. *Stratigraphy*

Before the excavation, the surface of Chamber 2 had a slight inclination of about 0.2 m, descending toward the entrance. The soil fill was 0.6–0.8 m thick. With the exception of a thin layer of loose soil on top, no more than a few centimeters thick, the rest of the fill corresponded to a single burial stratum, called Stratum I. This interpretation is based on a number of factors. First, there was no change in the soil, which was soft, loose, and dark brown in color. Also, it was small-grained with a sandy texture, like the soil typically accumulated inside caves by erosion and wind or the infiltration of water. It became slightly harder and more compact toward the bottom, but this was due to pressure from overlying layers rather than a change in the character of the deposit or the way it was formed. Second, many joins were found between sherds from remote trenches and layers, clearly suggesting that the soil fill of the rock shelter should be treated as a single stratum. For practical reasons, however, it was divided into three layers (Layers 1–3; Fig. 11; Pls. 10A, 10B).

2.2.2.1. Stratum I, Layer 1

Layer 1 corresponded to the topmost portion of the soil fill found inside the rock shelter. Its thickness varied between 0.4 m at the entrance and 0.2 m in deeper areas.

2.2.2.2. Stratum I, Layer 2

There was no significant change in the soil texture, which became slightly more compact with more medium-sized stones. Layer 2 was thicker inside the rock shelter, reaching 0.2 m, while at the entrance it was no more than 0.1 m thick.

2.2.2.3. Stratum I, Layer 3

The soil of Layer 3 was identical to that of Layer 2, but without stones. It was almost lacking in the area of the entrance, but deeper inside the rock shelter it became thicker, up to 0.2–0.3 m.

2.2.3. *Location of the Finds*

All trenches and layers produced large quantities of human bones, animal bones, shells, and chipped stone tools (**CS12–CS29**). These finds show no special distribution among the different trenches and layers. The distribution of the rest of the finds (Fig. 12) is presented below.

2.2.3.1. Trench 1

Layer 1 produced fragments of 11 clay vases (Table 1), of which three are dated to EM I–IIA (**P146**, **P195**, **P207**) and eight to EM IIB–III (**P309**, **P313**, **P314**, **P324**, **P326**, **P332**, **P337**, **P339**). In Layer 2 the pottery finds included fragments of five clay vases (Table 1), of which three are dated to EM I–IIA (**P9**, **P258**, **P270**; Pl. 11A) and two to EM IIB–III (**P314**, **P324**). Other finds (Table 2) included four copper awls (**M12**, **M13**, **M14**, **M15**). Layer 3 was almost absent in the area of the entrance and produced no finds.

2.2.3.2. Trench 2

Layer 1 produced fragments of 27 clay vases (Table 1), of which 18 date to EM I–IIA (**P17**, **P18**, **P23**, **P42**, **P57**, **P67**, **P83**, **P98**, **P100**, **P146**, **P152**, **P163**, **P169**, **P171**, **P203**, **P212**, **P270**, **P274**), eight to EM IIB–III (**P313**, **P314**, **P318**, **P320**, **P324**, **P330**, **P335**, **P343**), and one to LM IA (**P358**). Other finds (Table 2) included two stone pendants (**J10**, **J23**), seven stone beads (**J29–J35**), three stone vases (**V1–V3**), a bone seal (**S1**), a stone bead (**J63**), a faience bead (**J69**), three copper awls (**M9–M11**), a copper-silver alloy pendant (**J2**), a copper bead (**J73**), a possible copper awl (**M24**), and a copper wire (**M34**). Layer 2 contained fragments of 14 clay vases (Table 1), eight dated to EM I–IIA (**P31**, **P32**, **P79**, **P169**, **P184**, **P185**, **P208**, **P285**) and six to EM IIB–III (**P318**, **P319**, **P332**, **P335**, **P341**, **P343**). Other finds (Table 2) included five stone beads (**J51**, **J52**, **J56**, **J60**, **J61**), a stone pendant (**J13**), a bone bead (**J62**), a bone seal (**S3**), a bone tool (**B7**), a copper and rock crystal bead (**J71**), a copper fragment (**M33**), and two copper awls (**M16**, **M17**). Layer 3 was almost absent and produced no finds.

2.2.3.3. Trench 3

Layer 1 produced fragments of 27 clay vases (Table 1), of which 17 are dated to EM I–IIA (**P58**, **P77**, **P83**, **P100**, **P123**, **P142–P145**, **P160**, **P169**, **P187**, **P191**, **P193**, **P194**, **P207**, **P211**), nine to EM IIB–III (**P313**, **P314**, **P318–P320**, **P324**, **P330**, **P335**, **P345**), and one to the late Hellenistic/early Roman period (**P368**). Other finds (Table 2) included five stone beads (**J36–J38**, **J58**, **J66**), a stone seal (**S5**), a bone seal (**S2**), a bone tool (**B3**), a bone pendant (**J14**), a piece of gold foil (**J75**), and two copper nails (**M28**, **M29**). Layer 2 contained fragments of 24 clay vases (Table 1), of which 16 are dated to EM I–IIA (**P18**, **P43**, **P44**, **P66**, **P73**, **P88–P90**, **P93**, **P99**, **P105**, **P144**, **P147**, **P186**, **P201**, **P208**), seven to EM IIB–IIIA (**P315**, **P318**, **P319**, **P324**, **P335**, **P338**, **P343**), and one to the Neopalatial period (**P360**). It also produced (Table 2) a silver decorative boss (**J77**), three stone pendants (**J7**, **J8**, **J22**), two stone beads (**J39**, **J40**), a bone tool (**B4**), a bone handle (**B8**), and two copper daggers (**M2**, **M4**). Layer 3 contained fragments of 37 clay vases (Table 1), of which 31 are dated to EM I–IIA (**P18**, **P24**, **P49**, **P59**, **P60**, **P67**, **P77**, **P79**, **P83**, **P99**, **P113**, **P144**, **P145**, **P151**, **P152**, **P173–P175**, **P181**, **P187**, **P189–P191**, **P204**, **P208**, **P212**, **P249**, **P261**, **P270**, **P279**, **P294**) and six to EM IIB–III (**P314**, **P318**, **P319**, **P321**, **P342**, **P343**). Other finds (Table 2) include one stone pendant (**J9**), six stone beads (**J41–J44**, **J53**, **J65**), two bone tools (**B5**, **B6**), a bone pendant (**J24**), a bone bead (**J70**), an ivory seal (**S4**), a bent copper rod (**M30**), four copper awls (**M18–M21**), a copper scraper (**M26**), and a copper fishhook (**M25**).

2.2.3.4. Trench 4

Layer 1 produced fragments of 22 clay vases (Table 1), of which 15 are dated to EM I–IIA (**P18**, **P73**, **P95**, **P124**, **P145**, **P149**, **P168**, **P176**, **P182**, **P183**, **P188**, **P220**, **P274**, **P294**, **P300**), five to EM IIB–III (**P315**, **P319**, **P330**, **P343**, **P346**), and two to the late Hellenistic/early Roman period (**P366**, **P367**). It also contained (Table 2) a strip of lead (**M35**), a possible stone vase (**V5**), two stone beads (**J45**, **J68**), a bone pendant (**J15**), and a copper-silver alloy pendant (**J1**). Layer 2 produced fragments of 32 clay vases (Table 1), 27 dated to EM I–IIA (**P7**, **P31**, **P32**, **P67**, **P73**, **P77**, **P79**, **P83**, **P91**, **P97–P99**, **P107**, **P108**, **P139**, **P144**, **P150**, **P158**, **P159**, **P165**, **P169**, **P192**, **P207**, **P208**, **P260**, **P262**, **P266**) and five to EM IIB–III (**P318**, **P319**, **P324**, **P330**, **P335**). Other finds (Table 2) included fragments of a stone vase (**V1**), six stone beads (**J46–J48**, **J54**, **J57**, **J67**), a stone seal (**S6**), a fragment of copper (**M31**), a copper awl (**M22**), a copper dagger (**M5**), and a sheet of gold (**J76**). Layer 3 produced fragments of 19 clay vases (Table 1), 15 dated to EM I–IIA (**P10**, **P39**, **P45**, **P82**, **P 94**, **P96**, **P140**, **P158**, **P169**, **P208**, **P212–P214**, **P230**, **P233**) and four to EM IIB–III (**P315**, **P318**, **P335**, **P344**). Also, two stone beads (**J49**, **J55**) and a fragment of copper (**M32**) were found (Table 2).

2.2.3.5. Trench 5

Layer 1 produced fragments of seven clay vases (Table 1), six dated to EM I–IIA (**P8**, **P41**, **P52**, **P61**, **P83**, **P265**) and one to EM IIB–III (**P319**). A copper dagger (**M3**) was also found (Table 2). Layer 2 produced fragments of 10 clay vases (Table 1), nine dated to EM I–IIA (**P18**, **P32**, **P38** [Pl. 11B], **P47**, **P53**, **P70**, **P73**, **P144**, **P145**) and one to EM IIB–III (**P343**). Other finds (Table 2) include a stone bead (**J50**), a stone pendant (**J12**), a silver pendant (**J3**), and a copper awl (**M23**). Layer 3 produced fragments of one clay vase (Table 1), dated to EM I–IIA (**P144**), and a stone bead (**J64**).

2.2.3.6. Trench 6

This is the small trench excavated beneath the foundations of the flimsy modern wall that was blocking the opening between Chambers 1 and 2, located at the eastern side of the rock shelter (Fig. 10; Pl. 9B). Layer 1, which was immediately beneath the foundations of the modern wall, produced only a few human bones. Layer 2 produced a clay vase (Table 1) dated to the late Hellenistic/early Roman period (**P364**). Layer 3 produced three clay vases (Table 1), of which two are dated to EM I (**P12**, **P297**) and one to the late Hellenistic/early Roman period (**P365**). The latter was found on the bedrock, showing that in this area the disturbance had reached the deepest layers. This intense disturbance is most probably related to the construction works in the neighboring Chamber 1, namely the paving of the floor with cement and the construction of the flimsy wall.

2.2.3.7. Discussion

The distribution of the finds in the trenches and layers of the rock shelter (Table 12) shows no particular pattern. The same is the case in the plan showing the location of the finds for which the exact findspot was recorded (Fig. 12). Although there seemed to be a tendency for more finds toward the center of the rock shelter—in Trenches 2, 3, and 4—this is largely because in these trenches the deposits were thicker. Also, there are no particular distribution patterns according to layer. In each trench there was a tendency for more finds in Layer 2, but this difference is not pronounced.

The distribution of the pottery, on the other hand, is much more informative concerning the character of the burial stratum and the way it was formed. A distribution analysis of the uncataloged pottery sherds of the various periods in each trench and layer shows comparable percentages for each category of pottery (Tables 13, 14). Trench 4 had an increased percentage of later pottery, and Trench 1 in pottery of EM IIB–III, but the differences are not large and perhaps of no significance at all. Concerning distribution between layers, the percentage of post-Minoan pottery is—as expected—significantly higher in Layer 1 and reduces gradually in the deeper layers. On the contrary, the percentage of the EM I–IIA pottery is higher in deeper layers, while the percentage of EM IIB–III remains the same throughout the stratigraphy.

The same picture emerges when the distribution of the cataloged vases is examined (Tables 15, 16). Most of the EM IIB–III vases were found in the area of the entrance (Trenches 1, 2), with the number decreasing when moving deeper inside the rock shelter (Trenches 4, 5). Furthermore, there was a slight decrease in the frequency of the EM IIB–III vases in deeper layers. This may indicate that by EM IIB–III the rock shelter became full of earlier material, so the later funerary depositions had to be made closer to the entrance and in upper layers. It should be noted, however, that the limited quantity of the EM IIB–III pottery, both cataloged vases and uncataloged sherds (Tables 17, 18), shows that in these later phases the use of the rock shelter was less intensive than in EM I–IIA.

Additional evidence comes from the distribution of the later sherds (Table 19). These are dated to the late Hellenistic/early Roman period and modern times, and they were distributed rather disproportionally in the three different layers. The vast majority of the later pottery comes from the upper 0.4 m of the soil fill (Layer 1), and the percentages became gradually lower in the deeper layers. This pattern indicates that the burial stratum was not the result of later operations and activities of post-Minoan date, such as clearing or leveling operations carried out by the people that sheltered there in later periods. Rather, it was formed in Minoan times, but its upper layers were always open to later disturbance. The single exception is the area of Trench 6, underneath the modern wall that separated Chambers 1 and 2, where disturbance reached the bedrock because of modern construction in Chamber 1.

The pattern of joining sherds also provides interesting evidence concerning the character of the burial stratum and the way it was formed. A large number of vases dated to all Prepalatial phases were put together from joining sherds found scattered in all areas and layers of the interior of the rock shelter.

Table 20 presents vases made of sherds with wide patterns of distribution, but there are also more cases with less distinctive patterns.

The above evidence suggests an increased level of disturbance mostly during the EM I–III period —that is, during the burial use of the rock shelter —rather than in later periods. Such a disturbance could be the result of two alternative depositional practices. The first possibility is that the entire burial stratum was the result of a single deposition episode, perhaps an extensive clearing operation. In this scenario, the rock shelter would be the final place for the deposition of funerary material that was originally deposited elsewhere. The single depositional episode in this case should be dated to the period of the latest pottery found in the rock shelter, the EM III period. This is the least possible scenario, however, for several reasons. As discussed above, the quantity of the EM I–IIA pottery is significantly larger than that of EM IIB–III. Also, the diminishing quantity of the EM IIB–III material in the deeper layers does not reinforce this scenario. For the above reasons, we believe that the material from the rock shelter is the result of many continuous episodes of deposition, which constantly caused disturbance to the earlier remains. The lack of intermediate layers of pure soil indicates that in this case the depositional episodes were not separated by long chronological gaps. According to this scenario, funerary material (skeletal remains and artifacts) was regularly deposited inside the rock shelter. These burials and artifacts were not covered by soil, thus being subject to constant disturbance by successive depositional episodes.

2.3. The House Tomb

2.3.1. Description and Method of Excavation

Clear evidence for the existence of a built structure existed ca. 5 m south of the tholos tomb. Due to erosion, parts of two walls joining at a right angle were visible on the surface before the excavation (Schlager et al. 2001, fig. 18, area IV). Eroded sherds and a few human bones scattered around these walls implied a possible funerary use. The tomb was excavated in July of 2009. An almost square house tomb was revealed comprising two irregular rooms, Room 1 and Room 2, separated by a diagonal wall (Wall 4; Figs. 4, 13; Pls. 12A–13A). The existence of more rooms to the south is highly possible, but nothing is preserved apart from a fragmentary wall. The location of the entrance remains unknown; if it existed, it should have been in the southeastern corner where a large part of the wall has been washed away. The two rooms were excavated separately, in thin horizontal layers ca. 0.1 m thick, following the stratigraphy of the soil fill when necessary. Pottery sherds were collected in separate groups from each layer, but smaller pottery groups were collected separately when appropriates. The findspot was recorded for all finds, except for those coming from the sieve, and the depths were recorded regularly. All the soil was dry sieved, and flotation samples, about nine liters each, were collected from all layers except for the topmost. All skeletal material was collected, even the smallest bone fragments found in the sieve.

2.3.2. Stratigraphy

Before the excavation the ground surface had a slight inclination of about 0.3 m from west to east, following the natural slope of the land. The soil fill of the tomb had a medium thickness of 0.4 m. This fill was divided into three separate strata (Strata I–III) on the basis of criteria related to soil texture and depth. All three strata covered the entire area of both rooms.

2.3.2.1. Stratum I: Topsoil

This layer corresponded to the surface fill of the tomb, consisting of loose, soft soil, of dark brown color, containing organics, a few small stones, and gravel. It had a mean thickness of 0.1 m.

2.3.2.2. Stratum II: Burial Stratum

The burial stratum consisted of rather compact soil, light in color, containing a few small-sized stones. Its depth varied between 0.2 and 0.3 m.

2.3.2.3. Stratum III: Subfill

Beneath the burial stratum was a thin layer of earth, consisting of pure, soft soil. It was an artificial layer, laid directly on the bedrock in order to fill cavities and irregularities and create a relatively flat surface for the deposition of funerary material. It covered the entire tomb, but its depth varied significantly between a few centimeters up to 0.1 m in the areas with deeper cavities.

2.3.3. Location of the Finds

Strata I and III did not produce any finds except for a few very fragmented sherds that are not related to the funerary use of the house tomb. All the finds came from Stratum II, the burial stratum of the tomb. It is also worth noting that all of the pottery that can be associated with the burials comprises intact or almost intact vases. The few pottery sherds found in the soil fill (Stratum I) are small, fragmented, and eroded, constituting stray finds that were not related to the burials. The few sherds found in the basal subfill of Stratum III, just above the bedrock, suggest that the tomb was built after the area had been cleared of earlier Prepalatial deposits that may have existed. The only cataloged sherd from this subfill is an EM I alabastron (**P112**). Nothing was found in the area south of Room 2, although it is highly probable that more rooms existed in this area.

2.3.3.1. Room 1

Room 1 is a triangular, irregular space measuring 2 x 1.5 m, covering an area of 2.7 m^2 (Fig. 14). In the northwestern corner was a rectangular platform consisting of large limestone slabs. Two stone slabs formed a raised lintel at the entrance in the eastern side of the room. Despite its small size, the room contained the burial remains of six individuals and several vases and objects (Tables 1, 2).

Apart from the human bones found scattered all over the room, the majority of the skeletal material consisted of the following five large groups (Fig. 14). Other finds scattered all over Room 1 included chipped stone tools (**CS30**, **CS32**), a few animal bones, and shells.

2.3.3.1.1. Group 1

Group 1 was the largest group of skeletal remains, located in the western side of the room (Pls. 13B–15B). It included a human skull (K3) belonging to a possible male in his mid-forties. To the north of the skull a large number of postcranial bones were found, which belong to two different individuals. All bones were disarticulated, and they had been removed from their original position. Two pairs of bones, however, showed clear articulation: the left tibia and fibula, and the right ulna and radius. This suggests that the removal of some anatomical parts took place when they were in fresh condition, with some flesh still preserved on the bones. Most of the bones seem to belong to skull K3, but the remains of the second individual may be related to the neighboring skull, K5.

The bones of Group 1 were found partly on top of the paved platform, in close association with shells, chipped stone tools (**CS35**), a small amphora (**P352**), a handleless cup (**P357**), and a medium sized jar (**P361**). The small amphora (**P352**) was found above the platform, in front of the northern wall. The jar, on the other hand, was found in two joining pieces: the first half was deliberately placed above the platform, on its side with the interior facing upwards, the base to the west and the rim to the east (Pl. 13B); and the other half was placed 0.13 m deeper, south of the platform, also with the interior facing upward, but in the opposite direction, with the base to the east and the rim to the west (Pl. 15A). All the bones of Group 1 were found in the intervening soil fill between the two pieces. It is worth noting that the jar is not intact, since a large piece from rim to base is missing. This implies that the jar was placed inside the tomb in two halves, after it was broken. Also, from the position and the orientation of the two joining pieces, it is clear that they were deliberately placed in this way, and that the burial remains were not placed inside the jar. On the basis of the above, it seems that a large fragment from an already broken jar was placed on the floor, and the bones of the two individuals were deposited above it; the other half of the jar was then placed on top, but with a different orientation. The fine decorated handless cup **P357** was also placed upside down on the floor, next to the lower half of the jar (Pls. 15A, 15B).

2.3.3.1.2. Group 2

An almost complete skull (K5) belonging to a possible male in his late forties was found together with a few postcranial bones in the southwestern corner of the room (Pls. 14A–15A). Two juglets (**P355**, **P356**) were found next to the skull. As discussed above, it is highly possible that some of the postcranial material found together with skull K1 in nearby Group 1 belonged to the burial of skull K5.

2.3.3.1.3. Group 3

Two skulls, found next to each other together with a few postcranial bones, constituted a third group located in the middle of the southern wall (Pl. 13B). Skull K2 belonged to an adult male, and skull K4 belonged to an adult burial of unknown sex.

2.3.3.1.4. Group 4

One skull (K1) belonging to a possible male in his mid-forties was found east of the platform together with a large number of postcranial bones (Pls. 13B, 14A). Some of these were long bones carefully placed parallel to each other. A fine decorated bowl (**P359**) was found immediately beneath the bones.

2.3.3.1.5. Group 5

One skull (K6), together with some postcranial bones, was found in the area of the entrance (Pl. 15A). The remains belonged to a (possibly) female adult. A number of objects were found in the area around the skull, namely three copper fishhooks (**M36**–**M38**), a few chipped stone tools (**CS33**), and a sealstone (**S7**).

2.3.3.2. Room 2

Room 2 is an irregular L-shaped space, with each side measuring 2 x 1 m, covering a total area of 3.7 m^2 (Fig. 15). The southeastern corner is not very well preserved, with most stones having been eroded away. It is highly possible that the entrance to the house tomb was through a door in this area of the room, but the evidence is inconclusive.

The room contained no burial remains, except for a few fragmented human bones. Furthermore, Room 2 contained no objects that could be regarded as burial offerings, except for a small stone bead in the southern part of the room (**J78**) (Table 2). This may suggest either that it was never used for burials, or that it was thoroughly cleared of earlier burial remains. A small group of vases was found in the middle of the room (Table 1; Fig. 15); it consisted of two conical cups, one in an upright position (**P353**) and one placed upside down (**P354**), a cylindrical one-handled cup (**P347**), and a juglet (**P351**) (Pl. 16A). Other finds included a few chipped stone tools from the southern (**CS31**, **CS34**) and the northern parts of the room and a large number of shells, mostly murex.

2.4. The Open Areas of the Cemetery

2.4.1 Description and Method of Excavation

In the areas surrounding the tholos tomb and the house tomb, all trenches were excavated to bedrock, namely Trenches A1, A2, A3, and A4 around the tholos tomb, and Trenches B1, B2, B3, B5, and B6 around the house tomb (Fig. 5). In these trenches the deposits were particularly thin and the bedrock was found immediately beneath the topsoil. The Minoan deposits were eroded and had slid toward the sea, with the exception of two, in Trenches A2 and A4, which were found in situ and undisturbed. The latter two deposits will be referred to as Open Areas 1 and 2, respectively, while the area around the tholos tomb and the house tomb will be referred as Open Area 3 (Fig. 4). The rest of the excavated area of the cemetery constitutes Open Area 4.

The deposits in Open Areas 1 and 2 are of special importance because they are remnants of the larger deposits that probably covered the entire area around the tholos tomb, and perhaps farther afield. For this reason, they were excavated with special care, following the methods that were applied in the excavation of the tombs.

2.4.1.1. Open Area 1

The deposit in Trench A2, located in front of the tholos wall immediately to the west of the entrance, covered a narrow area measuring 1 x 0.5 m (Figs. 4, 16; Pls. 16B, 17A). It escaped damage from erosion because it was sealed and protected by several medium-sized stones that had fallen from the nearby tholos wall.

2.4.1.2. Open Area 2

The deposit in Trench A4 was significantly larger than that of Open Area 1, covering an area of 3 x 3 m (Figs. 4, 17; Pls. 17B, 18A). It was located between the exterior of the tholos wall and some rocky protuberances that created an elliptical "nest" protecting this area and preventing soil erosion.

2.4.1.3. Open Area 3

The rest of the area around the tholos tomb and the house tomb (Fig. 4) did not produce any in situ deposits, only small amounts of pottery. The bedrock was found immediately beneath the topsoil in all locations.

2.4.1.4. Open Area 4

In the rest of the cemetery the excavation was selective, focusing only in trenches with surface evidence for the existence of deep deposits and/or possible walls, namely in Trenches C1, F2, E2, E6, D2, D5, D9, G4, and G7 (Fig. 5). In all these trenches, which will be referred to as Open Area 4, the excavation reached the natural bedrock. The soil fill was relatively thin, usually measuring between 0.1 and 0.2 m thick, and it consisted of loose soil and stones. Small quantities of fragmented and eroded sherds were found, showing the secondary character of the excavated deposits. The sherds are dated mostly to the Roman period. In Trenches C1, D5, D9, F2, G4, and G7, fragments of walls were unearthed (Schlager et al. 2001, fig. 18: areas III–VIII). They all belonged to structures of the Roman period, representing small-scale seasonal occupation related to the large contemporary settlement that existed on the islet of Kouphonisi, 3.8 miles offshore.

2.4.2. Stratigraphy

In Open Areas 1 and 2 the deposits lay directly on the bedrock. The fill was divided into two separate strata (Strata I and II).

2.4.2.1. Stratum I: Topsoil

This was a thin layer of topsoil, ca. 0.05–0.1 m thick, consisting of loose, soft soil, dark brown in color, containing organics, a few small stones, and gravel.

2.4.2.2. Stratum II

This stratum consisted of a rather compact soil, light in color, containing a few small-sized stones. It had a depth varying between 0.2 and 0.25 m, and it lay directly above the bedrock.

2.4.3. Location of the Finds

Stratum I did not produce any finds except for a few very fragmented and eroded sherds. All the finds mentioned below come from Stratum II. Of particular importance is the lack of human bones in all three areas. This clearly suggests that the finds were not the result of clearing operations of funerary material from the tholos interior but were related to ritual activity that did not involve treatment of skeletal remains.

2.4.3.1. Open Area 1

In the small deposit in Trench A2, the finds included five jugs (**P234–P236**, **P256**, **P263**) (Table 1; Fig. 16; Pls. 16B, 17A), all dated to the EM I–IIA period, some shells, and a few chipped stone tools (**CS39**; Table 2). It is worth noting that, apart from the above vases, no pottery sherds were found.

2.4.3.2. Open Area 2

In the larger deposit in Trench A4 the picture was somewhat different. The deposit produced many clay vases (Table 1; Fig. 17; Pls. 17B, 18A) and large quantities of sherds. Of the 70 cataloged pieces, 34 are intact or almost intact vases. Furthermore, 16 of those vases were identified and collected during the excavation, while the other 18 were produced later by joining sherds at the conservation lab. The cataloged vases are: **P11**, **P14**, **P15**, **P19**, **P20**, **P22**, **P27–P30**, **P33**, **P46**, **P48**, **P56**, **P62**, **P63**, **P71**, **P72**, **P81**, **P101**, **P120**, **P136**, **P138**, **P155**, **P156**, **P172**, **P177–P179**, **P206**, **P221**, **P222**, **P237–P247**, **P250–P255**, **P257**, **P264**, **P267–P269**, **P271–P273**, **P288**, **P290**, **P291**, **P301**, **P302**, **P304**, **P316**, **P327**, **P328**, **P331**, **P348–P350**. Apart from three Neopalatial cups (**P348–P350**) and five EM

IIB–III vases (**P206**, **P316**, **P327**, **P328**, **P331**), the rest are dated to the EM I and/or EM IIA period (Table 21). These 62 EM I–IIA vases belong to a variety of shapes, but more than one third (45%) are jugs for pouring liquids (Table 22). The high percentage of EM I–IIA pottery in comparison to that of EM IIB–III and LM IA (Tables 21, 23) suggests that the deposit was originally formed in EM I–IIA, but the area was susceptible to disturbance in later phases until the end of the use of the cemetery.

Other finds (Table 2) included chipped stone tools and a limited quantity of shells, among which were two triton shells. Most of these objects were found scattered, but it is possible to identify two groups (Fig. 17), one to the south comprising seven vases (**P19**, **P29, P48**, **P136**, **P237**–**P239**) and an obsidian blade, and another to the west comprising five vases (**P101**, **P240–P242**, **P316**) and a triton shell.

2.4.3.3. Open Areas 3 and 4

The eroded areas surrounding the tholos tomb and the house tomb produced a small quantity of pottery, very fragmented and in a poor state of preservation. In total, 38 sherds were identified in terms of shape and date, and they were included in the catalog (Table 1): **P4**, **P6**, **P13**, **P21**, **P25**, **P26**, **P34**, **P36**, **P54**, **P55**, **P64**, **P65**, **P76**, **P87**, **P109**, **P114**, **P121**, **P122**, **P125**, **P164**, **P198**, **P199**, **P202**, **P218**, **P219**, **P276**, **P287**, **P289**, **P292**, **P293**, **P295**, **P298**, **P299**, **P303**, **P310**, **P311**, **P336**, **P340**. With the exception of four vases dated to EM IIB–III (**P310**, **P311**, **P336**, **P340**), the rest are dated to the EM I and/or EM IIA period. In contrast to Open Area 2, however, the majority of the cataloged vases belong to storage shapes, pyxides in particular (Table 24). This suggests that these deposits were not the result of rituals, as in the case of Open Area 2, but they could be the result of burial offerings made outside the tomb, clearing activities and the removal of material from the tombs to the open areas of the cemetery, or simply erosion (for a detailed discussion, see Chs. 6.2, 6.3). The lack of bones reinforces the latter interpretation, rather than deliberate human activity related to funerary practices.

Other finds (Table 2) included a copper awl (**M8**), a copper fishhook (**M39**), a stone vase (**V4**), a stone bead (**J59**), and chipped stone tools (**CS36–CS38**, **CS40**).

3

Architecture

by
Yiannis Papadatos

3.1. The Tholos Tomb

The Livari tholos tomb is a typical tholos similar to those found in the Mesara and the Asterousia (Xanthoudides 1924; Branigan 1970, 1993; Goodison and Guarita 2005). It has a circular shape, with an internal diameter of 4.4 m, and it covers an area of 14.7 m^2 (Fig. 6; Pls. 3A–4A). On the basis of the diameter, the Livari tomb can be classified among the smaller (though not the smallest) of the Mesara-type tholos tombs, comparable to Apesokari A, Archaeochorapho, Archanes E, Hagia Kyriaki, Kaloi Limenes A and B, Koumasa A and E, Krasi A, Lebena Papoura IB, Siva N, and Vorou B (Goodison and Guarita 2005). Like all Prepalatial tholos tombs, it was built entirely above ground and was never covered by soil.

The tholos wall was built directly on the natural bedrock without any prior modification, leveling, or terracing (Pl. 18B). Only one course of stones is preserved, up to 0.7 m from the ground level. The northern segment of the wall has been lost due to erosion, and only the subfoundation consisting of small stone wedges is preserved in the northeast. The wall has a thickness of 1.2 m and consists of two faces built of large irregular stones (Pl. 19A). The largest of these stones measures 1.2 x 0.7 x 0.6 m; most of them are undressed, but a few may have been slightly dressed on their visible side. Some elongated stones had been set in a radial arrangement in relation to the center of the tomb. The stones used for the wall are of the same Miocene conglomerate that constitutes the natural bedrock, and they were collected from the local area. The space between the two faces is filled with smaller irregular stones and soil. Some of the large stones were placed directly on the natural bedrock, but in most cases, smaller, irregular stone wedges were fitted at the base of the wall to ensure stability (Pl. 18B). The above method of construction is similar to that of many tholos tombs excavated in the Mesara and the Asterousia (Branigan 1970, 31–32).

In the western and southern part of the tholos tomb, a thin outer ring was attached to the outer face of the wall (Fig. 6; Pl. 19A). It is 0.5 m thick and is made of large irregular stones, the largest of which measures 1.1 x 0.4 x 0.5 m. The outer ring followed the tholos wall to the south and the west, but due to erosion it is not possible to know if it continued to the north. It is certain, however, that it was not following the entire tholos perimeter since it is absent from the eastern preserved segment of the tholos wall. The space between the tholos wall and the outer ring is filled with small irregular stones and soil. In contrast to the well-built wall of the tholos, the outer ring is less carefully constructed. Some of the larger stones are placed on their narrow side. Moreover, unlike the tholos wall there are no stone wedges fitted in the bases of the larger stones to ensure stability. The thinness of the outer wall and its relatively careless construction suggest that the outer ring was probably not intended to be tall and did not actually continue much higher than is preserved.

Similar outer rings also exist in other tholoi, namely Apesokari I, Lebena Gerokampos II, Marathokephalo, Vorou A and B, and Moni Odigitria B. With the exception of Moni Odigitria B, in which the outer ring is a well-built thick wall, in the rest of the tholoi the outer ring is thin and surrounds only a small part of the perimeter (Vasilakis 2010, 61). These walls are usually regarded as structures to provide additional strength to the main tholos wall, either as part of the original construction or added in subsequent phases (Branigan 1970, 41). At Livari, however, the situation is probably different. Although the date of the outer wall is not certain, it seems that it was built as part of the original construction. This is suggested by the fact that the stones of the outer face of the main tholos wall are relatively small, significantly smaller than the stones of both the inner face and the outer ring. It seems clear that the people who built the main tholos wall were already planning to add an outer ring, which was constructed either at the same time or immediately after the completion of the main wall. Also, it does not seem that the purpose of the outer ring was to strengthen the main wall of the tholos. First, it is very thin and carelessly made, and it most probably did not continue much higher. Second, if it was planned to strengthen the main wall, we would expect it to be built on the sloping eastern side where the pressure of the superstructure is expected to be higher. For the same reason it is difficult to regard the outer ring as a retaining wall; in this case we would also expect it to be built on the east sloping side. An alternative suggestion could be that it was made in order to serve as a working platform for the builders, allowing them to add stones higher up during the construction of the tholos walls (Alexiou and Warren 2004, 15; Vasilakis 2010, 62). We would expect it to surround the entire perimeter of the tholos, however, as in the case of Moni Odigitria and Lebena Gerokampos II, not just half of it. On the basis of the above, the purpose of the outer ring remains problematic. An alternative explanation could be that it had no functional character, but that it was adopted at Livari as an imitation of a construction practice seen in the Mesara and the Asterousia.

Before discussing other architectural features, it is worth noting the many similarities that can be identified in the construction of the Livari and Lebena Gerokampos II tholos tombs. The Lebena tholos is slightly larger, with an internal diameter of 5.1 m and a wall 1.9 m thick, while at Livari the diameter is 4.4 m and the wall thickness is 1.7 m, including the outer ring. The inner diameter/wall thickness ratio, however, is the same in both tholoi, 3.6:1. Furthermore, as in the case of Livari, the inner face of the Lebena tholos is made of larger stones, which often are placed in a radial arrangement in relation to the center of the tomb. In both tholoi the outer face is built of smaller stones, particularly in those segments of the wall in front of which the outer ring was attached. Finally, in both tombs the outer ring consists of a single line of large stones. These similarities may imply a special relationship between the people of Livari and Lebena, but since both tombs are relatively simple structures, they may be coincidental.

The tomb entrance (Pl. 19B) is oriented to the southeast (125º), in agreement with the majority of the Mesara and Asterousia tholos tombs. The doorjambs are not preserved, and it is not possible to know whether the entrance was built or had the form of a *trilithon*. The early date of the tomb reinforces the latter (Branigan 1993, 59–60; Panagiotopoulos 2002, 11–12) since built entrances characterize mostly later tombs (EM III–MM I). Also, a large stone slab measuring 0.8 x 0.6 meters, which was found inside the tomb immediately to the west of the entrance, was perhaps one of the monolithic doorjambs of the entrance that had fallen inside the tomb. The entrance is between 1–1.3 m wide, but it must have originally been narrower if we estimate the thickness of the doorjambs; an entrance ca. 0.7–0.8 m wide is normal for this type of tomb.

The floor of the tomb consisted of a layer of pure soil that was laid before the erection of the tholos in order to fill the cavities of the bedrock and create a flat surface.

The fragmentary condition of the tholos wall does not allow any secure conclusions about the roofing system of the tomb, particularly since no overhanging can be identified in the single preserved course of stones. Furthermore, apart from a thin destruction layer preserved in the southern part of the tomb containing stones fallen from the walls, the rest of the building material has been removed deliberately or eroded away in later periods. It is, therefore, not possible to know the type of stones used for the superstructure. There is evidence, however, to support the existence of a fully stone-vaulted roof. The large boulders used in the first course of the wall may suggest that it was built strongly enough to withstand a heavy stone superstructure, and perhaps a fully vaulted roof. The use of such large stones in the lower courses of a tholos tomb has been noticed in other tholoi with clear evidence for a vaulted roofs, such as Christos (Xanthoudides 1924, 70) and Archanes tomb Gamma (Papadatos 2005, 6), as well as in modern *mitata* (shepherds' huts on Mount Ida; Warren 1973, 2007) and other modern corbelled huts in Crete (Branigan 1994). Finally, the inner diameter/wall thickness ratio (3.6:1) is relatively low, and it is similar or comparable to most of the Mesara and Asterousia tombs with clear evidence for a vaulted roof (Branigan 1993, 42–43).

The tholos tomb was a free-standing structure, without any annexes, additional compartments, or antechambers. The area in front of the entrance and around the tomb was heavily eroded, and it is possible that such annexes might originally have existed but are now lost. We believe, however, that if this were the case a few remains, whether architectural or depositional, would have been visible in the area in front of the entrance.

3.2. The House Tomb

The house tomb is a rectangular built tomb, a type that was very frequent in North and East Crete in the Pre- and Protopalatial periods (Soles 1992; Sakellarakis and Sapouna-Sakellaraki 1997). The Livari house tomb, or at least its preserved part, is almost square in shape and, as with all Minoan house tombs, was built entirely above ground and was never covered by soil.

The northern and the eastern walls (Walls 1 and 2, respectively) are 0.7 m thick, while the southern wall (Wall 3) is significantly narrower, at 0.4 m thick (Fig. 13; Pls. 12B, 13A). The internal diagonal wall (Wall 4) that divides the house tomb into two irregular rooms is also 0.4 m wide. This possibly implies that Wall 3 was not an external wall, but an internal wall. This is reinforced by the existence of another fragmentary wall (Wall 5) to the south of Wall 3, which is also 0.4 m wide. On this basis it seems highly possible that the house tomb had more rooms to the south, of which nothing is preserved.

A thin wall built against bedrock masses forms the western side of the tomb (Pl. 19C). The wall was not very well constructed and has only its inner face preserved. The bedrock masses were originally part of the roof of the large rock shelter (Chamber 1), which lies 5 m to the west of the house tomb. Probably due to earthquake(s), these masses were severed from the rock shelter and fell into the area in front of it. This definitely happened before the erection of the house tomb, the walls of which were later built against the fallen rocks. The incorporation of natural features such as rocks and rock faces in house tombs is a rather regular feature seen in many house tombs all over Crete (Soles 1992, 211).

The walls were built directly on the natural bedrock, which, as in the case of the tholos tomb, had not received any prior modification, leveling, or terracing. In Walls 1, 2, 3, and 5, only one course of stones is preserved, up to 0.4–0.5 m from the ground level. The diagonal internal Wall 4 is better preserved, up to two courses and 0.6 m high. For the construction of Walls 1, 2, and 4, large undressed boulders have been used, the largest of which measures 1 x 0.7 x 0.4 m. The large boulders were placed in the outer face, while the inner face was built of medium-sized, undressed stones. Smaller stones and soil have been used as filling between the faces. Walls 3 and 5, on the other hand, were made of small- to medium-sized stones. As in the case of the tholos tomb, the stones used for the walls of the house tomb are of the same Miocene conglomerate that constitutes the natural bedrock, and they were collected from the local area.

The floor of the house tomb consisted of a thin layer of pure soil that was laid before the construction of the tomb in order to fill the cavities of the bedrock and create a flat surface for the burials.

The poor preservation of the walls does not allow secure conclusions about the superstructure and the roof of the tomb. In most house tombs the superstructure was made of mudbrick (Soles 1992, 207–208). Indeed, in the southeastern corner of the tomb a few lumps of compact, reddish soil were unearthed that could have belonged to a mudbrick superstructure, but the evidence is rather inconclusive. The lack of stone slabs fallen inside the tomb clearly indicates that the roof, if it existed, consisted probably of a wooden structure covered with soil, like those of many other house tombs (Soles 1992, 215). It was not possible to locate the entrance to the tomb. It could have been in the southeast where the walls are poorly preserved, but the evidence is not sufficient.

The two preserved rooms of the house tomb differ in size and arrangement. Room 1 is an irregular three-sided space measuring 2 x 1.5 m, covering an area of 2.7 m^2. In the northwestern corner it is equipped with a rectangular platform consisting of large limestone slabs placed directly on top of the bedrock. The platform is rather low, projecting only 0.1–0.15 m from the floor. Room 2 is L-shaped, with each side measuring 2 x 1 m, and it covers a total area of 3.7 m^2. The door connecting the two rooms is 0.8 m wide, and it has a raised lintel consisting of two stone slabs. Smaller flat stones were placed beneath the stones of the threshold for stability.

PART II

Pottery

4

Prepalatial Pottery: Typological Analysis

by

Yiannis Papadatos

4.1. Methodology

Livari produced a large quantity of Prepalatial pottery, namely 15,730 sherds weighing ca. 137 kg, of which 110 were intact or almost intact clay vases and another 236 were cataloged. This makes a total of 346 cataloged vases and sherds, all of which are presented below. The material consists of six assemblages from the tholos tomb, the burial rock shelter, and Open Areas 1, 2, 3, and 4.

Unlike most tholos cemeteries, Livari did not suffer from illicit excavations and looting. The post-Minoan disturbance was rather limited, concentrated only inside and around the burial rock shelter, an area that was used for seasonal occupation in later periods, particularly Roman and modern times. Thus, erosion was the only serious post-depositional factor that affected the integrity of the archaeological record at Livari. This occurred mainly in the open areas of the cemetery, where almost nothing of the original deposits is preserved, and also in the upper layers of the deposits inside the tholos tomb. Therefore, although some part of the pottery assemblage has been lost forever, the pottery found in the excavation provides useful data to identify real patterns of spatial distribution, and consequently to infer valid conclusions about the function and use of ceramics in the cemetery.

From this point of view, Livari may have produced smaller quantities of pottery in comparison with other cemeteries (e.g., Moni Odigitria with 400 intact vases and Lebena Gerokampos with over 750), but the quality of its evidence is higher due to the lack of looting and disturbance. For example, the recently excavated and exemplary published cemeteries of Hagia Kyriaki (Blackman and Branigan 1982) and Moni Odigitria (Vasilakis and Branigan 2010) have suffered extensively from looters and other disturbances. Also, the sherd material from the extremely rich and well-published cemeteries at Lebena, which produced a large quantity of intact vases, remains unstudied (Alexiou and Warren 2004, 61), and there were no reports about the pottery that may have existed in the areas outside the tombs. The fully published Tholos Tombs Gamma and E at Archanes Phourni (Panagiotopoulos 2002; Papadatos 2005) produced small quantities of pottery, but the publications do not refer to the pottery found in the open areas of the cemetery. In the other cemeteries, the problems include extensive looting, disturbance, old excavation methods, and incomplete publications (Branigan 1993, 143–148; Goodison and Guarita 2005). Because of such differences in the quality of the available evidence, comparisons of Livari with other cemeteries are not always easy.

The methodology applied to the study of the Prepalatial pottery from Livari largely followed the systems of David Blackman and Keith Branigan and Branigan and Tim Campbell-Green for the study of the Hagia Kyriaki and Moni Odigitria pottery, respectively (Blackman and Branigan 1982; Branigan and Campbell-Green 2010, 70). Pottery from each excavation unit was strewn and sorted according to ware. All sherds over 2 cm^2 were counted, and all sherds of any size were weighed in ware groups. An exhaustive search for joining sherds immediately followed, producing a large number of restored vases, particularly from Open Area 2 and the burial rock shelter. After pottery conservation, the pottery units were studied again and sherds of diagnostic shapes were selected. All intact and restored pots and all selected sherds were cataloged and recorded, and they have been included in this publication. Macroscopic fabric observations were made and fabric variations within wares were recorded. The macroscopic study of fabrics was followed by extensive sampling for petrographic analysis, and some of them were also analyzed with scanning electron microscopy (SEM). Finally, cataloged vessels and sherds were drawn and photographed.

Catalog entries incorporate the contextual information and the basic features of each cataloged object. The information includes: (1) catalog number; (2) figure and/or plate number; (3) findspot; (4) stratum (in the case of the tholos tomb, house tomb, and open areas) or trench:layer (in the case of the rock shelter); (5) vessel shape; (6) applicable dimensions, in centimeters; (7) diagnostic features of vessel profile; and (8) date. Additional comments, bibliography, and compranda may also be provided. Specific information regarding surface treatment and/or fabric is provided in the preceding discussion of the relevant ceramic ware when it applies to all or most of the cataloged specimens; exceptions are mentioned in individual catalog entries.

4.2. Wares

The study of ceramics on the basis of ware has a long tradition in the study of Prepalatial pottery, starting with the pioneering works of Phil Betancourt and colleagues on Vasiliki Ware (1979) and White-on-Dark Ware (Betancourt et al. 1984), and it was also applied to the analysis of large Prepalatial ceramic assemblages by Blackman and Branigan at Hagia Kyriaki (1982, 27–36) and David Wilson at Knossos (1985, 294–295). Since then it has been widely used, with some variations, by most scholars working with Prepalatial Cretan pottery (for further discussion, see Wilson and Day 1994, 2–4; Todaro 2005; Branigan and Campbell-Green 2010, 71).

The Livari pottery was classified into 12 wares, mainly on the basis of surface treatment and decorative style. The macroscopic fabric was recorded, and any major variations within the same ware were taken into account and sampled for petrographic analysis. However, we did not proceed with a thorough classification of the pottery into fabrics because experience has shown (and has actually confirmed) that macroscopic observations are in many cases incompatible with petrographic results, and comparisons between them are often misleading. Therefore, ware is lower cased, reserving capitalized Ware for situations where one specific surface treatment can be matched with one specific fabric (i.e., Vasiliki Ware, which is always made of Mirabello Fabric with granodiorite inclusions [Dierckx and Tsikouras 2007]). All of the pottery is handmade, unless otherwise stated. The wares are presented below in broadly chronological order.

4.2.1. Red-Brown Burnished Ware

Red-Brown Burnished ware (RBBW) is characterized by a red (2.5YR 5/8) to reddish-brown (2.5YR 4/4) surface, with or without a thin self-wash (a fine fraction of the same clay as that used for the body) and lightly burnished. All the examples of this ware group are of one fabric: low calcareous; reddish brown; semicoarse with quartz, phyllite, and other unidentified brown and black grits; and medium-hard fired. There is no decoration. The material, a few sherds, is too fragmentary to provide any intact vase profiles, since it comes from the basal level (Stratum IV) of the tholos. The shapes are mostly open vases of domestic use, namely two "cheesepots" (**P1**, **P2**) and a bowl (**P3**). This type of surface treatment characterizes most of the FN, all over Crete, and it has been identified in both excavated sites, namely Knossos (Tomkins 2007) and Kephala Petras (Papadatos 2008; Papadatos et al. forthcoming), and in surface surveys (Nowicki 2002).

4.2.1.1. Cheesepot

The so-called cheesepot, a coarsely made open vase with rough base, low walls, and a series of irregularly spaced holes opened beneath the rounded rim, is represented by two sherds. The shape is particularly common around the insular and littoral Aegean (Sotirakopoulou 2008, 123–124), having a long history from the Late Neolithic (Sampson 2002, 156–157) until the beginning of the Early Bronze Age (EBA; Kariotis 2003), but in Crete it is considered a typical vase of the end of the Neolithic, dated to FN IV (Vagnetti, Christopoulou, and Tzedakis 1989; Vagnetti 1996; Nowicki 2002, 54–59; Papadatos and Tomkins 2011; Papadatos et al. forthcoming). The precise form of the Livari cheesepots is unclear due to the fragmentary condition of the sherds.

P1 (Fig. 18; tholos, Str. III). Cheesepot. H. 3.5; th. 1. Body; rounded rim; holes under rim. *Date*: FN.

P2 (Fig. 18; tholos, Str. IV). Cheesepot. H. 3.4; th. 0.7. Rounded rim; no holes preserved. *Date*: FN.

4.2.1.2. Bowl

The bowl is a very common shape of the Cretan FN IV phase, occurring in a variety of types and varieties, and with numerous parallels all over Crete, including Phaistos, Nerokourou, and Knossos (Vagnetti 1972–1973, figs. 61, 62, 64; Vagnetti, Christopoulou, and Tzedakis 1989, figs. 15–17, 19; Tomkins 2007, fig. 1.15).

P3 (Fig. 18; tholos, Str. IV). Bowl. H. 2.8; th. 0.3. Rim with triangular section. *Date*: FN.

4.2.2. Wiped Ware

Wiped ware (WW) is characterized by a red (2.5YR 5/8) to reddish-brown (2.5YR 4/4) surface that is wiped while still wet, leaving irregular striations all over the exterior and/or the interior of the vase (Betancourt 2008, 64). The clay fires to a red (2.5YR 5/8) to dark reddish-brown (2.5YR 3/4) color, occasionally with a dark reddish-gray (2.5YR 3/1) or dark gray to very dark gray (10YR 4/1–3/1) core.

All the examples of this ware group are of one fabric: low calcareous; reddish brown; semifine to semicoarse with quartz and other unidentified brown and black grits; and medium-hard fired. Wiped ware is particularly common in many EM I ceramic assemblages all over the island, including Debla and Platyvola in the west (Warren, Tzedhakis, and Grieg 1974; Tzedhakis 1967, 1968), Knossos (Wilson and Day 2000, 39; Wilson 2007, 54) and Moni Odigitria (Branigan and Campbell-Green 2010, 72) in Central Crete, and Kalo Chorio (Haggis 1996, 668) and Kephala Petras (Papadatos 2008) in the east. At other sites, vases of this ware often have a thin surface wash and deep striations that could be regarded as scoring. These features, however, are not present in the Livari specimens. This ware is very rare in Livari, comprising a single cataloged specimen belonging to a baking plate (**P4**) from Open Area 3 and a handful of sherds from all assemblages. Wiped ware vases were usually used for food preparation and cooking. Indeed, the single cataloged example from Livari belongs to a baking plate.

4.2.2.1. Plate

The plate is a coarsely made, open vase with a rough base, low walls, and a rounded rim. Plates in semicoarse WW and coarse Cooking Pot ware (which have similar surface treatment) are associated mostly with baking, and they are very common all over Crete in the EM I–II period (Wilson 1985, 337, fig. 32:313–317; Haggis 1996, 668, fig. 27:KT64; Todaro 2005, 44; Papadatos 2008, 266, fig. 15.6c).

P4 (Fig. 18; Open Area 3, Str. II). Plate. H. 3.2; th. 0.9. Round rim; low walls; curved, rough base. *Date*: EM I–II.

4.2.3. Dark Gray Burnished Ware

The surface of these Dark Gray Burnished ware (DGBW) vases is covered by a thin self-wash, which is always heavily burnished. Depending on the burnishing implement, the surface may be striated or faceted. The color of the surface varies from gray (10YR 6/1–5/1), dark gray to very dark gray (10YR 4/1–3/1), to almost black (10YR 2/1).

According to macroscopic study and petrographic analysis, the DGBW vases are made of two basic fabric groups, representing two entirely different manufacturing traditions. The first, which is the most frequent, includes fine to semifine gray calcareous fabrics (Petrographic Fabric Group 5). Samples include sherds and vases **P21**, **P27**, **P82**, **P85**, **P111**, and **P117**. Petrographic analysis showed at least two varieties, one with added grog (crushed pottery; **P85**), and the other without (**P21**, **P27**, **P82**, **P111**, **P117**). Because in most cases it is impossible to distinguish between these two varieties macroscopically, however, it is difficult to know their percentages in the total number of DGBW pottery. All vases are fired soft medium to hard medium, and the biscuit is always lighter in color than the surface, varying from gray (10YR 6/1) to dark gray (10YR 4/1). This suggests a reducing atmosphere throughout the firing process. The vases of this manufacturing technology represent the vast majority of the DGBW pottery, which comprises between 40% (quantity) and 25% (weight) of the total (Tables 25, 26). Therefore, it seems reasonable for it to be regarded as broadly local. This is further supported by the mineralogical composition of the analyzed sherds, which is compatible with the geology of the area.

Vases of the second manufacturing tradition are extremely rare. The analyzed samples include **P81** and **P107**. They are made of a different fabric: fine to semifine and noncalcareous with chert (Petrographic Fabric Group 8). Their surface is black, with a distinct shiny, lustrous finish. Moreover, their core is red (2.5YR 5/6) to reddish brown (5YR 5/4), suggesting a rather different firing cycle in which an oxidizing atmosphere turned into a reducing one during the last stages of cooling (Wilson and Day 1994, 72). This probably represents a deliberate effort to blacken only the surface. Livari produced very few specimens of this manufacturing tradition, namely **P38**, **P72**, **P81**, and **P107**. Their rarity may suggest that they were imported to the site. This is reinforced by the only intact pot of this manufacturing tradition, teapot **P38**, which has exact parallels at Hagia Photia (Davaras and Betancourt 2012, fig. 20:1522) and Zakros (Hogarth 1900–1901, 142–145; not illustrated, but displayed in Siteia Museum, Mus. No. 3165).

The vases of DGBW are largely undecorated. Pattern-burnished decoration is extremely rare, represented by only four specimens (**P67**, **P82**, **P83**, **P99**), and it consists of simple lines. Incised and impressed decoration is more common, comprising mostly simple parallel lines, but also impressed pointillè, chevrons, cross hatching, and concentric semicircles. The incised decoration on the DGBW vessels is probably dated to the EM IIA period. Occasionally, there are gray mottles on a dark gray to black background, but these are the result of accidental firing rather than deliberate decorative efforts.

This ware was mainly used for shapes related to drinking and small-scale storage (Table 27). The most common shapes are the pyxis and the chalice (used here as a generic term including both chalices and high pedestalled bowls), and there are also a few cups, alabastra, and jars. The repertoire also includes vases for serving, mostly bowls and a few dishes, and vases for pouring, mostly jugs and a teapot. Pyxides are perhaps overrepresented, because some of the lids may belong to the same set. Even with this possibility in mind, however, the percentage of the pyxides is still the highest by far.

Dark Gray Burnished ware is one of the most common wares at most sites across the island during the EM I–IIA period. When it has pattern-burnished decoration it is often called “Pyrgos Ware” (Betancourt 2008, 56–63). Detailed descriptions are available for ceramic material from Knossos (Wilson 1985, 295, 360; 2007, 51–54, 58; Wilson and Day 2000, 27), Hagia Kyriaki (Blackman and Branigan 1982, 27), Kalo Chorio (Haggis 1996, 664), Lebena (Alexiou and Warren 2004, 123), Moni Odigitria (Branigan and Campbell-Green 2010, 72), Hagia Triada (Todaro 2001; 2003, 74), and Kephala Petras (Nodarou 2012; Papadatos et al. forthcoming). Because DGBW occurs in large quantities in both the EM I and EM IIA periods, precise dating is based on features such as decoration and shape. Shapes like the chalice and the high pedestalled bowl are considered mainly of EM I date, while features of the EM IIA period are: (a) incised and impressed decoration, which imitates EM IIA vases of Fine Gray ware (FGW); (b) bowls with internally thickened rims; and (c) stemmed goblets, which replaced the chalice and the high pedestalled bowl (Wilson 2007, 58).

4.2.3.1. Drinking Shapes

4.2.3.1.1. Chalice

Vessels of this shape have are biconical, consisting of a deep bowl attached to a tall conical pedestal (Betancourt 2008, 34). The bowl has a straight or concave profile ending in a straight or incurving, internally thickened or slightly tapered rim. A vertically perforated, triangular lug often exists in one side, but it was not used for handling. The waist is relatively broad and occasionally slightly swollen. The pedestal has a curved profile and a simple rounded end. All specimens are undecorated, except **P5**, which has simple incised decoration. Chalices occur in almost every domestic or funerary context of the EM I period (Blackman and Branigan 1982, 23; Haggis 1997; Wilson 2007, 51, fig. 2.2:1, 2; Papadatos 2008, fig. 15.5:a; Branigan and Campbell-Green 2010, 77; Hood and Cadogan 2011, 31–35, fig. 3.4). During this period it seems to be the most common drinking shape. The shape survives, however, into EM IIA, at least at Knossos (Wilson 1985, 301, nos. 47–50).

P5 (Fig. 18; tholos, Str. I). Chalice. H. 3; th. 0.3; dia. 14. Rounded and slightly tapered rim; Rectangular projection on rim with parallel incisions on top surface; bands of opposite chevrons beneath rim. *Date*: EM I.

P6 (Fig. 18; Open Area 3, Str. II). Chalice. H. 5.2; th. 0.4; dia. 18.4. Rounded rim; concave walls. *Date*: EM I.

P7 (Fig. 18; rock shelter, 4:2). Chalice. H. 5.6; th. 0.3; dia. 13.5. Rounded rim; concave walls; vertically perforated lug beneath rim. *Date*: EM I.

P8 (Fig. 18; rock shelter, 5:1). Chalice. H. 6.1; th. 0.3; dia. 12. Slightly tapered rim; concave walls; vertically perforated lug beneath rim. *Date*: EM I.

P9 (Fig. 18; rock shelter, 1:2). Chalice. H. 10.5; th. 0.5; dia. 17. Incurving, rounded rim; concave walls. *Date*: EM I.

P10 (Fig. 18; rock shelter, 4:3). Chalice. H. 4; th. 0.4; dia. 12. Slightly tapered rim; straight walls. *Date*: EM I.

P11 (Fig. 18; Open Area 2, Str. II). Chalice. H. 1.7; th. 0.3; dia. 14. Internally thickened rim; straight walls. *Date*: EM I.

P12 (Fig. 18; rock shelter, 6:3). Chalice. H. 2.2; th. 0.6; dia. 8. Broad waist. *Date*: EM I.

P13 (Fig. 18; Open Area 3, Str. II). Chalice. H. 2; th. 1; dia. 8. Broad waist. *Date*: EM I.

P14 (Fig. 18; Open Area 2, Str. II). Chalice. H. 1.9; th. 0.6; dia. 7. Pedestal; rounded, slightly tapered end. *Date*: EM I.

P15 (Fig. 18; Open Area 2, Str. II). Chalice. H. 9.2; th. 0.6; dia. 4.2. Tall pedestal; swollen waist. *Date*: EM I.

P16 (Fig. 18; tholos, Str. II). Chalice. H. 4.2; th. 0.8. Tall pedestal; rounded, slightly outturned end; straight walls. *Date*: EM I.

P17 (Fig. 18; rock shelter, 2:1). Chalice. H. 4.3; th. 0.6; dia. 18. Tall pedestal; rounded, slightly outturned end; concave walls. SEM sample SEM1. *Date*: EM I.

P18 (Fig. 18; rock shelter, 2:1, 3:2, 3:3, 4:1, 5:2). Chalice. H. 6; th. 0.5; dia. 16. Tall pedestal; rounded end with groove inside; curved walls; relief button above base; two pairs of repair holes on body. *Date*: EM I.

P19 (Fig. 18; Pl. 20; Open Area 2, Str. II). Chalice. H. 12.5; th. 0.4; dia. 4 (waist). Bowl with concave walls; pedestal with curved walls; swollen waist with groove in middle. *Date*: EM I.

P20 (Fig. 18; Open Area 2, Str. II). Chalice. H. 11.4; th. 0.5; dia. 3.2 (waist), 9 (base). Bowl with concave walls; pedestal with curved walls and rounded end; slightly swollen waist. *Date*: EM I.

4.2.3.1.2. Goblet

Vessels of this shape consist of a rounded bowl attached to a tall, narrow stem or a trumpet-shaped foot. Sometimes they are not easily distinguishable from chalices, but in general they tend to have a narrower and shorter stem, a narrower waist, and a smaller rim diameter. Also, they do not have a biconical profile, and their stem is trumpet shaped. It is possible, however, that some of the sherds identified above as chalices may belong to goblets. There is no evidence for lugs or any kind of decoration. It is generally accepted that stemmed goblets replaced chalices as the most frequent drinking shape in EM IIA, something reinforced by the presence of such goblets in pure EM IIA assemblages like the West Court House at Knossos (Wilson 1985, 297–301) and Myrtos Phournou Koriphi (Warren 1972, fig. 41:39–41).

P21 (Fig. 18; Open Area 3, Str. II). Goblet. H. 10.2; th. 0.7; dia. 8.2 (base). Trumpet-shaped stem with curved walls; rounded end. Petrographic sample LIV59. *Date*: EM IIA.

P22 (Fig. 18; Open Area 2, Str. II). Goblet. H. 3; th. 0.4; dia. 10.3. Stem; rounded end. *Date*: EM IIA.

P23 (Fig. 18; rock shelter, 2:1). Goblet. H. 2.3; th. 0.4; dia. 13. Stem; rounded end. *Date*: EM IIA.

P24 (Fig. 18; rock shelter, 3:3). Goblet. H. 3; th. 0.4; dia. 26. Stem; rounded end. *Date*: EM IIA.

P25 (Fig. 19; Open Area 3, Str. II). Goblet. H. 4.7; th. 0.7; dia. 2.7. Narrow waist. *Date*: EM IIA.

P26 (Fig. 19; Open Area 3, Str. II). Goblet. H. 7.8; th. 0.8; dia. 5. Narrow waist. *Date*: EM IIA.

P27 (Fig. 19; Open Area 2, Str. II). Goblet. H. 4.5; th. 0.9; dia. 4. Narrow waist. Petrographic sample LIV65. *Date*: EM IIA.

P28 (Fig. 19; Open Area 2, Str. II). Goblet. H. 7.5; th. 0.6; dia. 3. Narrow waist; trumpet-shaped stem. *Date*: EM IIA.

P29 (Fig. 19; Open Area 2, Str. II). Goblet. H. 5.2; th. 0.4; dia. 10.5. Narrow; trumpet-shaped stem. *Date*: EM IIA.

P30 (Fig. 19; Open Area 2, Str. II). Goblet. H. 3.6; th. 0.4; dia. 4.6. Narrow waist. *Date*: EM IIA.

4.2.3.2. Pouring Shapes

4.2.3.2.1. Spouted Bowl

There are two types of spouted bowls. The hemispherical type has inward-curving sides and an incurving rim. The spout projects horizontally at the level of the rim. The conical type has flaring walls and outward-curving sides. In this type the spout projects upward, above the level of the rim. Parallels in DGBW have been found at Moni Odigitria (Branigan and Campbell-Green 2010, 79), Lebena (Alexiou and Warren 2004, fig. 20:38), and the West Court House at Knossos (Wilson 1985, 304, nos. P64–66, fig. 9:14, 16). A date in EM IIA is highly probable, but some examples may appear in the EM I period (Alexiou and Warren 2004, 66, no. 38).

4.2.3.2.1.1. Hemispherical

P31 (Fig. 19; rock shelter, 2:2, 4:2). Spouted bowl. H. 8.4; th. 0.5; dia. 14. Hemispherical body; rounded rim with horizontal groove outside; projecting lug with two vertical perforations; open spout projecting horizontally. *Date*: EM IIA.

P32 (Fig. 19; rock shelter, 2:2, 4:2, 5:2). Spouted bowl. H. 6.9; th. 0.5; dia. 18. Hemispherical body; rounded rim; open spout projecting almost horizontally. *Date*: EM IIA.

P33 (Fig. 19; Open Area 2, Str. II). Spouted bowl. H. 6.5; th. 0.5; dia. 11.2. Hemispherical body; rounded, incurving rim; open spout projecting horizontally. *Date*: EM IIA.

P34 (Fig. 19; Open Area 4, Str. II). Spouted bowl. H. 2.7; th. 0.4. Horizontally projecting open spout, probably from a hemispherical spouted bowl. *Date*: EM IIA.

4.2.3.2.1.2 Conical

P35 (Fig. 19; tholos, Str. I). Spouted bowl. H. 3.7; th. 0.4; dia. 6. Conical body, flaring walls; rounded, slightly tapered rim; open spout projecting upward. *Date*: EM IIA.

P36 (Fig. 19; Open Area 3, Str. II). Spouted bowl. H. 3.7; th. 0.4; dia. 6. Rim and spout, probably from a conical spouted bowl; rounded rim; open spout projecting upward. *Date*: EM IIA.

4.2.3.2.2. Jug

Only one specimen of a jug is in DGBW. It has a raised pointed spout and a narrow neck. In general, jugs of DGBW appear as early as the EM I period (Papadatos 2012, fig. 3g) and continue until EM IIA (Wilson 1985, 304, nos. P68, P69).

P37 (Fig. 19; Tholos, Str. III). Jug. H. 7.8; th. 0.4. Spout, neck, and upper part of body; pointed, slightly raised spout; circular handle; globular body. *Date*: EM I–IIA.

4.2.3.2.3. Teapot

A rare example of a teapot is in DGBW. Essentially, it is a pyxis with a side spout projecting through the vase walls. Teapots characterize both phases of the EM II period (Warren 1972, 150–151; Wilson 2007, 65; Branigan and Campbell-Green 2010, 79), but the Livari specimen is most probably dated to EM IIA, as indicated by its red core and lustrous black surface, both of which characterize the period (Wilson and Day 1994, 72). Identical teapots have been found at Hagia Photia (Davaras and Betancourt 2012, fig. 20:1522) and Zakros (Hogarth 1900–1901, 142–145; not illustrated, but displayed the in Siteia Museum, Mus. No. 3165), dated to EM IIA.

P38 (Fig. 19; Pl. 20; rock shelter, 5:2). Teapot. H. 8.5; th. 0.4; dia. 6.9 (base), 9 (rim). Flattened, spherical body; low conical neck with internal ledge and four holes for attachment of lid; rounded rim; spout projecting upward from belly (not preserved); circular projection opposite spout (not preserved); concave base. *Date*: EM IIA.

4.2.3.3. Serving Shapes

4.2.3.3.1. Ring-Footed Bowl

This is a deep bowl with a conical body on a low ring-shaped base (Betancourt 2008, 35). No intact specimens have been found at Livari, and it is not possible to know the form of the rim and the handles. At other sites the shape is considered typical of the EM I period and has a rounded, tapered rim and one or two vertical circular handles beneath the rim. Parallels occur in both domestic and funerary assemblages, including Kephala Petras (Papadatos 2012, fig. 3b), Hagia Triada (Todaro 2001, figs. 13, 14), Hagia Photia (Davaras and Betancourt 2012, 80–81, fig. 16:1466), and Lebena (Alexiou and Warren 2004, fig. 18:18, 19).

P39 (Fig. 19; rock shelter, 4:3). Bowl. H. 3.1; th. 0.5; dia. 8. Ring-shaped base with rounded end. *Date*: EM I.

P40 (Fig. 19; tholos, Str. III). Bowl. H. 6.7; th. 0.4; dia. 8. Ring-shaped base with rounded end; straight walls. *Date*: EM I.

P41 (Fig. 19; rock shelter, 5:1). Bowl. H. 3.5; th. 0.3; dia. 8. Ring-shaped base with rounded end; straight walls. *Date*: EM I.

4.2.3.3.2. Deep Bowl

A few bowls of this type exist in the Livari assemblage. They are semiclosed deep bowls with incurving walls and an externally thickened, square rim. Three of the four examples have a hole of unknown function beneath the rim, and one example has incised decoration. All specimens are rather fragmentary, and it is difficult to reconstruct the entire form. Bowls from Lebena (Alexiou and Warren 2004, fig. 19:31), which have an identical rim and possibly belong to the same shape, have a flat base, vertically perforated lugs, and a flattened spherical body. The type cannot be dated more precisely than EM I–IIA.

P42 (Fig. 19; rock shelter, 2:1). Bowl. H. 2.6; th. 0.4; dia. 9. Incurving, externally thickened rim with square section; hole beneath rim. Incised decoration of parallel lines beneath rim and hatched triangles(?) on body. *Date*: EM I–IIA.

P43 (Fig. 19; rock shelter, 3:2). Bowl. H. 2; th. 0.4. Incurving, externally thickened rim with square section. *Date*: EM I–IIA.

P44 (Fig. 19; rock shelter, 3:2). Bowl. H. 2.9; th. 0.3; dia. 10. Incurving, externally thickened rim with square section; hole beneath rim. *Date*: EM I–IIA.

P45 (Fig. 19; rock shelter, 4:3). Bowl. H. 3.1; th. 0.3; dia. 11. Incurving, externally thickened rim with square section; hole beneath rim. *Date*: EM I–IIA.

4.2.3.3.3. Dish

This is a shallow open bowl with walls that slope outward. At Livari there is only one specimen in DGBW. There are many parallels all over Crete, dated throughout the Prepalatial period (Branigan and Campbell-Green 2010, 80). Therefore, on the basis of the ware the Livari specimen should be dated to EM I–IIA.

P46 (Fig. 20; Open Area 2, Str. II). Dish. H. 5.8; th. 0.7; dia. 22 (rim), 12 (base). Flat base; straight walls; rounded, outturned rim. *Date*: EM I–IIA.

4.2.3.4. Storage Shapes

4.2.3.4.1. Pyxis

The pyxides of Livari can be classified into six types on the basis of their shape. Since no lid was found attached to any single pyxis, it is not possible to know which lid type goes with any example. For this reason, lids are discussed separately.

4.2.3.4.1.1. Spherical

The spherical pyxis is by far the most common type. It has a spherical or flattened spherical body. The rim is outturned, rounded, and often slightly tapered. Usually, there are two or four vertically perforated lugs at the height of the maximum diameter, while in one example (**P49**) lugs coexist with vertical handles. A few examples also bear incised or impressed decoration. The shape is particularly common in funerary contexts, with the closest parallels found at Lebena, but it is also found in domestic contexts, like Knossos (Hood and Cadogan 2011, fig. 3.8:105). At Lebena, the spherical pyxides (Alexiou and Warren 2004, fig. 27:327, 329, 330–334) have been dated to EM I, and the flattened spherical examples (Alexiou and Warren 2004, figs. 27:327, 329–334, 29:412, 416–418) to EM II. This may be a valid chronological indicator, but it needs the further support of stratified assemblages.

P47 (Fig. 20; Pl. 20; rock shelter, 5:2). Pyxis. H. 6.4; th. 0.3; dia. 3.5 (base), 5.5 (rim). Flat base; flattened spherical body; two lugs with two vertical perforations; outcurved, rounded, and slightly tapered rim. *Date*: EM I.

P48 (Fig. 20; Open Area 2, Str. II). Pyxis. H. 23.2; th. 0.3; dia. 5 (base), 7 (rim). Flat base; spherical body; one preserved lug with two vertical perforations; outturned, tapered rim. *Date*: EM I.

P49 (Fig. 20; Pl. 20; rock shelter, 3:3). Pyxis. H. 11.4; th. 0.3; dia. 5 (base). Flat base; flattened spherical, slightly carinated body; four vertically perforated lugs alternate with four vertical handles with square sections; outturned rim (partly preserved). *Date*: EM I.

P50 (Fig. 20; tholos, Str. III). Pyxis. H. 4.1; th. 0.4. Vertically perforated lug. *Date*: EM I.

P51 (Fig. 20; tholos, Str. III). Pyxis. H. 4.1; th. 0.4. Vertically perforated lug. *Date*: EM I.

P52 (Fig. 20; rock shelter, 5:1). Pyxis. H. 2; th. 0.3. Lug with two vertical perforations. *Date*: EM I.

P53 (Fig. 20; rock shelter, 5:2). Pyxis. H. 7.1; th. 0.4; dia. 14 (belly). Flattened spherical body; lug with two vertical perforations. *Date*: EM I.

P54 (Fig. 20; Open Area 4, Str. II). Pyxis. H. 2.1; th. 0.5. Shoulder. Impressed pointillé decoration. *Date*: EM I.

P55 (Fig. 20; Open Area 4, Str. II). Pyxis. H. 2.6; th. 0.7. Shoulder. Incised decoration of parallel lines. *Date*: EM I.

P56 (Fig. 20; Open Area 2, Str. II). Pyxis. H. 1.5; th. 0.3; dia. 5 (base). Flat base; spherical body. *Date*: EM I.

P57 (Fig. 20; rock shelter, 2:1). Pyxis. H. 1.4; th. 0.5; dia. 6. Outturned, tapered rim; flattened spherical body. *Date*: EM I.

P58 (Fig. 20; rock shelter, 3:1). Pyxis. H. 2; th. 0.4; dia. 11. Outturned, rounded rim; hole beneath rim for tying to lid. *Date*: EM I.

P59 (Fig. 20; rock shelter, 3:3). Pyxis. H. 3.1; th. 0.3; dia. 6. Outturned, rounded rim. *Date*: EM I.

P60 (Fig. 20; rock shelter, 3:3). Pyxis. H. 2.2; th. 0.3; dia. 3.2. Outturned, rounded rim. *Date*: EM I.

P61 (Fig. 20; rock shelter, 5:1). Pyxis. H. 3.3; th. 0.4; dia. 6. Outturned, tapered rim. *Date*: EM I.

P62 (Fig. 20; Open Area 2, Str. II). Pyxis. H. 3.5; th. 0.5; dia. 12.6. Outturned, rounded rim; hole beneath rim. *Date*: EM I.

P63 (Fig. 20; Open Area 2, Str. II). Pyxis. H. 2.3; th. 0.4; dia. 11.8. Outturned, rounded rim. *Date*: EM I.

P64 (Fig. 20; Open Area 3, Str. II). Pyxis. H. 3.2; th. 0.6; dia. 8. Outturned, rounded rim. Incised decoration beneath rim of groups of three parallel lines defining two bands of zigzag lines. *Date*: EM I.

P65 (Fig. 20; Open Area 4, Str. II). Pyxis. H. 3.9; th. 0.4. Flattened spherical body. Impressed decoration of vertical bands with pointillé. *Date*: EM I.

P66 (Fig. 20; rock shelter, 3:2). Pyxis. H. 3.3; th. 0.3; dia. 3. Flattened spherical, slightly carinated body; lug with two vertical perforations; flat base. *Date*: EM I.

4.2.3.4.1.2. Ring Footed

This is a spherical pyxis similar to the above type but on a low ring-shaped foot. One specimen (**P67**) has pattern-burnished decoration, which is extremely rare at Livari. As in the case of the simple spherical pyxis, the ring-footed version is mostly found in funerary contexts. The closest parallels come from Lebena (Alexiou and Warren 2004, figs. 27:349, 28:350–352, 356) and are dated to the EM I and EM IIA periods.

P67 (Fig. 21; rock shelter, 2:1, 3:3, 4:2). Pyxis. H. 11.7; th. 0.4; dia. 4 (rim), 4 (base). Spherical body; two vertically perforated lugs; outturned, tapered rim. Pattern-burnished decoration on upper half of body with groups of converging lines. *Date*: EM I.

P68 (Fig. 21; tholos, Str. III). Pyxis. H. 4.8; th. 0.4; dia. 6 (base). Spherical body. *Date*: EM I.

4.2.3.4.1.3. Collar Neck

This type includes medium-sized pyxides with a spherical body and a tall collar neck. It is difficult to date these vases more precisely than EM I–IIA, apart from one (**P72**), which seems to be EM IIA on the basis of the red biscuit and the incised decoration.

P69 (Fig. 21; tholos, Str. III). Pyxis. H. 8; th. 0.4; dia. 8. Spherical body; rounded rim. *Date*: EM I–IIA.

P70 (Fig. 21; rock shelter, 5:2). Pyxis. H. 4.2; th. 0.4; dia. 8.1. Neck with curving walls; rounded, internally thickened rim. *Date*: EM I–IIA.

P71 (Fig. 21; Open Area 2, Str. II). Pyxis. H. 4.4; th. 0.5. Shoulder. Incised decoration of diagonal parallel lines. *Date*: EM I–IIA.

P72 (Fig. 21; Open Area 2, Str. II). Pyxis. H. 3; th. 0.6; dia. 9 (neck). Shoulder. Incised decoration of band with cross hatching. *Date*: EM IIA.

4.2.3.4.1.4. Large Globular

A few large globular pyxides may belong to any of the above types, but they were classified separately because of their large size. They can be dated anywhere between EM I and EM IIA.

P73 (Fig. 21; rock shelter, 3:2, 4:1, 4:2, 5:2). Pyxis. H. 14.8; th. 0.6. Flattened spherical body; vertically pierced lug. *Date*: EM I–IIA.

P74 (Fig. 21; tholos, Str. III). Pyxis. H. 4.8; th. 0.5. Spherical body. *Date*: EM I–IIA.

4.2.3.4.1.5. Flanged

This type has a cylindrical body with a flange near the bottom, through which are usually pierced four small holes for tying to a lid. The bottom is rounded with three short feet. Similar pyxides have been found in funerary contexts at Lebena (Alexiou and Warren 2004, fig. 25:278, 281–282, 287, 292), Trapeza (Pendlebury, Pendlebury, and Money-Coutts 1935–1936, fig. 8:119), and Hagia Photia (Davaras and Betancourt 2012, 81–82, fig. 16:1470), all dated to late EM I. Pyxides of this type also have flanged lids with perforations, like **P94** (Fig. 22).

P75 (Fig. 21; Pl. 20; tholos, Str. III). Pyxis. H. 5.9; th. 0.3; dia. 10 (flange). Cylindrical body; round base; three feet; flange with small holes. *Date*: EM I.

P76 (Fig. 21; Open Area 3, Str. II). Pyxis. H. 1.9; th. 0.3. Round base; flange with small holes. *Date*: EM I.

P77 (Fig. 21; rock shelter, 3:1, 3:3, 4:2). Pyxis. H. 2.6; th. 0.3; dia. 16 (flange). Round base; flange with small holes. *Date*: EM I.

4.2.3.4.1.6. Miniature Biconical

This is a miniature pyxis with a biconical body and vertical collar neck. It is very common in both domestic and funerary contexts dated to the EM I period, including Lebena (Alexiou and Warren 2004, fig. 25:242), Krasi (Marinatos 1929, 115, pl. 4.4), Partira (Mortzos 1972, pls. 37, 38, 40), Amnisos (Betancourt and Marinatos 2000, fig. 12:46), Hagios Nikolaos Palaikastro (Tod 1902–1903, fig. 2:a–c), and Kephala Petras (Papadatos 2008, fig. 15.5c).

P78 (Fig. 21; Pl. 20; tholos, Str. III). Pyxis. H. 4; th. 0.3; dia. 4 (base), 3.6 (rim). Flat base; biconical carinated body; two lugs with two vertical perforations each; vertical collar neck; rounded, slightly tapered rim. *Date*: EM I.

P79 (Fig. 21; rock shelter, 2:2, 3:3, 4:2). Pyxis. H. 1.1; th. 0.6; dia. 2.8 (neck). Shoulder; two vertical lugs with horizontal perforations. *Date*: EM I.

P80 (Fig. 21; tholos, Str. III). Pyxis. H. 2.8; th. 0.3; dia. 4.6 (rim). Vertical collar neck; rounded rim. *Date*: EM I.

4.2.3.4.1.7. Unknown Type

P81 (Fig. 21; Open Area 2, Str. II). Pyxis. H. 2.3; th. 1.2. Horizontal handle with circular section. Incised slashed decoration. Petrographic sample LIV63. *Date*: EM I–IIA.

4.2.3.4.2. Pyxis Lid

The pyxis lids can be classified into three types on the basis of shape. It is not possible to match the lids with specific pyxis types, with the exception of the flanged pyxides **P75–P77** and the flanged lid **P94**. The evidence from assemblages in which lids were found together with their associated pyxides, however, shows that similar lids were used for a variety of pyxis types (e.g., cf. Alexiou and Warren 2004, fig. 25:170, 242 to fig. 26:176, 293), and similar pyxides may have had lids of different types (e.g., cf. Alexiou and Warren 2004, fig. 28:158a, 350 to fig. 28:182, 351).

4.2.3.4.2.1 High with Projecting Lugs

These are lids with high walls and flat, curved, or domed tops. All specimens have two or four vertically pierced lugs for tying to a pyxis. This type is particularly common in funerary contexts, including Lebena (Alexiou and Warren 2004, figs. 23:172, 25:170, 26:176), Moni Odigitria (Vasilakis and Branigan 2010, fig. 37:P71), and Partira (Mortzos 1972, pls. 1, 36–38), but is also found in domestic contexts, such as at Knossos (Hood and Cadogan 2011, fig. 3.8:112) and Kephala Petras (Papadatos 2008, fig. 15.5c). All are dated to EM I.

P82 (Fig. 22; Pl. 20; rock shelter, 4:3). Pyxis lid. H. 5.5; th. 0.6; dia. 9 (rim). Straight walls; conical body; curved top with elliptical lug at center; rounded, slightly outturned rim; four vertically perforated lugs at edge. Pattern-burnished decoration of converging lines. Petrographic sample LIV05. *Date*: EM I.

P83 (Fig. 22; rock shelter, 2:1, 3:1, 3:3, 4:2, 5:1). Pyxis lid. H. 6.2; th. 0.4; dia. 13 (rim). Concave walls; cylindrical body; domed top; rounded, slightly outturned rim; four vertically perforated lugs at edge. Pattern-burnished decoration of converging lines. *Date*: EM I.

P84 (Fig. 22; Pl. 20; tholos, Str. III). Pyxis lid. H. 3.5; th. 0.5; dia. 6 (rim). Concave walls; cylindrical body; curved top; rounded, outturned, and tapered rim; horizontally perforated lugs rise above edge. *Date*: EM I.

P85 (Fig. 22; tholos, Str. I). Pyxis lid. H. 3.5; th. 0.5; dia. 7 (edge). Curved walls; cylindrical body; curved top; horizontally perforated lugs rise above edge. Petrographic sample LIV13. *Date*: EM I.

P86 (Fig. 22; tholos, Str. II). Pyxis lid. H. 3.5; th. 0.5; dia. 14 (rim). Straight walls; cylindrical body; curved top; rounded, slightly tapered rim; vertically perforated lugs at edge. *Date*: EM I.

P87 (Fig. 22; Open Area 3, Str. II). Pyxis lid. H. 3; th. 0.5; dia. 10 (rim). Straight, incurving walls; curved top. *Date*: EM I.

P88 (Fig. 22; rock shelter, 3:2). Pyxis lid. H. 3.3; th. 0.3; dia. 10 (edge). Curved top; lug with two vertical perforations at edge; missing projection at center of top. *Date*: EM I.

P89 (Fig. 22; rock shelter, 3:2). Pyxis lid. H. 5.5; th. 0.6; dia. 10 (rim). Concave walls; carinated profile; domed top; rounded rim; vertically perforated lugs rise above edge. *Date*: EM I.

P90 (Fig. 22; rock shelter, 3:2). Pyxis lid. H. 3.4; th. 0.4; dia. 11.7 (rim). Straight walls; conical body; flat top. *Date*: EM I.

P91 (Fig. 22; rock shelter, 4:2). Pyxis lid. H. 2.6; th. 0.4; dia. 4.5 (edge). Domed top; small elliptical lug at center of top; vertically perforated lug at edge. *Date*: EM I.

4.2.3.4.2.2. Flanged with Perforations

Instead of projecting lugs, these lids have a projecting flange around the perimeter of the top surface. The flange has small perforations. Such lids are common in funerary contexts like Lebena (Alexiou and Warren 2004, fig. 23:204, 208, 209), Moni Odigitria (Vasilakis and Branigan 2010, fig. 46:P187), and Hagia Kyriaki (Blackman and Branigan 1982, fig. 9:25), and all are dated to EM I.

P92 (Fig. 22; tholos, Str. III). Pyxis lid. H. 5.3; th. 0.5; dia. 10 (rim). Straight walls; conical body; flat top; two vertically perforated lugs at edge; missing projection at center of top. *Date*: EM I.

P93 (Fig. 22; rock shelter, 3:2). Pyxis lid. H. 2.5; th. 0.4; dia. 5 (edge). Concave walls; cylindrical body; curved top; four vertical perforations through edge; circular knob-shaped projection at center of top. *Date*: EM I.

P94 (Fig. 22; rock shelter, 4:3). Pyxis lid. H. 5.3; th. 0.5; dia. 9 (edge). Curved walls; cylindrical body; curved top; vertical perforations through edge. *Date*: EM I.

4.2.3.4.2.3. Low

These are lids with low incurving walls and curved tops. All low lids have two or four vertically pierced lugs for tying to a pyxis. They are particularly common in funerary contexts, such as Lebena (Alexiou and Warren 2004, fig. 22:160–165), but they can also be found in domestic contexts, such as Kephala Petras (pers. obs.). All are dated to EM I.

P95 (Fig. 22; rock shelter, 4:1). Pyxis lid. H. 1.3; th. 1; dia. 5 (rim). Incurving walls; curved top; rounded, tapered rim; two pairs of vertical perforations through edge. *Date*: EM I.

P96 (Fig. 22; rock shelter, 4:3). Pyxis lid. H. 2.1; th. 0.7; dia. 6 (rim). Incurving walls; curved top; rounded, tapered rim; two lugs with two perforations each. *Date*: EM I.

P97 (Fig. 22; rock shelter, 4:2). Pyxis lid. H. 1.9; th. 0.3; dia. 7 (rim). Incurving walls; curved top with elliptical projection at center; rounded rim; two pairs of vertical perforations through edge. *Date*: EM I.

P98 (Fig. 22; rock shelter, 2:1, 4:2). Pyxis lid. H. 0.7; th. 0.3; dia. 8 (rim). Incurving walls; curved top; rounded rim; two lugs with two perforations each. *Date*: EM I.

P99 (Fig. 22; Pl. 20; rock shelter, 3:2, 3:3, 4:2). Pyxis lid. H. 2.6; th. 0.4; dia. 10 (rim). Incurving walls; curved top with elliptical projection at center; rounded, tapered rim; two lugs with two perforations each. Pattern-burnished decoration of zones of converging lines on top. *Date*: EM I.

P100 (Fig. 22; rock shelter, 2:1, 3:1). Pyxis lid. H. 1.8; th. 0.4; dia. 7 (rim). Incurving walls; curved top; rounded rim; two lugs with two perforations each. *Date*: EM I.

P101 (Fig. 22; Open Area 2, Str. II). Pyxis lid. H. 3.7; th. 0.5; dia. 10 (rim). Vertical walls; curved top; rounded rim; two lugs with two perforations each. *Date*: EM I.

P102 (Fig. 22; tholos, Str. I). Pyxis lid. H. 1.6; th. 0.4; dia. 7.3 (rim). Incurving walls; curved top; rounded, tapered rim. *Date*: EM I.

P103 (Fig. 22; tholos, Str. III). Pyxis lid. H. 1.1; th. 0.4. Curved top; elliptical projection at center of top. *Date*: EM I.

P104 (Fig. 22; tholos, Str. III). Pyxis lid. H. 1.8; th. 0.6; dia. 14 (rim). Vertical walls; curved top; rim with square section. Incised decoration of parallel diagonal lines on top. *Date*: EM I.

P105 (Fig. 22; rock shelter, 3:2). Pyxis lid. H. 1; th. 0.5; dia. 6 (edge). Incurving walls; curved top; vertical perforation through edge. *Date*: EM I.

4.2.3.4.2.4. Discoid

This is a rare type of lid, which is discoid, slightly curved on top, and has no side walls. The type can be dated to EM I–IIA, except for **P107**, which is probably of EM IIA date because of the black lustrous surface and the red biscuit.

P106 (Fig. 22; tholos, Str. I). Pyxis lid. H. 2.2; th. 0.5. Slightly curved. Bird-shaped projection at center of top surface. *Date*: EM I–IIA.

P107 (Fig. 22; rock shelter, 4:2). Pyxis lid. H. 2.7; th. 0.5; dia. 8. Slightly curved; rounded end; circular handle on top surface. Petrographic sample LIV51. SEM sample SEM3. *Date*: EM IIA.

P108 (Fig. 22; rock shelter, 4:2). Pyxis lid. H. 2.7; th. 0.5. Slightly curved; pair of elliptical projections at center of top surface. *Date*: EM I–IIA.

P109 (Fig. 22; Open Area 3, Str. II). Pyxis lid. H. 2.3; th. 0.4; dia. 20.8. Slightly curved; rim with triangular section. *Date*: EM I–IIA.

4.2.3.4.3. Alabastron

This is a rare type of tiny, bottle-like jar with a biconical body and a low, narrow collar neck. The closest parallels come from Hagia Photia (Davaras and Betancourt 2012, 87, fig. 19:1513, 1514) and the Kephala Petras rock shelter (Tsipopoulou 2010, fig. 11), both dated to the end of the EM I period.

P110 (Fig. 23; tholos, Str. III). Alabastron. H. 1.8; th. 0.3; dia. 8 (belly). Biconical body. Incised lines on upper half of body. *Date*: EM I.

P111 (Fig. 23; tholos, Str. III). Alabastron. H. 2.5; th. 0.3. Body. Incised-line decoration. Petrographic sample LIV18. *Date*: EM I.

P112 (Fig. 23; house tomb, Str. III). Alabastron. H. 1.7; th. 0.3; dia. 2. Narrow neck; triangular, slightly outturned rim; hole underneath rim. *Date*: EM I.

P113 (Fig. 23; rock shelter, 3:3). Alabastron. H. 2.2; th. 0.4; dia. 1.6. Narrow neck; triangular, slightly tapered, and outturned rim. Incised decoration of vertical chevrons. *Date*: EM I.

4.2.3.4.4. Decorated Sherds

In general, vases of DGBW have no decoration. When it exists, it is mostly pattern-burnished decoration, and these vases are often classified as Pyrgos Ware. At Livari, however, pattern-burnished decoration is particularly rare, found only on a few pyxides and pyxis lids. In contrast, incised or impressed decoration is more frequent, although still very rare in relation to the total number of DGBW vases. Apart from the decorated sherds described above, there are also a number of DGBW decorated sherds that cannot be attributed to specific shapes but are included here for their decoration. All of them belong to small-sized closed vases, most probably pyxides.

P114 (Fig. 23; Open Area 3, Str. II). Pyxis. H. 1.7; th. 0.4. Body sherd, possibly from a pyxis. Vertical band with incised herringbone decoration. *Date*: EM I–IIA.

P115 (Fig. 23; tholos, Str. III). Pyxis. H. 5.4; th. 0.4. Body sherd, possibly from a pyxis. Incised concentric semicircles on upper portion; impressed lines of pointillé on lower portion. *Parallels*: For similar decoration (albeit in FGW) see Alexiou and Warren 2004, fig. 29:389. *Date*: EM IIA.

P116 (Fig. 23; tholos, Str. II). Pyxis. H. 4.5; th. 0.5. Body sherd, possibly from a pyxis. Incised diagonal parallel lines on shoulder. *Date*: EM I–IIA.

P117 (Fig. 23; tholos, Str. II). Pyxis. H. 3.4; th. 0.6. Body sherd, possibly from a pyxis. Horizontal bands with incised oblique herringbones. Petrographic sample LIV21. *Date*: EM I–IIA.

P118 (Fig. 23; tholos, Str. III). Pyxis. H. 3.7; th. 0.4; dia. 11. Flat base sherd, possibly from a pyxis. Incised upright concentric semicircles. *Date*: EM I–IIA.

P119 (Fig. 23; tholos, Str. III). Pyxis. H. 3.6; th. 0.6. Body sherd, possibly from a pyxis. Incised concentric semicircles. *Date*: EM I–IIA.

P120 (Fig. 23; Open Area 2, Str. II). Pyxis. H. 4.6; th. 0.6. Body sherd, possibly from a pyxis. Incised cross hatching and triangles filled with pointillé. *Date*: EM I–IIA.

P121 (Fig. 23; Open Area 3, Str. II). Pyxis. H. 2.5; th. 0.6. Body sherd, possibly from a pyxis. Incised diagonal parallel lines and chevrons. *Date*: EM I–IIA.

P122 (Fig. 23; Open Area 3, Str. II). Pyxis. H. 3.5; th. 0.6. Flat base sherd, possibly from a pyxis. Zones of impressed notches. *Date*: EM I–IIA.

P123 (Fig. 23; rock shelter, 3:1). Pyxis. H. 1.3; th. 0.4. Body sherd, possibly from a pyxis. Horizontal band with incised herringbone. *Date*: EM I–IIA.

P124 (Fig. 23; rock shelter, 4:1). Pyxis. H. 4; th. 0.5. Body sherd, possibly from a pyxis. Incised concentric semicircles on upper portion; impressed lines of pointillé on lower portion. *Parallels*: For similar decoration (albeit in Fine Gray ware [FGW]), see Alexiou and Warren 2004, fig. 29:389. *Date*: EM IIA.

P125 (Fig. 23; Open Area 3, Str. II). Pyxis. H. 4.3; th. 0.6. Body sherd, possibly from the neck of a pyxis. Horizontal incised lines. *Date*: EM IIA.

4.2.4. Orange-Buff Burnished Ware

Orange-Buff Burnished ware (OBBW) is a rare, light-colored, and oxidized version of DGBW. The surface is covered by a thin self-wash, which is heavily burnished. The color of the surface varies from very pale brown (10YR 8/3–8/4) to light red (2.5YR 6/8) or reddish yellow (5YR 6/6). Vases of this ware are made of the same fine, low calcareous fabric. All vases are fired soft medium. Pattern-burnished decoration is lacking and incised decoration is very rare. It was mainly used for pyxides and footed bowls (Table 28). This ware is very rare in Livari, representing less than 1% of the total (Tables 25, 26). It is similarly rare in other sites such as Moni Odigitria (Branigan and Campbell-Green 2010, 75, ware group no. 23) and Kalo Chorio (Haggis 1996, 668). It is dated to the EM I and EM II period, and precise dating can be provided only by the shapes.

4.2.4.1. Drinking Shapes

4.2.4.1.1. Chalice

For parallels, date, and a discussion of this shape, see the section in this chapter on DGBW chalices (p. 31).

P126 (Fig. 23; tholos, Str. II). Chalice. H. 2.9; th. 0.5. Tall pedestal; rounded, slightly tapered end; projection with vertical perforation above base. Zone with incised cross hatching. *Date*: EM I.

4.2.4.2. Pouring Shapes

4.2.4.2.1. Spouted Bowl

Only the hemispherical type is represented in OBBW. For parallels, date, and a discussion of this shape, see the section in this chapter on DGBW spouted bowls (p. 32).

P127 (Fig. 23; tholos, Str. II). Spouted bowl. H. 5.2; th. 0.4; dia. 16. Hemispherical body; rounded rim; open spout projecting slightly upward. *Date*: EM I–IIA.

4.2.4.3. Serving Shapes

4.2.4.3.1. Bowl

Only the ring-footed type is represented in OBBW. For parallels, date, and a discussion of this shape, see the section in this chapter on DGBW ring-footed bowls (pp. 32–33).

P128 (Fig. 23; tholos, Str. I). Bowl. H. 2.8; th. 0.4; dia. 6. Hemispherical body; rounded end. *Date*: EM I–IIA.

4.2.4.4. Storage Shapes

4.2.4.4.1. Pyxis

Two pyxis types are represented in OBBW, the spherical and the ring footed. For parallels, date, and a discussion of this shape, see the section in this chapter on DGBW pyxides (pp. 33–35).

4.2.4.4.1.1. Spherical

P129 (Fig. 23; tholos, Str. I). Pyxis. H. 6; Th. 0.4. Spherical body; lug with vertical perforation. *Date*: EM I.

P130 (Fig. 23; tholos, Str. III). Pyxis. H. 1.2; th. 0.7; dia. 6. Spherical body; outturned rim with triangular section. Incised horizontal parallel lines beneath rim. *Date*: EM I.

P131 (Fig. 23; tholos, Str. II). Pyxis. H. 3.6; th. 0.5. Body sherd, possibly from a pyxis. Incised horizontal parallel lines on shoulder. *Date*: EM I.

P132 (Fig. 23; tholos, Str. III). Pyxis. H. 3; th. 0.3. Body sherd; double projecting lug with two vertical perforations. *Date*: EM I.

4.2.4.4.1.2. Ring Footed

P133 (Fig. 23; tholos, Str. III). Pyxis. H. 2; th. 0.4; dia. 9. Hemispherical body; tapered end. *Date*: EM I.

4.2.4.4.2. Pyxis Lid

Only the type with high walls is represented in OBBW. For parallels, date, and a discussion of the shape, see the section in this chapter on DGBW pyxis lids (pp. 35–36).

P134 (Fig. 23; tholos, Str. II). Pyxis lid. H. 3.9; th. 0.5. Cylindrical body; curved top; double, vertically perforated lug at edge. *Date*: EM I.

P135 (Fig. 23; tholos, Str. III). Pyxis lid. H. 2.2; th. 0.4; dia. 10. Cylindrical body; curved top; oblique perforation through edge. *Date*: EM I.

4.2.5. Dark Burnished Ware

In Dark Burnished ware (DBW) the surface is covered by a thin slip, which is always heavily burnished in order to produce a distinct shiny, lustrous effect. The color of the surface varies considerably, from red (2.5YR 4/6) to reddish brown (2.5YR 4/4) and dark red (10R 3/6), from dark reddish brown (5YR 3/4) to dark brown (7.5YR 3/2), and from dark gray (5YR 4/1) to black (5YR 2.5/1). Decoration is very rare, but a few examples are incised, one with pattern-burnished decoration of simple thick bands, and one with trickle-painted decoration.

All vases are made of the same semicoarse to coarse fabric, with crushed calcite inclusions added deliberately to the clay paste as temper. They were low fired in temperatures that did not exceed 750ºC, because in higher temperatures (above 850ºC) calcite inclusions decompose and suddenly release carbon dioxide that may break the walls of the vase (Betancourt 2008, 16, 28–29, 72–78). In most cases the uneven firing and discolorations on the surface suggest firing in a simple pit. It is interesting to note that petrographic analysis showed the presence of three different subgroups: (a) one with weathered calcite (Petrographic Fabric Group 1a: samples **P137**, **P148**, **P165**, **P169**, **P177**); (b) one with calcite and grog (Petrographic Fabric Group 1b: samples **P194**, **P204**); and (c) one with fresh-looking calcite (Petrographic Fabric Group 1c: samples **P136**, **P183**). The macroscopic identification of these subgroups is impossible, and, therefore, it is difficult to know their relative frequency in the ceramic material from the site. The mineralogical composition of the analyzed pottery is not conclusive concerning the origin of this pottery.

From a typological point of view, however, vases of DBW have close parallels in sites situated in the North Cretan coastal zone and in the Cyclades. Furthermore, in some of these sites, particularly Hagia Photia and Gournes, DBW calcite-tempered pottery constitutes the vast majority of the ceramic assemblage. On this basis, it seems probable that the DBW vases were imported rather than produced locally. Also, the existence of four fabric subgroups may suggest that the DBW vases were imported to Livari from more than one area of production.

Vases of DBW constitute the third largest category of pottery in the cemetery, representing 19% (quantity) and 18% (weight) of the total assemblage (Tables 25, 26). The most common shapes are those for small-scale storage, namely pyxides, bottles, and alabastra (Table 29). There are also shapes for drinking (chalices and cups), for serving (bowls and dishes), and for pouring (spouted bowls).

Vases of DBW are found at many sites on the North Cretan coast, such as Hagia Photia (Davaras and Betancourt 2004, 2012; Day, Wilson, and Kiriatzi 1998), Kephala Petras (Tsipopoulou 2010), Pyrgos (Xanthoudides 1918), Gournes (Galanaki 2006), and Poros Katsambas (Wilson, Day, and Dimopoulou-Rethemiotaki 2004, 2008). All these assemblages are dated to the late EM I period. Limited quantities, however, also exist in early EM I at Kephala Petras (Papadatos et al. forthcoming). Similar vases are particularly common in the Cyclades where they comprise the so-called Kampos Group pottery, dated to the Early Cycladic (EC) I–IIA transition (Karantzali 2008). The sites include Markiani on Amorgos (Karantzali 2006), Agrilia on Ano Kouphonisi (Zapheiropoulou 1984, 2008), Hagioi Anargyroi (Doumas 1977) and Tsikniades on Naxos (Philaniotou 2008), and Kampos on Paros (Varoucha 1925–1926). It should be noted that calcite-tempered fabrics in burnished wares have a long history in Crete, going back to the Late and Final Neolithic periods and continuing until at least the EM II period, at sites such as Palaikastro, Vrokastro, Kavousi, and Knossos (Day et al. 2005, 180; Haggis et al. 2007, 679–701; Hayden 2003, 405; Tomkins, Day, and Kilkoglou 2004). However, the Cretan calcite-tempered fabrics are different from the DBW calcite-tempered fabric discussed here since the amount and the density of the calcite inclusions is significantly lower. Furthermore, the vases of these fabrics do not show any Cycladic affinities, unlike the vases of DBW found at Livari.

4.2.5.1. Drinking Shapes

4.2.5.1.1. Chalice

The Livari assemblage did not produce any intact chalices of DBW. The preserved specimens show a deep bowl attached to a tall conical pedestal or a cylindrical stem (Betancourt 2008, 34). The bowl has a concave profile and an outturned, rounded rim. All specimens are undecorated. Chalices in DBW are particularly common in Cretan assemblages with strong Cycladic influence of both funerary and domestic character. The largest corpus comes from the cemetery at Hagia Photia. It should be noted that, unlike at Livari, most of the Hagia Photia chalices have swollen waists. There are, however, examples without this feature, which are closer to the Livari specimens (Davaras and Betancourt 2004, figs. 19:7.19c, 42:17.1, 161:72.5, 194:89.1, 284:114.5, 306:144.12; 2012, 22–23, fig. 6:311). Other funerary sites include Pyrgos (Xanthoudides 1918, figs. 8, 10), Kyparissi (Alexiou 1951, pl. 14.1:6) and Gournes (Galanaki 2006, fig. 1b). The only domestic context that has thus far produced similar material is Poros Katsambas (Wilson, Day, and Dimopoulou-Rethemiotaki 2008, fig. 26.2:a–g). It should be noted that all of these sites are located along the North Cretan coast and dated to the end of the EM I period. In the Cyclades, similar chalices have been found at Agrilia on Ano Kouphonisi (Zapheiropoulou 1984, fig. 3.c; 2008, fig. 19.10, 33). These examples are dated to the Kampos phase, which is considered transitional between the EC I and EC II periods (Warren 1984).

P136 (Fig. 24; Open Area 2, Str. II). Chalice. H. 6.5; th. 0.6; dia. 4.5 (stem). Conical bowl; hollowed cylindrical stem on disc-shaped foot. Petrographic sample LIV08. *Date*: EM I.

P137 (Fig. 24; tholos, Str. II). Chalice. H. 2.8; th. 0.8; dia. 16. Conical pedestal with straight walls; rounded end. Petrographic sample LIV20. *Date*: EM I.

P138 (Fig. 24; Open Area 2, Str. II). Chalice. H. 8; th. 0.8; dia. 15. Conical pedestal with elliptical fenestration; rounded end. *Date*: EM I.

4.2.5.1.2. Cup

These are small, open vases that are conical in shape, with a lug or vertical handle with a circular section. Cups with such handles are found at Hagia Photia (Davaras and Betancourt 2012, 18–19, fig. 3:260) and Gournes (Galanaki 2006, fig. 3). It is interesting to note that cups with circular handles are not found in the Cyclades, although the fabric and other shapes of this ware are traditionally regarded as Cycladic influences.

P139 (Fig. 24; rock shelter, 4:2). Cup. H. 1.2; th. 0.4; dia. 3.5. Conical shape; almost straight walls; flat base; non-perforated D-shaped lug beneath rim. *Date*: EM I.

P140 (Fig. 24; rock shelter, 4:3). Cup. H. 3.8; th. 0.5; dia. 10. Conical shape; slightly curved walls; rounded, slightly tapered rim; non-perforated D-shaped lug beneath rim. *Date*: EM I.

P141 (Fig. 24; tholos, Str. I). Cup. H. 9.4; dia. 2.2. Vertical handle with circular section. *Date*: EM I.

P142 (Fig. 24; rock shelter, 3:1). Cup. H. 4.5; th. 0.9. Vertical handle with circular section. *Date*: EM I.

4.2.5.2. Pouring Shapes

4.2.5.2.1. Spouted Bowl

This is the only pouring vase in DBW. This is a hemispherical or (rarely) conical bowl with a U-shaped spout projecting horizontally or slightly upward from the rim. As in the case of the chalices, spouted bowls of DBW have been found in all Cretan assemblages with strong Cycladic affinities. These sites include Hagia Photia (Davaras and Betancourt 2012, 21–22, fig. 5:295), Pyrgos (Xanthoudides 1918, figs. 7:37, 12:95), and Gournes (Galanaki 2006, fig. 6). The shape also occurs in the Cyclades, in Hagioi Anargyroi on Naxos (Doumas 1977, pl. 36f) and Kato Akrotiri on Amorgos (Rambach 2000, fig. 73:1, 2).

P143 (Fig. 24; Pl. 20; rock shelter, 3:1). Spouted bowl. H. 6.4; th. 0.5; dia. 4.8 (base), 12.4 (rim). Flat base; curved walls; hemispherical shape; rounded, slightly tapered rim; open U-shaped spout projecting horizontally from rim. *Date*: EM I.

P144 (Fig. 24; Pl. 20; rock shelter, 3:1, 3:2, 3:3, 4:2, 5:2, 5:3). Spouted bowl. H. 7.8; th. 0.5; dia. 14 (rim). Curved base; curved walls; hemispherical shape; rounded, slightly tapered rim; open U-shaped spout projecting horizontally from rim. *Date*: EM I.

P145 (Fig. 24; Pl. 20; rock shelter, 3:1, 3:3, 4:1, 5:2). Spouted bowl. H. 6.1; th. 0.5; dia. 8 (base), 12 (rim). Flat base; curved walls; hemispherical shape; rounded rim; open U-shaped spout projecting upwards; two broken lugs on rim opposite spout. *Date*: EM I.

P146 (Fig. 24; rock shelter, 1:1, 2:1). Spouted bowl. H. 5.1; th. 0.5; dia. 8 (base). Flat base; curved walls; hemispherical shape; rounded rim; open U-shaped spout projecting horizontally from rim. *Date*: EM I.

P147 (Fig. 24; rock shelter, 3:2). Spouted bowl. H. 5.6; th. 0.4; dia. 6 (base), 14 (rim). Flat base; curved walls; hemispherical shape; rounded, incurving rim; open U-shaped spout projecting horizontally from rim. *Date*: EM I.

P148 (Fig. 24; tholos, Str. III). Spouted bowl. H. 5; th. 0.5; dia. 8. Curved walls; hemispherical shape; rounded rim; open U-shaped spout projecting slightly upward. Petrographic sample LIV26. *Date*: EM I.

P149 (Fig. 24; rock shelter, 4:1). Spouted bowl. H. 3.2; th. 0.4. Open U-shaped spout. *Date*: EM I.

P150 (Fig. 24; rock shelter, 4:2). Spouted bowl. H. 1.3; th. 0.6. Open U-shaped spout. *Date*: EM I.

P151 (Fig. 24; rock shelter, 3:3). Spouted bowl. H. 5.4; th. 0.4; dia. 5 (base), 9.4 (rim). Flat base; straight walls; conical shape; rounded, slightly tapered rim; open U-shaped spout projecting horizontally from rim. *Date*: EM I.

4.2.5.3. Serving Shapes

4.2.5.3.1. Bowl

Three types of bowls can be identified in Livari, all represented by a few specimens. As with all the above forms of DBW, the best parallels are to be found in Hagia Photia (Davaras and Betancourt 2012, 5–6, fig. 1:4, 8, 9, 12, 14) and Gournes (Galanaki 2006, fig. 3.4). The typical Hagia Photia bowl with tab handle (Davaras and Betancourt 2012, figs. 2:49, 86, 120, 7–18) is represented at Livari by only a few possible candidates.

4.2.5.3.1.1. Hemispherical

These bowls have vertical or inward-sloping walls.

P152 (Fig. 24; rock shelter, 2:1, 3:3). Bowl. H. 8; th. 0.6; dia. 6 (base), 15 (rim). Hemispherical shape; curved walls; curved base; incurved, rounded, and slightly tapered rim. *Date*: EM I.

P153 (Fig. 24; tholos, Str. III). Hemispherical bowl. H. 5.7; th. 0.5; dia. 16. Hemispherical shape; curved walls; incurved, rounded, and tapered rim; vertically pierced lug beneath rim. *Date*: EM I.

P154 (Fig. 24; tholos, Str. III). Hemispherical bowl. H. 3.4; th. 0.6; dia. 12. Hemispherical shape; curved walls; incurved, rounded rim. *Date*: EM I.

P155 (Fig. 25; Open Area 2, Str. II). Bowl. H. 6.1; th. 0.6; dia. 14. Hemispherical shape; curved walls; incurved, rounded rim; nonperforated D-shaped projection at rim. *Date*: EM I.

P156 (Fig. 25; Open Area 2, Str. II). Bowl. H. 7.6; th. 0.6; dia. 16. Vertical walls; rounded, outturned rim; pronounced ridge beneath rim. *Date*: EM I.

4.2.5.3.1.2. Conical

These are bowls with conical profiles and outward-sloping walls.

P157 (Fig. 25; tholos, Str. II). Bowl. H. 5.8; th. 0.7; dia. 4.2 (base), 12.2 (rim). Slightly curved walls; rounded, outturned rim. *Date*: EM I.

4.2.5.3.1.3. With (Possible) Tab Handle

P158 (Fig. 25; rock shelter, 4:2, 4:3). Bowl. H. 6; th. 0.5; dia. 16 (rim). Hemispherical shape; curved walls; rounded rim; possible tab handle rising above rim. *Date*: EM I.

P159 (Fig. 25; rock shelter, 4:2). Bowl. H. 3.6; th. 0.4; dia. 8. Hemispherical shape; curved walls; incurved, rounded rim; possible tab handle rising above rim. Pattern-burnished decoration consisting of thick vertical bands. *Date*: EM I.

P160 (Fig. 25; rock shelter, 3:1). Bowl. H. 4.3; th. 0.6. Fragment of tall projection or possible tab handle rising above rim. *Date*: EM I.

4.2.5.3.2. Dish

These are open vases, shallower than bowls, with outward-sloping walls and curved, pronounced bases. No parallels were found at sites with similar material.

P161 (Fig. 25; tholos, Str. II). Dish. H. 2.9; Th. 0.8. Curved, pronounced base. *Date*: EM I.

P162 (Fig. 25; tholos, Str. III). Dish. H. 4.3; th. 0.7; dia. 12 (base). Curved, pronounced base. *Date*: EM I.

4.2.5.4. Storage Shapes

4.2.5.4.1. Deep Bowl/Jar

These are large, deep bowls or semiclosed jars used for storage purposes. Livari lacks the typical deep bowls with two vertical tubular handles found in Hagia Photia (Davaras and Betancourt 2012, 20–21, fig. 5:290) and Poros Katsambas (Wilson, Day, and Dimopoulou-Rethemiotaki 2008, fig. 26.3c). Also unique in Crete is the large closed jar (**P165**) with painted decoration. Although the painted decoration on **P165** is not typical for vases of DBW, it is included here because, as confirmed by petrographic analysis (sample LIV53), it is identical to the rest in terms of fabric.

P163 (Fig. 25; rock shelter, 2:1). Deep bowl/jar. H. 5.2; th. 0.5; dia. 12. Inward-curving walls; rim with square section, flattened on top. *Date*: EM I.

P164 (Fig. 25; Open Area 3, Str. II). Deep bowl/jar. H. 5.2; th. 0.6; dia. 16. Inward-curving walls; rounded, incurving rim. *Date*: EM I.

P165 (Fig. 25; rock shelter, 4:2). Deep bowl/jar. H. 17.2; th. 0.7. Spherical body; curved walls. Reddish-brown painted decoration of thick vertical bands radiating from a horizontal band at top. Petrographic sample LIV53. *Date*: EM I.

4.2.5.4.2. Pyxis

The only type of pyxis in DBW has a spherical body and a slightly concave base. There are two perforated tubular handles on the shoulder, just below the rim, or two smaller perforated lugs at the middle of the body. The rim is straight and rounded, and there is often a low relief line below the rim corresponding to the point where the lid is attached. The closest parallels can be found at sites on the North Cretan coast. Hagia Photia provides the most numerous parallels of all types and sizes, including miniature, footed, double, and (rarely) with internal compartments (Davaras and Betancourt 2012, 34–53, figs. 8, 9). Similar pyxides have also been found in Gournes (Galanaki 2006, fig. 2a). Other sites with similar spherical pyxides include the Kephala Petras cemetery (Tsipopoulou 2010, fig. 6), Pyrgos (Xanthoudides 1918, figs. 5:9, 7:33, 7:35), Kanli Kastelli (Alexiou 1951, pl. 14:1.9), and Amnisos (Betancourt and Marinatos 2000, fig. 13:48, 49). It is generally accepted that the origin of this shape lies in the Cyclades where it appeared as early as the EC I period ("Grotta-Pelos" culture), often with incised decoration (e.g., Akrotiri on Naxos; Doumas 1977, pls. 31b, 33a), but the shape became particularly common in the EC I–II transition ("Kampos Group" phase). Parallels for this phase come from Louros (Papathanassopoulos 1961–1962, pl. 67a) and Tsikniades on Naxos (Philaniotou 2008, figs. 20.8, 20.9), Kato Akrotiri on Amorgos (Rambach 2000, fig. 74.3), and Agrilia on Ano Kouphonisi (Zapheiropoulou 2008, figs. 19.8, 19.9). Beyond the Cyclades, a few examples have been found in sites with Cycladic connections, such as Manika (Calligas 1984, 91; Sapouna-Sakellaraki 1987, pl. 40a) and Tsepi (Pantelidou-Gofa 2005, pls. 1, 23:1).

P166 (Fig. 25; tholos, Str. III). Pyxis. H. 3.1; th. 0.7. Slightly concave base. *Date*: EM I.

P167 (Fig. 25; tholos, Str. III). Pyxis. H. 1.5; th. 0.6; dia. 4. Slightly concave base. *Date*: EM I.

P168 (Fig. 25; rock shelter, 4:1). Pyxis. H. 3.4; th. 0.4; dia. 3 (base). Slightly concave base. *Date*: EM I.

P169 (Fig. 25; Pl. 20; rock shelter, 2:1, 2:2, 3:1, 4:2, 4:3). Pyxis. H. 6.8; th. 0.6; dia. 7 (base), 9 (rim). Flattened spherical body; slightly concave base; two tubular perforated handles beneath rim. Petrographic sample LIV02. SEM sample SEM4. *Date*: EM I.

P170 (Fig. 26; tholos, Str. III). Pyxis. H. 2.8; th. 0.6; dia. 6. Flattened spherical body; rounded, incurved rim; tubular perforated handle beneath rim. *Date*: EM I.

P171 (Fig. 26; rock shelter, 2:1). Pyxis. H. 2.8; th. 0.6; dia. 7.6. Flattened spherical body; rounded, incurved rim; tubular perforated handle beneath rim. *Date*: EM I.

P172 (Fig. 26; Open Area 2, Str. II). Pyxis. H. 2.8; th. 0.6; dia. 7.6. Spherical body; rounded, incurved rim; tubular perforated handle beneath rim. *Date*: EM I.

P173 (Fig. 26; rock shelter, 3:3). Pyxis. H. 1.9; th. 0.5. Flattened spherical body; rounded, incurved rim. SEM sample SEM6. *Date*: EM I.

P174 (Fig. 26; rockshelter, 3:3). Pyxis. H. 2.8; th. 0.6; dia. 19.6. Flattened spherical body; rounded, incurved rim. SEM sample SEM5. *Date*: EM I.

P175 (Fig. 26; rock shelter, 3:3). Pyxis. H. 6.3; th. 0.4. Flattened spherical body; vertically perforated lug on shoulder. *Date*: EM I.

4.2.5.4.3. Pyxis Lid

A variety of types can be identified but, as in the case of the DGBW examples, it is not possible to match particular types of lids with their associated pyxides.

4.2.5.4.3.1. Lid with Projecting Lugs

This is the most common type of lid. It has a curved top and low or no side walls. Two vertically perforated lugs project horizontally or upward from the perimeter of the lid. A few examples have a projecting knob at the center of the top surface. As in all DBW shapes, parallels can be found in sites of the North Cretan coast. Hagia Photia provides a large number of examples, often matched with their associated pyxides (e.g., Davaras and Betancourt 2012, pls. 29–46). Hagia Photia also provides exact parallels for lids with a central knob (Davaras and Betancourt 2012, fig. 9:854, 882). Similar lids have also been found in other North Cretan funerary contexts, including Gournes (Galanaki 2006, figs. 2:a, b), the Kephala Petras cemetery (Tsipopoulou 2010, fig. 6), and Pyrgos (Xanthoudides 1918, fig. 9.73). As in the case of the pyxides, however, the shape has a longer history in the Cyclades, from where it originated. It is particularly common in the "Kampos Group" EC I–II transitional phase, with specimens in many cemeteries (for parallels, see the discussion on spherical pyxides in this ch., pp.).

P176 (Fig. 26 rock shelter, 4:1). Pyxis lid. H. 2.6; th. 0.5; dia. 7. Curved top; two perforated lugs projecting upward; rim with triangular section. *Date*: EM I.

P177 (Fig. 26; Open Area 2, Str. II). Pyxis lid. H. 5.5; th. 0.6. Curved top; perforated lug projecting upward; rim with triangular section. Petrographic sample LIV62. *Date*: EM I.

P178 (Fig. 26; Open Area 2, Str. II). Pyxis lid. H. 6.6; th. 0.6; dia. 20. Curved top; perforated lug projecting upward; rim with triangular section. *Date*: EM I.

P179 (Fig. 26; Open Area 2, Str. II). Pyxis lid. H. 6.6; th. 0.6; dia. 28. Curved top; perforated lug projecting upward; rim with triangular section. *Date*: EM I.

P180 (Fig. 26; tholos, Str. II). Pyxis lid. H. 1.1; th. 0.4. Curved top; perforated lug projecting upward; rim with triangular section. *Date*: EM I.

P181 (Fig. 26; rock shelter, 3:3). Pyxis lid. H. 1.5; th. 0.6. Curved top; perforated lug projecting horizontally; rounded rim. *Date*: EM I.

P182 (Fig. 26; rock shelter, 4:1). Pyxis lid. H. 2.4; th. 0.5; dia. 10. Curved top; perforated lug projecting horizontally; rounded rim. *Date*: EM I.

P183 (Fig. 26; rock shelter, 4:1). Pyxis lid. H. 6.6; th. 0.6; dia. 13.5. Curved top; rim with triangular section. Petrographic sample LIV50. *Date*: EM I.

P184 (Fig. 26; rock shelter, 2:2). Pyxis lid. H. 2.9; th. 0.7. Curved top; rim with triangular section. *Date*: EM I.

P185 (Fig. 26; rock shelter, 2:2). Pyxis lid. H. 1.1; th. 0.5; dia. 9. Curved top; rim with triangular section. *Date*: EM I.

P186 (Fig. 26; rock shelter, 3:2). Pyxis lid. H. 1.7; th. 0.4; dia. 15. Curved top; low side walls; rim with triangular section. *Date*: EM I.

P187 (Fig. 26; rock shelter, 3:1, 3:3). Pyxis lid. H. 1.7; th. 0.4; dia. 11. Curved top; four perforated lugs projecting upward; circular knob at center of top. *Date*: EM I.

P188 (Fig. 26; Pl. 20; rock shelter, 4:1). Pyxis lid. H. 3.7; th. 0.4; dia. 12. Curved top; low side walls; rounded, incurving rim; four perforated lugs projecting upward; circular knob at center of top. *Date*: EM I.

4.2.5.4.3.2. Lid with Perforations

The lids of this type differ from the above type because instead of perforated projecting lugs, they have two pairs of simple perforations through their perimeter.

P189 (Fig. 26; rock shelter, 3:3). Pyxis lid. H. 1.8; th. 0.5; dia. 4.5. Curved top; low vertical side walls; rim with triangular section; two pairs of perforations through perimeter. *Date*: EM I.

P190 (Fig. 26; Pl. 20; rock shelter, 3:3). Pyxis lid. H. 3.8; th. 0.5; dia. 6. Curved top; low side walls with inward inclination; rim with triangular section; two pairs of perforations through perimeter; elliptical projection on top surface. *Date*: EM I.

P191 (Fig. 26; rock shelter, 3:1, 3:3). Pyxis lid. H. 3.1; th. 0.5; dia. 13. Curved top; low side walls with inward inclination; rim with triangular section; two pairs of perforations through perimeter. *Date*: EM I.

P192 (Fig. 26; rock shelter, 4:2). Pyxis lid. H. 1.5; th. 0.5; dia. 7. Curved top; rounded rim; two pairs of perforations through perimeter. *Date*: EM I.

4.2.5.4.3.3. Lid without Lugs or Perforations

This is a variety of the above type, but without perforations.

P193 (Fig. 26; rock shelter, 3:1). Pyxis lid. H. 2.8; th. 0.5; dia. 13.6. Curved top; low side walls with inward inclination; rounded rim. *Date*: EM I.

P194 (Fig. 26; rock shelter, 3:1). Pyxis lid. H. 2.4; th. 0.7; dia. 12. Curved top; low side walls with inward inclination; rounded rim. Petrographic sample LIV42. *Date*: EM I.

P195 (Fig. 27; rock shelter, 1:1). Pyxis lid. H. 3.3; th. 0.4; dia. 11. Curved top; low vertical side walls. *Date*: EM I.

4.2.5.4.3.4. Cylindrical

Lids of this type have a cylindrical shape with high vertical walls and projecting lugs. It is a type that occurs mainly in DGBW, but it is also represented by a single specimen in DBW.

P196 (Fig. 27; tholos, Str. III). Pyxis lid. H. 3.1; th. 0.5; dia. 8. Flat top; high vertical side walls; perforated lug projecting upward. *Date*: EM I.

4.2.5.4.3.5. Spool(?) Type

There is also a single example of a lid from a rectangular or elliptical pyxis. No intact specimen was found in the Livari assemblage, so it is not possible to know the exact shape. It is highly possible, however, that it belongs to a spool-type pyxis. Such pyxides have been found in large numbers at Hagia Photia, Gournes, Kanli Kastelli, and Pyrgos, and they are either of circular (Xanthoudides 1918, fig. 9:65–66; Alexiou 1951, pl. 14:2.13; Galanaki 2006, fig. 2e; Davaras and Betancourt 2012, 64–66, fig. 11) or elliptical shape (Xanthoudides 1918, fig. 9:62; Davaras and Betancourt 2012, 66–67, fig. 12:1265, 1266). All these parallels have incised decoration consisting of linear and curvilinear motifs. The existence of similar incised decoration on the Livari specimen reinforces the possibility that it also belongs to a spool-type pyxis. In the Cyclades the shape is not very frequent; it is mostly dated to the EC II period and is found in both clay (Karantzali 1996, 95) and marble (Getz-Gentle 1996, 142–153). The only example dated to the EC I–II transitional phase of the "Kampos Group" comes from Tsikniades on Naxos (Philaniotou 2008, fig. 20.15).

P197 (Fig. 27; Pl. 21; tholos, Str. III). Pyxis lid. H. 3.3; w. 8.8; th. 0.5. Flat top; low side walls with outward inclination; rounded rim; horizontally perforated lug on side wall. Incised decoration of a band of lozenges on top surface, zigzag lines on side walls, and small notches above rim. *Date*: EM I.

4.2.5.4.4. Alabastron

This is a rare type of vase, with an ovoid body and outturned, rounded rim. Because no intact specimen is preserved, it is impossible to reconstruct the full shape. It is highly possible that two body fragments (**P200**, **P201**) with small perforated lugs at the middle of the body belong to pyxides of this type. Parallels can be found in Hagia Photia (Davaras and Betancourt 2012, 76, fig. 15:1428) and Gournes (pers. obs.).

P198 (Fig. 27; Open Area 3, Str. II). Alabastron. H. 3.3; th. 0.5; dia. 3. Curved walls; outturned, rounded, and slightly tapered rim. *Date*: EM I.

P199 (Fig. 27; Open Area 3, Str. II). Alabastron. H. 2.8; th. 0.4. Curved walls; outturned, rounded, and slightly tapered rim. *Date*: EM I.

P200 (Fig. 27; tholos, Str. III). Alabastron. H. 3.7; th. 0.5. Ovoid body; vertically perforated lug at middle of body. *Date*: EM I.

P201 (Fig. 27; rock shelter, 3:2). Alabastron. H. 4.6; th. 0.4. Ovoid body; lug with two vertical perforations at middle of body. *Date*: EM I.

4.2.5.4.5. Bottle

Although very fragmented, the sherds of this type of vase provide enough evidence to reconstruct the full shape, which consists of a small spherical body with small handles and a short neck ending at a vertical or outturned rim. Incised decoration is also a typical feature of this shape. In Crete, there are parallels from Hagia Photia (Davaras and Betancourt 2012, 67–73, fig. 12), Pyrgos (Xanthoudides 1918, figs. 8:49, 50, 9:67–69), and Kephala Petras

(Tsipopoulou 2010, fig. 12). The shape is a typical feature of the “Kampos Group” pottery in the Cyclades (Karantzali 2006, 103–104; 2008, 248, fig. 25.12), occurring in many funerary contexts, including Kampos on Paros (Varoucha 1925–1926, fig. 7), Hagioi Anargyroi (Doumas 1977, pl. 36d), Tsikniades (Philaniotou 2008, fig. 20.11), Melanes, and Apeiranthos on Naxos (Karantzali 2008, fig. 25.12), and Agrilia on Ano Kouphonisi (Zapheiropoulou 1984, fig. 3a).

P202 (Fig. 27; Open Area 3, Str. II). Bottle. H. 1.6; th. 0.5; dia. 3.3. Outturned, rounded rim. Horizontal incised lines beneath rim. *Date*: EM I.

P203 (Fig. 27; rock shelter, 2:1). Bottle. H. 1.7; th. 0.4; dia. 1.4. Vertical, rounded rim. *Date*: EM I.

P204 (Fig. 27; rock shelter, 3:3). Bottle. H. 2.7; th. 0.6; dia. 8 (belly). Spherical body. Incised decoration of horizontal lines in lower half and cross hatching in upper half. Petrographic sample LIV47. *Date*: EM I.

4.2.6. Red Slipped and Burnished Ware

The vases of Red Slipped and Burnished ware (RSBW) have a surface covered by a thick slip that is heavily burnished in order to produce a distinct shiny, lustrous effect. The color of the slip is different from the color of the clay fabric, and it varies between red (2.5YR 4/6), reddish brown (2.5YR 4/4), and dark red (10R 3/6). The surface is plain, without any type of decoration.

Macroscopically, two main fabrics were identified: a reddish-brown, semifine to semicoarse fabric with white, brown, and gray inclusions; and a pinkish to orange-buff fine to semifine fabric containing orange to red grits. However, the petrographic analysis of four selected samples (**P205**, **P206**, **P209**, **P214**) showed the use of four different, very rare fabrics, all of which are petrographic loners. This fact, together with the rarity of RSBW (up to 1%; Tables 25, 26) may suggest that all vases of this ware were imported from other Cretan areas. Two of the samples (**P205**, **P206**) are made of fabrics related to the flysch mélange of the South Cretan coast.

Although RSBW does not comprise many vases, it was used for a variety of shapes (Table 30). The most common form is the pyxis, but drinking vases are also represented by a chalice and pouring vases by a spouted bowl and a teapot.

This ware is particularly common in the Mesara, often referred to as Salame Ware (Branigan 1970, 18; Betancourt 2008, 65–67), and occurs at many sites, including Moni Odigitria (Branigan and Campbell-Green 2010, 72, no. 4), Lebena (Alexiou and Warren 2004, 123, no. 4), and Hagia Kyriaki (Blackman and Branigan 1982, 29). It appears in the EM I period but continues until at least EM IIA and perhaps as late as EM IIB. In EM IIA Knossos there are a few examples considered to be imports from the Mesara (Wilson 2007, 69). Considering the rarity of this ware at Livari and the many parallels from the Mesara/Asterousia, it is highly possible that it was imported from this area. This can be reinforced by the two sherds (**P205**, **P206**) made of fabrics related to the flysch mélange that occurs along the southern coast, including the broader Mesara/Asterousia area.

4.2.6.1. Drinking Shapes

4.2.6.1.1. Chalice

There is a single example of a chalice in RSBW. The shape is identical to the DGBW examples with high conical pedestals. Chalices of RSBW are not common. There are a few parallels, though, from Hagia Kyriaki (Blackman and Branigan 1982, 29).

P205 (Fig. 27; tholos, Str. III). Chalice. H. 6.1; th. 0.6; dia. 16. Tall pedestal; rounded, slightly outturned end; straight walls. Red slip on interior and exterior. Petrographic sample LIV25. *Date*: EM I.

4.2.6.2. Pouring Shapes

4.2.6.2.1. Spouted Bowl

There is a single example of an open, rim-spouted bowl. On the basis of the few available parallels in the same ware from Lebena (Alexiou and Warren 2004, fig. 43:55) and in Red Color-Coated Ware from Moni Odigitria (Vasilakis and Branigan 2010, fig. 54:P342), it is probably dated to EM II, or more precisely EM IIB.

P206 (Fig. 27; Open Area 2, Str. II). Spouted bowl. H. 15.6; th. 0.6. Deep conical body; rim with square section; open spout projecting upward from rim; vertically perforated lug beneath rim. Red slip on interior and exterior; small diagonal incisions on top of rim. Petrographic sample LIV76. *Date*: EM IIB.

4.2.6.2.2. Teapot

This is a rare shape represented by only one specimen with a semiclosed, spherical body and a side spout. Although it is difficult to find precise parallels in terms of both ware and form, the shape does not appear before the end of EM IIA, and it continues in EM IIB, EM III, and MM IA, although somewhat different in form (Warren 1972, 150–151; Wilson 2007, 65; Branigan and Campbell-Green 2010, 79). The Livari specimen is probably dated to the EM IIA or EM IIB period.

P207 (Fig. 27; rock shelter, 1:1, 3:1, 4:2). Teapot. H. 5; th. 0.4; dia. 5. Flattened spherical body; rounded, slightly outturned rim; spout projecting upward through body. Red slip outside. *Date*: EM II.

4.2.6.3. Storage Shapes

4.2.6.3.1. Pyxis

Two different types can be identified, the biconical with a collar neck and the spherical with an outturned rim.

4.2.6.3.1.1. Biconical

These pyxides have a biconical, carinated profile and a cylindrical collar neck with straight vertical walls. In several publications they are referred to as tankards (Alexiou and Warren 2004, 105). This shape is very frequent in many funerary assemblages in South and North-Central Crete. The closest parallels in the same ware can be found at Lebena (Alexiou and Warren 2004, figs. 28:354, 30:440, 454), but there are also many parallels in other wares, namely Dark-on-Light Painted from Moni Odigitria (Vasilakis and Branigan 2010, fig. 49:P254), Hagia Kyriaki (Blackman and Branigan 1982, fig. 7:G35), and Kanli Kastelli (Alexiou 1951, fig. 2.1), all dated to the EM I period.

P208 (Fig. 27; Pl. 21; rock shelter, 2:2, 3:2, 3:3, 4:2). Pyxis. H. 12; th. 0.4; d. 3.8 (base), 5.2 (rim). Ring-shaped, concave base; upright, tapered rim; biconical, carinated profile; two vertical handles with circular sections; cylindrical collar neck. Red slip on exterior. *Date*: EM I.

P209 (Fig. 27; tholos, Str. III). Pyxis. H. 4; th. 0.4; dia. 9.8 (carination). Biconical, carinated profile. Red slip on exterior. Petrographic sample LIV19. *Date*: EM I.

P210 (Fig. 27; tholos, Str. III). Pyxis. H. 4; th. 0.3; dia. 7 (carination). Biconical, carinated profile; perforated lug projecting upward at carination. Red slip on exterior. *Date*: EM I.

P211 (Fig. 27; rock shelter, 3:1). Pyxis. H. 2.2; th. 0.4. Biconical, carinated profile; D-shaped lug with two vertical perforations at carination. Red slip on exterior. *Date*: EM I.

4.2.6.3.1.2. Spherical

The pyxides of this type have a spherical or flattened spherical profile and a rounded, outturned rim. The shape is particularly common in funerary contexts, with the closest parallels found in Lebena where the spherical pyxides have been dated to EM I (Alexiou and Warren 2004, fig. 27:327, 329–334) and the flattened spherical examples to EM IIA (Alexiou and Warren 2004, fig. 29:412, 416–418). However, it is difficult to reconstruct the full shape of the Livari specimens because the sherds are rather fragmentary. Thus, the date of the Livari pyxides could be either EM I or EM IIA.

P212 (Fig. 27; rock shelter, 2:1, 3:3, 4:3). Pyxis. H. 1.8; th. 0.3; dia. 6. Spherical shape; outturned, rounded, and slightly tapered rim. Red slip on exterior; red band beneath rim on interior. *Date*: EM I–IIA.

P213 (Fig. 27; rock shelter, 4:3). Pyxis. H. 3.9; th. 0.5; dia. 9. Spherical shape; outturned, rounded, and slightly tapered rim. Red slip on exterior. *Date*: EM I–IIA.

P214 (Fig. 27; rock shelter, 4:3). Pyxis. H. 4.7; th. 0.5; dia. 10. Flattened spherical shape. Red slip on exterior. Petrographic sample LIV54. SEM sample SEM9. *Date*: EM I–IIA.

4.2.6.3.2. Pyxis Lid

Two different types can be identified, but, as in the case of DGBW and DBW, it is not possible to match particular types of lids with their associated pyxides.

4.2.6.3.2.1. High with Projecting Lugs

This type is cylindrical with vertical side walls and a curved top. Also, it has perforated lugs projecting upwards from the perimeter. Parallels are found in many South Cretan funerary assemblages, including Lebena (Alexiou and Warren 2004, 77–78, fig. 22:150, 153–155) and Moni Odigitria (Vasilakis and Branigan 2010, fig. 39:P99); they are all dated to EM I.

P215 (Fig. 27; Pl. 21; tholos, Str. III). Pyxis lid. H. 2.4; th. 0.3; dia. 4. Curved top; vertical, straight walls;

cylindrical body; two perforated lugs projecting upward; rounded rim. Red slip on exterior. *Date*: EM I.

P216 (Fig. 27; tholos, Str. III). Pyxis lid. H. 1.8; th. 0.4; dia. 7. Curved top; vertical, straight walls; cylindrical body; two perforated lugs projecting upward; slightly tapered rim with triangular section. Red slip on exterior. *Date*: EM I.

4.2.6.3.2.2. With Perforations

This type differs from the above because it has low side walls that occasionally slope inward. Most of the parallels in RSBW come from Lebena (Alexiou and Warren 2004, 78, fig. 22:160, 163), and they are all dated to EM I.

P217 (Fig. 27; tholos, Str. III). Pyxis lid. H. 1.5; th. 0.3; dia. 9. Curved top; vertical, straight walls; perforated lug projecting upward; rounded rim. Red slip on exterior. *Date*: EM I.

P218 (Fig. 27; Open Area 3, Str. II). Pyxis lid. H. 1.8; th. 0.4; dia. 17. Curved top; vertical, straight walls; rounded rim. Red slip on exterior. *Date*: EM I.

P219 (Fig. 27; Open Area 4, Str. II). Pyxis lid. H. 1.5; th. 0.5; dia. 20. Curved top; straight walls, sloping inward; rounded rim. Red slip on exterior. *Date*: EM I.

P220 (Fig. 27; rock shelter, 4:1). Pyxis lid. H. 0.5; th. 0.3. Almost flat top. Red slip on exterior. *Date*: EM I.

4.2.6.3.3. Jar

These are sherds that belong to large closed or semiclosed vases. They are rather fragmentary and do not help in the reconstruction of the full shape.

P221 (Fig. 27; Open Area 2, Str. II). Jar. H. 8.2; th. 0.8; dia. 15.2. Curved base; spherical body. Red slip on exterior. *Date*: EM I–IIA.

P222 (Fig. 27; Open Area 2, Str. II). Jar. H. 4.5; th. 0.6. Vertical handle with elliptical section. Red slip on interior and exterior. *Date*: EM I–IIA.

4.2.7. Red Burnished Ware

In Red Burnished ware (RBW) vases are covered by a thin self-wash, similar in color and composition with the base clay. The surface is heavily burnished in order to produce a distinct shiny, lustrous effect. The color of the surface varies between red (10R 5/8) and reddish brown (2.5YR 4/4). Unlike DGBW, it has no pattern-burnished decoration. A few sherds have simple incised decoration consisting of lines, cross hatching, and hatched triangles.

Red Burnished ware differs from RSBW not only because it lacks the thick red slip, but also because the fabric is different. The latter is a low calcareous semifine to semicoarse variety, of red to reddish-brown color, which according to the petrographic analysis of incised pyxis **P227** contains chert (Petrographic Fabric Group 8). The same fabric has been used for DGBW incised pyxis **P81** and may have been imported to Livari. The fabric was fired medium hard, and the core is usually darker than the surface, varying between dark brown and gray.

Most of the vases belong to drinking vases, namely chalices (Table 31). Other shapes include a pyxis and two bowls with incised decoration.

This ware is particularly common in the Mesara where it is often considered together with Red Slipped and Burnished (Salame) ware (RSBW). It occurs at many sites including Moni Odigitria (Branigan and Campbell-Green 2010, 72, no. 4), Lebena (Alexiou and Warren 2004, 123, no. 2), Hagia Kyriaki (Blackman and Branigan 1982, 29), Phaistos (Todaro 2005, 44), and Hagia Triada (Todaro 2001, 21–22). It is also particularly common at Knossos (Wilson 1985, 317; 2007, 54, 61; Wilson and Day 2000, 31). On the basis of the above contexts, the ware appears in the EM I period, but it continues until EM IIA. As with RSBW, this is a rare ware at Livari, representing less than 1% of the total (Tables 25, 26). Therefore, it is highly probable that it was imported, probably from the Mesara.

4.2.7.1. Drinking Shapes

4.2.7.1.1 Chalice

The vessels of this shape are identical to the chalices of DGBW and OBBW, differing only in the firing procedure. They have a biconical shape consisting of a deep bowl attached to a tall conical pedestal (Betancourt 2008, 34). As with chalices of the other two wares, there are many parallels in almost every domestic or funerary context of the EM I period, but it may survive into EM IIA, at least at Knossos (Wilson 1985, 301, nos. 47–50).

P223 (Fig. 28; Pl. 21; tholos, Str. III). Chalice. H. 7; th. 0.5; dia. 17. Tall pedestal; concave walls; rounded, slightly tapered end; two pairs of vertically perforated lugs just above base. Incised decoration of a star between the lugs and a band of cross hatching above rim. *Date*: EM I.

P224 (Fig. 28; tholos, Str. I). Chalice. H. 4.4; th. 0.6; dia. 28. Tall pedestal; concave walls; rounded end. *Date*: EM I.

4.2.7.2. Serving Shapes

4.2.7.2.1. Bowl

Vessels of this type are hemispherical, with walls that curve inward. No exact parallels can be found, and the shape cannot be dated more precisely than EM I–II.

P225 (Fig. 28; tholos, Str. III). Bowl. H. 5.6; th. 0.5; dia. 13. Hemispherical body; rounded rim. Incised decoration of a band with cross hatching beneath rim. *Date*: EM I–II.

P226 (Fig. 28; Pl. 40; tholos, Str. III). Bowl. H. 5.8; th. 0.5; dia. 13. Hemispherical body; rounded rim. Incised decoration of a band with cross hatching beneath rim. *Date*: EM I–II.

4.2.7.3. Storage Shapes

4.2.7.3.1. Pyxis

A single specimen of a spherical pyxis with incised decoration is in this ware. Pyxides of similar shape and decoration, but in different wares, namely DGBW and FGW, have been found in funerary contexts in South-Central Crete, including Lebena (Alexiou and Warren 2004, fig. 28:385) and Hagia Kyriaki (Blackman and Branigan 1982, fig. 10:46).

P227 (Fig. 28; tholos, Str. III). Pyxis. H. 5.38; th. 0.5; dia. 12 (belly). Spherical body; horizontal handle with circular section. Incised decoration of five horizontal lines below handle and hatched triangles(?) underneath; possible hatched triangles by handle. Petrographic sample LIV29. *Date*: EM IIA.

4.2.8. Fine Gray Ware

The surface of these vases made in Fine Gray ware (FGW) is covered by a thin self-wash, which is lightly smoothed, burnished, or occasionally polished, and has a soapy texture. The color is light gray (7.5YR 7/1) to gray (7.5YR 6/1) in both biscuit and surface. They are well fired in high temperatures, as evidenced by their hardness and color consistency throughout the thickness of the sherds. Decoration, when it exists, consists of linear incisions, namely horizontal lines, triangles, and chevrons. Only a few vases are represented, all of them pyxides and pyxis lids (Table 32). The rarity of this ware at Livari (up to 1%; Tables 25, 26) suggests that it was imported. Petrographic analysis showed the use of three different, very rare fabrics for the three analyzed samples (**P229**, **P230**, **P232**), indicating different sources of origin.

This ware occurs at many sites, except in the western part of the island. Detailed descriptions are available for ceramic material from Knossos (Wilson 1985, 304; 2007, 61), Hagia Kyriaki (Gray Burnished Ware; Blackman and Branigan 1982, 29), Lebena (Alexiou and Warren 2004, 123), Moni Odigitria (Branigan and Campbell-Green 2010, 73, no. 9), and Hagia Triada and Phaistos (Todaro 2005, 21, 44). Although it seems to appear before the end of EM I, it is mostly dated to EM IIA.

4.2.8.1. Storage Shapes

4.2.8.1.1. Pyxis

Pyxides of FGW can be classified into three different types.

4.2.8.1.1.1. Ring Footed

Although represented by a very fragmented sherd, the parallels show a spherical pyxis on a low ring-shaped foot. It is mostly found in funerary contexts. The closest parallels come from Lebena (Alexiou and Warren 2004, figs. 27:349, 28:350–352, 356); these belong to a variety of wares and date between EM I and EM IIA.

P228 (Fig. 28; tholos, Str. I). Pyxis. H. 2.2; th. 0.7; dia. 8. Low ring-shaped foot; rounded end. *Date*: EM IIA.

4.2.8.1.1.2. Pedestal

This type comprises a pyxis of spherical shape attached to a conical pedestal. Pedestal pyxides of FGW have been found in Knossos (Wilson and Day 1994, 10, no. FG38), Gournia (Soles 1992, fig. 5:G I-14), and Koumasa (Xanthoudides 1924, pl. I:4192–4194), although the pedestals are not identical to the Livari specimen.

P229 (Fig. 28; tholos, Str. III). Pyxis. H. 4.7; th. 0.5; dia. 10. Conical pedestal with straight walls. Petrographic sample LIV17. *Date*: EM IIA.

4.2.8.1.1.3. Spherical

There is a single sherd from the rim of a spherical pyxis with outturned rim and incised decoration. The closest parallel in terms of shape and decoration comes from Lebena (Alexiou and Warren 2004, fig. 29:404) and is dated to the EM II period.

P230 (Fig. 28; rock shelter, 4:3). Pyxis. H. 2.7; th. 0.6; dia. 12. Outturned rim with square section; rectangular perforated projection under rim. Incised decoration of parallel lines under rim. Petrographic sample LIV55. *Date*: EM IIA.

4.2.8.1.2. Pyxis Lid

The pyxis lids are classified into two types.

4.2.8.1.2.1. Low Cylindrical

There is a single specimen of a lid with low vertical side walls and a curved top. Close parallels in FGW are found at Lebena (Alexiou and Warren 2004, fig. 29:169) and Myrtos Phournou Koriphi (Warren 1972, fig. 42:P61), and they are dated to EM IIA.

P231 (Fig. 28; tholos, Str. I). Pyxis lid. H. 6.8; th. 0.5. Curved top; vertical cylindrical walls. Incised decoration of groups of concentric arcs at perimeter of top. *Date*: EM IIA.

4.2.8.1.2.2. Conical

It is difficult to reconstruct the full shape due to the fragmented condition of the sherds and the lack of exact parallels. It may be a tall conical lid from a two-part vase, consisting of a conical bowl with a twin bowl that was inverted and placed on top of it as a lid, similar to the chlorite-schist pyxides of the same date (Warren 1969, 80–81). No parallels have been identified so far, except for the incised decoration, which is typical of FGW at many sites all over Crete.

P232 (Fig. 28; tholos, Str. III). Pyxis lid. H. 9.5; th. 0.5; dia. 16. Conical shape; straight walls sloping inward; rim with square section; D-shaped perforated lug above rim. Incised decoration of bands with triangles and diagonal herringbone bands; slashed incised decoration on lug and rim. Petrographic sample LIV22. *Date*: EM IIA.

4.2.9. Dark-on-Light Painted Ware

The vases made of this Dark-on-Light Painted ware (DOLW) have red to reddish-brown painted decoration on a light ground, varying in color between buff, pinkish, and light red. The paint varies between red (10R 5/8) to reddish brown (2.5YR 4/4) or dark brown (7.5YR 3/3). The surface may be smoothed or covered by a thin wash of similar color with the clay or a thin slip usually of lighter color than the clay.

On the basis of macroscopic examination and petrographic analysis, the majority of the DOLW vases are made of one main fabric group, a semifine, light red (2.5YR 6/8) to very pale brown (10YR 8/3) or light reddish-brown (5YR 6/4) variety, containing many reddish-brown clay pellets and rare black volcanic, red serpentine, and white quartz inclusions (Petrographic Fabric Groups 4b and 4c). The fabric was fired soft medium. The surface, when preserved, has been smoothed and covered by a thin self-wash, usually of lighter color than the clay. The cataloged pieces that were analyzed and belong to this fabric group are **P251**, **P252**, **P255**, **P261**, **P264**, **P266**, **P300**, **P301**, and **P303**. The mineralogical composition of this fabric group points toward the flysch outcrops of the southern coast, including the area north of Livari. The fact that this is the main fabric of DOLW, which constitutes between 30%–50% of the pottery from Livari (Tables 25, 26), suggests that it was produced locally. However, the existence of subgroups may suggest the operation of different workshops.

Petrographic analysis showed, however, that several DOLW vases were produced in rare fabrics, and were probably imported to Livari from other Cretan areas. Two samples (**P297**, **P298**) are made of a semicoarse fabric with metamorphic rock inclusions (Petrographic Fabric Group 2b), which probably originated in the Mesara. Two more samples, one cataloged (**P239**) and one uncataloged, are made of semicoarse fabric with granodiorite inclusions (Petrographic Fabric Groups 3a and 3b), originating from the area of Mirabello. This may be further supported by the close typological affinities of the cataloged sample (**P239**) with a jug from Gournia (Boyd Hawes 1908, pl. A:3). Other sampled vases were produced in rare fabrics and loners, namely **P276**, **P288**, **P289**, and **P296**. The origin of the former two is unknown, while the latter two are related to the flysch mélange of the South Cretan coast. It should be noted that the macroscopic identification of these fabrics is difficult if not impossible. It is not possible, therefore, to discuss relative frequencies apart from a general conclusion that they constitute rare imports to Livari.

The decoration consists of simple linear patterns, usually thin vertical bands on the body, the neck, the spout, and the handles of jugs. In several specimens the lower part of the body and/or the neck are painted solid. Other patterns include diagonally hatched and cross-hatched triangles and diagonal intersecting bands. It should be noted, however, that in many cases it is not possible to identify motifs, and very often, particularly in small sherds, only a red to brown slip is preserved, covering the entire surface.

Betancourt (2008, 47) has rightly pointed out the problem of using the generic term "Dark-on-Light Ware," mainly by Wilson (2007) for Knossos, without distinguishing between the EM I and EM II periods, and for this reason he suggests the use of the terms "Hagios Onouphrios Style" for the painted pottery of EM I and "Koumasa Style" for EM II. Branigan also prefers such a distinction, but he used the terms Hagios Onouphrios I and II, respectively (Blackman and Branigan 1982, 29–32; Branigan and Campbell-Green 2010, 72–73). Indeed, it is possible to distinguish the painted pottery of the two phases on the basis of the shapes and some of the motifs. Also, the best examples of painted pottery of EM II were made in a three-stage firing system (oxidizing, reducing, and re-oxidizing), creating a different darker brown to black color for the painted decoration (Wilson and Day 1994, 74; Betancourt 2008, 48). This does not apply, however, to all of the painted pottery of EM II. Thus, the distinction between the two phases is not always possible, especially when dealing with sherd material. For this reason we decided to use the generic term "Dark-on-Light" and to distinguish between EM I and EM II when possible.

Although DOLW is particularly common at Livari, comprising 34% in quantity and 50% in weight (Tables 25, 26), its shape repertoire is rather limited (Table 33). It was mostly used for pouring vases, particularly jugs of all sizes, forms, and types, and for a spouted bowl. Drinking and serving shapes comprise only a few chalices, bowls, and dishes, while the storage vases include pyxides.

This ware is very common all over Crete (Betancourt 2008, 52). In the Mesara, descriptions of this ware exist for Hagia Kyriaki (Blackman and Branigan 1982, 29–32), Moni Odigitria (Branigan and Campbell-Green 2010, 72–73, nos. 7, 8), Lebena (Alexiou and Warren 2004, 123, no. 3), and Phaistos and Hagia Triada (Todaro 2003, 2005). In the rest of Crete, detailed descriptions exist for Kalo Chorio (Haggis 1996, 668) and Knossos (Wilson 1985, 319; 2007; Wilson and Day 1994, 23; 2000, 33–34).

4.2.9.1. Pouring Shapes

4.2.9.1.1. Spouted Bowl

There is a single specimen of a bowl with an open rim spout. It was not possible to find exact parallels, and, therefore, it cannot be dated more precisely than EM I–II.

P233 (Fig. 28; Pl. 21; rock shelter, 4:3). Spouted bowl. H. 3.8; th. 0.7; dia. 4 (base), 9 (rim). Flat base; conical profile with slightly curved walls; rounded, slightly tapered rim; small open spout projecting horizontally from rim. Painted reddish-brown decoration; irregular bands of various thicknesses on exterior; horizontal band below rim on interior. *Date*: EM I–II.

4.2.9.1.2. Jug

4.2.9.1.2.1. With Cutaway Spout

The majority of the Livari jugs belong to this type, characterized by a flat base, spherical or ovoid body, tall and upright neck, and inclined beak-shaped spout. There are numerous parallels from many funerary and domestic assemblages all over Crete that date to the EM I–IIA period. It should be noted that the Livari assemblage lacks the round-bottomed painted jugs of the EM I period found at Lebena (Alexiou and Warren 2004, figs. 21:94, 96, 22:98, 105, 107, 114, 115, 117) and the EM I jugs with pellet feet and thin painted bands on the neck found in Knossos (Wilson and Day 2000, fig. 3:P61, P67, P68; Hood and Cadogan 2011, pl. 9). In contrast, all the Livari jugs have a flat base and an ovoid or low-bellied body. These features occur in EM IIA jugs from Lebena (Alexiou and Warren 2004, 74, fig. 22:124, 128) and Koumasa (Xanthoudides 1924, pl. XXVI:4109, 4114, 4119) and suggest a date in EM IIA rather than EM I. Some jugs from Hagia Photia dated to the EM I–IIA transition also resemble those from Livari (e.g., see Davaras and Betancourt 2012, 83–84, fig. 17:1479, 1484).

P234 (Fig. 29; Pl. 21; Open Area 1, Str. II). Jug. H. 14.6; th. 0.5; dia. 9 (base), 4.2 (neck). Flat base; ovoid body; handle with rectangular section. Red painted decoration; exterior painted neck and base, groups of thin vertical bands on body, solid disk at center of bottom with radiating thin bands. *Parallels*: Most probably EM IIA, because in EM I the base would be round and the vertical bands would continue on the bottom. *Date*: EM IIA.

P235 (Fig. 29; Pl. 22; Open Area 1, Str. II). Jug. H. 15.8; th. 0.5; dia. 6 (base), 4.1 (neck). Flat base; spherical body; handle with circular section; tall upright neck and cutaway spout. Red painted decoration; exterior painted solid neck and spout, vertical bands on handle, hatched triangles on body. *Parallels*: Hatched triangles characterize the EM IIA painted pottery from Myrtos Phournou Koriphi (Warren 1972, fig. 40:P31) and Hagia Kyriaki (Blackman and Branigan 1982, fig. 11:107), but they also occur on transitional EM I–IIA pottery from Hagia Photia (Davaras and Betancourt 2012, 83, fig. 17:1483). *Date*: EM I–IIA.

P236 (Fig. 29; Pl. 22; Open Area 1, Str. II). Jug. H. 15.8; th. 0.5; dia. 6 (base), 4.3 (neck). Flat base; spherical body; handle with circular section; upright neck and cutaway spout. Red painted decoration; exterior painted solid neck and spout, bands on handle, cross-hatched triangles on body. *Parallels*: Cross-hatched triangles characterize the EM IIA painted pottery from Myrtos Phournou Koriphi (Warren 1972, fig. 39:P11, P18, P28), Hagia Kyriaki (Blackman and Branigan 1982, figs. 11:99, 12:122, 130, 144), and Knossos (Wilson 1985, fig. 16:112, 117), but they also occur on late EM I pottery from Hagia Photia (Davaras and Betancourt 2012, 84, fig. 18:1490). *Date*: EM I–IIA.

P237 (Fig. 29; Pl. 22; Open Area 2, Str. II). Jug. H. 15.2; th. 0.6; dia. 9.5 (base), 4.6 (neck). Flat base; ovoid body; handle with elliptical section; cutaway spout. Traces of brown paint on exterior. Petrographic sample LIV09. *Date*: EM IIA.

P238 (Fig. 29; Pl. 22; Open Area 2, Str. II). Jug. H. 15.1; th. 0.5; dia. 5.5 (base), 4.8 (neck). Flat base; spherical body; handle with elliptical section; tall upright neck and cutaway spout. Traces of brown paint on exterior. *Date*: EM IIA.

P239 (Fig. 30; Pl. 23; Open Area 2, Str. II). Jug. H. 23; th. 0.7; dia. 6.5 (base), 7 (neck). Flat base; spherical body; handle with circular section; tall upright neck and cutaway spout. Reddish-brown painted decoration; exterior thick bands on perimeter of spout (inside and outside) and base of neck, solid handle, part of a cross-hatched apex that fans out diagonally. Petrographic sample LIV10. *Parallels*: Parallels for the motif are found in EM IIA assemblages at Knossos (Wilson 1985, fig. 26:22), Hagia Kyriaki (Blackman and Branigan 1982, fig. 11:101), and Gournia (Boyd Hawes 1908, pl. A:3). *Date*: EM IIA.

P240 (Fig. 30; Open Area 2, Str. II). Jug. H. 9.4; th. 0.6; dia. 4 (neck), 10 (belly). Flattened spherical body; handle with circular section; cutaway spout. Brown painted decoration; exterior solid handle and base of neck, group of at least six diagonal lines on body. *Parallels*: The motif has parallels in EM IIA jugs from Moni Odigitria (Vasilakis and Branigan 2010, figs. 40:P109, P113, 49:P279). *Date*: EM IIA.

P241 (Fig. 30; Pl. 22; Open Area 2, Str. II). Jug. H. 14.8; th. 0.7; dia. 7 (base), 4.2 (neck). Ovoid body; tall cylindrical neck and cutaway spout. Brown painted decoration; interior solid neck and spout; exterior thin band on perimeter of spout, thick band at base of neck and above base, group of four vertical thin bands on body. *Parallels*: The ovoid body and the flat base clearly suggest an EM IIA date, while a similar decorative motif occurs on a transitional EM I–IIA jug in Myrtos Ware from Hagia Photia (Davaras and Betancourt 2012, 83, fig. 17:1479). *Date*: EM IIA.

P242 (Fig. 30; Pl. 22; Open Area 2, Str. II). Jug. H. 20.5; th. 0.6; dia. 7.5 (base), 5.5 (neck). Spherical body; strap handle; tall cylindrical neck and cutaway spout. Traces of red paint on exterior. *Date*: EM I–IIA.

P243 (Fig. 30; Open Area 2, Str. II). Jug. H. 17.4; th. 0.6; dia. 4.8 (base), 3.5 (neck). Spherical body; handle with circular section; cylindrical neck and cutaway spout. Traces of red paint on exterior. *Date*: EM I–IIA.

P244 (Fig. 31; Pl. 23; Open Area 2, Str. II). Jug. H. 21.2; th. 0.5; dia. 7.5 (base), 5 (neck). Spherical body; handle with circular section; cutaway spout. Red painted decoration; exterior unidentified motif on spout, thick band at base of neck, solid lower half and handle, groups of four vertical bands on upper half. *Parallels*: The solid painted flat base suggests an EM IIA date, while a similar decorative motif occurs on a transitional EM I–IIA jug in Myrtos Ware from Hagia Photia (Davaras and Betancourt 2012, 83, fig. 17:1479). *Date*: EM IIA.

P245 (Fig. 31; Open Area 2, Str. II). Jug. H. ca. 14; th. 0.5; dia. 8.4 (belly), 3.8 (neck). Spherical body; handle with circular section and circular button on top; cutaway spout. Red painted decoration; exterior thick bands on spout, vertical thin bands on shoulder. *Parallels*: Similar thick bands are found on a transitional EM I–IIA jug in Myrtos Ware from Hagia Photia (Davaras and Betancourt 2012, 83, fig. 17:1479). *Date*: EM I–IIA.

P246 (Fig. 31; Pl. 23; Open Area 2, Str. II). Jug. H. 14.2; th. 0.5; dia. 5.1 (base), 3.6 (neck). Flattened spherical body; handle with circular section; cutaway spout. Traces of red paint on exterior. *Date*: EM I–IIA.

P247 (Fig. 31; Pl. 23; Open Area 2, Str. II). Jug. H. 15.6; th. 0.4; dia. 6.2 (base), 3.7 (neck). Flattened spherical body; handle with circular section; tall cylindrical neck and cutaway spout. Red painted decoration; interior thin band at perimeter of spout; exterior thick band at base of neck, solid lower half and bottom, groups of five diagonal lines on body. *Date*: EM IIA.

P248 (Fig. 31; Tholos, Str. III). Jug. H. 4; th. 0.5. Cutaway spout. Traces of red paint on exterior. *Date*: EM IIA.

P249 (Fig. 31; rock shelter, 3:3). Jug. H. 8.9; th. 0.3. Spherical body; handle with circular section; cutaway spout. Traces of red burnished paint on exterior. *Date*: EM I–IIA.

P250 (Fig. 31; Open Area 2, Str. II). Jug. H. 7.5; th. 0.5; dia. 4 (neck). Cutaway spout. Brown painted decoration; exterior thick horizontal bands on spout. *Date*: EM I–IIA.

P251 (Fig. 31; Open Area 2, Str. II). Jug. H. 6; th. 0.5; dia. 4.1 (neck). Cutaway spout; Red painted decoration; exterior thick horizontal bands on perimeter of spout and base of neck, thin vertical bands on body. Petrographic sample LIV69. *Parallels*: A similar motif can be seen on a late EM I jug from Hagia Photia (Davaras and Betancourt 2012, 83, pl. 60:1482). *Date*: EM I–IIA.

P252 (Fig. 31; Open Area 2, Str. II). Jug. H. 6.6; th. 0.5. Cutaway spout. Brown painted decoration; exterior thick horizontal bands on perimeter of spout and base of neck. Petrographic sample LIV70. *Date*: EM I–IIA.

P253 (Fig. 31; Open Area 2, Str. II). Jug. H. 4.7; th. 0.5; dia. 3.6 (neck). Cutaway spout. Surface decoration not preserved. *Date*: EM I–IIA.

P254 (Fig. 31; Open Area 2, Str. II). Jug. H. 5.3; th. 0.6; dia. 4.5 (neck). Cutaway spout; handle with circular section. Traces of red paint on exterior. *Date*: EM I–IIA.

P255 (Fig. 31; Open Area 2, Str. II). Jug. H. 9.4; th. 0.5; dia. 4 (neck). Cutaway spout. Relief eye on side of spout. Red painted decoration; exterior thick bands on the neck and the spout. Petrographic sample LIV71. *Date*: EM IIA.

4.2.9.1.2.2. With Pinched Rim

This is a rare type of jug pyxis characterized by an almost flat or flat base, a flattened spherical body, a low neck, and a pinched rim without a spout. The shape appears already in EM I (Hood and Cadogan 2011, 43) but continues in EM II (Alexiou and Warren 2004, fig. 22:137).

P256 (Fig. 32; Pl. 24; Open Area 1, Str. II). Jug. H. 9.3; th. 0.7; dia. 6 (base), 4 (neck). Curved base; flattened spherical; handle with circular section and groove on top. Traces of brown paint on exterior. *Date*: EM I–IIA.

P257 (Fig. 32; Open Area 2, Str. II). Jug. H. 10; th. 0.5; dia. 5.5 (base), 3.8 (neck). Almost flat base; low-bellied body; handle with circular section. Traces of brown paint on exterior. *Date*: EM I–IIA.

P258 (Fig. 32; Pl. 24; rock shelter, 1:2). Jug. H. 11; th. 0.7; dia. 5 (base), 6.2 (rim). Flat base; flattened spherical body; handle with circular section. Brown painted decoration; interior thick band under rim from which radiate diagonal thin bands; exterior irregular bands on handle, solid neck and rim, vertical thin bands on body starting from base of neck and ending before base. *Parallels*: A similar decorative motif occurs on a transitional EM I–IIA jug in Myrtos Ware from Hagia Photia (Davaras and Betancourt 2012, 83, fig. 17:1479). *Date*: EM IIA.

P259 (Fig. 32; tholos, Str. III). Jug. H. 6.7; th. 0.6; dia. 10 (belly), 5 (neck). Juglet; curved base; flattened spherical body; cylindrical neck; handle with circular section. Red painted decoration; exterior three horizontal bands at base of neck, vertical bands on neck and body. *Parallels*: Parallels of this shape can be found in EM IIA material from Moni Odigitria (Vasilakis and Branigan 2010, figs. 40:P109, 49:P279) and Lebena (Alexiou and Warren 2004, fig. 22:125). *Date*: EM IIA.

4.2.9.1.2.3. Juglet

P260 (Fig. 32; Pl. 24; rock shelter, 4:2). Jug. H. 6.7; th. 0.5; dia. 4 (base), 3.7 (rim). Juglet; flat base; spherical body; outturned rim, without spout; traces of handle with circular section from belly to rim. Brown painted decoration; exterior vertical thin bands from rim to base. *Parallels*: Some similarities can be seen in miniature jars from Moni Odigitria (Vasilakis and Branigan 2010, fig. 35:P55) and Koumasa (Xanthoudides 1924, pl. XX:4174) dated to EM II. *Date*: EM IIA.

4.2.9.1.2.4. Large

These are large jugs of semicoarse fabric. The fragmentary condition of the sherds does not allow the reconstruction of the full shape and the identification of exact parallels. In general, large jugs in coarse painted ware characterize domestic assemblages of the EM IIA period, such as the Knossos West Court House (Wilson 1985, 345). A date in EM IIA is reinforced by the dark brown color of the paint.

P261 (Fig. 32; rock shelter, 3:3). Jug. H. 14.2; th. 0.6; dia. 10. Slightly concave base; spherical body; handle with circular section. Brown painted decoration; exterior solid base and lower half of body, thick band on upper side of handle, groups of six thin vertical bands on upper half of body, unidentified motif behind the handle. Petrographic sample LIV46. *Date*: EM IIA.

P262 (Fig. 32; rock shelter, 4:2). Jug. H. 16.1; th. 0.5. Ovoid body. Brown painted decoration; exterior two thick horizontal bands, curvilinear motif above bands with smaller and thinner diagonal bands in between. *Date*: EM IIA.

4.2.9.1.2.5. Unidentified

Due to their fragmentary condition, a number of sherds could not be attributed to any specific type of jug.

P263 (Fig. 32; Open Area 1, Str. II). Jug. H. 7.8; dia. 1.7. Flattened spherical body; handle with circular section. Reddish-brown painted decoration; diagonal thin bands on exterior. *Parallels*: It is identical with **P258** in terms of fabric, surface treatment, and paint color. *Date*: EM IIA.

P264 (Fig. 32; Open Area 2, Str. II). Jug. H. 6.4; th. 0.7; dia. 5 (neck). Spherical body; cutaway spout. Red painted decoration; exterior thick band at base of neck. Petrographic sample LIV12. *Date*: EM I–IIA.

P265 (Fig. 33; rock shelter, 5:1). Jug. H. 5.9; th. 0.5; dia. 4.1. Flat base; spherical body. Traces of brown paint on exterior. *Date*: EM I–IIA.

P266 (Fig. 33; rock shelter, 4:2). Jug. H. 7.3; th. 0.4; dia. 3.8. Flat base; spherical body. Red painted decoration; exterior thick band on base, vertical and horizontal crossing bands of various thickness above. Petrographic sample LIV04. *Date*: EM I–IIA.

P267 (Fig. 33; Open Area 2, Str. II). Jug. H. 6.1; th. 0.3; dia. 4.8. Almost flat base; spherical body. Traces of brown paint on exterior. *Date*: EM I–IIA.

P268 (Fig. 33; Open Area 2, Str. II). Jug. H. 8; th. 0.6; dia. 8.5. Flat base; spherical body. Traces of red paint on exterior. *Date*: EM I–IIA.

P269 (Fig. 33; Open Area 2, Str. II). Jug. H. 9.7; th. 0.6; dia. 6.4. Flat base; spherical body. Red painted decoration; exterior traces of thick curved bands on lower half of body and solid upper body. *Date*: EM IIA.

P270 (Fig. 33; rock shelter, 1:2, 2:1, 3:3). Jug. H. 13.8; th. 0.5; dia. 9. Flat base; spherical body. Red painted decoration; interior trickle decoration; exterior thick vertical bands on body, thick horizontal band above base. *Date*: EM IIA.

P271 (Fig. 33; Open Area 2, Str. II). Jug. H. 12; th. 0.7; dia. 7.7 (base), 4 (neck). Flat base; flattened spherical body. Traces of red paint on exterior. *Date*: EM I–IIA.

P272 (Fig. 33; Open Area 2, Str. II). Jug. H. 4.2; dia. 1.3. Handle with circular section; relief button on upper surface. Traces of brown paint. *Date*: EM I–IIA.

P273 (Fig. 33; Open Area 2, Str. II). Jug. H. 4.1; dia. 1.3. Handle with circular section; relief button on upper surface. Traces of brown paint. *Date*: EM I–IIA.

4.2.9.2. Serving Shapes

4.2.9.2.1. Bowl

Bowls are very rare in this ware, represented by three specimens of different types.

4.2.9.2.1.1. Conical

This is a simple conical bowl with open walls. It is a generic shape with numerous parallels, and it cannot be dated more precisely than EM I–II.

P274 (Fig. 33; rock shelter, 2:1, 4:1). Bowl. H. 6.2; th. 0.4; dia. 4 (base), 14 (rim). Flat base; conical body; rounded rim. Red paint on interior and exterior. *Date*: EM I–II.

4.2.9.2.1.2. Ring Footed

This is a simple conical bowl with open walls attached to a low ring-based foot. It also has numerous parallels and cannot be dated more precisely than EM I–II.

P275 (Fig. 33; tholos, Str. II). Bowl. H. 6.2; th. 0.4; dia. 7.8 (base), 14 (rim). Flat base; conical body; rounded end. Red paint on interior and exterior. *Date*: EM I–II.

4.2.9.2.1.3. Pedestal

This is a rare shape in Livari, represented by only two specimens in DOLW and Red/Black Slipped ware (R/BSW). It comprises an open bowl on top of a tall cylindrical pedestal. Parallels in a variety of wares, namely DGBW, DOWL, and RSBW, occur in many assemblages across Crete and date to EM IIA. Domestic contexts include Myrtos Phournou Koriphi (Warren 1972, fig. 41:40, 41) and Knossos (Wilson 1985, figs. 21:178, 34:355–357, 38:409). Funerary contexts include Moni Odigitria (Branigan and Campbell-Green 2010, 81, figs. 34:P44, 43:P133, 45:P185), Hagia Kyriaki (Blackman and Branigan 1982, figs. 7:C15, 13:169–172), and Lebena (Alexiou and Warren 2004, figs. 6:15, 19:21).

P276 (Fig. 33; Open Area 3, Str. II). Bowl. H. 5.4; th. 0.7; dia. 14 (waist). Cylindrical pedestal; broad waist. Red slip on interior and exterior. Petrographic sample LIV66. *Date*: EM IIA.

4.2.9.3. Storage Shapes

4.2.9.3.1. Pyxis

No intact pyxis is preserved. The sherds that provide evidence for the shape can be classified into two types.

4.2.9.3.1.1. Collar Neck

This is a pyxis with a spherical body and a vertical collar neck. The fragmentary condition of the sherds does not allow the reconstruction of the full shape, but there are parallels in many funerary contexts, including Lebena (Alexiou and Warren 2004, figs. 30, 31), Moni Odigitria (Vasilakis and Branigan 2010, figs. 37:P69, 49:P254), Hagia Kyriaki (Blackman and Branigan 1982, fig. 11:93–95), and Hagia Photia (Davaras and Betancourt 2012, 84, fig. 18:1490), and in domestic contexts, such as Kephala Petras (Papadatos 2008, fig. 15.6b). All of the above parallels are dated to the EM I period, and in some publications they are referred to as tankards or handled jars.

P277 (Fig. 34; tholos, Str. I). Pyxis. H. 10; th. 0.5; dia. 7. Spherical body; vertical collar neck; rounded rim with slight projection inside. Traces of red painted motifs on exterior. *Date*: EM I.

P278 (Fig. 34; tholos, Str. I). Pyxis. H. 4.4; th. 0.5. Spherical body; vertical collar neck. Traces of red paint on exterior. *Date*: EM I.

4.2.9.3.1.2. With Tubular Neck

This is a rare type of pyxis with a spherical body and a tall cylindrical collar. It has an exact parallel from Lebena, although in DGBW (Alexiou and Warren 2004, fig. 25:255), which is dated to the EM I period.

P279 (Fig. 34; Pl. 24; rock shelter, 3:3). Pyxis. H. 9.1; th. 0.7; dia. 3.2. Spherical body; tall cylindrical collar; rounded rim with two perforations underneath, probably for attachment of lid. Traces of red paint on exterior. *Date*: EM I.

4.2.9.3.1.3. Unidentified

A few sherds belong to pyxides, but due to their fragmentary condition it is not possible to identify their exact shape or type.

P280 (Fig. 34; tholos, Str. II). Pyxis. H. 2.8; th. 0.5. Horizontal D-shaped lug with vertical perforation. Traces of red paint on exterior. *Date*: EM I–IIA.

P281 (Fig. 34; tholos, Str. II). Pyxis. H. 3.1; th. 0.3. Twin D-shaped lugs with vertical perforations. Traces of red paint on exterior. *Date*: EM I–IIA.

P282 (Fig. 34; tholos, Str. III). Pyxis. H. 3.1; th. 0.4. Horizontal lug with vertical perforation. Traces of red paint on exterior. *Date*: EM I–IIA.

P283 (Fig. 34; tholos, Str. III). Pyxis. H. 12.1; th. 0.4. Spherical body; horizontal lug with vertical perforation. Traces of red paint on exterior. *Date*: EM I–IIA.

P284 (Fig. 34; tholos, Str. II). Pyxis. H. 3.7; th. 0.4. Horizontal D-shaped lug with two vertical perforations. Incised slashed decoration on outside of handle; horizontal parallel incisions on body; traces of red paint on exterior. *Date*: EM I–IIA.

P285 (Fig. 34; rock shelter, 2:2). Pyxis. H. 2.7; th. 0.4. Horned lug with horizontal perforation. Traces of red paint on exterior. *Date*: EM I–IIA.

4.2.9.3.2. Pyxis Lid

The pyxis lids can be classified into four types on the basis of their shape. As with all other wares, it is not often possible to match lids with specific pyxis types.

4.2.9.3.2.1. High with Projecting Lugs

They have high vertical walls, a cylindrical shape, and a slightly concave top with projecting lugs on its perimeter. It was not possible to identify exact parallels for this type of lid.

P286 (Fig. 34; Pl. 24; tholos, Str. III). Pyxis lid. H. 8.3; th. 0.6; dia. 11. Straight vertical walls; cylindrical body; rounded, slightly outturned rim; slightly concave top with three perforated lugs with bird-shaped terminals projecting upward on perimeter of top surface. Red painted decoration; exterior cross-hatched triangles on side walls, thick band on perimeter and bird-headed projections, two opposed cross-hatched triangles on top surface. *Parallels*: Cross-hatched triangles characterize the EM IIA painted pottery from Myrtos Phournou Koriphi (Warren 1972, fig. 39:P11, P18, P28), Hagia Kyriaki (Blackman and Branigan 1982, figs. 11:99, 12:122, 130, 144), and Knossos (Wilson 1985, fig. 16:112, 117), although on lids with pattern-burnished decoration they appear toward the end of the EM I period (e.g., Alexiou and Warren 2004, figs. 25:192, 205). Bird- and animal-shaped projections can be seen on pyxides and lids from Lebena (Alexiou and Warren 2004, figs. 24:215, 26:305) dated to EM I–IIA. *Date*: EM IIA.

P287 (Fig. 34; Open Area 3, Str. II). Pyxis lid. H. 3.5; th. 0.8; dia. 15. Vertical walls; cylindrical body; slightly concave top with rectangular perforated lug projecting upward on perimeter of top surface. Red painted decoration; exterior band around perimeter and on lug, bands on top surface radiating from center to perimeter. *Date*: EM I–IIA.

P288 (Fig. 34; Open Area 2, Str. II). Pyxis lid. H. 7; th. 0.7; dia. 16. Vertical walls; cylindrical body; slightly concave top with rectangular perforated lug projecting upward from perimeter of top surface; traces of lug or handle attachment at center of top surface. Red painted decoration; exterior band around perimeter and on lug; diagonal bands on body, diagonal bands on top surface, circular band at center of top, around attachment of lug/handle. Petrographic sample LIV68. *Date*: EM I–IIA.

P289 (Fig. 35; Open Area 3, Str. II). Pyxis lid. H. 4.9; th. 0.4; dia. 8. Incurving walls; curved top. Red painted decoration applied on a thin buff wash; exterior cross hatching on side walls. Petrographic sample LIV74. *Parallels*: No exact parallel in terms of shape could be found, but similar cross hatching with thin painted bands is typical of EM I Hagios Onouphrios Ware vessels (Blackman and Branigan 1982, fig. 7:F31, G35; Alexiou and Warren 2004, fig. 31:489, 501). *Date*: EM I.

P290 (Fig. 35; Open Area 2, Str. II). Pyxis lid. H. 3.6; th. 0.4; dia. 7.4. Concave walls; curved top; rounded rim; four projecting, vertically perforated lugs. Traces of reddish-brown paint on exterior. *Date*: EM I–IIA.

4.2.9.3.2.2. Flanged with Perforations

These lids have a curved top, and, instead of projecting lugs, they have a projecting flange around the perimeter of the top surface. The flange was most probably perforated but these are not preserved. Such lids are particularly common in many funerary contexts of South-Central Crete, like Lebena (Alexiou and Warren 2004, fig. 23:178, 179), Moni Odigitria (Vasilakis and Branigan 2010, fig. 37:P70), and Hagia Kyriaki (Blackman and Branigan 1982, figs. 7:A5, 12:136–138), dated to EM I.

P291 (Fig. 35; Open Area 2, Str. II). Pyxis lid. H. 3.4; th. 0.5; dia. 9 (flange). Incurving walls; conical body; curved top with flanged perimeter. Traces of red paint on exterior. *Date*: EM I.

P292 (Fig. 35; Open Area 3, Str. II). Pyxis lid. H. 2.8; th. 0.5; dia. 9 (flange). Incurving walls; conical body; curved top with flanged perimeter. Traces of red paint on exterior. EM I.

P293 (Fig. 35; Open Area 4, Str. II). Pyxis lid. H. 2; th. 0.5; dia. 10 (flange). Incurving walls; conical body; curved top with flanged perimeter projecting slightly upward. Traces of red paint on exterior. *Date*: EM I.

4.2.9.3.2.3. Low

These are lids with low incurving walls and curved tops. They are more frequent in DGBW and date to the EM I period.

P294 (Fig. 35; rock shelter, 3:3, 4:1). Pyxis lid. H. 1.7; th. 0.6; dia. 8 (rim). Incurving walls; curved top with elliptical projection at center; rounded rim; two pairs of vertical perforations through edge. Solid red paint on interior and exterior. *Date*: EM I.

P295 (Fig. 35; Open Area 3, Str. II). Pyxis lid. H. 1.4; th. 0.6; dia. 18 (rim). Incurving walls; curved top; rounded rim. Solid red paint on interior and exterior. *Date*: EM I.

4.2.9.4. Unidentified Closed Shape(s)

This category includes sherds that may have belonged to closed vases like jugs, jars, or pyxides.

P296 (Fig. 35; tholos, Str. III). Jug/jar/pyxis. H. 4.2; th. 0.6; dia. 8. Flat base; spherical body. Pale brown painted decoration; exterior vertical thin bands, solid bottom. Petrographic sample LIV33. *Parallels*: The motif of parallel thin lines is typical for EM I painted pottery (Hagios Onouphrios Ware), but the flat base may indicate a later date. *Date*: EM I–IIA.

P297 (Fig. 35; rock shelter, 6:3). Jug/jar/pyxis. H. 1.2; th. 0.4. Curved base; spherical body. Brown painted decoration; exterior vertical thin bands continuing underneath base. Petrographic sample LIV60. *Parallels*: The motif of parallel thin lines is typical for EM I painted pottery (Hagios Onouphrios Ware), a date that is reinforced by the curved base. *Date*: EM I.

P298 (Fig. 35; Open Area 3, Str. II). Jug/jar/pyxis. H. 7.5; dia. 0.5. Handle with circular section. Red painted decoration applied on thin, buff wash; exterior bands on handle. Petrographic sample LIV36. *Date*: EM I–IIA.

P299 (Fig. 35; Open Area 3, Str. II). Jug/jar/pyxis. H. 2.8; th. 0.5. Concave wall of neck, possibly from a collar-neck pyxis. Red painted decoration applied on thin, buff wash; exterior part of cross-hatched triangle apex. *Date*: EM I–IIA.

P300 (Fig. 35; rock shelter, 4:1). Jug/jar/pyxis. H. 4.4; th. 0.4. Spherical body. Brown painted decoration applied on thin, buff wash; exterior unidentified linear pattern of groups of diagonal bands on belly. Petrographic sample LIV48. SEM sample SEM8. *Date*: EM I–IIA.

P301 (Fig. 35; Open Area 2, Str. II). Jug/jar/pyxis. H. 9; th. 0.6; dia. 6 (neck). Spherical body. Red painted decoration; exterior thick band at base of neck and at belly, groups of six thin vertical bands in between. Petrographic sample LIV11. *Date*: EM I–IIA.

P302 (Fig. 35; Open Area 2, Str. II). Jug/jar/pyxis. H. 10.7; th. 0.6. Spherical body. Dark brown painted decoration applied on thin, buff wash; exterior thin parallel vertical lines. Petrographic sample LIV64. *Parallels*: The motif of parallel thin lines is typical for EM I painted pottery (Hagios Onouphrios Ware), but the dark color of the paint may suggest a later date. *Date*: EM I–IIA.

P303 (Fig. 35; Open Area 4, Str. II). Jug/jar/pyxis. H. 3.1; th. 0.5. Spherical body. Reddish-brown painted decoration; exterior thin parallel lines. Petrographic sample LIV57. *Date*: EM I–IIA.

P304 (Fig. 35; Open Area 2, Str. II). Jug/jar/pyxis. H. 4.3; th. 0.4. Flat base; spherical body. Red painted decoration; exterior thin parallel horizontal lines. *Date*: EM I–IIA.

4.2.10. Vasiliki Ware

Typical Vasiliki Ware (VW) is characterized by a surface covered by a thick, mottled slip, which varies in color between orange, red, brown, and black. The surface slip is always well burnished or polished with a lustrous finish.

Macroscopically, the fabric of all VW pots looks very similar: fine; very pale brown (10YR 8/3) to light red (2.5YR 6/8) or gray (10YR 6/1) in color; well levigated with almost no inclusions; and hard fired. However, petrographic analysis of five samples (**P305**, **P307**, **P309**, **P311**, **P313**) showed the use of at least four different fabrics. One (**P305**) possibly originated in the Mirabello area (Petrographic Fabric Group 3a) while the others are related to the South Coast flysch mélange. Vases **P307** and **P309** are petrographic loners, which could also have been imported. Indeed, the rarity of VW, which constitutes only 1% of the total (Table 25), may suggest that all vases of this ware were imported to Livari. However, two samples (**P311**, **P313**) are made of the same fabric group as the majority of the DOLW vases, which are considered local (Petrographic Fabric Group 4). Thus, a broadly local manufacture cannot be excluded for at least some of the VW vases.

Most of the vases of this ware serve drinking and pouring purposes, namely cups, goblets, jugs, and teapots (Table 34). A unique amphora could have been used for storing small quantities of liquid.

This ware has been the subject of a specialized monograph (Betancourt et al. 1979) in which a detailed description and discussion can be found. It is generally accepted that it was produced in East Crete, probably in the Mirabello area (Whitelaw et al. 1997), from which it was distributed to many locations. Its rarity at Livari reinforces the idea that it was imported from elsewhere, possibly from the Mirabello area. It is dated to EM IIB, although it has been suggested that it appeared before the end of EM IIA, and it also may have continued shortly within EM III.

4.2.10.1. Drinking Shapes

4.2.10.1.1. Cup

These vessels have a conical shape and a low ring-shaped base. The available parallels are from East Crete, including Myrtos Phournou Koriphi (Warren 1972, fig. 53:P229, P230), Palaikastro, Sphoungaras, and Vasiliki (Betancourt et al. 1979, 33, shape II.A).

P305 (Fig. 35; tholos, Str. III). Cup. H. 8.3; th. 0.5; dia. 5.7 (base), 12 (rim). Conical shape; ring-shaped base; deep groove above base; incurving rim; groove around interior of rim. Petrographic sample LIV24. *Date*: EM IIB.

P306 (Fig. 35; tholos, Str. III). Cup. H. 2.3; th. 0.7; dia. 7 (base). Conical shape; ring-shaped base; deep groove above base. *Date*: EM IIB.

4.2.10.1.2. Goblet

These vases have a hemispherical cup on a low foot. There are many parallels in VW from both funerary and domestic contexts across Crete, including Myrtos Phournou Koriphi (Warren 1972, fig. 65:P373–P385), Hagia Triada, Lebena, Malia, Knossos, Palaikastro, Sphoungaras, and Vasiliki (Betancourt et al. 1979, 42–43, shape VII.A).

P307 (Fig. 35; tholos, Str. III). Goblet. H. 2.8; th. 0.8; dia. 8. Part of foot; rounded end. Petrographic sample LIV27. *Date*: EM IIB.

P308 (Fig. 35; tholos, Str. III). Goblet. H. 2.4; th. 0.6. Part of foot. *Date*: EM IIB.

P309 (Fig. 35; rock shelter, 1:1). Goblet. H. 2.8; th. 0.6; dia. 9 (base). Rounded end. Petrographic sample LIV39. SEM sample SEM11. *Date*: EM IIB.

4.2.10.2. Pouring Shapes

4.2.10.2.1. Jug

The sherds are rather fragmentary but the available parallels suggest jugs with tall cylindrical necks, raised cutaway spouts, and ring-shaped bases (Warren 1972, figs. 67, 68; Betancourt et al. 1979, figs. 11:15, 16, 12:1). There are numerous parallels from all over Crete, including Gournia, Lebena, Malia, Mochlos, Myrtos Phournou Koriphi, Palaikastro, Pseira, Trapeza, and Vasiliki (Betancourt et al. 1979, 46–48).

P310 (Fig. 36; Open Area 3, Str. II). Jug. H. 4.4; th. 0.8. Shoulder and neck. *Date*: EM IIB.

P311 (Fig. 36; Open Area 3, Str. II). Jug. H. 2.5; th. 0.8; dia. 7. Ring-shaped base. Petrographic sample LIV73. EM IIB.

4.2.10.2.2. Teapot

This is a rare shape comprising a deep bowl with a side spout through the shoulder. Parallels have been found at Myrtos Phournou Koriphi (Warren 1972, fig. 86), Mochlos, Malia, and Vasiliki (Betancourt et al. 1979, 50, shape X.B).

P312 (Fig. 36; tholos, Str. II). Teapot. H. 6.5; th. 0.7; dia. 10.5. Spherical body; rim with square section, flattened on top; cylindrical spout through shoulder. *Date*: EM IIB.

4.2.10.3. Storage Shapes

4.2.10.3.1. Amphora

This is a unique shape with no parallels elsewhere in Crete. A VW jug of the same shape but with one handle has been found at Gournia (Boyd Hawes 1908, pl. VI:1).

P313 (Fig. 36; Pl. 24; rock shelter, 1:1, 2:1, 3:1). Amphora. H. 17; th. 0.7; dia. 6 (base), 7 (rim). Ring-shaped base; spherical body; tall cylindrical neck, opening on top; two handles with circular sections; outturned, rounded, and slightly tapered rim. Petrographic sample LIV07. *Date*: EM IIB.

4.2.11. Red/Black Slipped Ware

The vases made of Red/Black Slipped ware (R/BSW) have a surface covered by a solid monochrome slip, varying in color between red (2.5YR 5/6), dark reddish brown (5YR 3/4), and very dark gray (7.5YR 3/1). Some vases have white painted decoration, but these are classified under White-on-Dark Painted ware.

Petrographic analysis showed that all four analyzed samples (**P319**, **P320**, **P328**, **P331**) were produced in rare fabrics and were most probably imported to Livari. This is clearly the case for the three samples (**P320**, **P328**, **P331**) made in a fabric with metamorphic rock inclusions (Petrographic Fabric Group 2a). The mineralogical composition of this fabric group points towards the Mesara, something reinforced by pedestal bowl **P331**, which has close parallels from Koumasa. The fourth sample (**P319**) is made of a rare fabric with quartz and micrite (Petrographic Fabric Group 6), and it was also a probable import. The lack of an indisputably local fabric for the production of R/BSW is problematic, particularly because it is the most common ware of the EM IIB/III period (Tables 25, 26).

Red/Black Slipped ware was used for a variety of shapes and functions (Table 35). Drinking vases are represented by cups, serving vases by bowls, deep bowls, and dishes, and pouring vases by jugs and a teapot. No vases for storage were produced in this ware.

Detailed descriptions can be found in the studies of many assemblages, including Knossos (Momigliano 2007, 84, 97; Momigliano and Wilson 1996, 32; Wilson 2007, 64, 73), Moni Odigitria (Branigan and Campbell-Green 2010, 73, nos. 10, 11), and Phaistos and Hagia Triada (Todaro 2005, 22, 41). Although it has been recently shown that this ware appears before the end of the EM IIA period, at least in Knossos (Wilson 2007, 64–65), it was particularly common all over Crete in EM IIB, EM III, and MM IA. For a more precise date, the shape should be taken into account.

4.2.11.1. Drinking Shapes

4.2.11.1.1. Cup

Most Cretan cemeteries have produced numerous R/BSW cups, which are dated to the EM III–MM IA period. At Livari, however, there are only two specimens.

4.2.11.1.1.1. One Handled

P314 (Fig. 36; rock shelter, 1:1, 1:2, 2:1, 3:1, 3:3). Cup. H. 10; Th. 0.5; D. 8 (base), 13 (rim). Hemispherical shape; flat base; rounded rim; traces of handle attachment. Black-slipped exterior; black band at rim in interior. *Date*: EM III–MM IA.

4.2.11.1.1.2. Handleless

P315 (Fig. 36; rock shelter, 3:2, 4:1, 4:3). Cup. H. 6.6; Th. 0.4; D. 6 (base), 9 (rim). Hemispherical shape; flat base; rounded rim. Exterior black band at rim and trickle pattern; black band at rim in interior. *Date*: EM III–MM IA.

4.2.11.1.2. Goblet

Goblets are represented by a single specimen at Livari. It was the most common drinking shape during the later Prepalatial period, and its development can be seen in Knossos. The shape starts already in late EM IIA (Wilson 2007, fig. 2.11:7), but it becomes particularly common in EM IIB (Wilson 2007, fig. 2.17:1), EM III, and MM IA (Momigliano 2007, figs. 3.6:1–4, 3.12:1, 2). Although the Livari specimen is not intact, the upturning end of the foot suggests a date in the EM III period.

P316 (Fig. 36; Open Area 2, Str. II). Goblet. H. 2.5; th. 0.4; dia. 8. Low foot; rounded, slightly upturning end. Traces of brown slip on exterior. *Date*: EM III.

4.2.11.2. Pouring Shapes

4.2.11.2.1. Jug

There are three types of jugs categorized on the basis of the overall shape and the form of the spout.

4.2.11.2.1.1. Beak Spouted

These jugs are of medium size, and they have a slightly raised beak-shaped spout. On the basis of their parallels (e.g., Moni Odigitria: Vasilakis and Branigan 2010, fig. 33:P26), they are probably dated to EM IIB but a later date in EM III cannot be excluded.

P317 (Fig. 36; Open Area 3, Str. II). Jug. H. 5.5; th. 0.4; dia. 2.7 (neck). Beak-shaped spout. Black slip on exterior. *Date*: EM IIB–III.

P318 (Fig. 36; rock shelter, 2:1, 2:2, 3:1, 3:2, 3:3, 4:2, 4:3). Jug. H. 14.1; th. 0.6; dia. 7 (base). Flat base; spherical body; beak-shaped spout; handle with circular section. Brown slip on exterior. *Date*: EM IIB–III.

1.2.11.2.1.2. With Cutaway Spout

These are large jugs with raised cutaway spouts. They have parallels from various sites such as Knossos (Momigliano 2007, fig. 3.8:7; Wilson 2007, fig. 2.17:2) and Myrtos Phournou Koriphi (Warren 1972, figs. 70:P468, 72:P464), which date to EM IIB–III.

P319 (Fig. 36; Pl. 24; rock shelter, 2:2, 3:1, 3:2, 3:3, 4:1, 4:2, 5:1). Jug. H. 25; th. 0.5. Flat base; piriform body; handle with circular section; raised cutaway spout. Dark brown slip on exterior. Petrographic sample LIV06. *Date*: EM IIB–III.

P320 (Fig. 36; Pl. 24; rock shelter, 2:1, 3:1). Jug. H. 18; th. 0.5; dia. 13.5 (belly). Piriform body; handle with circular section; raised cutaway spout. Dark brown to black slip on exterior. Petrographic sample LIV01. *Date*: EM IIB–III.

4.2.11.2.1.3. Juglet

The jugs of this type are small in size and have a low-bellied body. Similar jugs in R/BSW have been found at several sites, including Lebena (Alexiou and Warren 2004, figs. 6:35, 22:127, 128), Moni Odigitria (Vasilakis and Branigan 2010, fig. 47:P218, P233), and Myrtos Phournou Koriphi (Warren 1972, fig. 73:P515), and they are dated to EM IIB–III. This is probably the date of the Livari specimens as well.

P321 (Fig. 36; rock shelter, 3:3). Jug. H. 6.2; th. 0.4; dia. 4. Slightly concave base; low-bellied body; handle with circular section; raised cutaway spout. Traces of dark brown to black slip on exterior. *Date*: EM IIB–III.

P322 (Fig. 36; tholos, Str. III). Jug. H. 3.5; th. 0.5; dia. 5. Flat base; low-bellied body. Traces of dark brown to black slip on exterior. *Date*: EM IIB–III.

4.2.11.2.2. Spouted Bowl

Two types of spouted bowls can be identified on the basis of the shape of the body.

4.2.11.2.2.1. Hemispherical

P323 (Fig. 36; tholos, Str. I). Spouted bowl. H. 5.5; th. 0.5. Hemispherical body; slightly raised open spout. *Date*: EM IIB–III.

4.2.11.2.2.2. Conical

The conical bowl with open spout is very common in East Crete, particularly in East Cretan White-on-Dark Ware (Betancourt 1984, fig. 1-1:B), and it is dated to the EM III period but appears already in EM IIB (e.g., Myrtos Phournou Koriphi; Warren 1972, fig. 54:P250).

P324 (Fig. 36; Pl. 24). Rockshelter, 1:1, 1:2, 2:1, 3:1, 3:2, 4:2. H. 6.7; th. 0.3; dia. 5 (base), 11 (rim). Conical body with straight flaring walls; rounded rim; open U-shaped spout projecting horizontally; horned lug on rim opposite handle. Brown slip on interior and exterior. *Date*: EM III.

P325 (Fig. 36; tholos, Str. III). Spouted bowl. H. 6; th. 0.6; dia. 17. Conical body with straight flaring walls; rounded, outturned rim; open U-shaped spout projecting horizontally; hole of unknown function beneath rim. Traces of brown to black slip on interior and exterior. *Date*: EM III.

P326 (Fig. 36; rock shelter, 1:1). Spouted bowl. H. 4.6; th. 0.4. Conical body with straight flaring walls; rounded rim; open U-shaped spout projecting horizontally. Traces of brown to black slip on interior and exterior. *Date*: EM III.

4.2.11.2.3. Bridge-Spouted Jar

There is a single, very fragmented specimen of a bridge-spouted jar.

P327 (Fig. 37; Open Area 2, Str. II). Bridge-spouted jar. Th. 0.8; dia. 26. Spherical body; rounded, incurving rim; bridge-spouted U-shaped spout; horizontal handles with circular sections on the two sides. Traces of brown slip on exterior. *Date*: EM III.

4.2.11.2.4. Teapot

This is a rare shape in R/BSW. The long spout resembles typical VW teapots (e.g., Warren 1972, figs. 85, 86), suggesting a date in EM IIB.

P328 (Fig. 37; Open Area 2, Str. II). Teapot. H. 3.8; th. 0.4; dia. 8. Flattened spherical body; rounded, outturned rim; long spout projecting from shoulder. Traces of black slip on exterior. Petrographic sample LIV38. EM IIB.

4.2.11.3. Serving Shapes

4.2.11.3.1. Bowl

4.2.11.3.1.1. Conical

P329 (Fig. 37; tholos, Str. II). Bowl. H. 4.6; th. 0.4; dia. 10. Conical body; slightly concave flaring walls; rounded, incurving rim; small horizontal handle with circular section. Reddish-brown slip on exterior. *Parallels*: According to a similar bowl in R/BSW from Myrtos Phournou Koriphi (Warren 1972, fig. 55:P260), it can be dated to EM IIB. *Date*: EM IIB.

4.2.11.3.1.2. Hemispherical

P330 (Fig. 37; rock shelter, 2:1, 3:1, 4:1, 4:2). Bowl. H. 4.8; th. 0.3; dia. 12. Hemispherical body; carinated walls; rounded, outturned rim; two holes beneath rim. Traces of black slip on exterior and interior. *Date*: Possibly EM III.

4.2.11.3.1.3. Pedestal

P331 (Fig. 37; Open Area 2, Str. II). Bowl. H. 22 (estimated total); th. 0.5; dia. 10 (base), 22 (rim). Tall, trumpet-shaped pedestal with rounded end; straight flaring walls; small vertical handle; rounded, incurving rim. Vertical relief bands with diagonal incisions on lower part of body; similar horizontal relief band at level of handle. Petrographic sample LIV61. *Parallels*: It has an exact parallel from Koumasa (Xanthoudides 1924, pl. XXXVIa:4305). *Date*: Most probably EM III–MM IA.

4.2.11.3.2. Dish

P332 (Fig. 37; rock shelter, 1:1, 2:2). Dish. H. 5; th. 0.5; dia. 6 (base), 12 (rim). Flat base; conical body with straight flaring walls; rounded rim. Reddish-brown slip on exterior. *Date*: EM IIB–III.

P333 (Fig. 37; tholos, Str. II). Dish. H. 5.6; th. 0.7; dia. 29. Conical body with straight flaring walls; rounded rim with groove inside. Black slip on interior and exterior. *Date*: EM IIB–III.

P334 (Fig. 37; tholos, Str. II). Dish. H. 1.6; th. 0.5; dia. 16. Curved base; squared rim, flattened on top. Black slip on interior and exterior. *Date*: EM IIB–III.

4.2.12. White-on-Dark Painted Ware

White-on-Dark Painted ware (WODW) is identical to R/BSW in surface treatment and firing, differing only in the existence of buff to creamy white painted decoration on the exterior and/or the interior of the vase. It is a very rare ware, representing 1% of the total (Table 25). This may suggest that it was imported to Livari. Petrographic analysis of three cataloged (**P336**, **P340**, **P345**) and one uncataloged sample showed the existence of both imports and possibly local products. Cup **P340** is made of a granodiorite fabric (Petrographic Fabric Group 3a) and was imported from the Mirabello area. Also imported is the uncataloged sample LIV40, which is a petrographic loner. On the other hand, cups **P336** and **P345** belong to fabric groups that could be regarded as broadly local (Petrographic Fabric Groups 4c and 7).

The shape repertoire is almost identical to that of R/BSW (Table 36). Some forms are not represented, perhaps due to the small sample size. In general, there are vases for drinking, namely cups, for serving, namely dishes and a bowl, and for pouring, namely spouted cups and a jug. As in the case of R/BSW, no vases for storage were produced.

This ware is particularly common all over Crete from EM IIB onward, although recently it has been shown that it appeared before the end of the EM IIA period, at least in Knossos (Wilson 2007, 64–65). It has been the subject of a specialized monograph (Betancourt 1984) and detailed descriptions exist for many assemblages, including Knossos (Momigliano and Wilson 1996, 32; Momigliano 2007, 84, 97; Wilson 2007, 64, 73), Moni Odigitria (Branigan and Campbell-Green 2010, 73, nos. 10, 11), and Phaistos and Hagia Triada (Todaro 2005, 22, 41).

4.2.12.1. Drinking Shapes

4.2.12.1.1. Cups

The cups of WODW belong to three types: handless conical, handless hemispherical, and one-handled and hemispherical.

4.2.12.1.1.1. Handleless Conical

The single intact preserved specimen has flaring walls and a concave, slightly pronounced base. It is one of the most common drinking shapes of EM III

East Cretan White-on-Dark Ware, although it appeared already in EM IIB. There are many parallels all over East Crete including Malia, Mochlos, Palaikastro, Vasiliki, and Myrtos Phournou Koriphi (Betancourt 1984, 39–41, shapes 2A and 2D).

P335 (Fig. 38; Pl. 25; rock shelter, 2:1, 2:2, 3:1, 3:2, 4:2, 4:3). Cup. H. 6.5; th. 0.4; dia. 3.2 (base), 8.8 (rim). Conical body with faring, slightly concave walls; slightly concave base; rounded, tapered rim. Creamy white painted decoration on black-slipped background; exterior thick band on base and rim, line of dots on upper surface of rim; black-slipped interior. *Date*: EM III.

P336 (Fig. 38; Open Area 3, Str. II). Cup. H. 5.9; th. 0.5; dia. 10. Conical body with flaring, slightly concave walls; rounded, tapered rim. Creamy white painted decoration on black-slipped background; exterior: thick band beneath rim; black-slipped interior. Petrographic sample LIV37. *Date*: EM III.

P337 (Fig. 38; rock shelter, 1:1). Cup. H. 3.4; th. 0.4. Conical body with flaring walls; rim with triangular section. Creamy white painted decoration on black-slipped background; exterior two straight bands on body and one wavy band beneath rim; interior black band at rim. *Date*: EM III.

4.2.12.1.1.2. Handleless Hemispherical

Only one intact specimen is preserved showing a hemispherical cup with curved walls and a vertical rim. As with the conical version, it is a particularly common drinking shape in EM III East Cretan White-on-Dark Ware with many parallels from Gournia, Malia, Mochlos, and Vasiliki (Betancourt 1984, 43, shape 6A).

P338 (Fig. 38; Pl. 25; rock shelter, 3:2). Cup. H. 5.4; th. 0.5; dia. 3.8 (base), 6.6 (rim). Hemispherical body with curved walls; flat base; rounded, tapered rim. Creamy white painted decoration on black-slipped background; exterior five thin horizontal bands on upper half of body. *Date*: EM III.

4.2.12.1.1.3. One-Handled Hemispherical

This is a handled version of the handleless hemispherical cup. It is one of the characteristic shapes of EM III East Cretan White-on-Dark Ware, with parallels from Priniatikos Pyrgos, Pseira, Myrtos Pyrgos, Gournia, Malia, Mochlos, and Vasiliki (Betancourt 1984, 43–44, shape 6B).

P339 (Fig. 38; rock shelter, 1:1). Cup. W. 1.8; th. 0.4. Vertical strap handle. Creamy white painted decoration on black-slipped background; three thin parallel bands on upper surface of handle. *Date*: EM III.

P340 (Fig. 38; Open Area 3, Str. II). Cup. H. 5.6; th. 0.4; dia. 8 (rim). Hemispherical body with curved walls; rim with triangular section; handle attachment on lower part of body. Creamy white painted decoration on black-slipped background; exterior three thin horizontal bands on upper half of body, wavy band beneath rim; interior black band beneath rim. Petrographic sample LIV77. *Date*: EM III.

4.2.12.2. Pouring Shapes

4.2.12.2.1. Spouted Bowl

This is the WODW version of the conical spouted bowl in R/BSW. It is very common in East Crete, particularly in East Cretan White-on-Dark Ware (Betancourt 1984, 41, shape 3A, fig. 1–1:B), and it is dated to the EM III period but appears already in the EM IIB period (e.g., Myrtos Phournou Koriphi; Warren 1972, fig. 54:P250). There are many parallels from Gournia, Malia, Palaikastro, and Vasiliki.

P341 (Fig. 38; Pl. 25; rock shelter, 2:2). Spouted bowl. H. 5.6; th. 0.6; dia. 6 (base), 10 (rim). Conical body with flaring walls. Rim of triangular section. Open U-shaped spout, projecting slightly upwards. Creamy white painted decoration on dark brown slipped background; exterior two vertical curved bands from spout to base. EM IIB–III.

P342 (Fig. 38; Pl. 25; rock shelter, 3:3). Spouted bowl. H. 7.5; th. 0.6; dia. 3.6 (base), 8.1 (rim). Conical body with flaring walls; rim with triangular section; open U-shaped spout, projecting slightly upward. Creamy white painted decoration on dark brown- to black-slipped background; exterior zone defined by two horizontal bands on upper half of body filled with diagonal bands. *Date*: EM IIB–III.

P343 (Fig. 38; Pl. 25; rock shelter, 2:1, 2:2, 3:2, 3:3, 4:1, 5:2). Spouted bowl. H. 6.4; th. 0.5; dia. 11 (rim). Conical body with flaring walls; rounded, tapered rim; open U-shaped spout, projecting slightly upward; horned lug opposite spout. Creamy white painted decoration on dark brown- to black-slipped background; exterior loop under spout, zone defined by two horizontal bands on upper half of body filled with opposing groups of diagonal bands. *Date*: EM IIB–III.

4.2.12.2.2. Jug

There is a single example of a jug with raised spout and cutaway neck. Such jugs have been found all over East Crete and belong to EM III East Cretan White-on-Dark Ware (Betancourt 1984, 45, shape 8).

P344 (Fig. 38; Pl. 25; rock shelter, 4:3). Jug. H. 9.5; th. 0.4; dia. 8.8 (carination). Spherical body with carinated walls; raised spout with cutaway neck; handle with circular section. Creamy white painted decoration on black slipped background; exterior horizontal bands on rim, neck, and upper part of body; interior band at rim. *Date*: EM III.

4.2.12.3. Serving Shapes

4.2.12.3.1. Dish

These vases are open and shallow with flaring walls. The first WODW dishes appeared in EM IIB in sites such as Myrtos Phournou Koriphi (Warren 1972, fig. 51:P196) and Knossos (Wilson 2007, fig. 2.17:6, 7), and they continued into EM III (Momigliano 2007, fig. 3.6:9). The shape is characteristic of EM III East Cretan White-on-Dark Ware (Betancourt 1984, 38–39, shape 1).

P345 (Fig. 38; rock shelter, 3:1). Dish. H. 2.6; th. 0.9; dia. 24. Open shallow body with flaring walls; rim flattened on top. Black slip on interior and on top of rim, creamy white wavy band on top of rim; exterior unmodified. Petrographic sample LIV43. *Date*: EM IIB–III.

P346 (Fig. 38; rock shelter, 4:1). Dish. H. 2.1; th. 0.9; dia. 20. Open shallow body with flaring walls; rim flattened on top. Black slip on interior and on top of rim, three creamy white bands on top of rim and upper part of interior; exterior unmodified. *Date*: EM IIB–III.

5

Prepalatial Pottery: Petrographic Analysis

by

Eleni Nodarou

5.1. Introduction

Thin section petrography has been applied to selected samples of the Prepalatial ceramic assemblage in order to characterize the pottery, assign provenance, and investigate the technological characteristics of the main wares. For the selection of the samples for analysis, the ware, the macroscopic fabric, and the shapes represented in each ware were taken into consideration (see Table 37 for the correlation of samples with cataloged pottery). The typological and macroscopic study has demonstrated that there was a range of fabrics used for each ware and that some fabrics were used for more than one ware. Furthermore, there are many specimens that are rare or unique. This picture of extensive variability is expected in a funerary context in which ceramic vases have specialized functions, either as ritual implements or as containers for burial offerings, and in which rare specimens used for symbolic purposes and social display are expected to be found. Within this context, the aim of petrographic analysis was to explore the full range of ceramic products used in the cemetery, to investigate the nature and character of the fabrics present at the cemetery on the basis of their mineralogical composition, and to infer the provenance of the pottery.

The analysis resulted in the establishment of nine fabric groups, which in most cases are further divided into subgroups. These subdivisions strengthen the picture of variability in the assemblage, both within certain wares and within the same fabric categories.

The petrographic descriptions follow the system introduced by Ian Whitbread (1995). The definitions for the abbreviations used here are listed on pp. xxiii–xxiv. The following frequency labels are used: predominant = >70%; dominant = 50%–70%; frequent = 30%–50%; common = 15%–30%; few = 5%–15%; very few = 2–5%; rare = 0.5%–2%; very rare = < 0.5%.

5.2. Fabric Groups

5.2.1. Fabric Group 1: Coarse to Semicoarse Calcite Tempered

Fabric Group 1a Samples: LIV02 (**P169**), LIV20 (**P137**), LIV26 (**P148**), LIV53 (**P165**), LIV62 (**P177**; Pl. 26:a)

Fabric Group 1b Samples: LIV42 (**P194**), LIV47 (**P204**; Pl. 26:b)

Fabric Group 1c Samples: LIV08 (**P136**), LIV50 (**P183**; Pl. 26:c)

This is a characteristic fabric of the earlier Prepalatial period, consisting of angular fragments of calcite added by the potter to the clay mix as temper. It is encountered in many sites on the northern coast, such as Poros (Day, Wilson, and Kiriazi 1998; Wilson, Day, and Dimopoulou-Rethemiotaki 2008), in Central Crete at Gournes (Galanaki 2006) and Pyrgos (Xanthoudides 1918), and in East Crete at Hagia Photia (Day et al. 2012), the Pseira cemetery (Vaughan 2002), Aphrodite's Kephali (Betancourt 2008, 2013), Kavousi (Day et al. 2005), and Kephala Petras (Nodarou 2012).

At Livari, this calcite-tempered fabric is the main fabric of the DBW pottery, and the analysis resulted in the division of the group into three subgroups according to compositional and textural differences, which are indicative of different raw materials, places of provenance, and/or technologies of manufacture.

Fabric Group 1a is characterized by a matrix that fires reddish brown to brown and ranges from optically active to slightly active, indicative of relatively low firing temperatures (<750°C). The main nonplastic component is angular calcite, but the fragments have a weathered appearance and in some cases they seem to be grading into micritic limestone. The secondary nonplastics consist of a few fragments of quartz and rare sandstone, chert, and phyllite. The frequent red clay pellets in all the samples enhance the homogeneity of this subgroup. The vessels represented all have a dark burnished surface and include a pyxis (**P169**), a pyxis lid (**P177**), a chalice (**P137**), a spouted bowl (**P148**), and a deep bowl/jar (**P165**).

Sample LIV53 (**P165**) needs further discussion. Although it has the same matrix and weathered calcite as the rest of the samples, it contains rare fragments of grog, which are totally absent from the other samples. The quantity is very small, and it most likely does not add anything to the natural properties of the clay mix; however, it links this subgroup with the following. This vase is also different from the rest of the DBW pottery in typological terms, bearing painted decoration instead of the usual dark slip.

Fabric Group 1b is characterized by the presence of two tempering agents in the clay mix, calcite and grog. The calcite has the same weathered appearance as in Fabric Group 1a, and the matrix is also very similar, indicating that the same raw material has been used but the recipe of manufacture was slightly different. The practice of using both calcite and grog is also encountered in the EM I assemblages of the settlement at Kephala Petras and the cemetery at Gournes (Papadatos et al. forthcoming; pers. obs.). The vessels represented are a pyxis lid (**P194**) and a bottle (**P204**).

Fabric Group 1c represents a totally different recipe and technology of manufacture. The fabric is coarser, the matrix is dark brown-firing for sample LIV08 and red-firing for LIV50, and the nonplastic inclusions are more densely packed in the base clay. The calcite has a more fresh appearance than in Fabric Groups 1a and 1b, and in sample LIV50 there is evidence for tempering with organic matter. The secondary nonplastics consist of rare quartzite, micrite, and frequent fragments of small quartz evenly distributed in the clay matrix. The vessels represented are a chalice (**P136**) and a pyxis lid (**P183**).

The composition of this calcite-tempered fabric is not indicative of provenance because the plastic and nonplastic components are encountered everywhere in Crete. Ceramic technology is not informative either since the tradition of calcite tempering is encountered across the northern coast of the island, from Chania in the west (Nodarou 2011, 41, 43) to Kephala Petras in the east (Papadatos et al. forthcoming). Finally, similar pottery in terms of shape and surface treatment has been found in many sites across the North Cretan coast, from Central (Poros, Pyrgos, and Gournes) to East Crete (Kephala Petras, Hagia Photia). Although the recipe and technology of manufacture is similar, the secondary components of the clay mixture vary between sites, which leads to the suggestion that the calcite-tempered pottery was widely produced in different sites with the locally available raw materials.

In the case of Livari, these were a noncalcareous base clay, probably of alluvial origin, and temper from the widely available limestone outcrops. The differences in the recipes used, however, could indicate imports from different places on the island.

5.2.1.1. Petrographic Description

Microstructure

Very few meso and macro vugs, very few to rare meso planar voids, and very rare to absent mega planar voids, double to open spaced. Voids and nonplastics are generally randomly oriented, but in some cases planar voids display preferred orientation parallel to vessel margins, indicating tempering with organic matter (samples LIV50 and possibly LIV02).

Groundmass

In most cases homogeneous throughout the section. The color of the groundmass varies from orangish brown to grayish brown in PPL (x50), and from reddish brown to brown and grayish brown in XP. In some samples there is differentiation between the core and the margins, the core being very dark brown and the margins being red. The micromass ranges from optically active to slightly active (for the grayish-brown groundmass).

Inclusions

$c:f:v_{10\mu m}$ = 25:70:5 to 45:62:3
Coarse fraction: 2.5–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is fairly fine, the inclusions range from moderately to poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from granules to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is single to double spaced; that of the fine fraction is double to open spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Dominant to Rare
Monocrystalline calcite, euhedral, a–sa–sr, equant to elongate. Some grains display twinning. In some samples the tempering material does not have the fresh appearance of the calcite; the fragments are more rounded and seem to be grading into calcimudstone (micrite); size: 2.5–0.1 mm long dimension.

Common to Absent
Grog fragments, equant to slightly elongate, a–sa, dark reddish brown to dark brown, occasionally with nonplastic inclusions; size: 2.0–0.25 mm long dimension. In sample LIV42 there are large fragments of grog with metamorphic inclusions, mainly phyllite, which are not encountered in the calcite-tempered fabric group.

Very Few to Absent
Chert, equant, sr; size: 2.25–0.15 mm long dimension. Quartzite, equant to elongate, sa; size: 1.25–0.5 mm long dimension.

Rare to Absent
Sandstone, equant, sr; size: 2.0–0.75 mm long dimension. Monocrystalline quartz, equant, sa; size: 0.5–0.1 mm long dimension.

Fine Fraction

Dominant to Few
Calcimudstone (micrite)/calcite fragments.

Frequent
Monocrystalline quartz.

Very Few
Chert.

Very Rare to Absent
Metamorphics (phyllite). White mica laths.

Textural Concentration Features

There are very few to rare TCFs. They are equant, sr–r and discordant with the micromass, and their color ranges from dark reddish brown to dark brown. They are clay pellets; size: 1.0–<0.1 mm long dimension.

5.2.2. Fabric Group 2: Semicoarse with Metamorphic Fragments

Fabric Group 2a Samples: LIV01 (**P320**; Pl. 26:d), LIV38 (**P328**), LIV61 (**P331**)

Fabric Group 2b Samples: LIV36 (**P298**; Pl. 26:e), LIV60 (**P297**)

This fabric group is characterized by the presence of metamorphic rock fragments. The mineralogical composition and the nature of the metamorphics, however, as well as the texture of the individual samples, led to the establishment of two subgroups that are very different from each other.

Fabric Group 2a is characterized by a red-firing, fairly fine matrix with semicoarse (LIV01) and fine (LIV38, LIV61) inclusions consisting of fine-grained phyllite, ranging in color from orangish brown (the most frequent) to silvery gray, in addition to quartzite, quartz, very little sandstone, and chert. In the fine fraction there are small quartz fragments and biotite mica laths. The presence of rare fragments of igneous rocks points toward an environment of ophiolite and flysch, a feature that links this subgroup with the following. The vessels represented belong to the R/BSW group. They are dated to EM IIB–III and include a jug (**P320**), a teapot (**P328**), and a pedestal bowl (**P331**).

Fabric Group 2b is more homogeneous, characterized by a fine brown-firing matrix that is optically inactive. The nonplastic components consist of frequent subrounded fragments of metamorphic origin, most being fine-grained phyllites, some grading into argillaceous rocks, and all in an orangish-brown color, indicating a common provenance. The secondary nonplastics consist of small fragments of quartz, rare quartzite, and igneous rock fragments. The vessels represented belong to DOLW and they are closed vessels of EM I–IIA date (**P297**, **P298**).

Although the two subgroups represent different recipes, their rock and mineral suite with metamorphic and rare igneous rocks represents a similar geological environment of flysch. Considering the typological connection of pedestal bowl **P331** with Koumasa (see this vol., Ch. 4, p. 58), it is highly likely that the entire group originated in the Mesara. In this case, the differences between the two subgroups are due to chronology (EM I–IIA as opposed to EM IIB–III), rather than to different places of origin.

5.2.2.1. Fabric Group 2a Petrographic Description

Microstructure

Very few to rare meso and macro vugs, very rare to absent planar voids, single to open spaced. Voids and nonplastics are randomly oriented.

Groundmass

Homogeneous throughout the section. The color of the groundmass is reddish brown in PPL (x50) and dark reddish brown in XP. The micromass is optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 20:77:3
Coarse fraction: 1.6–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is close to single spaced; that of the fine fraction is single to open spaced. In sample LIV01 the packing of the coarse fraction is close to single spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Common to Few

Monocrystalline quartz, equant to elongate, sa–sr. Mainly small fragments; size: 0.56–0.1 mm long dimension.

Few

Metamorphic rocks, mainly phyllite. Some fragments are finer grained and others are coarser grained, composed of biotite and quartz. The colors range from golden brown to dark reddish brown. Occasionally there are reddish-brown veins running parallel to the long dimension of the phyllites. Some fragments are in intergrowth with quartzite; size: 1.6–0.32 mm long dimension. Quartzite: equant to slightly elongate, sa, occasionally grading into quartzite-schist; size: 1.2–0.2 mm long dimension.

Rare to Absent

Chert, equant, sr, composed of small quartz fragments, seen in LIV01; size: 0.4–0.15 mm long dimension. Igneous rock fragments (gabbro?), equant, sa, composed mainly of coarse plagioclase feldspar and very altered pyroxene. Seen only in LIV01; size: 1.2–0.8 mm long dimension.

Fine Fraction

Common

Monocrystalline quartz.

Very Few

Biotite fragments.

Rare

Phyllite.

Very Rare to Absent

White mica laths. Clinopyroxene.

Textural Concentration Features

There are very few TCFs, equant to elongate, sa–sr–r. Their color ranges from reddish brown to dark brown, some have small inclusions of biotite mica and quartz, and others are devoid of nonplastics. They are discordant with the micromass and in some cases they display a darker rim due to firing; size: 2.4–<0.1 mm long dimension. They are clay pellets.

5.2.2.2. Fabric Group 2b Petrographic Description

Microstructure

Very few to rare meso and macro vugs, very few planar voids, open spaced. The planar voids are mainly associated with the larger nonplastic inclusions, occasionally surrounding them. Voids and nonplastics are randomly oriented.

Groundmass

Homogeneous throughout the section. The color of the groundmass is brown in PPL (x50) and brown to greenish brown in XP. The micromass is optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 30:65:5
Coarse fraction: 1.6–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is close to double spaced; that of the fine fraction is single to open spaced.

Coarse Fraction

Dominant

Fine-grained rock fragments, elongate, in a color ranging from reddish/orangish brown to dark brown surrounded by a red rim (when over-fired). They seem to be of sedimentary nature, partially metamorphosed. Some fragments contain inclusions of small quartz and biotite laths, others grade into phyllite, and others resemble clay pellets; they seem more plastic and contain no inclusions; size: 1.6–0.1 mm long dimension.

Few

Monocrystalline quartz, equant, sa; size: 0.4–0.1 mm long dimension.

Very Few to Rare

Serpentinite fragments, equant, sr, in a bright red and optically active color; size: 0.8–0.2 mm long dimension.

Rare

Quartzite-schist, equant to slightly elongate, sa–sr; size: 0.8–0.25 mm long dimension.

Fine Fraction

Frequent

Monocrystalline quartz. Red fragments of sedimentary origin (see dominant component of the coarse fraction).

Common

Biotite mica laths.

Few

Serpentinite fragments.

Very Rare to Absent

Epidote.

Textural Concentration Features

There are few fragments already described in the coarse fraction as “resembling” clay pellets; they seem to be of the same origin as the dominant component of the coarse fraction. They do not contain any inclusions, they are sr–r, and they are discordant with the micromass; size: 0.12 mm long dimension.

5.2.3. Fabric Group 3: Semicoarse with Granodiorite

Fabric Group 3a Samples: LIV10 (**P239**), LIV24 (**P305**; Pl. 27:a), LIV77 (**P340**)

Fabric Group 3b Sample: LIV41 (Pl. 27:b)

This is a well-known fabric in East Crete, characterized by the presence of granitic and dioritic rock fragments. This composition is indicative of origin, because these outcrops are located in the broader Mirabello area, more particularly in the northern part of the Hierapetra Isthmus (Dierckx and Tsikouras 2007). Two subgroups were identified that are compositionally similar but display different textures related to different sources of raw materials and different technologies of manufacture.

Fabric Group 3a is characterized by a fine red-firing matrix, which is optically inactive. The nonplastic inclusions consist of rare angular fragments of granite composed of well-formed crystals of plagioclase feldspar and quartz. There are also frequent clay pellets with a compact appearance in a reddish-brown color, almost concordant with the micromass. The vessels represented in this subgroup are an EM IIA jug of DOLW (**P239**), an EM IIB cup of VW (**P305**), and an EM III cup of WODW (**P340**).

Fabric Group 3b is characterized by a brown-firing matrix, which is slightly optically active and most likely lower fired than Fabric Group 3a. The nonplastic inclusions are more densely packed than in Fabric Group 3a, and the presence of diorite is more prominent, the main constituents being plagioclase, biotite, and amphibole. The clay pellets seen in Fabric Group 3a do not exist in this fabric. The single specimen of this subgroup belongs to an EM I–IIA bowl/pyxis of DOLW.

As suggested, vessels of this fabric group originated from the area of Mirabello, something reinforced by the typological parallels of some of the sampled specimens. The so-called Mirabello Fabric is encountered over a very long period of time throughout Cretan prehistory, from the Neolithic (Tomkins and Day 2001) to LM III (Nodarou 2007, 79). It was first identified at Kommos (Myer and Betancourt 1990, 9–10), and since then it has been described at many locations (see Betancourt 2008, 30). In the Prepalatial period, large quantities of this pottery reached Myrtos Phournou Koriphi in the southern coast (Whitelaw et al. 1997), whereas at Hagia Photia it is connected with Dark-on-Light Painted pottery (Day et al. 2012). The analyzed samples from Livari show that its inhabitants imported pottery from this distant area throughout the history of use of the cemetery.

5.2.3.1. Petrographic Description

Microstructure

Rare meso and macro vugs, open spaced (seen mainly in sample LIV10). Vugs and nonplastics are randomly oriented.

Groundmass

Homogeneous throughout the section. The color of the groundmass is brown in PPL (x50) and dark reddish brown in XP. The micromass is optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 30:65:5 to 10:88:2
Coarse fraction: 2.0–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine, the inclusions are moderately sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is single to double spaced; that of the fine fraction is open spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Frequent

Plagioclase feldspar, equant to slightly elongate, sa–sr. Most grains display albitic or polysynthetic twinning and occasionally alteration; size: 0.56–0.2 mm long dimension.

Common

Granodiorite fragments, equant to elongate, sa–sr, composed of plagioclase, biotite/pyroxene/amphibole, opaques, and minor quartz; size: 2.0–0.25 mm long dimension.

Few

Amphibole, equant, sa; size: 0.8–0.2 mm long dimension. Polycrystalline quartz, equant to elongate, sa; size: 1.2–0.25 mm long dimension.

Very Few to Rare

Monocrystalline quartz, equant, a–sa; mode: 0.25 mm long dimension.

Very Rare to Absent

Phyllite, composed mainly of biotite mica and quartz (seen in LIV10); size: 0.8–0.4 mm long dimension. Chert, equant, sr, composed of microquartz; size: 0.24–0.1 mm long dimension. Carbonates (micritic limestone), equant to elongate, sr; size: 1.0–0.32 mm long dimension. Sandstone, equant, sr, composed of quartz and clayey material; mode: 0.3 mm long dimension.

Fine Fraction

Frequent to Few

Biotite.

Few

Monocrystalline quartz.

Very Few

Plagioclase feldspar. Polycrystalline quartz.

Rare

Chert.

Very Rare

Pyroxene. Epidote.

Textural Concentration Features

There are few to very few TCFs and they are fairly homogeneous, equant to elongate, sr–r. Their color is dark red brown and they are discordant with the micromass. They have a compact appearance and they do not contain any inclusions; size: 2.0–<0.1 mm long dimension. They are clay pellets.

5.2.4. Fabric Group 4: Semicoarse with Sedimentary, Metamorphic, and Igneous Rock Fragments

Fabric Group 4a Samples: LIV07 (**P313**; Pl. 27:c), LIV73 (**P311**)

Fabric Group 4b Samples: LIV04 (**P266**), LIV11 (**P301**), LIV12 (**P264**), LIV48 (**P300**), LIV57 (**P303**), LIV69 (**P251**; Pl. 27:d), LIV70 (**P252**), LIV71 (**P255**)

Fabric Group 4c Samples: LIV43 (**P345**), LIV45 (Pl. 27:e), LIV46 (**P261**)

This is the most abundant group of the assemblage. It has been divided into three subgroups, mainly following some mineralogical differences. The base clay, the clay pellets, and the rounded shape of the nonplastic inclusions indicate a common origin and similar technology of manufacture. There are certain characteristics, however, that pertain to one subgroup or the other, hence the need for subdivision.

Fabric Group 4a is characterized by a fine reddish brown–firing matrix with fine biotite mica that is optically inactive. The nonplastic inclusions are very rare and consist of small quartz fragments and rare coarse sedimentary rocks, namely fine-grained rounded sandstones. There are also frequent clay pellets with a compact appearance in a reddish-brown color. The fineness of the groundmass and the mineralogy of this fabric do not allow for a secure provenance assignment, but the characteristic clay pellets and the rounded sandstones link this subgroup with the geology of the southern coast, as will become evident from the discussion of the following subgroup. The vessels represented are a jug (**P311**) and an amphora (**P313**) of VW, dated to EM IIB.

Fabric Group 4b has the same fine matrix seen in Fabric Group 4a, but it ranges from optically inactive to slightly active and the nonplastic inclusions are coarser and more abundant. They consist of fine-grained sandstones, few metamorphics, rare micrite, and some chert, all rounded to subrounded. The size of the nonplastics and their distribution in the clay matrix indicates that they have been added as temper in the clay paste. The characteristic clay pellets link this subgroup with the previous one, and the rock and mineral suite indicate an origin in the flysch mélange of the southern coast. The vessels represented are all DOLW closed vases, mostly jugs of EM I–IIA date (**P251**, **P252**, **P264**, **P266**, **P300**, **P301**, **P303**).

Fabric Group 4c is very similar to Fabric Group 4b in terms of groundmass and composition, the only difference being the presence of volcanic rock fragments. These inclusions are compatible with the southern coast, but since they are absent from the other samples, it might be suggested that the origin of the raw material is different. The vessels represented are a DOLW pyxis lid (not cataloged) and jug (**P261**) of EM I–IIA date, and a WODW dish of EM IIB–III date (**P345**).

The mineralogical composition of this fabric group can be associated with the flysch mélange of the southern coast, but it is difficult to identify the place of origin more precisely. Similar fabrics have been encountered at the Prepalatial assemblages of Kommos (Myer and Betancourt 1990) and Myrtos Phournou Koriphi (Whitelaw et al. 1997). The geology of the southern coast, however, is quite repetitive over a large area stretching from Myrtos to the eastern Mesara, and the difficulties in connecting ancient pottery with specific areas have been discussed elsewhere (Poursat and Knappett 2005; Nodarou and Rathossi 2008). The frequency of this fabric group and its use for the production of DOLW, the most frequent ware of the assemblage, may suggest a broadly local production. This is compatible with the geology of the area, particularly the flysch deposits that lie 2 km north of Livari, but it is difficult to be certain.

5.2.4.1. Petrographic Description

Microstructure

Very few to rare meso and macro vugs, rare planar voids, double to open spaced. Vugs and nonplastics are randomly oriented. Planar voids show preferred orientation parallel to vessel margins, but not as an indication of tempering with organic matter. Occasionally the voids are filled with secondary calcite.

Groundmass

Homogeneous throughout the section. The color of the groundmass is brown in PPL (x50) and dark reddish brown in XP. The micromass ranges from moderately active to optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m} = 12{:}85{:}3$
Coarse fraction: 2.8–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from granules to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is single to open spaced; that of the fine fraction is open spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Common to Rare

Sedimentary rock fragments, mainly sandstones, equant to elongate, sr–r, composed mainly of quartz (quartzarenites and greywackes), occasionally grading into quartzites. In some cases the quartz fragments are connected with a red clayey matrix. In rare cases, the connecting material is calcitic (conglomerate); size: 3.0–0.2 mm long dimension. Monocrystalline quartz, equant to elongate, sa; size: 1.6–0.1 mm long dimension.

Few to Absent

Micritic limestone, equant to elongate, sr–r; size: 2.8–0.1 mm long dimension. Chert, equant, sr, composed of microquartz; size: 0.24–0.8 mm long dimension. Igneous rock fragments, mainly basalt, equant to elongate, sr, composed of fine laths of plagioclase feldspar in a devitrified red matrix; size: 1.0–0.4 mm long dimension.

Very Rare to Absent

Metamorphic rock framents, i.e., phyllite and quartzite-schist, both fine-grained; size: 0.4–02 mm long dimension. Amphibolite, equant, sr; size: 0.64 mm long dimension. Serpentinite, equant; size: sr–r, 0.6–0.12 mm long dimension. Biotite gneiss, equant, sr; size: 0.6–0.24 mm long dimension.

Fine Fraction

Dominant to Few

Micritic limestone.

Frequent

Monocrystalline quartz. Biotite mica laths.

Very Few

Sedimentary rock fragments.

Rare to Absent

Phyllite.

Very Rare to Absent

Epidote.

Textural Concentration Features

There are frequent TCFs, they are homogeneous in composition and texture, equant to elongate, sr–r. Their color ranges from dark reddish brown to dark brown and they are discordant with the micromass. They have a compact appearance and they do not contain any inclusions; size: 1.6–<0.1 mm long dimension. They are clay pellets.

5.2.5. Fabric Group 5: Fine Gray Calcareous

Samples: LIV05 (**P82**; Pl. 28:a), LIV13 (**P85**), LIV18 (**P111**), LIV21 (**P117**), LIV31, LIV49, LIV59 (**P21**), LIV65 (**P27**), LIV75

This fabric group is characterized by a fine gray- to brown-firing calcareous matrix, which ranges from optically active to inactive. There are rare coarse nonplastic inclusions consisting of volcanic rocks (mainly basalt), sandstone, micrite, metamorphics, chert, and quartz. The fine fraction includes frequent small quartz fragments unevenly distributed in the clay matrix. There are also clay pellets, firing grayish brown to dark brown, that range from discordant to fairly concordant with the micromass, and their quantity varies from rare to few (esp. in samples LIV13 and LIV75). All the samples belong to DGBW vases, including goblets, pyxis lids, alabastra, a bowl, and a pyxis. They are all dated to EM I–IIA.

This fabric seems to represent a fairly consistent recipe for the DGBW vessels, which constitutes the second largest ware of the cemetery assemblage. Although the raw material is different from that seen in Fabric Group 4, the presence of volcanic rocks points to the southern coast as the source of the tempering material. It is difficult to identify the place of origin more precisely, but the frequency of the fabric and the fact that it was used for the second largest ware of the assemblage may point toward a broadly local production. The geology of the area is not incompatible since it provides both principal components of the clay recipe. The site lies in an area with Neogene deposits, which provide the necessary marly clay, and 2 km to the north there are flysch deposits containing rocks that were identified in this fabric as temper. On this basis, it can be suggested that this fabric group, and consequently the overwhelming majority of most DGBW vases, were broadly local products.

5.2.5.1. Petrographic Description

Microstructure

Rare meso and macro vugs, very few to rare planar voids, double to open spaced. Vugs and nonplastics are randomly oriented. Planar voids show preferred orientation parallel to vessel margins, but not as an indication of tempering with organic matter.

Groundmass

Homogeneous throughout the section. The color of the groundmass is gray to grayish brown in PPL (x50) and golden brown to dark grayish brown in XP. The micromass ranges from moderately active to optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 8:87:5
Coarse fraction: 1.2–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is double to open spaced; that of the fine fraction ranges from single to double spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Common
Monocrystalline quartz, equant, sa; size 0.4–0.1 mm long dimension.

Few
Chert, equant to slightly elongate, sa–sr, composed of microquartz; size: 1.2–0.2 mm long dimension. Quartzite, equant to elongate, sa; size: 0.8–0.24 mm long dimension.

Very Few
Micritic limestone, equant to elongate, sr–r; size: 0.8–0.1 mm long dimension.

Very Rare to Absent
Igneous rock fragments, mainly basalt, equant, sr, composed of plagioclase laths in a dark gray devitrified matrix; size: 1.2–0.8 mm long dimension. Biotite gneiss, equant, sr; size: 1.2–0.2 mm long dimension. Serpentinite, equant, sr, in a bright yellowish-brown color; size: 0.32–0.15 mm long dimension. Phyllite, fine-grained, in a dark brown color; size: 0.28 mm long dimension. Muscovite mica fragment, elongate, a; size: 0.3 mm long dimension. Plagioclase feldspar, equant, sa; size: 0.2 mm long dimension.

Fine Fraction

Dominant to Few
Monocrystalline quartz.

Common
Micritic limestone.

Few
Biotite mica laths.

Very Few
Quartzite.

Rare
Chert.

Very Rare to Absent
Serpentinite. Epidote.

Textural Concentration Features

There are frequent TCFs, they are homogeneous in composition and texture, equant to elongate, sr–r. Their color ranges from dark grayish brown to almost black and they are discordant with the micromass. They have a compact appearance. In some cases they contain small fragments of quartz; in others they are devoid of nonplastics; size: 1.1–<0.1 mm long dimension. They are clay pellets.

5.2.6. Fabric Group 6: Fine with Quartz and Micrite Fragments

Samples: LIV06 (**P319**), LIV09 (**P237**; Pl. 28:b), LIV22 (**P232**)

This small group is characterized by a fine dark brown–firing matrix, which is optically inactive. The nonplastic components consist of rounded micrite, small quartz, and rare metamorphic rock fragments. There are also dark brown- to almost black-firing clay pellets. The rock and mineral suite is not indicative of origin. The vessels represented are a R/BSW jug (**P319**), a DOLW jug (**P237**), and a FGW lid (**P232**), ranging in date from EM IIA to EM IIB–III.

5.2.6.1. Petrographic Description

MICROSTRUCTURE

Rare meso and macro vugs, open spaced, very few meso planar voids. Vugs and nonplastics are randomly oriented. The planar voids are oriented parallel to vessel margins, they are very fine, and they do not represent tempering with organic matter.

GROUNDMASS

Homogeneous throughout the section. The color of the groundmass is grayish brown in PPL (x50) and dark brown in XP. The micromass is optically inactive.

INCLUSIONS

$c{:}f{:}v_{10\mu m}$ = 20:75:5
Coarse fraction: 0.8–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine and the small-sized nonplastics are fairly evenly distributed in the clay matrix. The inclusions are poorly sorted and the grain-size distribution is almost unimodal. The size of the coarse fraction ranges from coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction ranges from close to open spaced; that of the fine fraction is double to open spaced. It is matrix supported (wackestone texture).

COARSE FRACTION

Frequent to Few
Monocrystalline quart, equant, sa; size: 0.24–0.1 mm long dimension.

Common
Micritic limestone, equant to slightly elongate, sa–sr; mode: 0.24 mm long dimension; size: 0.8–0.1 mm long dimension.

Very Few
Quartzite, equant, sa, composed of small fragments of quartz, occasionally with chert and micrite; size: 0.4–0.2 mm long dimension.

Rare
Microfossils (foraminifera), identified by their casts. Chert, equant to elongate, sa; size: 0.5–0.15 mm long dimension.

FINE FRACTION

Dominant
Monocrystalline quartz; mode: 0.08 mm long dimension.

Frequent
Micritic limestone.

Few
Biotite mica laths.

Rare
Quartzite/chert.

TEXTURAL CONCENTRATION FEATURES

There are common to few TCFs, equant to elongate, sa–sr. Their color ranges from dark grayish brown/black to reddish brown and they are discordant with the micromass. Some have a compact appearance and are devoid of nonplastics; others contain small fragments of quartz and biotite laths; size: 1.6–<0.1 mm long dimension. They are clay pellets.

5.2.7. Fabric Group 7: Red with Quartz Fragments

Samples: LIV37 (**P336**), LIV64 (**P302**; Pl. 28:c)

This small group is characterized by a red-firing fabric that is optically inactive. The nonplastic components consist of small quartz fragments evenly distributed in the clay matrix. There are also rare sandstone and chert fragments. The red matrix points toward an alluvial origin for the raw material. The fabric does not contain anything particularly diagnostic in terms of origin, but the mineralogical composition is compatible with the geology of the area. The vessels represented are a DOLW jug/jar/pyxis dated to EM I–IIA (**P302**) and a WODW cup dated to EM III (**P336**).

5.2.7.1. Petrographic Description

MICROSTRUCTURE

Very few meso and macro vugs, open spaced. Vugs and nonplastics are randomly oriented.

GROUNDMASS

Homogeneous throughout the section. The color of the groundmass is reddish brown in PPL (x50) and dark reddish brown in XP. The micromass is optically inactive.

INCLUSIONS

$c{:}f{:}v_{10\mu m}$ = 25:72:3
Coarse fraction: 1.6–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is very fine and the small-sized nonplastics are evenly distributed in the clay matrix. The inclusions are poorly sorted and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is close to double spaced; that of the fine fraction is single to double spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Dominant

Monocrystalline quartz, equant, sa; mode: 0.16 mm long dimension.

Rare

Sandstone, equant, sr, composed of quartz fragments in a clayey matrix; size: 1.6–0.3 mm long dimension. Quartzite, equant to elongate; size: 0.64–0.2 mm long dimension.

Very Rare

Biotite, slightly elongate; size: 0.3 mm long dimension.

Fine Fraction

Frequent

Monocrystalline quartz.

Few

Biotite mica laths.

Rare

Chert.

Textural Concentration Features

There are common TCFs, equant to elongate, sa to sr–r. Their color ranges from dark grayish brown/black to reddish brown and they are discordant with the micromass. The majority consists of fine, short striations in a dark brown color, running parallel to vessel margins. Some of the larger fragments have a compact appearance and are devoid of nonplastics; others contain small fragments of quartz and biotite laths; size: 0.8–<0.1 mm long dimension. They are clay pellets.

5.2.8. Fabric Group 8: Red with Chert Fragments

Samples: LIV29 (**P227**; Pl. 28:d), LIV51 (**P107**), LIV63 (**P81**)

This group is characterized by a yellowish-brown matrix that is optically active, indicating a low firing temperature. The nonplastic components consist primarily of quartz, common chert fragments, and rare phyllite and quartzite. There are also a few clay pellets. This composition reflects an alluvial origin for the raw material, as was the case for Fabric Group 7. The frequency of the chert and the lower firing temperature, however, differentiates this fabric from the previous. The vessels represented are a lid (**P107**) and a pyxis (**P81**) of DGBW dated to the EM I period, and an EM IIA bowl in RBW (**P227**). As with Fabric Group 7, it is difficult to identify provenance; due to typological parallels from Hagia Photia and Zakros, it has been suggested that it was imported to Livari (see discussion about teapot **P38** in Ch. 4, p. 32).

5.2.8.1. Petrographic Description

Microstructure

Very few meso and macro vugs, very rare planar voids, open spaced. Vugs and nonplastics are randomly oriented. The planar voids are very fine and occasionally they bear indications of incompletely burned-out organics. Their quantity is very small, however, and the purposeful tempering of the clay mix with organic matter cannot be substantiated.

Groundmass

Homogeneous throughout the section. The margins are slightly more red than the core. The color of the groundmass is reddish brown in PPL (x50) and brown to reddish brown in XP. The micromass is optically active.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 15:80:5
Coarse fraction: 1.0–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from very coarse to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is close to double spaced; that of the fine fraction is double to open spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Common

Monocrystalline quartz, equant, sa; size: 0.8–0.1 mm long dimension.

Few

Chert fragments, equant to elongate, composed of microquartz; size: 1.0–0.2 mm long dimension.

Rare

Quartzite, equant to slightly elongate, sa–sr; size: 1.0–0.4 mm long dimension.

Very Rare

Phyllite, fine grained in a golden brown to dark brown color; size: 0.8–0.2 mm long dimension.

Fine Fraction

Few

Monocrystalline quartz.

Very Few

Biotite mica laths.

Rare

Chert fragments.

Textural Concentration Features

There are very few TCFs, equant to elongate, sa–sr. Their color ranges from dark reddish brown to dark brown and they are discordant with the micromass. They are either devoid of nonplastics or they contain rare fragments of quartz; size: 0.7–<0.1mm long dimension. They are clay pellets.

5.2.9. Fabric Group 9: Grog Tempered

Samples: LIV30, LIV34 (Pl. 28:e)

This is a semicoarse fabric characterized by a reddish brown–firing matrix that is optically moderately active. The main nonplastic component are angular grog fragments that were added to the clay paste as temper. The secondary nonplastics are mainly small quartz and rare micrite and chert fragments. The vessels represented are a closed vase (jug or pyxis) and an open vase (bowl or chalice) of DOLW, both dated to EM I–IIA. A similar fabric has been encountered in significant quantities in the EM I assemblage of Kephala Petras (Nodarou 2012; Papadatos et al. forthcoming), and considering its rarity at Livari, it seems highly likely that these vessels are imports from the northern coast.

5.2.9.1. Petrographic Description

Microstructure

Rare meso and macro vugs, open spaced. Vugs and nonplastics are randomly oriented.

Groundmass

Homogeneous throughout the section. The color of the groundmass is reddish brown in PPL (x50) and brown to golden brown in XP. The micromass is optically inactive.

Inclusions

$c{:}f{:}v_{10\mu m}$ = 20:78:2
Coarse fraction: 2.4–0.1 mm long dimension
Fine fraction: <0.1 mm long dimension

The matrix is fine, the inclusions are poorly sorted, and the grain-size distribution is bimodal. The size of the coarse fraction ranges from granules to very fine sand. The fine fraction is of very fine sand and below. The packing of the coarse fraction is single to double spaced; that of the fine fraction is open spaced. It is matrix supported (wackestone texture).

Coarse Fraction

Dominant

Grog fragments, equant to elongate, a–sa. Their color is dark reddish brown to dark brown and in most cases they contain inclusions of quartz and rarely chert. Some of the darker fragments have a red rim due to the firing temperature; size: 2.4–0.1 mm long dimension.

Frequent

Monocrystalline quartz, equant, sa; size: 0.8–0.1 mm long dimension.

Very Few

Chert, equant, composed of microquartz; size: 0.2–0.1 mm long dimension. Micritic limestone, equant, sr; mode: 0.12 mm long dimension.

Rare

Quartzite/polycrystalline quartz, elongate, composed of smaller and larger quartz fragments; size: 2.0–0.2 mm long dimension.

Fine Fraction

Frequent

Monocrystalline quartz.

Common

Biotite mica laths.

Rare

Quartzite/polycrystalline quartz. Chert. Micritic limestone.

Very Rare

White mica laths.

Textural Concentration Features

There are few TCFs, equant, sa–sr. Their color ranges from dark reddish brown to dark brown and they are discordant with the micromass. Their color and texture is very similar to that of the grog fragments, but they are amorphous and rounded whereas the grog fragments are angular. They must be clay pellets but there is also possibility for some fragments to be grog; mode: 0.2 mm long dimension.

5.2.10. Loners

Sample: LIV66 (**P276**; Pl. 28:f)

This is also a grog-tempered fabric, but it could not be included in Fabric Group 9 because it is coarser and the quantity of grog is significantly lower. It has a reddish brown-firing matrix with a grayish-brown core that is optically moderately active. The other nonplastic inclusions consist of frequent small quartz fragments evenly distributed in the clay matrix, and this is an important textural difference with the previous grog-tempered samples. There are also rare metamorphics, calcite, and sandstone. The vessel represented is an EM IIA pedestal bowl of DOLW. The raw material, most likely of alluvial origin, as well as the recipe of manufacture are compatible with a provenance on the northern coast.

Sample: LIV17 (**P229**; Pl. 29:a)

This is a very fine fabric with a gray-firing matrix that is optically inactive. Almost devoid of nonplastics, it contains a few fragments of quartz and rare metamorphic particles (phyllite and quartzite). This composition is not indicative of origin. The vessel represented is a FGW bowl dated to EM IIA.

Sample: LIV39 (**P309**; Pl. 29:b)

This is a fine orangish-brown-firing fabric almost devoid of nonplastics. The matrix is optically slightly inactive and the rare nonplastic inclusions consist of small quartz fragments, biotite mica laths, and very rare phyllite. The vessel represented is a VW goblet of EM IIB date.

Sample: LIV40 (not cataloged; Pl. 29:c)

This is a very fine fabric almost devoid of nonplastics. It is characterized by an orangish-brown-firing matrix that is optically inactive and frequent reddish-brown clay pellets. The very rare nonplastics consist of small quartz fragments and biotite mica laths. The vessel represented is an EM III cup in WOD. It is most likely an import from North-Central Crete.

Sample: LIV74 (**P289**; Pl. 29:d)

This is a fine fabric with a brown-firing and optically inactive matrix. The nonplastic inclusions consist of small quartz fragments and biotite mica laths. The vessel represented is an EM I lid in DOLW. No provenance can be assigned.

Sample: LIV19 (**P209**; Pl. 29:e)

This is a fine fabric with a reddish-brown-firing matrix that is optically inactive. The nonplastic inclusions consist of micritic limestone, small quartz fragments, biotite mica laths, and very rare phyllite. There are also common clay pellets, ranging in color from dark reddish brown to black, and occasional clay striations. The vessel represented is an EM I pyxis in RSBW. No provenance can be assigned.

Sample: LIV54 (**P214**; Pl. 29:f)

This fabric is characterized by a fine red-firing clay matrix, which is optically moderately active. The nonplastic inclusions are rather small and consist mainly of quartz fragments and few metamorphic rock fragments (phyllite and quartzite). There are also reddish brown-firing clay pellets, concordant with the micromass. The raw material seems to be derived from an alluvial deposit. The vessel represented is an EM I–IIA pyxis in RSBW.

Sample: LIV55 (**P230**; Pl. 30:a)

This is a very fine calcareous fabric. The matrix is yellowish brown and optically active. The small nonplastic inclusions consist of micritic limestone and quartz and few biotite and white mica laths. There are also rare fossils and reddish-brown clay pellets, the latter fairly discordant with the micromass. The vessel represented is an EM IIA pyxis in FGW. The raw material used was most likely derived from a Neogene marl, but no further provenance assignment can be made.

5.2.11. Loners Connected with the South Coast

Sample: LIV25 (**P205**; Pl. 30:b)

This is a semicoarse fabric characterized by a reddish brown-firing matrix, which is optically inactive and occasionally displays a greenish tinge indicative of a high firing temperature. The nonplastic inclusions consist of frequent fine-grained siltstone fragments in a characteristic grayish-black color, along with smaller amounts of quartz, sandstone, and quartzite-schist. This is a well-known fabric in Minoan pottery, and it is encountered in many sites and over a long period of time, from EM to LM IIIC. It is characteristic of the southern coast, but its precise origin remains unknown. The vessel represented is an EM I chalice of RSBW.

Sample: LIV76 (**P206**; Pl 30:c)

This is a semicoarse fabric with a brown-firing and optically inactive matrix. The main nonplastic components are common subangular fragments of serpentinite added as temper to the clay mix. The secondary nonplastics are small-sized and consist of quartz fragments densely packed in the matrix and biotite mica laths. This composition is characteristic of the southern coast, especially the flysch deposits of the area of Myrtos westward. Serpentinite-tempered fabrics are common in Makrygialos in the Neopalatial period, and when encountered elsewhere they are considered imports from the broader area. It seems possible, therefore, that this recipe began much earlier in the Prepalatial period. The vessel represented is an EM IIB spouted bowl of RSBW.

Sample: LIV33 (**P296**; Pl. 30:d)

This is a semicoarse fabric characterized by a reddish-brown- to brown-firing matrix, which is optically inactive. The nonplastic inclusions consist of brown argillaceous rock fragments (possibly fine-grained siltstones) fairly concordant with the micromass, and few fragments of micritic limestone. The fine fraction is composed of small quartz fragments evenly distributed in the clay matrix. Like the above fabrics, it can be connected with the sediments of the southern coast, but it is difficult to identify a more precise provenance. The vessel represented is a DOLW closed shape (jug, jar, or pyxis) of EM I–IIA date.

Sample: LIV27 (**P307**; Pl. 30:e)

This is a very fine fabric with a red-firing matrix, which is optically inactive. There are rare nonplastic inclusions consisting of small quartz fragments and biotite mica laths. There are also very rare fragments of fine-grained sandstone and reddish-brown clay pellets. For possible provenance see the discussion of the previous sample. The vessel represented is a VW goblet of EM IIB date.

Sample: LIV68 (**P288**; Pl. 30:f)

This fabric is characterized by a fine red-firing matrix, which is optically inactive. There are few nonplastic inclusions, mainly sandstones and small quartz fragments, as well as biotite mica laths. For possible provenance see the discussion of the previous sample. The vessel represented is an EM I–IIA lid of DOLW.

5.3. Discussion: Issues of Technology and Provenance

Before proceeding with the discussion of the analytical data, it should be emphasized that because of the funerary and ritual character of the context, the ceramic assemblage from the Livari cemetery cannot be regarded as representative of the range of pottery used in the everyday activities of the local population. For a more comprehensive approach we would need the study and analysis of the pottery that was used in the nearby, but still unexcavated, settlement on Kastrokephalaki hill. Nevertheless, some interesting points can be made, at least for the EM I–IIA period, to which the overwhelming majority of the pottery is dated.

5.3.1. EM I–IIA Period

The statistical analysis of the pottery from the cemetery showed that the assemblage is dominated by two major wares representing different technologies of manufacture and serving different functions:

(a) DGBW, which was used mainly for drinking, serving, and small-scale storage, representing 40% of the assemblage in terms of quantity and 25% in terms of weight (Tables 25, 26).

(b) DOLW, which was used mainly for pouring and small-scale storage, representing 34% of the assemblage in terms of quantity and 47% in terms of weight (Tables 25, 26).

Leaving aside vessels for small-scale storage, particularly the pyxides, which are not a frequent find in domestic contexts, the rest of the drinking, serving, and pouring shapes found in the cemetery probably represent a large part of the pottery also used in the corresponding settlement. As seen in other EM I–IIA domestic contexts excavated elsewhere in Crete, such as EM I Kephala Petras (Papadatos 2008; Papadatos et al. forthcoming), Kalo Chorio (Haggis 1996), Knossos (Wilson 1985, 2007; Wilson and Day 2000; Hood and Cadogan 2011), Phaistos and Hagia Triada (Todaro 2001, 2003, 2005), and Debla (Warren, Tzedhakis, and Grieg 1974), the Livari cemetery comprises wares, shapes, and functions that are found in settlements. The only important difference is that it lacks cooking and large-scale storage vases, which are typical in any Prepalatial settlement.

The predominance of these two wares, and the fact that they served not only ritual and funerary but also domestic functions, may suggest that at least a large part of them could have been produced locally to serve both funerary purposes and everyday activities. Macroscopic examination and petrographic analysis were able to identify two major fabric groups that were used for the majority of these vases and could be local on the basis of their mineralogical composition and relative frequency (Table 38). The first is the fine gray calcareous fabric (Fabric Group 5) used for the production of almost all (9 out of 11) of the DGBW vases, and the second is the fabric with clay pellets (Fabric Group 4) used for the majority of the DOLW vases (9 out of 21). There is a very strong correlation between the above wares and the fabrics since Fabric Group 5 was used almost exclusively for DGBW vases (with the exception of a DOLW vase) and Fabric Group 4 was used only for a few vases of VW and WODW, which are later in date. For reasons explained above, it is not possible to infer about local workshop(s) or identify local potting traditions without studying and analyzing the pottery of the corresponding settlement. Nevertheless, the typological and technological features of these broadly local products shows that they had close connections and followed technological traditions and stylistic trends well established in other areas of Crete.

Beyond these probably local or broadly local fabrics, a significant part of the pottery found in the cemetery seems to have been imported from elsewhere. The combination of typology and petrographic analysis showed a number of different sources for the imported pottery. A large number of vases have parallels from the Mesara and the Asterousia, and petrographic analysis indeed showed that several fabrics can be related to the metamorphic outcrops and flysch mélange that occur in many areas across the South Cretan coast. It is difficult to identify more precisely the place of origin, and it is almost definite that more than one center of production is represented. This is reinforced by the presence of several loners. A second source of imported pottery is the Mirabello region, particularly the area around Priniatikos Pyrgos, Gournia, and Kalo Chorio. This is supported not only by the typological parallels of some vases, but also by the identification of a petrographic fabric group with granodiorite inclusions (Petrographic Fabric Group 3), characteristic of the geology of the northern part of the Hierapetra Isthmus (Dierckx and Tsikouras 2007). Finally, a third large group of imports comprises the vases of DBW, which were all probably imported to Livari. The mineralogical composition (calcite) of these vases is not indicative of a specific area, but the typological parallels and the technological choice of tempering with calcite (and occasionally with grog) points towards the North Cretan coast. The presence of fabric subgroups may also suggest more than one source of origin.

Petrographic analysis also strengthened the idea that the rare wares of the assemblage, namely RSBW and FGW, which do not comprise more than 1% of the total (Tables 25, 26), were probably imported. In RSBW all four samples belong to loners, and in FGW one sample belongs to the rare, probably imported Fabric Group 6 and two samples are loners (Table 38). On the other hand, DBW, although a relatively frequent ware (18%–19% of the total assemblage) was made of the same fabric group (Fabric Group 1), which is considered imported to Livari. When considering the two major wares, petrographic analysis showed interesting patterns. DGBW was largely made from the same local fabric (Fabric Group 5), with the exception of two samples in a rare fabric (Fabric Group 8), the origin of which is unknown. In DOLW the picture is different. Although half of the samples (10 out of 21) belong to local fabric groups (Fabric Groups 4 and 5), the rest belong to rare fabrics and loners, some of which were clearly imported. According to the above evidence, we can suggest that the people of Livari imported a large part of the pottery used in the cemetery from other Cretan areas. These imports comprise all the DBW, RSBW, and FGW vases and some of the DOLW vases. Although it is difficult to make quantifications, it seems certain that the amount of imported pottery used in the cemetery was more than 20% of the total.

5.3.2. EM IIB–III Period

The small amount of the EM IIB–III pottery, and, consequently, the small number of samples, do not permit secure conclusions about the character of the period or about continuities or discontinuities from the preceding EM I–IIA period. A few EM IIB–III samples belong to the broadly local Fabric Group 4. This may suggest some sort of continuity in terms of recipes, although the surface treatment of the vases has been completely changed.

On the other hand, it is interesting to note that all samples of R/BSW, which is the main EM IIB–III ware, belong to imported fabric groups. Only one of the four WODW samples and two of the five VW samples belong to local fabric groups (Fabric Groups 4c and 4a, respectively). On the basis of the above, it seems clear that Livari continued to import pottery in EM IIB–III from the same areas as before, namely the Mesara, the southern coast, and the Mirabello region.

6

Prepalatial Pottery: Discussion and Interpretation

by

Yiannis Papadatos

6.1. Chronology

The first important issue to be addressed is the relative chronology of the contexts of the Prepalatial pottery, which will allow the reconstruction of the history of use of the cemetery in the Prepalatial period.

6.1.1. Tholos Tomb

6.1.1.1. Pre-Tomb Phase

The earliest pottery from the interior of the tholos consists of a few sherds of FN date found mostly in the subfill (Str. IV), which was between the bedrock and the burial stratum (Str. III). Apart from two cataloged sherds (**P2**, **P3**; Table 1), a rather significant percentage (9%) of the pottery from the subfill can be dated to this period (Table 11), suggesting some sort of human presence and/or activity in the area prior the erection of the tholos. The fragmentary state and the eroded appearance of all the FN sherds indicate that they were lying in the area long before the erection of the tholos, and they ended up inside the tholos together with the soil of the subfill. It should be noted, however, that the majority of the dateable pottery from Stratum IV is dated to EM I–IIA (27% of the corpus). This evidence suggests that Stratum IV was not an undisturbed deposit that already existed in the area but was formed immediately before the erection of the tholos. It probably represents a deliberate effort to fill the irregularities of the bedrock and level the area prior the erection of the tholos and the placement of the first burials. Thus, it is the EM I–IIA rather than the FN pottery from the subfill that constitutes the terminus post quem for the erection of the tholos. The presence of FN sherds in the cemetery is not a surprise since pottery of the same phase has been found in the survey of the area, and an occupation site of the same date has been identified on the steep hill of Katharades, high above the Livari plain (Schlager et al. 2001, 192–201).

6.1.1.2. The Earliest Phase of Use

Almost half of the pottery from the burial stratum (Str. III) is dated to EM I–IIA, while EM IIB–III pottery comprises only 2%–3% of the total (Table 5). The picture provided by the cataloged sherds reinforces this (Table 6): 60% of the vases are dated to EM I, 26% to EM I–IIA or EM IIA, and only 11% to EM IIB and/or EM III.

On the basis of the above, the first period of use of the tholos tomb was the EM I period. It is of importance, however, to establish a more precise date for the earliest pottery of the assemblage, particularly since recent studies have shown the possibility of dividing the EM I period into an early (EM IA) and a late (EM IB) phase (Alexiou and Warren 2004, 117–118, 194; Todaro 2005, 34–38, 44; Betancourt 2008, 44; Papadatos 2008; Hood and Cadogan 2011, 282; Papadatos et al. forthcoming; contra Wilson and Day 2000, 50–56). This is not an easy task for the Livari pottery due to the lack of stratification, but parallels from other sites may provide adequate evidence for relative chronology. These parallels can be classified into two main groups on the basis of their typology and origin.

The first comprises the vases of DBW, which have close affinities to pottery from Crete and the Cyclades. In Crete, similar pottery in terms of shapes, fabric, and surface treatment has been found in many sites of the northern coast, namely Hagia Photia (Day, Wilson, and Kiriatzi 1998; Davaras and Betancourt 2004; 2012, 96–104), Kephala Petras (Tsipopoulou 2010), Pyrgos (Xanthoudides 1918), Gournes (Galanaki 2006), Kyparissi (Alexiou 1951), and Poros Katsambas (Wilson, Day, and Dimopoulou-Rethemiotaki 2004, 2008); with the exception of the Poros Katsambas, which is a coastal settlement, the sites are of funerary character. In the Cyclades this type of pottery, known as pottery of the so-called Kampos Group, has been found at many sites, including Markiani on Amorgos (Karantzali 2006), Agrilia on Ano Kouphonisi (Zapheiropoulou 1984, 2008), Hagioi Anargyroi (Doumas 1977) and Tsikniades on Naxos (Philaniotou 2008), and Kampos on Paros (Varoucha 1925–1926). Livari has not produced the entire range of "Kampos Group" shapes since it lacks the conical pyxis, the brazier, the frying pan, and the deep bowl with tubular handles. Nevertheless, vases of DBW constitute a significant part of the tholos ceramic assemblage (13% in quantity and 17% in weight; Tables 25, 26), and they belong to a large number of shapes: chalice; cup; spherical pyxis; spool-type pyxis; alabastron; and spouted bowl. It should be noted that no site, either on Crete or in the Cyclades, has provided clear stratigraphic evidence for the relative date of this type of pottery, but it is traditionally placed in EBA I–II. In the Cyclades it is largely accepted that the "Kampos Group" pottery comprises ceramic features of both EC I and EC II; for this reason it has been argued that it is dated either to the EC I/II transition or the very beginning of the EC II period (Doumas 1977, 24–25; Zapheiropoulou 1984; 2008, 194; Warren and Hankey 1989, 22–23; Manning 1995, 45–48; Rambach 2000, 229–247). In Crete, this type of pottery is found together with Cretan material dated to late EM I (Warren and Hankey 1989, 14–15; Wilson, Day, and Dimipoulou-Rethemiotaki 2004, 67–69), although the Pyrgos and Hagia Photia assemblages also have limited quantities of EM IIA pottery (Davaras and Betancourt 2004, 232; 2012, 109).

The second ceramic group comprises vases of typical EM I wares, namely the DGBW and the DOLW, which find their closest parallels in funerary and domestic assemblages from the Mesara and the Asterousia. The parallels from Lebena Tholos II are the most useful, because at this site Stylianos Alexiou and Peter Warren (2004, 115–122) were able to distinguish nine different stages, of which three (F, E, and Div) are dated to the earlier part of EM I, three (Diii, Dii, Di) to the later and latest EM I, and three (C, B, A) to EM II. Livari lacks typical vases of the three earlier stages, such as the cup with rounded base and horns on the rim (Alexiou and Warren 2004, figs. 18:6, 21:69, 71), the jug with rounded base (Alexiou and Warren 2004, fig. 21:94), the collar-neck pyxides with triangular-shaped lugs (Alexiou and Warren 2004, fig. 24:230–236), the pyxis with tall horned lugs (Alexiou and Warren 2004, fig. 26:298), and the tankard with rounded base and high collar neck (Alexiou and Warren 2004, figs. 30:437, 31:500). Instead, there are parallels with forms that occur in the stages of the late and latest EM I period, such as the ring-footed bowl (Alexiou and Warren 2004, fig. 18:18, 19), tubular neck pyxis (Alexiou and Warren 2004, fig. 25:255), and the three-footed flanged pyxis (Alexiou and Warren 2004, figs. 25:278; 26:295). A date of the earliest pottery from Livari toward the end of EM I is reinforced by parallels and comparisons with other sites. Livari lacks shapes that characterize the EM IA assemblage of Kephala Petras, such as the broad-waisted chalice, the low carinated cup, and the tankard (Papadatos 2008, figs. 15.5:a, b, 15.6:b; 2012, fig. 2), and the FN/EM IA assemblage of Partira, such as the cup with rounded base and horns on the rim, the collar-neck pyxides with triangular-shaped lug, and the tankard with rounded base and high collar neck (Mortzos 1972, pl. 40:9192, 9198, 9200, 9206, 9210). Furthermore, several ceramic features and forms seen in Livari are found in assemblages of EM IB. For example, the narrow stemmed chalices, occasionally with swollen waists, can also be found in Kalo Chorio (Haggis 1996, figs. 23, 26, 29, 31, 32), and the ring-footed bowls in Hagia Triada (Todaro 2001, figs. 13, 14). Also, the jug with flat base and beak-shaped spout, the ring-footed bowl, and the flanged pyxis find good parallels at Hagia Photia dated to the EM I/II transition (Davaras and Betancourt 2012, fig. 17:1479, pls. 59:1464, 1465, 60:1472, 62:1502, 63:1504, 1505).

From the above, it seems safe to conclude that the earliest period of use of the Livari tholos is dated to an advanced stage of EM I, which, on the basis of recent studies (Alexiou and Warren 2004, 117–118, 194; Todaro 2005, 34–38, 44; Papadatos 2008; Hood and Cadogan 2011, 282; Papadatos et al. forthcoming), we prefer to call EM IB.

6.1.1.3. Subsequent Phases of Use

From EM IB until EM IIB, the use of the tomb seems to be without identifiable gaps and disruption. It should be noted, however, that there is a significant decrease in the quantity of the EM IIA and EM IIB pottery, as indicated by both the sherd material and the cataloged pottery of the burial stratum (Str. III). Concerning sherds, it is not possible to distinguish between EM I and EM IIA, but the material of the later Prepalatial period (EM IIB–III) is not more than 2%–3% of the total, both in terms of quantity and weight (Table 5). The picture from the cataloged pottery reinforces this picture. In contrast to EM I, which constitutes the overwhelming majority (61%), later periods are represented by significantly smaller numbers (Table 6). Early Minoan I–IIA vases represent 12% of the total, EM IIA vases 14%, EM IIB 7%, and EM IIB–III and EM III only 2% each.

Recorded sherds or vases that can be dated with certainty to EM IIA include two specimens of FGW (**P229**, **P232**), three of DGBW and RBW with incised decoration imitating vases of the FGW (**P37**, **P115**, **P226**), and three of DOLW (**P248**, **P259**, **P286**) with shapes and decoration that can be dated to the early EM IIA period. The best parallels are provided by funerary contexts of the Mesara and the Asterousia. It should be noted that from the eight EM IIA specimens only two (**P259**, **P286**) belong to intact or nearly intact examples.

A similar picture can be seen in the case of the EM IIB period. Only five recorded sherds (**P305**–**P308**, **P312**) can be dated with certainty to the EM IIB period, all of which belong to VW. Also, from the five EM IIB cataloged pieces, only two belong to (almost) intact vases, cup **P305** and teapot **P312**.

6.1.1.4. The Last Phase of Use

The end of the use of the tomb is not very clear. There is no sherd or vase from the burial stratum that can be dated later than EM III, suggesting that this is the terminus ante quem for the abandonment of the tomb. It is not certain, however, whether or not the tomb was actually used until EM III for two reasons. First, there is only one recorded sherd that can be dated with certainty to EM III; this is a very fragmented spouted bowl (**P325**). Second, the amount of the late Prepalatial pottery (EM IIB–III) is very small: 23 sherds representing 2% of the total (Table 5). Considering the possibility that some of them may be dated to EM IIB rather than EM III, the quantity of the purely EM III pottery is probably even smaller. Thus, it is doubtful whether the small quantity of pure EM III pottery and the fragmentary condition of the single cataloged vase can support the use of the tholos until EM III.

An important parameter that should also be considered is the erosion of the upper layers of the burial stratum that might have originally existed. Indeed, in the northern half of the tomb the burial stratum was directly beneath the surface topsoil, without the intervention of a destruction layer. This is because the northeastern part of the tholos wall has been entirely destroyed, causing the destruction layer and perhaps part of the burial deposits in the northern half of the tomb to slide outside it and be lost forever. In contrast, in the southern half of the tomb a destruction layer with stones fallen from the tholos walls (Str. II) intervened between the burial stratum and the topsoil. This layer sealed the burial stratum, thus preventing its erosion. It would be interesting, therefore, to compare the picture of the northern half (Sectors A and C) and the southern half (Sectors B and D) of the tomb. Both areas contain a comparable quantity of EM I–IIA and EM IIB–III pottery, in both cataloged (Tables 8, 10) and uncataloged material (Tables 7, 9).

On the basis of the above evidence it seems safe to suggest that the amount of the burial stratum that may have been lost due to erosion is rather limited and confined to the northern half of the tomb. Moreover, there is no evidence to imply that the eroded northern part of the burial stratum had pottery of a different date. To conclude, we believe that the tholos tomb continued to be used at least until EM IIB, while in EM III it either went out of use or was used infrequently.

6.1.1.5. The Destruction of the Tholos

The tomb lacks any Protopalatial pottery, clearly suggesting that it was not used during this period. Evidence concerning the collapse of the tholos comes from the pottery of Stratum II, the destruction layer that contained stones fallen from the tholos walls. The stratum contains a large quantity of LM IA pottery, including two large cooking jars (**P362**, **P363**), fragments of which were found among and above the fallen stones. These LM IA jars provide the terminus ante quem for the destruction of the tholos, which occurred sometime between EM III and LM IA. It would be reasonable to assume that the destruction may be associated with the intense seismic activity that characterized the end of the Protopalatial and the beginning of the Neopalatial period, but there is no evidence to support this hypothesis.

6.1.2. Burial Rock Shelter

The ceramic assemblage from the rock shelter belongs to the same phases as the tholos, EM IB, EM IIA, EM IIB, and EM III. In contrast to the tholos, no FN pottery was found inside the rock shelter. Although we cannot exclude the use of the rock shelter before the first burials, it seems clear that it was not a place of intensive and continuous human activity before EM IB.

As with the tholos, the earliest pottery from the rock shelter that can be associated with burial activity is dated to an advanced stage of EM I, the EM IB phase. The EM I assemblage includes all the shapes and features found in the tholos and also lacks typical features of the EM IA phase, which have been discussed above. The two main groups of EM IB ceramic material identified in the tholos are also represented in the rock shelter. The first group—vases of DBW—comprises all the shapes found in the tholos and also a small number of bottles, a shape well known in North Crete and the Cyclades. The other ceramic group, comprising vases of DGBW and DOLW, is also represented in the rock shelter. These vases have close parallels from other assemblages with EM IB material, such as Lebena, Kalo Chorio, and Hagia Triada.

In general, the earliest pottery of the rock shelter shows no differences with the earliest pottery from the tholos. Shapes, decoration, surface treatment, and typology are identical, suggesting that the funerary use of both areas commenced in the same phase, in EM IB, if not simultaneously. Differences exist only in the quantity and the percentage of the various categories of pottery, as will be presented below in the discussion of pottery function. It seems clear that EM I is the main period of use in both the tholos and the rock shelter. The overwhelming majority (64%) of the cataloged pottery (Table 17) belongs to the EM I period, while the uncataloged pottery dated to EM I–IIA comprises as much as 36% (in quantity) and 50% (in weight) (Table 18).

The rock shelter continued to be used in EM IIB and EM III. The quantity and percentage of the EM IIB–III pottery is rather small (3% in quantity and 9% in weight; Table 18), but it is significantly larger than that of the tholos, suggesting a slightly different history of use in the later Prepalatial period. This is reinforced by the cataloged pottery of EM III (Table 17). In contrast to the tholos, which produced almost no EM III cataloged sherds, the rock shelter contained at least 6% of EM III and 8% of EM IIB–III pottery. Furthermore, the EM IIB–III pottery includes several intact or almost intact vases, which cannot be considered stray finds but were deposited originally inside the rock shelter as part of funerary rituals. These EM III vases constitute the latest Prepalatial pottery found in the rock shelter. The lack of any MM IA or Protopalatial sherds clearly suggests that it went out of use in EM III.

To conclude, it seems that in contrast to the tholos, which ceased to be used at the end of EM IIB or soon after, the rock shelter continued through EM III. The sharp difference in the quantity of the EM I–IIA and EM IIB–III material (Tables 17, 18), however, clearly suggests that in the later phases the use was less intensive.

6.1.3. Open Areas

The small group of vases in Open Area 1, just outside the entrance of the tomb, consists of vases that belong to EM I–EM IIA (Table 1). A more mixed picture is seen in the large deposit in Open Area 2 (Table 22); it comprises vases dated to all phases of the cemetery in percentages that are comparable to those of the rock shelter. The majority of the pottery belongs to the EM I–IIA period (90%), while only 6% is dated to EM IIB–III.

The earliest pottery from Open Area 2 is similar to the earliest pottery from the tholos and the rock shelter and is dated to the EM IB period. It comprises vases of DBW in shapes that also occur in the other two assemblages, including chalices, bowls, pyxides, and a bottle. Furthermore, it includes vases of DGBW and DOLW with typical EM IB features, such as the narrow stemmed chalices and the spherical and collar neck pyxides. It should be noted, however, that although the EM IB pottery constitutes a significant part of the assemblage (31%; Table 22), the percentage is smaller than in the tholos and the rock shelter where EM I pottery is more than 60%.

On the other hand, the relatively high percentage of the EM IIA pottery (24%; Table 22), much higher than that of the tholos and the rock shelter, is due to the presence of many DOLW pieces. The assemblage lacks the typical EM I jugs found in Lebena and other funerary assemblages of the Mesara-Asterousia, which are characterized by a round base, spherical body, and simple linear decoration (Alexiou and Warren 2004, figs. 21:94, 96, 22:98, 105, 107, 114, 115). Instead, they have a flat base and an ovoid or depressed body, and their decoration includes hatched or cross-hatched triangles and apices, which characterize EM IIA. The second shape of clearly EM IIA dating is the DGBW goblet, which is also found in relatively large numbers in comparison to the tholos and the rock shelter.

There are also fragments of a few EM IIB–III vases, which comprise 6% of the cataloged pottery and 1% of the uncataloged sherds (Tables 22, 23). Most are very fragmented and could be stray finds not related to the deposit. The only prominent exceptions are the EM III pedestal bowl **P331** and bridge spouted jar **P327**, which, although fragmentary, are too large to be considered stray finds.

The three fragmented LM IA cups (**P348–P350**) found in the upper parts of the deposit also come from a level that shows some kind of later disturbance. It should not be forgotten that the Neopalatial house tomb is only 5 m to the south. Also very close to Open Area 2, in the southwestern part of the tholos, fragments of two Neopalatial cooking jars were found (**P362**, **P363**). These jars, together with cups **P348–P350**, may be the remains of human activity that is contemporary to and associated with the neighboring Neopalatial house tomb.

To conclude, the above evidence could indicate that the large deposit in Open Area 2 was formed in EM I–IIA, but it remained unsealed and susceptible to later disturbance until at least the Neopalatial period when the cemetery was revisited and reused.

6.2. Usage

The following discussion refers only to those sherds and vases that provided adequate evidence for their function. As expected, they include only the cataloged pieces, namely diagnostic sherds and vases with intact profiles. There are two problems that should be mentioned. First, a large portion of the ceramic assemblage in each of the three Prepalatial contexts (the tholos, the rock shelter, and the Open Areas) contains undiagnostic sherds, which cannot be used in the following discussion.

Second, although the cemetery was not subject to any robbing, looting, or illicit excavations, the deposits of the tholos and the open areas were subject to various degrees of erosion, while the upper layers of the rock shelter deposit suffered later disturbance dated to Hellenistic/Roman and modern times. It should be noted, however, that erosion and later disturbance were confined to the uppermost layers of these deposits, without significantly affecting their contents. Thus, we believe that it is possible to infer secure and valid conclusions about the usage of pottery and the character of each context on the basis of the function of the corresponding ceramic assemblage.

To facilitate the study of pottery usage in the cemetery, the shapes were classified into four major functional groups following Branigan and Campell-Green's work on Moni Odigitria (Branigan and Campbell-Green 2010, 76–83): the first function group comprises drinking shapes, namely chalices, goblets, and cups; the second comprises shapes for pouring, such as spouted bowls, jugs, teapots, and spouted jars; the third group includes shapes for the serving and consumption of food, namely bowls and dishes; and the fourth includes vases for storage. Because the cemetery lacks any large pithoi, pithoid vases, or jars, the latter category includes only vases for small-scale storage, mostly pyxides, and also small jars, deep bowls, alabastra, and bottles.

In contrast to Moni Odigitria (Branigan and Campbell-Green 2010, 76–83) and many other funerary contexts of the Mesara-Asterousia, Livari did not produce any evidence for communal vessels (i.e., vases of large size), symbolic vessels (i.e., miniature vases, multiple vases, kernoi, anthropomorphic vessels, or zoomorphic vases), or burial containers (i.e., larnakes and pithoi). The absence of communal and symbolic vessels constitutes a significant deviation from normal practices seen in other tholos cemeteries. The lack of burial containers, on the other hand, is not peculiar since they are rather rare in the Mesara and the Asterousia and appear mainly in the later Prepalatial period (EM III/MM IA), which is a period of decline in the use of the Livari cemetery. Also, the cemetery produced only a single, rather fragmentary, example of a Prepalatial cooking vase (**P4**), suggesting that cooking activities were not taking place in the cemetery. The correlation of the above four function categories to different wares and their distribution to different areas and deposits of the cemetery shows interesting variations and will help to identify the function, character, and type of each context and ceramic assemblage of the cemetery.

6.2.1. Correlation of Wares and Usage

As has been noted by many studies of Prepalatial pottery, there is a strong correlation of wares with particular shapes and functions (Betancourt 2008, 43–83; Papadatos 2008; Branigan and Campbell-Green 2010, 135–137; Papadatos et al. forthcoming). This is the case particularly in highly specialized ceramic assemblages, such as those coming from funerary contexts in which pottery serves functions that are related, directly or indirectly, to funerary rituals and mortuary practices in general.

In EM I–IIA (Fig. 39), the most common ware in Livari, DGBW, was used for a broad variety of shapes and for all functions (Tables 27, 39). Almost two-thirds of the total (65%) belong to vessels for small-scale storage, particularly pyxides. It was also used for drinking vases (21%), particularly chalices (in EM I) and goblets (in EM IIA), but it was used very rarely for pouring and serving vases. A similar picture can be seen in other burnished wares; in OBBW, DBW, and RSBW the storing vases constitute between 61% and 82% of the total (Tables 28, 30, 39), and in FGW all vases (100%) belong to pyxides and pyxis lids (Tables 32, 39).

An entirely opposite picture is seen in the case of DOLW, the only painted ware of the EM I–IIA phase (Tables 33, 39). The overwhelming majority of the pottery (69%) belongs to pouring vases, namely jugs, while storage vessels are significantly less (27%). In comparison to the other major EM I–IIA wares (DGBW and DBW), which were used for a broad array of shapes and all functions, the DOLW shows a high degree of specialization since 95% of the identified vases belong to only two shapes, jugs and pyxides (the latter together with their lids). Serving vases are very few, while drinking vases are not represented at all.

In EM IIB–III (Fig. 40), the R/BSW, which is the most common ware of this period, was used for a broad array of shapes and functions, including drinking, serving, and pouring (Tables 35, 40). Most vases are for pouring (57%) and serving (28%) while drinking vases are fewer (15%). In the other two wares of EM IIB–III, VW and WODW, the picture seems to be completely the opposite (Tables 34, 36, 40). Drinking vases predominate (50%–56%), while pouring vases are less (33%).

6.2.2. Changes through Time

On the basis of the above evidence, it seems that in both EM I–IIA and EM IIB–III there is a common trend concerning the correlation of wares with particular functions. More specifically, drinking and pouring vases were made of different wares. In EM I–IIA, vases for drinking were made mainly in dark burnished wares (DGBW, DBW, RSBW) while vases for pouring were made in DOLW. In EM IIB–III, vases for drinking were made mainly in WODW and VW, and for pouring in R/BSW. It seems, therefore, that the various wares functioned complementarily to each other and there were no sets of drinking-pouring vases made of the same ware with similar appearance and/or decoration. Instead, there seems to have been a deliberate effort to produce and use drinking and pouring vases of different visual appearance, due to different technological choices in firing and surface treatment.

Beyond the above similarity, there are important differences and changes between EM I–IIA and EM IIB–III in two function categories, the storage and drinking vases. The storage vases, particularly the pyxides, which dominate the EM I–IIA assemblage (55%), disappear completely in EM IIB–III without being replaced by any other type of storage shape (Tables 40, 41). This was probably a wider phenomenon, better illustrated in Lebena Tholos II, which contained hundreds of pyxides, none of them dated after EM IIA (Alexiou and Warren 2004). The complete disappearance of pyxides after EM IIA is almost definitely related to changes in mortuary practices, but it is difficult to define them more precisely since the function of pyxides remains largely unknown. No artifacts were found inside them, either in Livari or any other Prepalatial cemetery, so they could not have been used as receptacles for durable offerings such as jewels. Moreover, their closed to semiclosed shape, often with narrow mouths and necks, is not suitable for storing large portions of dry food, except for seeds (e.g., cereals and pulses). For this reason it is generally accepted that they were used for storing liquids and were placed inside the tomb together with the dead for the afterlife (Alexiou and Warren 2004, 122–123). If this is accepted, the disappearance of the pyxides in EM IIB–III indicates changes in the offerings placed inside the tombs with the deceased and may be related to changes in the ideas and beliefs concerning death and the afterlife.

It should be noted, however, that besides the disappearance of storage vases in EM IIB–III, there is no change in the frequency of the other three function categories. Leaving aside the large number of storage vases, the pyxides in particular, which obscure and distort the picture of the EM I–IIA period, the percentages of each function category remains the same from EM I–IIA to EM IIB–III. Furthermore, there is no change in the ratio between these function categories. The drinking shapes comprise 27%–32% of the total, pouring vases between 47%–51%, and serving vases between 19%–22% (Table 41, middle and right columns).

A second change from EM I to EM III is the gradual diminution of the principal drinking vase. The large communal chalices of EM I were replaced by the smaller goblets of EM IIA, which were in turn replaced by even smaller individual goblets and cups in EM IIB and EM III. This change in the size of the drinking vase has been also observed in other assemblages, either of funerary (Branigan 1993, 78–79) or nonfunerary character (Day and Wilson 2004, 55), and has been used as evidence for changes in (a) the social meaning of drinking rituals, (b) the number of participants, and (c) the transfer of the drinking rituals from inside the tomb to the open areas of the cemetery.

6.3. Spatial Analysis

The study of the spatial distribution of the various function categories gives valuable information concerning the character of each deposit and the way it was formed.

In the Tholos Tomb in EM I–IIA, the vast majority of the diagnostic material comes from storage vases (particularly pyxides), which comprise three quarters (72%) of the assemblage (Table 42). Drinking, pouring and serving vessels constitute 4%, 10%, and 14%, respectively. In EM IIB–III, the material is rather fragmentary, probably stray finds, and therefore cannot be used for any secure conclusions. It should be noted that the above percentages refer only to the material from the burial stratum (Str. III), which was certainly part of the original contents of the tholos assemblage.

A similar picture can be seen in the rock shelter (Table 43). In EM I–IIA the percentages of the storage, drinking, and serving vases are comparable between the two assemblages: 72%, 4%, and 14% in the tholos; and 60%, 10%, and 10% in the rock shelter. Only pouring vases are more frequent in the rock shelter (20%) as opposed to the tholos (10%). In EM IIB–III the disappearance of the storage vases changes the percentages completely, but not the ratio between the remaining three functions. As in EM I–IIA, pouring vases are more frequent (46%), with fewer drinking (31%) and even fewer serving vases (18%).

In contrast, the percentages in Open Areas 1 and 2 show a completely different picture. In EM I–IIA all five vases of Open Area 1 belong to pouring vases, particularly jugs (Table 44). In Open Area 2, almost half (47%) of the vases belong to pouring shapes, particularly jugs while vases for drinking, serving, and storage represent 19%, 5%, and 29% of the total, respectively (Table 45). Furthermore, Open Areas 1 and 2 are the only EM I–IIA contexts of the cemetery in which pyxides do not dominate the assemblage; they comprise only 26%, while in the tholos and the rock shelter they were more than 60% of the total. The above clearly suggest that the assemblages of Open Areas 1 and 2 were formed as part of different practices and have a different character from those of the tholos and the rock shelter.

In Open Areas 3 and 4, on the other hand, the picture is much closer to the tholos and the rock shelter (Table 46). The storage vases and the pyxides comprise more than two-thirds of the total (73%), with a few drinking (15%) and pouring vases (6%). This is explained by the fact that the deposits of Open Areas 3 and 4 are not in situ, undisturbed deposits, but were the result of the erosion of funerary deposits that originally existed in the cemetery. This is reinforced by the fragmentary character of the pottery from Open Areas 3 and 4. In all open areas the EM IIB–III pottery is rather limited and too fragmentary to provide any useful comparisons with EM I–IIA.

To conclude, the distribution of the function categories in the different contexts of the cemetery shows two different pictures (Table 47; Fig. 41). The first is seen in the burial contexts of the tholos and the rock shelter and the eroded deposits of Open Areas 3 and 4, in which storage vases, mostly pyxides, comprise at least two-thirds of the total assemblage (60%–73%), while vases for drinking, pouring, and serving are not more than 20%. The second is seen in Open Areas 1 and 2, in which pouring vases, mostly jugs, predominate. The special character of the assemblages in Open Areas 1 and 2 is reinforced by the complete lack of bones and any other artifacts (e.g., jewelry, metalwork, seals). This evidence clearly suggests that these were not funerary deposits or the result of clearing operations of funerary material removed from neighboring tombs, but were rather the result of more general rituals.

An important aspect of the material from Open Area 2 is its fragmentary state of preservation. Although a large number of complete or almost complete pots come from this deposit, no vase was found intact. Instead, all complete vases were reconstructed from many joining sherds. It is not possible to know whether the vases were deliberately smashed, but it is certain that this happened at the time of their deposition; in other words, they were not broken long before their deposition in these areas.

7

Neopalatial Pottery

by

Yiannis Papadatos

7.1. Methodology

The Neopalatial pottery from the cemetery is of limited quantity. The total number of cataloged vases and sherds is only 17. As expected, most of the vases come from the burial stratum of the house tomb (**P347**, **P351–P357**, **P359**, **P361**). Additionally, three vases were found in the large undisturbed deposit of Open Area 2 (**P348–P350**), two vases in the rock shelter (**P358**, **P360**), and two cooking pots (**P362**, **P363**) in Stratum II of the tholos tomb. For the study of this small assemblage, we largely followed the method adopted for the analysis of contemporary pottery from Knossos (Hatzaki 2007), which is based on fabrics and surface treatment.

7.2. Fabrics

The Livari Neopalatial pottery is classified into three fabrics, two fine and one coarse. All vases are wheelmade unless otherwise stated.

7.2.1. Fine Pink Fabric

This fabric was used for all the fine wares from Livari. It is a refined silty fabric of pink to very pale brown color, with almost no or very few small inclusions. The fabric is fired medium soft to hard. It must have been imported to Livari and, indeed, has similarities with fabrics from Palaikastro and Zakros, which are the most important Minoan towns in the area. It is impossible, however, to identify with certainty the origin of these vases.

7.2.1.1. Monochrome Ware

Vessels of this Monochrome ware (MW) have a surface covered by a solid monochrome slip, varying in color between dark reddish brown (5YR 3/4) and black (7.5YR 3/0). The vases are of small size and were used for drinking and pouring purposes. The ware and the fabric alone are not good chronological indicators since they occur throughout Proto- and Neopalatial pottery all over Crete. Shapes are more important in this respect.

7.2.1.1.1. Straight-Sided Cup

These cups are wheelmade, and they have almost vertical or slightly flaring walls. The handle is of the strap variety. One specimen (**P347**) has a flanged and beveled base, which is a feature typical of East Cretan Neopalatial assemblages (Knappett and Cunningham 2003, 123). The shape has good parallels from MM IIIB and LM IA contexts in Palaikastro (Knappett and Cunningham 2003, figs. 12–14, 31:254–258, 43:407–409, 44:411–418) and Zakros (Platon 2010, figs. 24.2; Gerontakou 2011, pl. 17).

P347 (Fig. 42; Pl. 25; house tomb, Str. II). Straight-sided cup. H. 7.6; th. 0.4; dia. 6.5 (base), 10.3 (rim). Flat base, flanged and beveled at edge; cylindrical shape, with slightly flaring walls; rounded rim. Reddish-brown matt slip inside and outside. *Date*: MM IIIB–LM IA.

P348 (Fig. 42; Pl. 25; Open Area 2, Str. II). Straight-sided cup. H. 6.5; th. 0.4; dia. 6 (base), 10 (rim). Concave base; cylindrical shape with slightly concave walls; rounded, tapered rim. Dark brown matt slip inside and outside. *Date*: MM IIIB–LM IA.

P349 (Fig. 42; Pl. 25; Open Area 2, Str. II). Straight-sided cup. H. 6.5; th. 0.4; dia. 7 (base), 11 (rim). Flat base; cylindrical shape, with slightly flaring walls; vertical strap handle; rim with triangular section. Black matt slip inside and outside. *Date*: MM IIIB–LM IA.

P350. (Fig. 42; Open Area 2, Str. II). Straight-sided cup. H. 3.7; th. 0.4; dia. 8 (rim). Cylindrical shape, with slightly flaring walls; vertical strap handle; rounded, tapered rim rounded. Brown matt slip inside and outside. *Date*: MM IIIB–LM IA.

7.2.1.1.2. Juglet

There is a single specimen of a juglet in Monochrome ware, the other two belonging to the Light-on-Dark Painted ware. Similar juglets have been found in Zakros (Platon 2010, fig. 24.17, particularly the last vase in the top row; Gerontakou 2011, pl. 53), and they are dated to LM IA.

P351 (Fig. 42; Pl. 25; house tomb, Str. II). Juglet. H. 6.5; th. 0.4; dia. 3.1 (base), 3.2 (rim). Flat base; almost spherical shape; rounded, outturned, pinched-out rim, without spout; over-hanging handle with elliptical section. Black matt slip inside and outside. *Date*: LM IA.

7.2.1.1.3. Miniature Oval-Mouthed Amphora

This is a rather rare shape, but it has good parallels from LM IA contexts at Palaikastro (Knappett and Cunningham 2003, fig. 45:438) and Zakros (Gerontakou 2011, pl. 54).

P352 (Fig. 42; Pl. 25; house tomb, Str. II). Miniature oval-mouthed amphora. H. 9.5; th. 0.4; dia. 4.1 (base). Flat base; spherical shape; rounded rim; oval-shaped mouth; two handles with elliptical sections. Reddish-brown matt slip outside on handles, neck, and rim. *Date*: LM IA.

7.2.1.2. Plain Ware

Vessels in this plain ware (PW) have a carelessly smoothed surface. This is the typical ware for conical cups all over Crete (Hatzaki 2007, 166–167). As with Monochrome ware, it is not indicative of chronology.

7.2.1.2.1. Conical Cup

The Livari conical cups are rather short (4.2 cm in height) and open (rim diameter between 9 and 10 cm). From this point of view, they are closer to the LM IA conical cups of Palaikastro, which have the same rim/height ratio, than to the MM IIIB ones, which are taller (Knappett and Cunningham 2003, 116, 162).

P353 (Fig. 42; Pl. 25; house tomb, Str. II). Conical cup. H. 4.3; th. 0.4; dia. 4 (base), 9.4 (rim). Flat pronounced base; conical shape, with flaring, slightly curved walls; rounded rim. *Date*: LM IA.

P354 (Fig. 42; Pl. 25; house tomb, Str. II). Conical cup. H. 4.1; th. 0.4; dia. 4.2 (base), 10.2 (rim). Flat base; conical shape, with flaring walls; rounded rim. *Date*: LM IA.

7.2.1.3. Light-on-Dark Painted Ware

Vessels in this Light-on-Dark Painted ware (LOD) have white painted decoration on a dark brown to black slip (Hatzaki 2007, 162). The decorative motifs are rather simple, belonging to a rather limited repertoire. Precise dating is provided only by shapes.

7.2.1.3.1. Juglet

As with the juglet of Monochrome ware, the juglets of Light-on-Dark Painted ware do not have parallels from Palaikastro, but from the Zakros pits (Platon 2010, fig. 24.17), which are dated to LM IA.

P355 (Fig. 42; Pl. 31; house tomb, Str. II). Juglet. H. 7; th. 0.4; dia. 5 (base), 3 (rim). Flat base; almost spherical shape; rounded, pinched-out rim, vertical in area of handle; over-hanging handle with elliptical section. Interior black matte slip and traces of white band beneath rim; exterior black matt slip and traces of white band on neck. *Date*: LM IA.

P356 (Fig. 42; Pl. 31; house tomb, Str. II). Juglet. H. 7.2; th. 0.4; dia. 4 (base), 3.4 (rim). Flat base; almost spherical shape; rounded, pinched-out rim, vertical in area of handle; over-hanging handle with elliptical section. Reddish-brown matte slip inside and outside; thin white bands on handle. *Date*: LM IA.

7.2.1.4. Dark-on-Light Painted Lustrous Ware

Vessels in this Dark-on-Light Painted Lustrous ware (DOL) have reddish- to dark brown-painted decoration on a light-colored surface, which has been coated with a light orange or light pink lustrous slip. They are of exceptional quality, very well executed, and fired hard. Although at Knossos the ware starts already in MM IIIB (Hatzaki 2007, 163), in East Crete it is more at home in LM IA (Knappett and Cunningham 2003, 169–170).

7.2.1.4.1. Hemispherical Cup

The hemispherical cup in Dark-on-Light Painted ware has good parallels from LM IA or transitional MM III–LM IA contexts at nearby Zakros (Platon 2010, fig. 24.2; Gerontakou 2011, pl. 25) and Palaikastro (Knappett and Cunningham 2003, fig. 44:422, 424). The LM IA date is also reinforced by the motif of the foliate band, which is very close to the foliate scroll seen in the above parallels. In general, it is a pattern that, before LM IA, occurred only in Light-on-Dark Painted ware.

P357 (Fig. 42; Pl. 31; house tomb, Str. II). Hemispherical cup. H. 7.2; th. 0.3; dia. 4.5 (base), 11.4 (rim). Flat base; hemispherical body, with curved walls; rounded, outturned rim rounded; handleless. Dark brown painted decoration; solid interior; exterior one thick band beneath rim and three above base, between them frieze with three running spirals ending in foliate band, thick band in perimeter underneath base. *Date*: LM IA.

P358 (Fig. 42; Pl. 31; rock shelter, 2:1). Hemispherical cup. H. 2.7; th. 0.3. Curved body sherd, probably from hemispherical cup. Dark brown painted decoration; solid interior; exterior one thick band, traces of three concentric semicircles above band. *Date*: LM IA.

7.2.1.4.2. In-and-Out Bowl

This is a MM III–LM IB shape particularly common at Zakros (Dawkins 1903, fig. 15; Gerontakou 2011, fig. 28). The elaborate dark lustrous painted decoration shows that it should be placed in the LM IA period, although an earlier date in MM III should not be excluded.

P359 (Fig. 42; house tomb, Str. II). In-and-out bowl. H. 8.6; th. 0.7; dia. 11 (base), 18.5 (rim). Flat base; flattened hemispherical shape; outturned rim; two upraised handles with circular sections. Red-painted decoration; interior one band on rim and three bands on base, groups of thick, curved vertical bands from rim to base; exterior possible traces of red paint, badly preserved. *Date*: LM IA.

7.2.2. Coarse Pink Fabric

This is the coarse version of the fine fabric, consisting of silty noncalcareous clay and many large-sized inclusions, mainly phyllite and quartz. The fabric is fired medium soft. As in the case of the finer version, it is similar to fabrics from Palaikastro and Zakros, and it is possible that some vases were imported from these sites.

7.2.2.1. Monochrome Ware

In this Monochrome ware (MW), the surface of the vessels is covered by a monochrome slip, varying in color between dark reddish brown (5YR 3/4) and black (7.5YR 3/0). There is only one vase represented in this ware. Precise dating is very difficult.

7.2.2.1.1. Shallow Bowl

A good parallel, though in plain ware, can be found at Palaikastro (Knappett and Cunningham 2003, fig. 38:307). The shape is rather common, however, and cannot be dated more securely than MM III and LM I.

P360 (Fig. 42; rock shelter, 3:2). Shallow bowl. H. 6.2; th. 0.8; dia. 7.7 (base). Flat base with circular ridge inside; conical shape with flaring curved walls. Brown to black thick slip inside, and perhaps outside, but not preserved. *Date*: MM III–LM I.

7.2.2.2. Plain Ware

As with the finer version, vessels of this plain ware (PW) have a carelessly smoothed surface. It is used for large cooking and storage vases. The precise dating of both the ware and the shapes is very difficult because such vases tend to be produced over a long period of time.

7.2.2.2.1. Jar

P361 (Fig. 43; Pl. 31; house tomb, Str. II). Jar. H. 41; th. 1; dia. 16 (base), 25 (rim). Flat, slightly pronounced base; piriform shape with curved walls; rounded, outturned rim rounded; two vertical handles with circular sections beneath rim. *Date*: MM III–LM I.

P362 (Fig. 43; tholos, Str. II). Jar. H. 9.8; th. 0.7; dia. 12 (rim). Low collar neck; rounded rim rounded with open rim-spout; two vertical handles with circular section beneath rim. *Date*: MM III–LM I.

P363 (Fig. 43; tholos, Str. II). Jar. H. 9.8; th. 0.7. Low collar neck; rounded rim. *Date*: MM III–LM I.

7.3. Chronology

The Neopalatial pottery of Livari seems to belong to a single phase and to have been deposited over a short period of time. This is suggested not only by the typology of the vases but also by the history of the Neopalatial house tomb. The latter contained only six burials and had a rather short period of use, probably not more than one to two generations long.

There is not a single vessel from Livari that could be dated to the LM IB period. In contrast, almost all vases find close parallels in MM IIIB–LM IA transitional assemblages from major neighboring centers such as Zakros and Palaikastro. Furthermore, it is possible to date the entire house tomb assemblage closer to LM IA than MM IIIB on the basis of a few distinctive shapes and typological features. The best dating evidence is provided by the hemispherical cup **P357**, which cannot be earlier than LM IA. A LM IA date is also reinforced by the conical cups, which are short and open, as opposed to the deeper and taller MM IIIB cups (Knappett and Cunningham 2003, 116, 162). Finally, the miniature oval-mouthed amphora is also a shape that has only LM IA parallels.

7.4. Usage and Spatial Analysis

The Neopalatial pottery of Livari, although limited in quantity, has a wide variety of forms and functions. It includes vases for drinking (cups of various types), pouring (jugs), serving (bowls), small-scale storage (miniature amphora), large-scale storage (jar), and cooking (cooking jars). The small quantity of the Neopalatial pottery, together with the small number of burials inside the house tomb, clearly suggests occasional rather than intensive use of the cemetery. Moreover, because only a few vases were found outside the house tomb, the use of the cemetery seems to have been rather localized.

The house tomb assemblage comprises vases of all forms and functions. The vases found inside Room 1 were directly associated with the burials, and include vases for drinking (**P357**), pouring (**P355**, **P356**), serving (**P359**), small-scale storage (**P352**), and large-scale storage (**P361**). Of particular importance is the group of vases found in Room 2. The vases comprise a set that consisted of a juglet (**P351**) and three cups (**P347**, **P353**, **P354**), and they were probably remnants of one of the latest, if not the last, libations made inside the tomb. The lack of bones from Room 2, however, may suggest that this ritual had a more general character and was not necessarily connected with the burial of a particular individual.

Beyond the house tomb, the two Neopalatial cooking jars (**P362**, **P363**) found in the destruction layer of the tholos tomb and the three fragmented cups found in Open Area 2 (**P348–P350**) may suggest limited activity in the area after the collapse of the tomb walls. This activity was not related to the burials, but it may have had ritual character since it took place very close to the Neopalatial house tomb. By this period, the tholos tomb was in ruins, but it was still visible on the surface as a pile of stone rubble. It is certain that the small population group that used the cemetery in the Neopalatial period was aware of the existence of this old tomb in the area. Therefore, it is highly possible that the activity in this area was related to the old, ruined tholos rather than the dead of the nearby house tomb.

The rock shelter, on the other hand, does not seem to have been the focus of any activity of burial, ritual, or any other character. The two very fragmented vases (**P358**, **P360**) found there do not suggest anything more than occasional visits.

8

Late Hellenistic/Early Roman Pottery

by

Chrysa Sofianou

8.1. Introduction

The Late Hellenistic/Early Roman pottery from the excavated funerary contexts is of limited quantity. Fragmented sherds occurred as stray finds in almost all the surface layers of the tholos, the house tomb, and the open areas of the cemetery. It was possible, however, to identify, restore, and catalog only five vases, intact or in fragments. All of them were found in the rock shelter in the topmost layers of Trenches 3 and 4 and in the basal layers of Trench 6.

8.2. Catalog

P364 (Fig. 43; Pl. 51; rock shelter, 6:2). Bowl. H. 8.9; th. 0.3; dia. 4.5 (base), 10.2 (rim). Angular kantharos; intact except for handles; ring-shaped base; carinated body; rounded, slightly outturned rim; two strap handles (not preserved). Two grooves beneath rim; thick red slip covering interior and exterior. Light orange fine fabric. *Parallels*: It most probably belongs to the so-called East Cretan Cream Ware, which is considered a product of Hierapytna workshops (Vogeikoff-Brogan et al. 2004). Similar kantharoi have also been found at Myrtos Pyrgos (Eiring 2000, 56, pl. 28b:3). On the basis of parallels from Knossos, the shape appears toward the end of the 3rd century B.C. and continues until the second half of the 2nd century (Englezou 2005, 178). The features of the Livari specimen, namely the strong carination, the two grooves beneath the rim, and the lack of decoration, suggest dating in an advanced stage, i.e., the second half of the 2nd century B.C. (Englezou 2005, 181, fig. 14:28, 29). *Date*: Second half of 2nd century B.C.

P365 (Fig. 43; rock shelter, 6:3). Bowl. H. 2.3; th. 0.3; dia. 15 (rim). Rim fragment from moldmade bowl; rounded, outturned rim. Two grooves beneath rim; thick red slip covering interior and exterior; relief floral decoration on body. Very pale brown fine fabric. *Parallels*: It is probably a product of an Ionian workshop, although the outturned rim is rather rare in vases of this type. Ionian mold made bowls are particularly common in the Mediterranean (Rotroff 1982), appearing before the end of the 3rd century and continuing until the first half of the 1st century B.C. In Crete they are very rare, and they are considered imports from Ionian workshops, mostly from Delos (e.g., Laumonier 1977), but local imitations were produced at Knossos in the 1st century B.C. (Englezou 2005, 190–192; Vogeikoff-Brogan 2014). *Date*: Late 2nd to 1st century B.C.

P366 (Fig. 43; Pl. 31; rock shelter, 4:1). Bowl. H. 3.5; th. 0.2. Fragment from a Pergamene appliqué vase(?); body fragment. Relief decoration depicting a wrestling figure to the left and a cupid to the right. Very pale brown fine fabric. *Parallels*: Such bowls are dated to the 1st century B.C. (Schäfer 1968, 93–94). A possible parallel for the wrestler theme can be found in Pergamon (Hübner 1993, fig. 34:319). *Date*: 1st century B.C.

P367 (Fig. 43; Pl. 31; rock shelter, 4:1). Lamp. H. 3.3; l. 9.4; dia. 6. Slightly concave base; horizontal strap handle at the back; low collar rim; long pointed nozzle. Semicoarse buff fabric. *Parallels*: Similar examples have been found at Mochlos (Vogeikoff-Brogan 2014, fig. 31:III.127) and sites in Central Crete (Englezou 2005, 282). Precise dating is difficult because it is a long-lived type. It is dated either to the second half of the 2nd century (Sackett 1992, 261, no. L25–25) or the 1st century B.C. (Hayes 1971, 240–274, no. 41). Lamps of this type become less frequent by the end of the 2nd century, but they continue until at least the first half of the 1st century (Englezou 2005, 282). *Date*: Late 2nd to early 1st century B.C.

P368 (Fig. 43; rock shelter, 3:1). Lid. H. 2.7; th. 0.5; dia. 17. From a cooking pot; conical shape; rounded rim; traces of lug in center of top surface. Red semicoarse cooking fabric. *Parallels*: Precise dating is difficult. Similar lids have been found at Mochlos (Vogeikoff-Brogan 2014, fig. 31:III.121) and are dated between the 1st century B.C. and the 1st century A.D. *Date*: 1st century B.C./1st century A.D.

8.3. Discussion

Although not necessarily contemporary, the Late Hellenistic/Early Roman pottery found in the Livari rock shelter seems to belong to a relatively short time period, between the 2nd and the 1st century B.C., or perhaps more precisely between the later part of the 2nd and the early part of the 1st century B.C. The shapes, three drinking vases, one cooking vase, and a lamp, suggest seasonal occupation or sporadic visits to the rock shelter, most probably by people living on the Kouphonisi islet, located only 3.8 miles offshore. The quality of the drinking vases, which may have been imported from Hierapytna (**P364**) and from areas outside Crete (**P365**, **P366**), is surprising for such a remote and small site, but it seems to reflect the size, importance, contacts, and quality of living in the nearby thriving settlement of Kouphonisi (Papadakis 1976a, 1976b, 1978a, 1978b).

PART III

Small Finds

9

Metalwork

by

Yiannis Papadatos

9.1. Prepalatial Period

9.1.1. Copper-Based Objects

The cemetery produced 34 copper-based artifacts and implements, made of either copper or copper alloy. The copper-based jewelry is not included here; it appears in Chapter 11 of this volume.

9.1.1.1. Daggers

Of the five daggers found in the cemetery, two belong to the simple flat type and three to the type with pronounced midrib. With one exception (**M1**), all were found in the rock shelter, as is the case with all objects of metalwork.

M1 (Fig. 44; Pl. 32; tholos, Str. III). Dagger. L. 9.8; w. 2.2; th. 0.15. Long with flat blade; straight edges; round heel with three shafting holes; broken at pointed end. Branigan's type Ib (Branigan 1974, 8, 157). *Parallels*: Although the three-rivet system of dagger hafting tends to be a later feature (Branigan 2010, 147), daggers of this type do not seem to be dated later than EM II. *Date*: EM I–II.

M2 (Fig. 44; Pl. 32; rock shelter, 3:2). Dagger. L. 8.9; w. 2.7; th. 0.3. Long with flat blade; concave edges; two shafting holes; broken at both ends. Branigan's type II (Branigan 1974, 8). *Parallels*: Parallels are from Koumasa, Platanos, Marathokephalo, Pyrgos (Branigan 1974, 157), Moni Odigitria (Vasilakis and Branigan 2010, fig. 57:M3), and Lebena (Alexiou and Warren 2004, fig. 36:548). From the above parallels only the latter can be dated more precisely to EM II. In general, it is an early type of dagger that continued until at least EM II. *Date*: EM I–II.

M3 (Fig. 44; Pl. 32; rock shelter, 5:1). Dagger. L. 12.3; w. 1.7; th. 0.85. Long with midrib; straight edges; pointed end; rest missing. Branigan's type VIII (Branigan 1974, 11, 160). *Comments*: Cast, hammered, and polished. Corroded. Bent on purpose, ritually killed. *Parallels*: There are several parallels from all over Crete, but well-dated examples are from Hagia Photia (Davaras and Betancourt 2004, figs. 9:2A.50, 485:216.14), dated to the end of the EM I, Phourni Tholos Tomb Gamma (Papadatos 2005, fig. 19:B10, B11), dated to EM IIA, and Platanos, dated to EM III–MM I. The predominance of EM I–IIA pottery at Livari favors an early date, although we cannot dismiss a later one (EM IIB–III). *Date*: EM I–II.

M4 (Fig. 44; Pl. 32; rock shelter, 3:2). Dagger. L. 3.5; w. 1; th. 0.8. Long with midrib; pointed end; rest is missing. Branigan's types VII or VIII (Branigan 1974, 10–11, 160). *Comments*: Cast, hammered, and polished. Ritually killed. *Parallels*: For discussion of parallels and date see **M3**. *Date*: EM I–II.

M5 (Fig. 44; Pl. 32; rock shelter, 4:2). Dagger. L. 2.7; w. 0.9; th. 0.85. Long with midrib; pointed end; rest is missing. Branigan's types VII or VIII (Branigan 1974, 10–11, 160). *Comments*: Cast, hammered, and polished. Badly corroded. ritually killed. *Parallels*: For discussion of parallels and dating see **M3**. *Date*: EM I–II.

9.1.1.2. Awls

Awls are by far the most common metal object found in the cemetery, with 19 specimens. With the exception of two specimens from the tholos and one from Open Area 3, the rest come from the rock shelter. They are very standardized in form, with two pointed ends and a square section. The one end was probably shafted into a bone or wooden handle, as reinforced by one example (**M20**). There are numerous parallels from all over Crete dated throughout the entire Prepalatial period (Branigan 1974, 171–172; Papadatos 2005, fig. 22:C3–C7; Vasilakis and Branigan 2010, fig. 57:M11, M12).

M6 (Fig. 44; Pl. 32; tholos, Str. III). Awl. L. 3.7; th. 0.3. One pointed end, the other missing but probably pointed; square section.

M7 (Fig. 44; tholos, Str. III). Awl. L. 1.6; th. 0.3. Both ends missing; square section. *Comments*: Cast, hammered, and polished. Corroded.

M8 (Fig. 44; Open Area 3, Str. II). Awl. L. 3.8; th. 0.35. Both ends missing; square section. *Comments*: Cast with square section then hammered into round section and polished. Corroded.

M9 (Fig. 44; rock shelter, 2:1). Awl. L. 1.3; th. 0.3. Both ends missing; square section. *Comments*: Cast, hammered, and polished. Corroded.

M10 (Fig. 44; Pl. 32; rock shelter, 2:1). Awl. L. 5.4; th. 0.25. One sharpened, pointed end, other missing but also rounded; square section. *Comments*: Cast with square section; hammered and polished. Corroded.

M11 (Fig. 44; rock shelter, 2:1). Awl. L. 5.1; th. 0.35. One pointed end, other missing; square section. *Comments*: Cast with square section; hammered and polished.

M12 (Fig. 44; Pl. 32; rock shelter, 1:2). Awl. L. 5.3; th. 0.25. One pointed end, other missing but probably pointed; square section.

M13 (Fig. 44; rock shelter, 1:2). Awl. L. 4.6; th. 0.3. One pointed end, other missing; square section. *Comments*: Cast with square section; hammered, and polished. Corroded.

M14 (Fig. 44; rock shelter, 1:2). Awl. L. 1.5; th. 0.3. One rounded end, other missing; square section. *Comments*: Cast, hammered, and polished.

M15 (Fig. 44; rock shelter, 1:2). Awl. L. 3.1; th. 0.25. One pointed end, other missing; square section. *Comments*: Cast, hammered, and polished. Corroded.

M16 (Fig. 44; Pl. 52; rock shelter, 2:2). Awl. L. 5; th. 0.2–0.25. Two pointed ends, one curved; maximum thickness closer to upper point; square section. *Comments*: Cast, hammered, and polished. Corroded.

M17 (Fig. 44; rock shelter, 2:2). Awl. L. 2.9; th. 0.25. One pointed end, other missing; square section. *Comments*: Cast, hammered, and polished. Corroded.

M18 (Fig. 44; rock shelter, 3:3). Awl. L. 1.8; th. 0.25. Curved, pointed end, other missing; square section. *Comments*: Cast, hammered, and polished. Corroded.

M19 (Fig. 44; Pl. 52; rock shelter, 3:3). Awl. L. 6.3; th. 0.25. Two pointed ends; square section. *Comments*: Cast, hammered, and polished.

M20 (Fig. 44; rock shelter, 3:3). Awl. L. 3.1; th. 0.35. Both ends broken, one shafted into a bone handle; traces of bone handle still visible; pointed end missing; irregular square section. *Comments*: Cast, hammered, and polished.

M21 (Fig. 44; rock shelter, 3:3). Awl. L. 3.2; th. 0.25. One pointed end, other flattened; square section. *Comments*: Cast, hammered, and polished.

M22 (Fig. 44; Pl. 32; rock shelter, 4:2). Awl. L. 7.2; th. 0.25–0.35. One pointed end, other missing but probably pointed; square section. *Comments*: Cast, hammered, and polished.

M23 (Fig. 44; rock shelter, 5:2). Awl. L. 1.1; th. 0.3. One pointed end, other missing; square section. *Comments*: Cast, hammered, and polished.

M24 (Fig. 45; rock shelter, 2:1). Fragment of metal awl? L. 2.3; th. 0.45. Broken point, circular section. Pointed one end, other missing. *Comments*: Cast, hammered, and polished. Break is free of corrosion; purposefully broken, "killed."

9.1.1.3. Fishhooks

Fishhooks constitute a rare find in Prepalatial Crete. Nevertheless, they are not unknown in cemeteries, namely Hagia Photia (Davaras and Betancourt 2004, 157, 185, 187), dated to the end of EM I, and Lebena (Alexiou and Warren 2004, fig. 36:549), dated to EM II.

M25 (Fig. 45; Pl. 32; rock shelter, 3:3). Fishhook. L. 5; th. 0.3; gap 1.2. Pointed end, without barb; flattened eyeless at upper end; round section.

9.1.1.4. Scrapers

Although a regular find in most Cretan cemeteries, at Livari the scraper is represented by only one specimen, which was found in the rock shelter. Due to its fragmentary condition, it is not possible to attribute it to any specific type, but it has numerous parallels from many funerary sites dated to all phases of the Prepalatial period.

M26 (Fig. 45; Pl. 33; rock shelter, 3:3). Scraper. L. 2.3; w. 0.9; th. 0.1. Square shaft end; one shafting hole. *Comments*: Cast, hammered, and polished. Corroded.

9.1.1.5. Pins

M27 (Fig. 45; Pl. 32; rock shelter, 2:1). Pin. L. 9.0; max. th. 0.3. Bent into hook on one end with flattened spatula-like other end. Pointed hook end; square section hammered to circular section at the bend and down to the pointed end. *Comments*: Cast, hammered, and polished.

9.1.1.6. Nails

M28 (Fig. 45; rock shelter, 3:1). Nail. Small piece of rod with circular section. One end with neat break, possibly cut with a chisel. L. 1.3; th. 0.3. Both ends flat; circular section. *Comments*: Cast, hammered, and polished. Corroded.

M29 (Fig. 45; rock shelter, 3:1). Nail. Bent, both ends broken, although one more pointed than the other; square section. L. 1.5; th. 0.35. *Comments*: Cast in open mould, hammered, and polished.

9.1.1.7. Miscellaneous

M30 (Fig. 45; rock shelter, 3:3). Bent rod. L. 3.9; th. 0.35. Traces of cutting, possibly with a chisel. Both ends missing; square section. *Comments*: Cast and hammered; purposefully broken, "killed."

M31 (Fig. 45; rock shelter, 4:2). Flat fragment. L. 0.9; w. 0.8; th. 0.15. Thick; probably part of toiletry implement; one shafting half hole preserved. *Comments*: Cast, hammered, and polished.

M32 (Fig. 45; rock shelter, 4:3). Fragment of metal. L. 1.8; w. 0.5; th. 0.2. Probably part of toiletry implement; rectangular shape; curved one end, other missing. *Comments*: Cast, hammered, and polished.

M33 (Fig. 45; Pl. 33; rock shelter, 2:2). Large flat fragment; heel of tool. L. 1.8, w. 2.6, th. 0.15. Rounded end; two shafting holes. *Comments*: Cast, hammered, and polished. Possibly a small saw, knife, or other tool. Corroded.

M34 (Fig. 45; rock shelter, 2:1). Wire. L. 4; th. 0.1. Broken at both ends. *Comments*: No twisting. Magnification (50x) shows cast with square section and hammered.

9.1.2. Lead Object

M35 (Fig. 45; rock shelter, 4:1). Strip. D. 1.5; th. 0.35. Rolled strip. *Comments*: Cast, hammered, and polished. Badly corroded.

9.1.3. Discussion

The Livari assemblage of metal artifacts is rather small, bearing limited variability, particularly when considered that more than half (53%) consists of simple small awls (Table 48).

By far the most frequent type of object is the awl with two pointed ends. Awls have been found in the tholos, the rock shelter, and in the eroded deposits of Open Area 3. This clearly suggests that it was a rather common type of artifact accompanying the deceased. Their use remains unknown, but they could have been used on garments or clothes, something that could explain their frequency in the cemetery. The analysis of the awls with portable X-ray fluorescence spectrometry (pXRF) showed a rather uniform composition, basically copper containing small quantities of arsenic (App. B), but it was not possible to have secure quantified data. The presence of arsenic in all analyzed awls, however, shows that its presence was probably intentional.

Of particular importance is the group of five daggers found in the cemetery. The quantity is relatively small when compared to the rich cemeteries of the Mesara, namely Platanos, Koumasa, and Hagia Triada (Branigan 1984, 32), but it is comparable to cemeteries of the Asterousia, such as Lebena and Moni Odigitria (Alexiou and Warren 2004; Branigan 2010). Of the five daggers, one was found in the tholos and the other four in the rock shelter. The cemetery produced two types of daggers, flat and midrib, but it is not possible to know whether the two types are dated to different periods or were used side by side. It is rather strange that Livari did not produce any triangular daggers, despite the fact that this is the most frequent type in the Mesara cemeteries of the early Prepalatial period (EM I–IIA). The chemical composition of the daggers varies (App. B). Two midrib daggers (**M4**, **M5**) were made of copper and silver alloy. The latter was a deliberate addition to copper, probably in order to give a lighter silver color to the finished product. The other three daggers, two flat (**M1**, **M2**) and one midrib (**M3**), contain arsenic.

The rest of the Livari metal implements and artifacts belong to types frequently found in other Cretan cemeteries. In contrast to other Prepalatial cemeteries, Livari has very few toiletry implements: only one scraper (**M26**) was found (Branigan 1974, 174–177).

Concerning spatial distribution, it is interesting to note that almost all (30 out of 35) the metal implements and artifacts previously discussed come from the rock shelter; three artifacts come from the tholos and one from Open Area 3 (Table 49). This sharp quantitative difference between the tholos and the rock shelter could be either fortuitous or the result of different mortuary practices. The latter seems to be more plausible, because the same picture is seen in other categories of artifacts, such as jewelry and seals. On the other hand, Open Areas 1 and 2 completely lack metal objects and other types of artifacts. This is easily explained by the fact that these areas did not receive any burials or, consequently, any burial offerings.

The origin of the raw material is unknown, but no copper or other metal sources have been identified in the area, so it probably originated in other Cretan areas or beyond the island. It is also not possible to know whether they were imported as finished artifacts or manufactured locally with imported raw materials.

From a technological point of view, almost all the Prepalatial copper-based artifacts of Livari contained arsenic (App. B). Due to the limitations of the pXRF analysis, it was not possible to have quantified results for the chemical composition of the metal objects. For this reason, it is not possible to know if the arsenic in the copper is deliberate or accidental. The presence of arsenic in almost all analyzed artifacts, however, suggests a deliberate practice, either alloying or the selection of arsenic-rich copper ores (Betancourt 2006, 185–186, 351; Doonan, Day, and Dimopoulou-Rethemiotaki 2007). This practice probably aimed at strengthening the copper and/or producing light-colored artifacts with a silvery appearance. Such an appearance seems to have been intentional and desirable for copper artifacts, as evidenced by daggers **M4** and **M5**, which were made of copper-silver alloy.

9.2. Neopalatial Period

9.2.1. Bronze Objects

Only four metal objects can be dated to the Neopalatial period, all fishhooks made of copper-tin alloy (bronze). Three of them (**M36**–**M38**) were found in the burial stratum (Str. II) of the house tomb and the fourth (**M39**) in Open Area 3.

9.2.1.1 Fishhooks

M36 (Fig. 45; Pl. 33; house tomb, Str. II). Fishhook. L. 2.5; th. 0.2. Flattened eyeless at upper end; broken at pointed end; round section.

M37 (Fig. 45; Pl. 33; house tomb, Str. II). Fishhook. L. 2.1; th. 0.2. Flattened eyeless at upper end; broken at pointed end; round section.

M38 (Fig. 45; Pl. 33; house tomb, Str. II). Fishhook. L. 2; th. 0.2; gap 1.2. Pointed end, with barb; broken at upper end; round section.

M39 (Fig. 45; Open Area 3, Str. II). Fishhook. L. 2.8; th. 0.3. Eyeless, spade end for snelling. Barbless; round section. *Comments*: Cast, hammered, and polished. Corroded.

9.2.2 Discussion

The fact that the only metal objects deposited in the Neopalatial house tomb are three bronze fishhooks indicates the strong connection of the inhabitants of Livari with the sea and fishing. This connection is perhaps further accentuated by the deposition of a seal (**S7**) with the depiction of a flying fish. The three fishhooks and the seal were probably deposited together with the relocated skeletal remains of an adult male (K6), since they were found close to each other near the entrance of Room 1.

Portable XRF analysis showed that all fishhooks were made of bronze (App. B). It is interesting to note that two of them, **M36** and **M37**, have identical spectra, suggesting that they were probably manufactured together.

10

Stone Vases

by

Yiannis Papadatos

10.1. Introduction

The cemetery produced only four or possibly five stone vases, one intact (**V1**) and four fragmented (**V2–V5**). Except for one (**V4**), which came from Open Area 3, the rest were found in the rock shelter at various areas and depths. The intact vase **V1** was found in two large pieces, one from Trench 2, Layer 1 and the other from Trench 4, Layer 2. This reinforces the picture of disturbance presented and discussed in the case of the pottery.

10.2. Catalog

V1 (Fig. 45; Pl. 33; rock shelter, 2:1, 4:2). Bowl. H. 3.6; th. 0.5; dia. 5.2 (base), 12 (rim). Hemispherical shape; square rim; two horned lugs on rim. White calcite. It belongs to Warren's Type 10, a rather widespread type of bowl with rim lugs (Warren 1969, 27–28). *Parallels*: It has many parallels from all over Crete, dated mostly to EM II but also to EM III–MM I. Most come from Mochlos where they are made of locally available limestone and marble. In other sites chlorite and steatite are preferred. The Livari specimen is made of white calcite, which was available in Crete, but no certain source has been identified so far (Warren 1969, 128). *Date*: EM II–III.

V2 (Fig. 45; rock shelter, 2:1). Pyxis. H. 0.7; th. 0.4; dia. 6. Round rim, with perforated lug on the rim. Chlorite schist. Probably from the same vase as **V3**. It belongs to Warren's Type 33A, a two-part pyxis with incised decoration (Warren 1969, 80–81). The type is considered one of the earliest produced in Crete, and it is dated to EM IIA. The material is not locally available, but outcrops have been reported along the southern coast in the Asterousia and the area of Myrtos (Warren 1969, 129). *Date*: EM IIA.

V3 (Fig. 45; rock shelter, 2:1). Pyxis. H. 0.8; th. 0.4; dia. 6. Round rim. Incised decoration outside, consisting of intersecting groups of lines or hatched triangles. Chlorite schist. Possibly from the same vase as **V2**. For discussion of material, parallels, and date, see catalog entry for **V2**. *Date*: EM IIA.

V4 (Fig. 45; Pl. 33; Open Area 3, Str. II). Hole-mouth pyxis. H. 1.9; th. 0.5; dia. 9. Flat square rim. Incised decoration outside, consisting of hatched triangles. Chlorite schist. Although it does not have exact parallels, it belongs to the broader pyxides type of Warren (1969, 80–83), many of which are also made of chlorite schist and have similar incised decoration of hatched triangles. For discussion of material, parallels, and date, see catalog entry for **V2**. *Date*: EM IIA.

V5 (Fig. 45; rock shelter, 4:1). Fragment possibly from stone vase. L. 0.8; w. 0.7; th. 0.7. Dark green chlorite; nonperforated lug and part of a hole are preserved. *Date*: EM II–III.

10.3. Discussion

The quantity of the stone vases from Livari is relatively small when compared not only with the rich Mesara cemeteries of Platanos, Koumasa, and Hagia Triada, but also with the cemeteries of the Asterousia, such as Moni Odigitria and Lebena, which contained 30 and 17 stone vases, respectively (Warren 1969, 123; Branigan 1993, 112). The same applies to comparisons with other East Cretan cemeteries that have produced large numbers of stone vases, such as Mochlos, Gournia, and Palaikastro (Warren 1969, 123). It should be noted, however, that in these cemeteries almost all stone vases are dated to EM IIB, EM III, and MM IA; that is, to phases that are either not attested at Livari (MM IA) or are represented by very limited material (EM IIB–III). Thus, the small quantity of stone vases at Livari may be explained by the fact that the main phases of use are EM I–IIA, during which Cretan stone vase making was in its first stages and only a small number of vases were produced (Warren 1965; 1969, 182–183). All stone vases from Livari were probably imported from other Cretan areas. Their scarcity may suggest that they were considered offerings of special importance and high symbolic value among the local community.

Apart from one stray find in Open Area 3 (**V4**), the rest of the stone vases came from the rock shelter (Table 49). It is worth noting that no stone vase was found in the nonfunerary ritual deposits of Open Areas 1 and 2. This may suggest that in Livari stone vases were used in association with burials, either as offerings by themselves or as containers of offerings, and were not used as implements in nonfunerary rituals.

11

Jewelry

by

Yiannis Papadatos

11.1. Prepalatial Period

11.1.1. Pendants

The cemetery produced 24 pendants made in a variety of materials, namely copper (2), silver (6), stone (12), bone (3), and shell (1). They were found in comparable numbers in both the tholos tomb (10) and the rock shelter (14), and they belong to a variety of shapes and types.

11.1.1.1. Ring-Shaped

Three pendants of this type were found at Livari, all in the rock shelter at various trenches and depths. They consist of a ring and a perforated stem on top. Despite the similarity in shape, they are different in size and material of manufacture. The largest is made of silver (**J3**), and the other two (**J1**, **J2**) of copper-silver alloy. This type of pendant has exact parallels from the funerary deposit of Hagios Onouphrios in the Mesara. Five ring-shaped pendants were found in this deposit, similar in shape to the Livari specimens, although somewhat different in material since they were made of copper plated with gold foil (Evans 1895; Vasilakis 1996, 152–153, nos. 9–13).

J1 (Fig. 46; Pl. 33; rock shelter, 4:1). Ring-shaped pendant. H. 3.3; th. 1.2; dia. 2.8. Rectangular stem on top with horizontal rib and suspension hole. Copper-silver alloy. *Date*: EM I–IIA.

J2 (Fig. 46; Pl. 33; rock shelter, 2:1). Ring-shaped pendant. H. 2.9; th. 1.2; dia. 2.5. Rectangular stem on top with horizontal rib and suspension hole. Very eroded surface and core. Copper-silver alloy. *Comments*: Corroded. *Date*: EM I–IIA.

J3 (Fig. 46; Pl. 33; rock shelter, 5:2). Ring-shaped pendant. H. 4.6; th. 2.5; dia. 3.9. Rectangular stem on top with horizontal rib and suspension hole. Silver. *Date*: EM I–IIA.

11.1.1.2. Anchor-Shaped

Two anchor-shaped pendants were found in the cemetery, both in the burial stratum of the tholos tomb. Both are made of silver, and they consist of a cylindrical stem, slightly swollen on top, and a flat anchor-shaped lower part. They have exact parallels in the same material from the tholos tomb at Krasi (Marinatos 1929, fig. 14:41; Vasilakis 1996, 155, no. 25) and the burial rock shelter at Petras (M. Tsipopoulou, pers. comm., 2010). These pendants could be dated to EM I–IIA, although both assemblages contained later material as well.

J4 (Fig. 46; Pl. 34; tholos, Str. III). Anchor-shaped pendant. H. 2.9; th. 0.25. Cylindrical stem with double spherical swelling at top. Silver. *Comments*: Corroded. *Date*: EM I–IIA.

J5 (Fig. 46; Pl. 34; tholos, Str. III). Anchor-shaped pendant. H. 2.5, th. 0.3. Cylindrical stem with suspension hole at top. *Comments*: Corroded. *Date*: EM I–IIA.

11.1.1.3. Rhomboid

Pendants of this type have a simple rhomboid shape and a suspension hole on top. Apart from one (**J11**) made of shell, the rest are made of black steatite. Two (**J6**, **J11**) were found in the tholos, and the rest come from the rock shelter. They have numerous parallels in many sites all over Crete, but precise dating is not possible due to the mixed character of the deposits.

J6 (Fig. 46; Pl. 34; tholos, Str. II). Rhomboid pendant. H 1.8; Th. 0.8. Suspension hole at top. Black steatite. *Date*: EM I–III.

J7 (Fig. 46; Pl. 34; rock shelter, 3:2). Rhomboid pendant. H 1.4; th. 0.75. Suspension hole at top. Black steatite. *Date*: EM I–III.

J8 (Fig. 46; Pl. 34; rock shelter, 3:2). Rhomboid pendant. H 1.2; th. 0.6. Suspension hole at top. Black steatite. *Date*: EM I–III.

J9 (Fig. 46; rock shelter, 3:3). Rhomboid pendant. H 1.4; th. 0.9. Suspension hole at top. Black steatite. *Date*: EM I–III.

J10 (Fig. 46; rock shelter, 2:1). Rhomboid pendant. H 1.5; th. 0.7. Suspension hole at top. Black steatite. *Date*: EM I–III.

J11 (Fig. 46; Pl. 34; rholos, Str. III). Rhomboid pendant. H. 2.4; dia. 1.4. Suspension hole at top; smooth groove at middle. Shell. *Date*: EM I–III.

11.1.1.4. Spherical

These are pendants of ellipsoidal shape with a short perforated stem on top. Both Livari specimens were found in the rock shelter, and they are made of serpentinite. The shape is very common all over Crete (Effinger 1996, 50–51, no. 2.6.17A). Most are dated to the Prepalatial period, but more precise dating is not possible.

J12 (Fig. 46; Pl. 34; rock shelter, 5:2). Spherical pendant. H 1.6; max. dia. 1.4. Short cylindrical stem; suspension hole at top. Black serpentinite. *Date*: EM I–III.

J13 (Fig. 46; Pl. 34; rock shelter, 2:2). Spherical pendant. H 1.3, max. dia. 1.2. Short cylindrical stem; suspension hole at top. Black serpentinite. *Date*: EM I–III.

11.1.1.5. Drop-Shaped

Two examples of this type have been found at Livari. Both are made of bone and have been found in the rock shelter. They have very good parallels in terms of shape and material from Phourni Tholos Gamma (Effinger 1996, 51, no. A10c; Papadatos 2005, 36, fig. 23), dated to the EM IIA period.

J14 (Fig. 46; Pl. 34; rock shelter, 3:1). Drop-shaped pendant. H. 2.4; dia. 0.9. Biconcave head; suspension hole on top. Bone. *Date*: EM IIA.

J15 (Fig. 46; Pl. 34; rock shelter, 4:1). Drop-shaped pendant. H. 2.3, dia. 1. For shape and material see **J14**. *Date*: EM IIA.

11.1.1.6. Miscellaneous Types

J16 (Fig. 46; Pl. 34; tholos, Str. III). Spherical pendant. H. 2; dia. 1. Long, flat narrow stem with suspension hole at top. Spherical body. Silver. *Parallels*: It has no exact parallels. The material suggests an EM I–IIA date. *Date*: EM I–IIA.

J17 (Fig. 46; Pl. 34; tholos, Str. III). Vase-shaped pendant. H. 1.6, dia. 0.95. Shape of an amphora with spherical body and two side handles; tall narrow neck and out-curving rim with two suspension holes. Copper-silver alloy. *Parallels*: An identical pendant has been found in Krasi (Marinatos 1929, fig. 14:38; Effinger 1996, 53, no. KP4b; Vasilakis 1996, 155, no. 24), dated probably to EM I–IIA. *Date*: EM I–IIA.

J18 (Fig. 46; tholos, Str. III). Pendant. Dia. 0.9. Unknown shape; only upper part with suspension hole is preserved. Silver. *Parallels*: It has no exact parallels. The material suggests an EM I–IIA date. *Comments*: Corroded. *Date*: EM I–IIA.

J19 (Fig. 46; tholos, Str. III). Pendant. H. 1.4; w. 1. Spherical; two discoid side projections; another projection on top with system of three suspension holes. Brown stone. *Date*: Probably EM I–IIA.

J20 (Fig. 46; Pl. 54; tholos, Str. III). Pendant. H. 1.9; w. 1.9. Spherical; three discoid side projections; another projection on top with system of three suspension holes. Brown stone. *Date*: Probably EM I–IIA.

J21 (Fig. 47; Pl. 34; tholos, Str. III). Nail-shaped pendant. H. 1.5; dia. 0.65. Conical lower end; tall cylindrical stem with suspension hole on top. Brown stone. *Parallels*: It has exact parallels from Lebena found in an EM I context (Effinger 1996, 47, no. LG2a; Alexiou and Warren 2004, 129, no. 524q). *Date*: EM I.

J22 (Fig. 47; rock shelter, 3:2). Discoid pendant. H. 1.7; th. 0.4. Two suspension holes. Brown stone. *Date*: EM I–III.

J23 (Fig. 47; rock shelter, 2:1). Rectangular pendant. H. 1.1, w. 0.4, th. 0.2. Flat rectangular body; suspension hole on top, other end bifurcate. Brown stone. *Date*: EM I–III.

J24 (Fig. 47; Pl. 34; rock shelter, 3:3). Bifurcate pendant. H. 7.1; th. 0.3; dia. 1.4. Cylindrical with forked end; large hollow runs lengthwise corresponding to natural marrow cavity of bone; other end cut straight with no suspension holes. Incised herringbone on two sides. Animal bone, probably goat or sheep metatarsal. *Parallels*: It has two exact parallels from Phourni Tholos Gamma (Papadatos 2005, 37, nos. A7, A8, fig. 23:A7, A8), found in an EM IIA context. *Date*: EM IIA.

11.1.2. Beads

The cemetery produced 49 beads made in a variety of materials, mostly stone (43), but also bone (2), copper (2), silver (1) and faience (1). As with all types of jewelry, most (43) come from the rock shelter, and a few more were found in the tholos (5) and Open Area 3 (1; see Table 49). The majority are simple discoid beads (35), but a few other shapes and types are represented as well, namely cylindrical (6) and spherical-elliptical (4). There are also four beads of rather special and peculiar character.

11.1.2.1. Discoid

Thirty-five beads are of the simple discoid type with a central string hole. All are of circular shape, with the single exception of a rectangular one (**J45**). They are all made of soft green or brown unidentifiable stone or of black serpentinite, with two exceptions made of red quartz (**J43**, **J57**). The vast majority comes from the rock shelter (30), four from the tholos tomb, and one from Open Area 3. There are numerous parallels all over Crete (Effinger 1996, 28), dated throughout the Prepalatial period. For this reason, it is not possible to give a precise date other than the entire time span of the cemetery (EM I–III).

J25 (Fig. 47; Pl. 34; tholos, Str. II). Discoid bead. Dia. 0.5; th. 0.2. Black serpentinite. *Date*: EM I–III.

J26 (Fig. 47; Pl. 34; tholos, Str. II). Discoid bead. Dia. 0.6; th. 0.2. Olive green serpentinite. *Date*: EM I–III.

J27 (Fig. 47; tholos, Str. III). Discoid bead. Dia. 0.4; th. 0.15. Black serpentinite. *Date*: EM I–III.

J28 (Fig. 47; tholos, Str. IV). Discoid bead. Dia. 0.8; th. 0.4. Black serpentinite with white spots. *Date*: EM I–III.

J29 (Fig. 47; rock shelter, 2:1). Discoid bead. Dia. 0.6; th. 0.15. Olive green serpentinite. *Date*: EM I–III.

J30 (Fig. 47; rock shelter, 2:1). Discoid bead. Dia. 0.5; th. 0.1. Brown serpentinite. *Date*: EM I–III.

J31 (Fig. 47; Pl. 34; rock shelter, 2:1). Discoid bead. Dia. 0.9; th. 0.3. Dark green serpentinite. *Date*: EM I–III.

J32 (Fig. 47; Pl. 34; rock shelter, 2:1). Discoid bead. Dia. 0.6; th. 0.25. Black serpentinite. *Date*: EM I–III.

J33 (Fig. 47; Pl. 34; rock shelter, 2:1). Discoid bead. Dia. 0.6; th. 0.25. Black serpentinite. *Date*: EM I–III.

J34 (Fig. 47; Pl. 34; rock shelter, 2:1). Discoid bead. Dia. 0.4; th. 0.2. Black serpentinite. *Date*: EM I–III.

J35 (Fig. 47; Pl. 34; rock shelter, 2:1). Discoid bead. Dia. 1.8; th. 0.5. Brown stone. *Date*: EM I–III.

J36 (Fig. 47; Pl. 34; rock shelter, 3:1). Discoid bead. Dia. 0.9; th. 0.3. Black serpentinite. *Date*: EM I–III.

J37 (Fig. 47; Pl. 34; rock shelter, 3:1). Discoid bead. Dia. 0.9; th. 0.3. Black serpentinite. *Date*: EM I–III.

J38 (Fig. 47; rock shelter, 3:1). Discoid bead. Dia. 0.85; th. 0.15. Brown stone. *Date*: EM I–III.

J39 (Fig. 47; Pl. 34; rock shelter, 3:2). Discoid bead. Dia. 1.35; th. 0.35. Brown stone. *Date*: EM I–III.

J40 (Fig. 47; rock shelter, 3:2). Discoid bead. Dia. 0.75; th. 0.2. Black serpentinite. *Date*: EM I–III.

J41 (Fig. 47; Pl. 34; rock shelter, 3:3). Discoid bead. Dia. 0.7; th. 0.15. Gray serpentinite. *Date*: EM I–III.

J42 (Fig. 47; Pl. 34; rock shelter, 3:3). Discoid bead. Dia. 0.6; th. 0.15. Brown stone. *Date*: EM I–III.

J43 (Fig. 47; rock shelter, 3:3). Discoid bead. Dia. 0.55; th. 0.25. Red quartz. *Date*: EM I–III.

J44 (Fig. 47; rock shelter, 3:3). Discoid bead. Dia. 0.6; th. 0.15. Olive green serpentinite. *Date*: EM I–III.

J45 (Fig. 47; rock shelter, 4:1). Discoid bead. L. 0.7; w. 0.8; th. 0.25. Rectangular in shape. Brown stone. *Date*: EM I–III.

J46 (Fig. 47; rock shelter, 4:2). Discoid bead. Dia. 1.2; th. 0.35. Dark green serpentinite. *Date*: EM I–III.

J47 (Fig. 47; rock shelter, 4:2). Discoid bead. Dia. 0.8; th. 0.2. Gray serpentinite. *Date*: EM I–III.

J48 (Fig. 47; rock shelter, 4:2). Discoid bead. Dia. 0.6; th. 0.15. Gray serpentinite. *Date*: EM I–III.

J49 (Fig. 47; rock shelter, 4:3). Discoid bead. Dia. 0.9; th. 0.3. White stone, probably limestone. *Date*: EM I–III.

J50 (Fig. 47; rock shelter, 5:2). Discoid bead. Dia. 1.6; th. 0.4. Black serpentinite. *Date*: EM I–III.

J51 (Fig. 47; rock shelter, 2:2). Discoid bead. Dia. 1; th. 0.2. Black serpentinite. *Date*: EM I–III.

J52 (Fig. 47; rock shelter, 2:2). Discoid bead. Dia. 1; th. 0.25. Gray serpentinite. *Date*: EM I–III.

J53 (Fig. 47; rock shelter, 3:3). Discoid bead. Dia. 1.3; th. 0.3. Brown serpentinite. *Date*: EM I–III.

J54 (Fig. 47; rock shelter, 4:2). Discoid bead. Dia. 1; th. 0.2. Brown serpentinite. *Date*: EM I–III.

J55 (Fig. 47; rock shelter, 4:3). Discoid bead. Dia. 0.45; th. 0.15. Black serpentinite. *Date*: EM I–III.

J56 (Fig. 47; rock shelter, 2:2). Discoid bead. Dia. 0.5; th. 0.15. Gray serpentinite. *Date*: EM I–III.

J57 (Fig. 47; rock shelter, 4:2). Discoid bead. Dia. 0.7; th. 0.4. Red quartz. *Date*: EM I–III.

J58 (Fig. 47; rock shelter, 3:1). Discoid bead. Dia. 1.2; th. 0.35. Brown stone. *Date*: EM I–III.

J59 (Fig. 47; Pl. 34; Open Area 3, Str. II). Discoid bead. Dia. 1.6; th. 0. 5. Brown stone. *Date*: EM I–III.

11.1.2.2. Cylindrical

Six beads belong to the cylindrical type. They have a tubular shape. Apart from one bone bead (**J62**), the rest are made of stone, mostly soft serpentinite. All were found in the rock shelter. As in the case of the discoid beads, there are numerous parallels all over Crete (Effinger 1996, 29). These are dated throughout the Prepalatial period, and it is therefore not possible to give a more precise date.

J60 (Fig. 47; Pl. 34; rock shelter, 2:2). Cylindrical bead. L. 0.7; dia. 0.5. Black serpentinite. *Date*: EM I–III.

J61 (Fig. 47; Pl. 34; rock shelter, 2:2). Cylindrical bead. L. 1; dia. 0.6. Brown serpentinite. *Date*: EM I–III.

J62 (Fig. 47; rock shelter, 2:2). Cylindrical bead. L 1; dia. 0.6. Bone. *Date*: EM I–III.

J63 (Fig. 47; Pl. 34; rock shelter, 2:1). Cylindrical bead. L. 1.1; dia. 1.4. Light brown stone. *Date*: EM I–III.

J64 (Fig. 47; Pl. 34; rock shelter, 5:3). Cylindrical bead. L. 0.9; dia. 1. White stone. *Date*: EM I–III.

J65 (Fig. 47; Pl. 34; rock shelter, 3:3). Cylindrical bead. L. 1.1; dia. 0.4. Brown stone. *Date*: EM I–III.

11.1.2.3. Spherical or Elliptical

Four beads are spherical or elliptical in shape with a central string hole. One (**J69**) was made of faience while the rest were made of soft stones. All were found in the rock shelter. As in the case of the above bead types, there are numerous parallels all over Crete (Effinger 1996, 25) and precise dating is not possible. The faience bead is of particular importance because together with a vase from Maronia and similar beads from Mochlos, Trapeza, Koumasa, Platanos, and Lebena, which are dated between EM II and MM I, it constitutes the earliest evidence for faience in Crete (Panagiotaki et al. 2004, 151). The date of the Livari faience bead is not secure, but on the basis of the pottery from the rock shelter it could be anywhere between EM I and EM III.

J66 (Fig. 47; rock shelter, 3:1). Spherical bead. Dia. 1. Black serpentinite. *Date*: EM I–III.

J67 (Fig. 47; Pl. 34; rock shelter, 4:2). Elliptical bead. Max. dia. 1.6; min. dia. 1.2. Brown stone. *Date*: EM I–III.

J68 (Fig. 47; rock shelter, 4:1). Elliptical bead. L. 1; max. dia. 0.75. Black serpentinite. *Date*: EM I–III.

J69 (Fig. 47; rock shelter, 2:1). Elliptical bead. Max. D. 0.7; min. dia. 0.3. Faience; pure white core; traces of greenish tint on surface suggest existence of glossy glaze, not preserved. *Comments*: This picture agrees with Panagiotaki's description of Early Minoan faience in Crete (Panagiotaki 1999, 618; Panagiotaki et al. 2004, 152). It is not possible to know if the bead was imported from Egypt, where the technology of faience was first introduced, because most of the Aegean faience started to be produced locally well before the end of the 3rd millennium (Alexiou and Warren 2004, 130; Maniatis et al. 2008, 111). *Date*: EM I–III.

11.1.2.4. Miscellaneous Types

Four beads do not belong to any of the above types and are therefore discussed separately.

J70 (Fig. 47; Pl. 35; rock shelter, 3:3). Tubular grooved bead. L. 2; dia. 0.9. Bone. *Parallels*: There are parallels from several sites dated throughout the Minoan period. The closest parallel, however, is a bone grooved bead from Phourni Tholos Gamma (Papadatos 2005, fig. 25:J62), dated to the EM IIA period. *Date*: EM IIA.

J71 (Fig. 47; Pl. 35; rock shelter, 2:2). Composite tubular bead. L. 0.8; dia. 0.8. Tube made of coiled copper strip; two serpentinite circular discoid beads fitted at two ends of tube. *Comments*: Corroded. *Parallels*: It was not possible to find any parallels, and the combination of different materials for the production of a single piece of jewelry in the Prepalatial period is not very common. *Date*: EM I–III.

J72 (Fig. 47; Pl. 35; tholos, Str. III). Flat discoid bead. Dia. 3.3; th. 0.25. Two tubular midrib string holes; two pieces of cast sheet joined together (probably by hammering). Silver. *Comments*: Corroded. *Parallels*: Similar beads, but with one string hole, have been found in

Crete at Moni Odigitria (Vasilakis and Branigan 2010, 191, no. J41), but it is mostly an off-Cretan type of bead with parallels from the Aegean, namely Aegina, Thyreatis, Poliochni, Troy (Antonova, Tolstikov, and Treister 1996, 80–94; Reinholdt 2008, 26), and the Middle East (Aruz, ed., 2003, fig. 72). Most parallels are made of gold, with the exception of the Moni Odigitria and Aegina beads, which are made of silver. The Aegina, Poliochni, and Troy examples are dated to the EBA 3 period. The Livari bead, however, seems to be somewhat earlier since the tholos tomb, where it was found, is dated to the EM I–III periods. *Date*: EM I–III.

J73 (Fig. 47; Pl. 35; rock shelter, 2:1). Discoidal bead. Dia. 1, th. 0.25. Coiled rod. Copper. *Comments*: Cast, hammered, and polished. Corroded. *Date*: EM I–III.

11.1.3. Miscellaneous Pieces

This category includes the three pieces of gold jewelry found at the site and a silver decorative boss.

J74 (Fig. 48; Pl. 35; tholos, Str. III). Bangle. L. 4; th. 0.2. Thin twisted wire with free flattened ends. Gold. *Parallels*: Bangles made of gold wire with free ends have been found in several Cretan funerary contexts, including Platanos, Kalathiana, Pyrgos, Koumasa, and Hagia Photia (Branigan 1974, 43:type I; Vasilakis 1996, 180:type I). These contexts are dated between EM I and MM I. *Date*: EM I–III.

J75 (Fig. 48; Pl. 35; rock shelter, 3:1). Foil. Dia. 3; th. 0.02. Circular shape; two holes, most likely for fitting onto another object, probably wood. Gold. *Date*: EM I–III.

J76 (Fig. 48; Pl. 35; rock shelter, 4:2). Sheet. L. 1.1; w. 0.7; th. 0.02. Triangular shape; two impressed lines; four holes; probably fitted onto another object, perhaps wood. Gold. *Date*: EM I–III.

J77 (Fig. 48; Pl. 35; rock shelter, 3:2). Decorative boss. H. 1.8; dia. 0.9. Silver. Branigan's type III (1974, 43). *Comments*: Corroded. *Parallels*: It has parallels from Mochlos, Troy, and Hagios Onouphrios (Branigan 1974, 187), made of copper and gold and dated to EBA I–III. *Date*: EM I–III.

11.1.4. Discussion

As in most Prepalatial cemeteries, the jewelry, particularly the pendants, is characterized by increased variability in form and raw material (Tables 50, 51).

More than half the items (64%) are beads, and most of them are of simple discoid, cylindrical, or spherical forms and are made of soft stones. Their manufacture was rather easy, and most probably they were made locally. Of particular interest is the silver bead **J72**, which was definitely imported, as indicated by the raw material and its off-Cretan parallels. It is possible, however, that it did not arrive directly to Livari but through the Mesara since a similar silver bead has been found at Moni Odigitria.

Pendants, although fewer (31%), constitute the most interesting and diversified group of artifacts. They are made of a broad array of materials (stone, copper, silver, bone, shell), and they belong to a variety of shapes. As discussed above, some of them have parallels within and beyond Crete, and they seem to have been imported to Livari from distant areas, including the Mesara, the North Cretan coast, and perhaps further beyond. The unique characteristics of each pendant, the variety of the raw materials, and the fact that they were imported to Livari suggest that at least some of them probably signaled special identities or status within the local community. This can be seen particularly in the case of the impressive ring-shaped pendant **J3** from the rock shelter, a large artifact made of pure solid silver and imported to Livari possibly from the Mesara. Two pendants of the same type (**J1**, **J2**) were also found in the same context. We cannot exclude the possibility that they originally belonged to the same deceased, but they were found in different trenches and layers.

A broad array of raw materials is represented in the Livari jewelry assemblage (Table 50). By far, most are made of stone (71%), especially small beads of various shapes. Soft stones were used for all these jewels. The lack of semiprecious hard stones reinforces the dating of the Livari jewels to the Prepalatial period, since such stones started to be used from the end of the Prepalatial and mainly in the Protopalatial period. The second most frequent material is silver (10%). The presence of so many silver artifacts is rather surprising considering that Livari is very remote from any sources of raw materials, particularly Lavrion and the Cyclades, which are considered the main sources of silver used in Prepalatial Crete (Stos-Gale and Macdonald 1991). The silver jewels, particularly bead **J72**, pendants **J3–J5**, and the copper pendant **J17**, find good parallels in sites of the Mesara (Moni Odigitria), the northern coast (Krasi, Kephala Petras), and beyond Crete (Aegina, Cyclades). This clearly suggests that they were not manufactured locally but were imported to Livari as finished products. The same applies also to the bone pendants **J14**, **J15**, and **J24**, which have good parallels from North Crete (Phourni Tholos Gamma), suggesting that they were possibly imported as finished products. Other materials include bone (6%), copper (5%), gold (4%), and faience (2%). The provenance of the gold objects and the faience bead is also unknown, but it seems more plausible that they were imported from other Cretan areas as finished products rather than manufactured locally at Livari.

Concerning distribution patterns, except for one stone bead (**J59**) from Open Area 3, which was probably a stray find, pieces of jewelry were found only in the tholos and the rock shelter (Table 49). This clearly suggests that they were offerings closely associated with the deceased and burial activity and were not involved in nonfunerary rituals or general ritual activities that took place in the open areas of the cemetery (Open Areas 1, 2). Furthermore, as with all small finds, there are sharp quantitative differences between the tholos and the rock shelter. Only 16 pieces of jewelry came from the tholos (21%), while the rock shelter produced 59 (78%). The rock shelter by far outnumbers the tholos in almost all categories of jewelry, with one prominent exception: the metal pendants (Table 49). The quantity and the diversity of the silver pendants from the tholos is worth noting, but we should not forget that the large silver pendant from the rock shelter (**J1**) weighs more than all the other silver objects found in the cemetery combined.

11.2. Neopalatial Period

The only piece of jewelry dated to the Neopalatial period is a simple discoid bead made of red quartz.

J78 (Fig. 48; house tomb, Str. II). Discoid bead. Dia. 0.6, th. 0.15. Red quartz. *Date*: LM IA.

12

Seals

by

Yiannis Papadatos

The cemetery produced seven seals, one (**S7**) of which was found in the house tomb and is dated to the Neopalatial period; the other six (**S1**–**S6**) came from the rock shelter and are of Prepalatial date.

12.1. Prepalatial Period

All the Prepalatial seals of the cemetery were found in the rock shelter, in various trenches and at various depths. Three are made of bone (**S1**–**S3**), one of ivory (**S4**), and two (**S5**, **S6**) of serpentinite.

S1 (Fig. 48; Pl. 36; rock shelter, 2:1). Seal. L. 2.1; w. 1.3; th. 0.3. Bone. Flat; elliptical shape; two attachment holes at edge, one hole repaired with second reattachment hole; flat face; curved back side representing the remains of the marrow cavity of the raw material. Motif of random curvilinear incisions that do not create a specific pattern. Not certainly a seal; perhaps an engraved decorated piece to be attached to a ring or other type of object, which is not preserved. *Parallels*: It was not possible to find parallels in terms of shape and motif, but the material is compatible with an EM II–III date. *Date*: EM II–III.

S2 (Fig. 48; Pl. 36; rock shelter, 3:1). Seal. H. 0.6; dia. 1.2 (sealing surface). Bone. Ring shaped, ring missing; almost circular sealing surface. Motif of two C-spirals conjoined axially. *Parallels*: For the shape, see Yule 1980, 76, type 28c (ring), dated to EM II–MM IA. For the motif, see Yule 1980, 158, type 43 (simple spiral), dated to EM II–MM II. The use of bone may indicate a date in the early Prepalatial period (EM II; Sbonias 2010, 211), but a later date could not be excluded, especially since the shape and the motif have a long history throughout the Prepalatial period. *Date*: EM II–III.

S3 (Fig. 48; Pl. 36; rock shelter, 2:2). Seal. H. 0.9; dia. 2.2 (sealing surface). Bone. Ring shaped, ring partly preserved with diagonal incisions; circular sealing surface. Motif of meandroid pattern consisting of two spirals. *Parallels*: For the shape, see Yule 1980, 76, type 28c (ring), dated to EM II–MM IA; it has a good parallel from Lebena, which also has thin incisions on the ring (Platon, ed., 1969, 209 [*CMS* II, 1, no. 185]; Alexiou and Warren 2004, fig. 8:102), but it cannot be dated more precisely than EM I–MM IA. For the motif, see Yule 1980, 152, 31:meandroid, dated to EM II–MM IA. The use of bone may indicate a dating in the early Prepalatial period (EM II; Sbonias 2010, 211), but a later dating could not be excluded, especially since the shape and the motif have a long history throughout the Prepalatial period. *Date*: EM II–III.

S4 (Fig. 48; Pl. 37; rock shelter, 3:3). Seal. H. 1.4; dia. 1.5 (sealing surface). Hippopotamus tusk, discolored by fire. Stump signet; cylindrical body and flat projection on top; projection has two perforations, a large one at the center and a smaller at the base of the projection; circular sealing surface. Motif of groups of incisions of different orientations, perhaps abstract representation of branches, and a V-cut. *Parallels*: For the shape, see Yule 1980, 81, type 31a (stump signet), and Sbonias 1995, 54, type 16 (kegelstümpfe); in terms of shape it is very similar to seals from Hagia Triada and Lebena (Platon, ed., 1969, 57, 58, 198 [*CMS* II, 1, nos. 49, 50, 174]). Sbonias distinguishes between stump signets of EM II and EM III–MM IA on the basis of the material, the former being made of bone and the latter of ivory. On this basis, the seal from Livari is dated to the later Prepalatial period, EM III–MM IA, but an earlier date could not be excluded solely on the basis of the material. *Date*: EM II–III.

S5 (Fig. 48; Pl. 37; rock shelter, 3:1). Seal. H. 1.6; dia. 1.2 (sealing surface). Blackish-green serpentinite. Conoid; suspension hole on top. Motif of cross with V-cuts on the field. *Parallels*: For the shape, see Yule 1980, 81, type 6g (conoid), and Sbonias 1995, 40, type 1a. For the motif, see Yule 1980, 155, type 37 (V-cuts). The best parallels in terms of both shape and motif come from Knossos and Kandila (Platon, ed., 1969, 543, 546 [*CMS* II, 1, nos. 457, 460]). The use of soft stone for a conoid seal with simple linear motif suggests a dating to the earlier phase of Cretan seal-making—EM II or even late EM I (Alexiou and Warren 2004, 146; Sbonias 2010, 210). *Date*: Late EM I–EM II.

S6 (Fig. 48; Pl. 37; rock shelter, 4:2). Seal. H. 1.2; dia. 0.9 (sealing surface). Black serpentinite. Cylinder; suspension hole on top. Motif of two scratches. *Parallels*: For the shape, see Yule 1980, 91, type 32c (stamp cylinder), and Sbonias 1995, 40, type 1c (stempelzylinder). The best parallels in terms of both shape and motif come from Lebena (Platon, ed., 1969, 220 [*CMS* II, 1, no. 195]; Alexiou and Warren 2004, fig. 35:532) and Myrtos (Warren 1972, fig. 97:130; Pini, ed., 1975, 14 [*CMS* V, no. 16]), dated to EM II and EM IIB, respectively. The use of soft stone for a cylindrical seal with simple scratching suggests a date in the earlier phase of Cretan seal making, in EM II or even late EM I (Alexiou and Warren 2004, 146; Sbonias 2010, 210). *Date*: Late EM I–EM II.

12.1.1. Discussion

The lack of stratigraphy in the rock shelter where all the seals were found does not allow secure conclusions about dating. For this reason, evidence from other sites should be considered. The six seals can be classified into three different groups on the basis of their raw material, shape, and motif.

The first group comprises the two seals made of serpentinite (**S5**, **S6**). Softstone seals in simple conoid or cylindrical shapes and with simple linear sealing motifs are characteristic of the earlier phase of Cretan seal making. Secure dating for this seal group is provided by the EM IIA seals from the lower stratum of Phourni Tholos E (Panagiotopoulos 2002, 61–80), the EM II seals from the lower stratum of Lebena Tholos IIA (Alexiou and Warren 2004, 146, nos. 28, 32), seals from the late EM I–II strata of Lebena Tholos II (Alexiou and Warren 2004, 133–134, nos. 536–539, 541, 543), and the EM IIB seals from Phase II of Myrtos Phournou Koriphi (Warren 1972, 97, 127–133). Thus, seals of this type could be dated to EM II (Sbonias 2010, 207) or to EM II–III (Krzyszkowska 2005, 60–63), but they possibly appeared toward the end of EM I, as indicated by some of the Lebena Tholos II seals (Alexiou and Warren 2004, 134). A date in late EM I or EM IIA is also highly possible for the Livari seals because of the large quantities of late EM I pottery found in the cemetery, particularly inside the rock shelter. The lack of stratigraphy and the picture of intensive disturbance, however, do not allow us to support this with certainty.

The second group comprises the three bone seals (**S1**–**S3**). Leaving aside the peculiar seal **S1**, the other two could belong to Sbonias' EM II group of "Early Prepalatial Seals in Bone" (Sbonias 2010, 211–213) and Krzyszkowska's EM II–III group of "Simple Bone Seals" (Krzyszkowska 2005, 61–63). The best dated examples include the EM IIA seals from the lower stratum of Phourni Tholos E (Panagiotopoulos 2002, 61–80) and the EM II seals from the lower stratum of Lebena Tholos IIA (Alexiou and Warren 2004, 146, nos. 26, 27, 29–31). Concerning the two Livari bone seals, the material, the shape, and the simple sealing motifs are features compatible with an early date in EM II, but they also can be found in later examples of the EM III period. Thus, although it is highly probable that they belong to EM II, a later date in EM III cannot be excluded.

The last seal, **S4**, which is made of hippopotamus tooth, belongs to the large corpus of Prepalatial ivory seals. Despite Sbonias' early attempt to date all ivory seals in the EM III–MM IA period (Sbonias 1995, 84), it is largely accepted that hippopotamus ivory as a raw material and ivory seals appear for the first time in EM IIA, as indicated by an ivory fragment from Knossos (Krzyszkowska 1984) and a few seals from the lower burial stratum of Phourni Tholos Gamma (Papadatos 2005, 43, nos. S3, S4, S6). The floruit of the ivory seals group, however, lies certainly within EM III–MM IA (Krzyszkowska 2005, 63; Sbonias 2010, 208). The shape occurs in both EM II and EM III–MM IA, and the motif cannot be dated more precisely. Thus, the dating of the seal to the later Prepalatial period (EM III–MM IA) solely on the basis of the material is not certain.

In terms of quantity, the Livari seals are rather few, especially considering that the use of the cemetery covers several centuries from late EM I to EM III. This picture emerges not only when comparing Livari with the large and rich cemeteries of the Mesara, but also with cemeteries of the Asterousia with which Livari shows particular affinities. Lebena and Moni Odigitria produced a large number of seals dated to all Prepalatial phases, including a broad array of shapes and a great variety of sealing motifs ranging from simple to more complex. At Livari, the small number of seals suggests that they were probably imported from the Mesara-Asterousia area. Thus, their rarity and distant provenance may have signaled social distinction and differentiation in the small remote community of Livari.

12.2. Neopalatial Period

The only Neopalatial seal comes from the house tomb. It was found next to the relocated remains of an adult male (K6) and also accompanied by three copper fishhooks. Precise dating is provided by the vases of the assemblage, which are dated to LM IA.

S7 (Fig. 48; Pl. 37; house tomb, Str. II). Seal. L. 1.8, h. 1.3, th. 0.7. Red crystalline quartz. Amydgaloid; hanging hole pierced through body. Motif of flying fish to the right and seaweed at the left. *Date*: LM IA.

12.2.1. Discussion

The sealstone from the house tomb belongs to a typical Neopalatial shape, and it is made of widely available quartz. Nevertheless, it seems to be a rather unique artifact in the context of a small remote community like Livari. Apart from two imported, fine decorated pots (**P357**, **P359**), the tomb did not produce any other objects that could be regarded as being of special importance, suggesting that the sealstone may signal some sort of special status in the local community. The individual who was accompanied by the seal and the fishhooks, however, did not receive special treatment in comparison to the other dead buried in the tomb.

13

Miscellaneous Finds

by

Yiannis Papadatos

13.1. Stone Tools

The only stone tool from the cemetery is a small stone axe made of a locally available greenish, metamorphosed volcanic conglomerate. It was easily made by grinding and polishing a simple oval pebble similar to those found today in the mouth of the Alogaras gorge, which were probably brought by the stream from upland areas. Ground stone tools made of the same material are frequently found in the EM settlement at Kastrokephalaki, located a few hundred meters to the north of the cemetery. Thus, it is possible that the axe originates from there or from the FN settlement of Katharades, which is also nearby. The axe was found in the topmost surface layer of the tholos, and it is probably a stray find not associated with the burials and the funerary activity in the cemetery. It is very worn, further reinforcing the idea that it was not deposited originally inside the tomb but was on the surface for many years before ending up in the topmost layer of the tomb. Similar axes of the same metamorphosed volcanic rock have been found in EN, MN, and FN levels at Knossos, in LN Magasas (Strasser 2008, 158–160), and in an EM I context at Kephala Petras (pers. obs.). On the basis of the above parallels and the occupation history of the Livari area, the stone axe could be FN or early EM.

B1 (Fig. 48; Pl. 35; tholos, Str. I). Small stone axe. H. 5.4; w. 3.6; th. 2. Greenish metamorphosed volcanic rock with dark green inclusions. Broken and very worn around edges. *Date*: FN–EM I.

13.2. Figurines

A single clay figurine was found in the cemetery. It comes from the destruction layer (Str. II) of the tholos tomb and therefore may not be associated with the burials found underneath. The identification of the animal is rather difficult because the head is missing. Features like the short, thick legs, the long tail, and the thick neck, however, suggest that it is not a bovine, sheep, or goat, animals that are usually modeled in clay. Other possibilities include a pig (but the tail is rather long), a dog, or some kind of feline. The surface is covered with a thick black slip, and it has possible traces of white paint, bringing it close to the R/BSW or the WODW and suggesting a date in the later Prepalatial period.

B2 (Fig. 48; Pl. 35; tholos, Str. II). Animal figurine. L. 3.45; h. 1.4. Quadruped; long tail; short legs; thick neck; head missing; circular hole at rear, probably for hafting. Fine brown fabric. Surface covered with black slip and possible traces of white paint. *Date*: EM IIB–III.

13.3. Bone Objects

Of the six bone objects found in the cemetery, five (**B3–B7**) are pointed tools. Their use remains unknown, especially in a funerary context. The sixth (**B8**) has incised decoration and is probably part of a composite object, although it could also be part of a pendant. All were found in the rock shelter.

B3 (Fig. 48; Pl. 35; rock shelter, 3:1). Pointed tool. L. 4.9; w. 1.4; th. 0.3. Elliptical shape; flat with point at one end; other end curved. *Date*: EM I–III.

B4 (Fig. 48; Pl. 35; rock shelter, 3:2). Fragment of pointed tool. L. 3.5; w. 1; th. 0.25. Curved end missing. For shape see **B3**. *Date*: EM I–III.

B5 (Fig. 48; Pl. 35; rock shelter, 3:3). Fragment of pointed tool. L. 3.2; w. 1.1; th. 0.25. Curved end missing. For shape see **B3**. *Date*: EM I–III.

B6 (Fig. 48; Pl. 35; rock shelter, 3:3). Fragment of possible pointed tool. L. 5.4; w. 1.3; th. 0.45. Pointed end missing. For shape see **B3**. *Date*: EM I–III.

B7 (Fig. 48; rock shelter, 2:2). Fragment of possible pointed tool. L. 2.8; w. 1.5; th. 0.3. Both ends missing. For shape see **B3**. *Date*: EM I–III.

B8 (Fig. 48; Pl. 35; rock shelter, 3:2). Unidentified object, most probably part of a handle. L. 2.3, w. 1.1, th. 0.3. Hollowed with hafting(?) hole; pointed shape. *Date*: EM I–III.

13.4. Miscellanea

B9 (Pl. 5; tholos, Str. III). Burned sherd with adhered drops of copper. H. 4.7; w. 4.9; th. 0.7. Drop of copper shows that the sherd was burned next to a copper object in a high temperature to cause the metal to melt down. *Date*: EM I–III.

B10 (tholos, Str. III). Piece of pumice. H. 4.2; w. 3.9; th. 1.7. *Date*: EM I–III.

14

Chipped Stone

by

Tristan Carter

14.1. Introduction

This chapter details the 218 pieces of chipped stone from Livari that are believed to be Bronze Age in date (Figs. 49–55). Additionally, a brief statement on the Mesolithic material is offered below. This modest but informative assemblage is dominated by fine obsidian blades that were intentionally deposited at the site during various funerary-related activities. While most of this material is considered to be Prepalatial, a small proportion likely dates to the Neopalatial period. In general terms, the chipped stone reflects what we have come to expect from a Cretan EBA burial ground, with the assemblage having numerous close parallels from Prepalatial cemeteries throughout the island, not least the tholos tombs of the Mesara (Carter 1998, 1999, 2010). The artifacts are primarily comprised of fine cutting implements, likely employed for body modification (depilation, scarification, tattooing, bloodletting) and/or the preparation of foodstuffs for funerary repasts (Carter 1994, 1999; Hamilakis 1998). With the assemblage containing almost no manufacturing debris, it can be argued that these blades were procured ready-made. Given the skilled technical know-how required to make these implements, and the exclusive organization of their production in Prepalatial Crete, one can further suggest that their inclusion in funerary rituals at Livari represented a form of conspicuous consumption. Moreover, with the cemetery representing a dynamic arena within the constitution and reformation of social ties and lineages, these items might be viewed as important tokens of social relations—their gifting, use, and discard serving to mediate and materialize interpersonal connections at the local and regional level (Carter 2007).

The inclusion of obsidian blades in the burial habits of EBA Cretans has previously been interpreted as the adoption of a Cycladic practice in EB I in the context of the first wave of Bronze Age "internationalism" (cf. Renfrew 1972, 451–455; Broodbank 2000, 211–246; Papadatos 2007). In a Prepalatial funerary context these blades might thus be viewed as a form of "Cycladica" (Carter 1998), conceptually analogous to the "Kampos Group" pottery from Livari. The obsidian thus presents us with an opportunity to consider the relationship between the people of Livari and their Cycladic contemporaries. We shall focus on how these fine implements' manufacture and funerary consumption represent indices of cultural influence and contact, an analysis that contributes to a greater awareness of regional diversity in the earlier EBA. The result of this approach necessitates a critical reflection upon the utility of a dichotomous "Minoan" versus "Cycladic" way of thinking about the cultural identity of those inhabiting Crete and the Cyclades in the first half of the 3rd millennium B.C.

While this report focuses purely on the Bronze Age component of the Livari cemetery (and a handful of FN material from the pre-tholos tomb stratum), it is necessary to offer a brief comment on the earlier prehistoric assemblage, the existence of which only became apparent during post-excavation studies. The Livari chipped stone assemblage comprises some 473 pieces, 255 of which are believed to relate to a temporary hunter-gatherer occupation located in front of the rock shelter. The great majority of these artifacts are made from local cherts and include a number of retouched tool types—including geometrics such as trapezes, plus notched pieces, denticulates, perforators, and backed bladelets—that are diagnostic of a Mesolithic date, with comparanda from both the Plakias region sites in south-west Crete (Strasser et al. 2010) and the Franchthi Cave on the Greek mainland (Perlès 1990). A full study of this material will appear elsewhere.

14.2. Aims and Methods of Study

This study aims to detail the nature of the assemblage, starting with the basic information concerning its raw materials, techno-typological characteristics, and distribution throughout the burial ground. The last data, together with considerations as to the artifacts' state, condition, and use-life, will be employed as a means of reconstructing the nature of funerary practice at the site and the role of chipped stone within these activities. Finally, the Livari material will be discussed in the context of analogous data sets from Bronze Age Crete as a means of defining regional burial traditions, followed by a consideration as to how this data contributes to our understanding of socioeconomic relations between Cretans and their contemporaries in the Cyclades. Structurally this report closely follows that employed in the publication of the chipped stone from the broadly contemporary cemetery at Moni Odigitria in the Mesara (Carter 2010); all measurements are given in centimeters.

14.3. Overview of the Assemblages

On the basis of their techno-typological attributes and raw materials, it is estimated that 218 of the 473 chipped stone artifacts recovered from the Livari excavations relate to the Bronze Age cemetery (Table 52). Typically for Prepalatial burial assemblages (Carter 1998; 1999, CXIV–CXLV; 2010), the vast majority of this material was obsidian (n=215, 99%), with only three chert implements (1%).

14.3.1. The Obsidian: Raw Materials and Techno-Typological Attributes

Based on visual inspection alone, the obsidian is believed to be from Melos in the western Cyclades, located 160 km to the north of Crete. Most appears to be from the Sta Nychia source, matt grayish black in color, with only a handful of the artifacts being made from the lustrous black and/or stripy-translucent type that we associate with the products of Demenegaki (through blind tests in conjunction with elemental analyses; Carter and Kilikoglou 2007).

Most of the obsidian can be classified as blades (Figs. 49–51), whose features are diagnostic of a pressure-flaked technology, namely: their regularity (parallel margins/dorsal ridges, even longitudinal thickness); diffuse bulbs of "percussion"; and small or absent bulbar scars (Tixier 1984). Technologically the assemblage is typical of the period, with pressure-flaked blade production the primary mode of working Melian obsidian throughout the

Bronze Age Aegean (Torrence 1979; Evely 1993, 119–141; Carter 2009, 203–204). One can be more specific as to how these blades were pressure flaked from the core through reference to their dihedral "striking" platforms and the fact that they lack both lip and overhang; these are characteristics of using a copper-tipped pressure tool (Pelegrin 2012, 485–490). This particular mode of pressure flaking—as opposed to using antler/horn or bone-tipped tools—is attested in Crete since at least the FN period (D'Annibale 2008) and in the Aegean more generally since the Early Neolithic (Perlès 1984).

The material includes two possible exhausted cores, however, their much-reduced state provides little detail as to the technical specificities involved in their reduction, whereby we have to turn to the blades themselves for such information. Firstly, we can estimate the original size of the cores through reference to the length of the few complete blades recovered, for which we have eight from the rock shelter (Figs. 49, 50); six of these implements range from 3.77 to 4.88 cm long, while the seventh measures 6.13 cm. The cores prepared to make these blades thus tended to be 4–5 cm long. The slight longitudinal curvature and mainly square distal terminations of the blades indicate that the nuclei were tabular in form.

While the assemblage lacks true blades of initiation, there are a few secondary series pieces that help us reconstruct the manner in which the core was prepared and the blade manufacturing process initiated. For the Prepalatial material it seems clear that cresting was one means of preparing the blade core, that is, the delicate flaking of an artificial ridge down the face of the nucleus to provide a preferential path for the fracture wave to follow when pressure was applied to the core's platform directly above it. Although we have no true crested blades, there were seven blades with remnant cresting, those blanks removed immediately after the crest's removal, one from the tholos, three from the rock shelter, and three from the open areas (see, e.g., **CS2**, **CS13**–**CS15**, **CS27**, **CS37**; Figs. 49–51). While this technique of preparing a core and initiating the first series of blade removals is relatively well attested in Bronze Age Crete (Evely 1993, fig. 53; Carter 2004b, 94–95, fig. 33:6), it is perhaps most commonly associated with Cycladic assemblages (Torrence 1979).

A few blades with remnant cresting scars were also included in the burial material from Hagia Kyriaki (Blackman and Branigan 1982, fig. 5, 52) and Moni Odigitria (Carter 2010, 153, figs. 60, 61:CS9–CS14), among others. There were also five part-cortical blades, two from the tholos, one from the rock shelter, two from the open areas (**CS1**, **CS12**; Fig. 49), and one from the house tomb (**CS30**; Fig. 50). These pieces may represent an alternative mode of initiating blade production that one associates more strongly with Cretan technical practice. In this instance the knapper selects raw nodules whose angular form presents them with natural ridges to use as a path of least resistance, rather than having to create an artificial crest. This method of initiating blade removal is well known in Prepalatial Crete, represented in obsidian assemblages from EM IB Kalo Chorio and Priniatikos Pyrgos, EM IIA deposits from under Batîment Pi in Malia and the West Court House, Knossos, plus various contexts at EM IIB Mochlos (all pers. obs.). Part-cortical blades are occasionally documented from other Prepalatial burial assemblages, including single examples from tholos tombs at Moni Odigitria and Hagia Kyriaki, plus two from Lebena (Carter 1999, CXIV–CXLV; 2010, 153, fig. 61:CS7), though Platanos B and the Pyrgos Cave material contained no examples. Alternatively, these part-cortical blades could have been produced during a period of core rejuvenation. Typically, Cretan Prepalatial blade-cores were usually prepared so that they could be worked around a half to two-thirds of their circumferences at any one time, the remainder of the nucleus being obscured by the hand or a clamping mechanism that held it in place while being pressure flaked (Carter 2004b, 94–95; Pelegrin 2012, fig. 18.2). After a while the original face becomes unworkable, leading to the core being turned 180º so that more blades could be flaked from its back. Often the back retained its natural surface, whereby the first blades would be part cortical; this has recently been well documented in EM II assemblages at Malia (Bellot-Gurlet, Pelon, and Séfériadès 2010, 8, pls. 1, 2).

In keeping with other Prepalatial burial assemblages the Livari material was dominated by true prismatic end-products, that is, blades from the full rhythm of production, the *plein débitage* (n=184, 84% of the total assemblage), mainly having parallel dorsal ridges and margins plus a trapezoidal cross-section, occasionally a single ridge and triangular section (see, e.g., **CS3–CS11**, **CS16**, **CS17**, **CS18–CS26**, **CS28**, **CS29**, **CS31–CS35**, **CS38–CS40**; Figs. 49–51).

Seventeen pieces of obsidian were retouched (8%), all blades, 12 of which came from the house tomb, plus two each from the tholos, rock shelter and open areas. This is a higher proportion of modified pieces than documented at Moni Odigitria, where only 2.3% had been retouched (Carter 2010, 154). Eight of the blades had been notched, that is, retouched to provide a margin with a short concave and strengthened section that may have allowed the piece to be used as a spoke-shave type implement, while one other piece had simple linear modification (**CS19**; Fig. 50). These tool types are recorded in Cretan obsidian assemblages from throughout the Bronze Age (cf. Carter 2004b, 98), including every Prepalatial domestic assemblage studied by the author, while three backed and two notched blades were recorded from the Moni Odigitria burial assemblage (Carter 2010, 154). In turn, two were backed, blunted on one margin to allow greater pressure to be exerted through the opposing cutting edge. More noteworthy are seven trapezes, small geometric implements formed by truncating and backing a prismatic blade, of which two came from the rock shelter (**CS28**, **CS29**; Fig. 50) and five from the house tomb (**CS33–CS35**; Fig. 50). These distinctive pieces form a minor, but recurrent component of Prepalatial burial assemblages, not least those from the Mesara, with examples from Papoura I (n=10), Moni Odigitria and Platanos B (n=3), Skaniari Lakkos (n=2), and Tholos Gamma and the Area of the Rocks, Phourni-Archanes (Carter 1999, ch. 12, app. four; 2010, 154, fig. 62; Papadatos 2005, 48, figs. 19, 27), together with a number of examples from the burial cave of Hagios Charalambos in the Lasithi Plateau (Betancourt et al. 2008, 563–565, fig. 12). They are also occasionally documented in Prepalatial domestic assemblages, as, for example, EM IB Priniatikos Pyrgos and the EM IIA West Court House, Knossos (pers. obs.) and EM IIB Myrtos Phournou Korifi (Jarman 1972, 326, fig. 128:35). Given that most of the examples came from the house tomb, it is worth noting that trapezes are also occasionally recorded in Neopalatial obsidian assemblages, as at late LM IB Mochlos (Carter 2004b, 98) and LM IA Malia (Batîment Pi, pers. obs.).

The significance of the obsidian's technology and form will be returned to in the discussion.

14.3.2. The Chert

The excavations also produced three chert artifacts that on the basis of techno-typological considerations (they are pressure-flaked blades), are firmly believed to be Bronze Age, clearly distinct from the Mesolithic material. All came from the tholos tomb, with two from the pre-burial level dated FN/EM I–IIA (Stratum IV), plus one from Stratum II that should be EM I–IIA in date (Table 52). They comprise a complete part-cortical secondary series blade of grayish-blue chert measuring 3.27 cm long (**CS10**), plus nonconjoining medial and distal segments of tan chert prismatic blades. These blades appear to have been flaked using the same type of copper-tipped tool as that used to work the obsidian. The complete blade had possible use-wear and had undergone surface alteration, possibly from burning; the medial tan chert blade had been used prior to deposition (**CS11**). The raw materials used to make these blades are almost certainly local (they are well represented in the Mesolithic assemblage), with various chert and radiolarite outcrops documented within 1 km of Livari in the limestone and conglomerate beds immediately to the north and west (Brandl 2010). Rare, fine pressure-flaked chert blades have also been documented in a few other Prepalatial burial assemblages, including Moni Odigitria and Platanos Tholos B in the Mesara (Carter 1999, CXIV–CXLV; 2010, 155–156).

14.4. Catalog of Illustrated Chipped Stone

14.4.1. The Tholos Tomb

CS1 (Fig. 49). Proximal section of a primary series blade; obsidian. Dims. 2.36 x 0.5 x 0.16. Unused part-cortical blade.

CS2 (Fig. 49). Distal section of a primary series blade; obsidian. Dims. 1.62 x 0.54 x 0.14. Unused blade with remnant cresting scars.

CS3 (Fig. 49). Proximal section of a prismatic blade; obsidian. Dims. 2.54 x 1.49 x 0.28. Unused.

CS4 (Fig. 49). Proximal section of a prismatic blade; obsidian. Dims. 2.17 x 1.15 x 0.29. Used.

CS5 (Fig. 49). Proximal section of a prismatic blade; obsidian. Dims. 2.4 x 0.62 x 0.12. Unused.

CS6 (Fig. 49). Medial section of a prismatic blade; obsidian. Dims. 2.96 x 0.7 x 0.14. Notched and used.

CS7 (Fig. 49). Medial section of a prismatic blade; obsidian. Dims. 2.25 x 1.02 x 0.25. Burned with white material adhering.

CS8 (Fig. 49). Medial section of a prismatic blade; obsidian. Dims. 2.05 x 0.94 x 0.27. Unused.

CS9 (Fig. 49). Medial section of a prismatic blade; obsidian. Dims. 2.08 x 0.98 x 0.35. Used and burned with white material adhering.

CS10 (Fig. 49). Complete primary series blade; grayish-blue chert. Dims. 3.27 x 0.78 x 0.38. Used and patinated part-cortical blade.

CS11 (Fig. 49). Medial section of a prismatic blade; tan chert. Dims. 1.45 x 0.68 x 0.16. Used.

14.4.2. The Burial Rock Shelter

CS12 (Fig. 49). Proximal section of a primary series blade; obsidian. Dims. 2.12 x 0.7 x 0.27. Used part-cortical blade.

CS13 (Fig. 49). Proximal section of a primary series blade; obsidian. Dims. 4.66 x 1.22 x 0.25. Unused blade with remnant cresting scars.

CS14 (Fig. 49). Proximal section of a primary series blade; obsidian. Dims. 3.79 x 1.2 x 0.41. Used blade with remnant cresting scars.

CS15 (Fig. 49). Proximal section of a primary series blade; obsidian. Dims. 4.53 x 1.3 x 0.32. Unused blade with remnant cresting scars.

CS16 (Fig. 49). Complete prismatic blade; obsidian. Dims. 6.13 x 0.71 x 0.28. Unused.

CS17 (Fig. 49). Complete prismatic blade; obsidian. Dims. 4.88 x 0.79 x 0.25. Used.

CS18 (Fig. 50). Near complete prismatic blade; obsidian. Dims. 4.9 x 1.15 x 0.24. Unused.

CS19 (Fig. 50). Complete prismatic blade; obsidian. Dims. 4.76 x 1.05 x 0.3. Used.

CS20 (Fig. 50). Complete prismatic blade; obsidian. Dims. 3.96 x 0.9 x 0.21. Unused.

CS21 (Fig. 50). Near complete prismatic blade; obsidian. Dims. 4.16 x 0.81 x 0.14. Unused.

CS22 (Fig. 50). Complete prismatic blade; obsidian. Dims. 3.77 x 0.8 x 0.21. Unused.

CS23 (Fig. 50). Complete prismatic blade; obsidian. Dims. 3.91 x 0.66 x 0.19. Unused.

CS24 (Fig. 50). Complete prismatic blade; obsidian. Dims. 3.77 x 0.78 x 0.16. Unused.

CS25 (Fig. 50). Near complete prismatic blade; obsidian. Dims. 4.1 x 0.75 x 0.18. Unused.

CS26 (Fig. 50). Proximal section of a prismatic blade; obsidian. Dims. 2.6 x 0.47 x 0.11. Unused.

CS27 (Fig. 50). Proximal section of a primary series blade; obsidian. Dims. 2.29 x 0.5 x 0.09. Unused.

CS28 (Fig. 50). Complete trapeze; obsidian. Dims. 1.27 x 0.53 x 0.23. Medial section of prismatic blade backed on one margin, top, and base. Unused.

CS29 (Fig. 50). Broken trapeze; obsidian. Dims. 1.3 x 0.65 x 0.25. Medial section of prismatic blade backed on one margin and base; missing proximal part. Used.

14.4.3. The House Tomb

CS30 (Fig. 50). Complete part-cortical blade-like flake; obsidian. Dims. 2.36 x 0.5 x 0.16. Used.

CS31 (Fig. 50). Distal section of a prismatic blade; obsidian. Dims. 3.51 x 0.92 x 0.14. Unused.

CS32 (Fig. 50). Proximal section of a prismatic blade; obsidian. Dims. 2.67 x 0.77 x 0.19. Used.

CS33 (Fig. 50). Complete trapeze; obsidian. Dims. 1.37 x 1 x 0.26. Medial section of prismatic blade backed on one margin, top, and base. Used.

CS34 (Fig. 50). Complete trapeze; obsidian. Dims. 1.42 x 0.47 x 0.22. Medial section of prismatic blade backed on one margin, top, and base. Used.

CS35 (Fig. 50). Complete trapeze; obsidian. Dims. 1.14 x 0.38 x 0.18. Medial section of prismatic blade backed on one margin, top, and base. Used.

14.4.4. The Open Areas

CS36 (Fig. 51). Proximal section of a primary series blade; obsidian. Dims. 3.21 x 0.91 x 0.27. Used part-cortical blade with remnant cresting scars.

CS37 (Fig. 51). Proximal section of a primary series blade; obsidian. Dims. 3.34 x 1.49 x 0.34. Used blade with remnant cresting scars.

CS38 (Fig. 51). Proximal section of a prismatic blade; obsidian. Dims. 3.13 x 0.66 x 0.15. Unused.

CS39 (Fig. 51). Proximal section of a prismatic blade; obsidian. Dims. 3.43 x 0.92 x 0.26. Unused.

CS40 (Fig. 51). Proximal section of a prismatic blade; obsidian. Dims. 3.42 x 1.02 x 0.2. Used.

14.5. Contextual Analysis of the Livari Chipped Stone

The questions of when the obsidian blades were interred at Livari, and with which individuals and other artifacts they accompanied, are not easy to answer. While the cemetery has not suffered the ravages of looting that we associate with so many Prepalatial burial complexes, the burial practices themselves have left us with an archaeological record dominated by mixed secondary deposits. In each of the tomb complexes communal burial was the norm, with Papadatos reconstructing a sequence of events concerning the laying out, defleshing, transport, and final interment of the body and skeletal remains. Many of these stages disturbed previous funerary arrangements, while the tholos underwent periodic episodes of ritual clearing, with quantities of human remains and material culture being redeposited in the open areas. Thus we face a not inconsiderable problem in trying to clarify (1) during which periods chipped stone tools were included in funerary rituals, (2) at which points in the sequence of burial activities obsidian implements were used in funerary rites and/or interred with the dead, (3) with whom they were associated (age/gender/status), and (4) how common the use of these blades were in these practices; might we be dealing with a low-level regular inclusion, or a few obsidian-rich consumption events? We present here the assemblages by area of excavation and return to the above questions in the discussion.

14.5.1. The Tholos Tomb

Only 29 pieces of chipped stone were collected from the tholos tomb, 26 of obsidian and three of chert (Tables 52–54). With the exception of one chert blade (**CS10**; Fig. 49) and a small obsidian flake, the artifacts were all broken. Based on the number of proximal sections we might be dealing with as few as 12 implements (10 obsidian and two chert; Table 54).

The obsidian is comprised primarily of fine prismatic blades (n=21), together with two secondary series blades, one part cortical, the other with remnant cresting scars (**CS1**, **CS2**; Fig. 49), plus two blade-like flakes and a small core rejuvenation flake (*pièce esquillée*). Only five pieces had macroscopic traces of use (potentially representing as few as three blades), one of which had also been notched (**CS6**; Fig. 49). The three pieces of chert were also in the form of pressure-flaked blades, with one complete part-cortical example measuring 3.27 cm long with possible use-wear (**CS10**; Fig. 49), plus nonconjoining medial and distal segments of tan chert prismatic blades, the first having use-wear (**CS11**; Fig. 49).

The highly fragmented state of the material is perhaps unsurprising given the delicate nature of the obsidian blades and the fact that these tomb deposits were far from stable, with the inclusion of new burials involving people stepping on and "disturbing" the remains of those already interred and their associated grave goods. One views a directly comparable situation in other tholos tomb assemblages; all the obsidian blades from the Hagia Kyriaki and Moni Odigitria tholoi were also found broken (Carter 1998, table 4.2; 2010, fig. 65). There seems to be a fairly straightforward correlation between long-term communal burials and fragmentation in the obsidian assemblage, with only a handful of complete blades from Lebena, Platanos and Skaniari Lakkos in the Mesara, or the Pyrgos Cave in North-Central Crete (Carter 1999, CXIV–CXLV). It is only in exceptional situations that these blades survive intact, that is, when that part of the tomb was left undisturbed, and/or they were some of the last goods interred, and/or they were protected in some way, as with the over 20 complete implements sealed under larnax 4 in Tholos Tomb Gamma at Archanes-Phourni (Carter 1999, 296–305; Papadatos 2005, 10). As a side note, it was previously claimed that the total fragmentation of the blade assemblages from the Hagia Kyriaki and Moni Odigitria tholoi was the result of looting (Carter 2010, 154); it is interesting to learn that Prepalatial funerary practices can produce exactly the same breakage patterns, as the Livari tholos, while eroded, had not been looted.

Turning to other taphonomic concerns, the surface condition of the artifacts was recorded as "dull;" in addition, three of the obsidian blades had a white material adhering to their surface from burning, while the complete chert blade also had surface patination, possibly from exposure to fire. With regard to the stratigraphic distribution of the finds one can say the following:

14.5.1.1. Stratum I

While chipped stone was collected from the topsoil, none of it appears to be Bronze Age in date, relating instead to the earlier prehistoric phase of activity at the site.

14.5.1.2. Stratum II

Five fragmentary obsidian blades and one of chert were recovered from the destruction layer of the tholos, representing a minimum of three implements that cannot be dated more specifically than EM I–III (Tables 2, 53, 54).

14.5.1.3. Stratum III

Perhaps unsurprisingly most of the chipped stone came from the actual burial stratum, with 19 pieces of obsidian representing a minimum of six blades (Tables 53, 54), plus two non-cortical blade-like flakes and a small core rejuvenation flake. Concerning the internal distribution of the material, two blade fragments came from Sector A in association with EM I pottery, while 11 broken blades and the two blade-like flakes were found in Sector B with ceramics spanning EM IB–III (Table 2). That that most of the obsidian from the burial stratum came from Sector B almost certainly reflects the fact that this was the thickest deposit in Stratum III. Two proximal blade segments and the rejuvenation flake came from Sector C, along with EM I–IIB pottery, while Sector D generated three fragmentary blades with ceramics of EM I–III date (Table 2). No chipped stone of recognizable Bronze Age form was found in Sector E.

Little can be said concerning the association of the chipped stone with other forms of material culture and/or particular individuals, as most finds from the burial stratum were found scattered in the tomb. There were three groups of objects found close to each other (Fig. 9), but none of these possible burial assemblages contained obsidian.

14.5.1.4. Stratum IV

The earliest material derives from the subfill deposits that precede the construction of the tholos, associated with pottery of primarily FN date (plus a small amount of EM I–IIA material; Tables 2, 11); a few obsidian blades were similarly documented from pre-tomb deposits at Hagia Kyriaki (Blackman and Branigan 1982, 16, 20–21). The material comprises two fragments of an obsidian blade, plus two chert blades, one complete but patinated (**CS10**; Fig. 49); in total a minimum of three implements (Table 54).

14.5.2. The Burial Rock Shelter

Excavation of the rock shelter produced 61 pieces of obsidian, the assemblage again dominated by fine pressure-flaked prismatic blades (n=51; **CS16**, **CS17**, **CS18–CS25**; Figs. 49, 50), together with five secondary series blades, one part cortical and the others with remnant cresting scars (**CS12–CS15**, **CS26**; Figs. 49, 50), a chunk/core fragment, a part-cortical flake, a rejuvenation flake from the back of a nucleus, and a chip. Sixteen pieces had use-wear (perhaps as few as eight blades), while two blades had been modified into trapezes (**CS28**, **CS29**; Fig. 50). Based on the number of whole and proximal pieces, the assemblage comprises a minimum of 35 blades, three times as many implements as recovered from the tholos.

Concerning these implements' findspots and associations little can be said, with the excavator noting that the chipped stone demonstrated no special distribution among the various trenches and strata. If one considers the quantity of material by area of excavation (2 in Trench 1, 7 in Trench 2, 15 in Trench 3, 22 in Trench 4, and 9 in Trench 5), then one can simply state that the biggest trenches produced the most artifacts. Stratigraphically, the material is distributed as follows: 25 in Layer 1, 19 in Layer 2, and 14 in Layer 3, data that again seems to show little significant patterning. Concerning the eight complete blades, their preservation seems to be a product of them being deposited from the innermost reaches of the rock shelter (Trenches 4 and 5), which offered them a greater degree of protection throughout the use of the burial chamber (coming as they did from stratigraphic sequence, with four in Layer 1, three in Layer 2, and three in Layer 3). One might have hoped that these undisturbed deposits included other items in clear association with the blades; alas, this was not the case.

More generally the rock shelter material seems to have suffered less "disturbance" than that from the tholos tomb, for while the two assemblages are much the same in terms of the artifacts' form, the blades from the latter context were all broken (Fig. 52). Indeed the average length of the blades from the tholos was only 1.8 cm, while those from the rock shelter measured 2.7 cm. In turn, while the tholos assemblage was all recorded as "dull" (with four having surface adherence/alteration), over half the rock shelter material was described as "fresh" (n=42), with no burned material. Finally, the rock shelter also produced two trapezes, while the tholos produced none.

14.5.3. The House Tomb

Fifty-one pieces of obsidian came from the Neopalatial house tomb, the material again dominated by prismatic blades (n=46; Fig. 53), together with a secondary series blade/rejuvenation flake with remnant cresting scars, two blade-like flakes, a part-cortical flake, and a core fragment (e.g., **CS30–CS35**; Fig. 50). The blades were all broken. Based on the number of proximal sections, the house tomb assemblage might represent as few as 15 blades. Interestingly, this assemblage included the highest proportion of artifacts with macroscopic wear, both from use and postdepositional processes (n=48). Similarly, a quarter of the assemblage had been deliberately modified (n=12), including six notched blades, plus five trapezes (e.g., **CS33–CS35**; Fig. 49).

While the tomb and its use date to the Neopalatial period, it is thought that much of the obsidian is residual from Prepalatial funerary activities. It might be reasonable to suggest that four pieces whose condition was recorded as "fresh" might be viewed as part of the Neopalatial funerary assemblage. Conversely, there are pieces whose state and condition suggest they might be Prepalatial, not least one blade with white adherent surface material that is directly comparable to burned/altered examples from the tholos tomb. In turn, there are four blades whose condition was recorded as "very dull," likely due to long-term postdepositional wear/exposure. Alas it is impossible to offer precise figures by period because pressure-flaked blades are chronologically undiagnostic in themselves, having been produced on Crete throughout the Bronze Age.

Ultimately, one problem in interpreting the house tomb material relates to the fact that we know so little about Neopalatial funerary practices beyond the architecture and ceramics. To the best of our knowledge this represents the only Neopalatial burial context with obsidian. We have no issue with the idea that burial practices of LM IA should have continued to include the consumption of fine prismatic blades, as small quantities of these implements were recovered from LM III contexts in the Archanes-Phourni cemetery (pers. obs.). That said, we feel that the bulk of the material from the house tomb likely represents residual funerary equipment from the Prepalatial period.

Concerning the spatial and stratigraphic distribution of the finds within the house tomb, the obsidian all derived from the actual burial stratum, with no material coming from the topsoil (Stratum I) or the subfill (Stratum III).

14.5.3.1. Room 1, Stratum II

Two-thirds of the house tomb assemblage came from Room 1 (n=34, 67%), the slightly smaller of the two burial chambers (Fig. 13). This material represents a minimum of 13 blades, plus a part-cortical, blade-like flake and flake, all of which were recorded as "dull" or "very dull," suggesting that most of these tools might in fact be Prepalatial.

14.5.3.2. Room 2, Stratum II

The remaining third of the assemblage came from the larger Room 2 (n=16, 33%), the material representing a minimum of two blades, an exhausted core/chunk and non-cortical blade-like flake; one of the blades had been worked into a trapeze. Four of the blade fragments were recorded as "fresh" and might thus relate to Neopalatial funerary rituals, however most of the material was recorded as "dull" or "very dull," while one had adherent white material, all of which strongly suggests a Prepalatial date, the latter almost certainly having originally come from the tholos tomb.

14.5.4. The Open Areas

Seventy-eight pieces of obsidian were recovered from the areas around the tholos, much of which was probably first interred in this tomb and then redeposited outside during episodes of ritual clearance. The bases of this interpretation includes the structural similarity of the two data-sets and their comparable condition (minus the evidence for burning).

The obsidian is again dominated by pressure-flaked prismatic blades (n=65; e.g., **CS38–CS40**; Fig. 51), followed by three secondary series blades with cortex, a further three with remnant cresting scars (see, e.g., **CS36**, **CS37**; Fig. 51), plus five non-cortical blade-like flakes and two core rejuvenation pieces. The blades were all broken (average length 1.89 cm, comparable to the 1.8 cm average for the tholos tomb material), representing a minimum of 30 implements based on proximal counts. The slightly higher average length for the open area material arguably reflects the fact that not all of the blades represent material in secondary deposition from the tholos. A small proportion of this assemblage likely relates to funerary-related activities that took place in the external spaces. For example, there is the cluster of intact vessels (mainly EM IB), but no associated human remains, in Open Area 2, a deposit that also contained 32 obsidian artifacts, the largest concentration of such material from the external spaces. Unlike the jugs, none of these blades were found complete; indeed, their average length (1.88 cm) is slightly shorter than that of the overall open area assemblage. In turn, none of this material is significantly fresher than the other material from external spaces (one piece is recorded as "fresh," as is one other blade from the open area). It might thus be suggested that the Open Area 2 deposit related primarily to drinking-based rituals, with the obsidian recovered from this area perhaps residual from the tholos and/or earlier activities. Conceptually we have no problem with the consumption of such blades in nonburial rituals, as perhaps evidenced by the accumulation of feasting debris from a late EM I–early EM IIA pit-foundation deposit dug in front of the main burial chamber at Hagia Kyriaki (Carter 1998, 69). From Moni Odigitria we have another obsidian-rich external deposit, albeit this time including human remains, the ossuary pit also providing evidence for feasting (Carter 2010, 159).

A significant quantity of the blades from the open areas had traces of edge wear (n=52, 73%), a much higher proportion than recorded for the tholos tomb material (n=8, 32%). While this level of damage could be the result of the greater amount of post-depositional attrition, the material would have suffered in being collected, carried, and dumped from the tholos. We are also tempted to view a proportion of this wear as relating to nonfunerary tool use in ceremonies next to the tomb. Only two blades had been modified, one backed and the other notched.

14.6. Reconstructing the Funerary Consumption of Chipped Stone at Prepalatial Livari

Given that most of the chipped stone was found in burial contexts (140 from tholos, rock shelter, and house tomb combined; 78 from the open areas), it seems fair to conclude that the material can be viewed primarily as grave goods, items deliberately selected for inclusion in the grave within the context of the interment of an individual or group of individuals. With most of the obsidian blades showing little trace of predepositional wear, it might further be concluded that these implements were specifically manufactured and/or procured with burial in mind. This is in contrast to many of the other grave goods that had clearly enjoyed ownership and use prior to their burial. In those few instances where the blades do show use-wear and/or retouch, one might envisage these grave goods as first being employed in some funeral related activity, such as preparing the body through depilatory acts or cutting their tendons during the period of rigor mortis to facilitate laying the individual out in the proper fashion (cf. Fountoulakis 1987). Alternatively, the blades might have been used to cut up food to be shared amongst the burial party or to mark the participants in some manner, either by a temporary form of body modification such as bloodletting or cutting hair, or more permanently via tattooing or scarification. Some of these rites appear to have been performed immediately adjacent to the tholos (Open Areas 1 and 2), with the blades then discarded after their use, never making their way into the burial chamber proper.

The evidence suggests that the use of obsidian blades in the Livari cemetery was a rare occurrence, certainly in comparison to the burial of small storage vessels or the graveside act of drinking. Based on the number of whole and proximal segments, we are dealing with a minimum of only 89 obsidian blades (plus three chert) being consumed in funerary rituals during the entire span of the cemetery's life, with nine from the tholos (Table 54), 35 from the rock shelter, 30 from the open areas, and 15 from the house tomb (a handful of which is likely Neopalatial). If we take 400 years as a rough estimate of the Prepalatial cemetery's life, then this represents 0.2 blades deposited every year, or 9 blades per generation if we use 40 years as a marker. Such figures sharply bring into focus how little material we are dealing with, not least when the similarity of the whole blades from the rock shelter suggests strongly that small groups were deposited together, that is, the entire assemblage could quite conceivably have been interred during a handful of events over four centuries. Of course the rarity of these implements may have been one of their most attractive features, according them social significance through their procurement and funerary consumption.

In trying to understand how often these blades were included in funerary practices it would be enormously helpful to have a more precise dating of the material. Alas, the burial practices performed at Livari produced highly disturbed and mixed deposits, whereby it is impossible to assign very specific dates for the majority of the assemblage. The few pieces from the subfill deposit under the tholos (Stratum IV) suggest that the use of fine blades on the site may have started in the FN period, though these activities may not have been related to burial practices. The deposition of obsidian certainly seems to have been a feature of funerary habits from the EM I origin of the cemetery, as evidenced by the deposit from Sector A in the main burial layer (Stratum III), while the recovery of blade fragments in every other major deposit throughout the stratigraphic sequence leads us to believe that these practices continued at a low level until EM III.

For similar reasons of disturbance, it is also impossible to associate these blades with a particular individual or group of individuals. Nor can the obsidian be associated with any other class of material culture to further shed light on how these implements were treated in the cemetery, with chipped stone absent from those few contexts where small groups of artifacts were found in situ. Given prior claims that one of these blades' primary functions related to body modification (depilation, tattooing, scarification), one might note that the Livari cemetery also generated two copper-alloy scrapers, plus various items for adornment, including pendants, beads, and a bangle.

The material does, however, contribute to the suggested reconstruction of burial practices comprising a sequence of events, linking the tholos, open areas, and rock shelter. Firstly, the obsidian from the Tholos also has traces of burned materials adhering to it, indicating that this material suffered a similar treatment to that of the pottery and other finds from this context. In turn, some of this material was then ritually cleared out of the tomb into the surrounding open areas, as evidenced by further examples of obsidian with white adherent burned surfaces. While one might envisage the life history of certain blades involving their movement from graveside ritual, to burial in the tholos, to redeposition back into the surrounding spaces, we are not certain as to whether any of this material ultimately made its way into the rock shelter. There is a significant difference in the state and condition of the material from tholos and open areas compared to that from the rock shelter, the former being broken and dull, the latter including a number of complete and fresh pieces (Fig. 54). This strongly suggests that many of the blades recovered from the rock shelter were deposited once and forever to mark the inclusion of new burials, even though for the individuals themselves this may have represented the final stage in a protracted sequence of funerary rites, from settlement and graveside treatment, via burial in the tholos, disinterment, and various other forms of modification (including burning), prior to their removal to the rock shelter. In short, one might talk of these obsidian blades having two points of entry into the cemetery: (1) the external spaces en route to the tholos and a long-term multi-contextual depositional history; and (2) directly to the rock shelter.

In discussing the significance of choosing finely crafted obsidian blades for inclusion in funerary ritual, it has been suggested that their exclusive nature contributed to their value, that is, these were the products of specialist craftspeople (Carter 1998, 71–72). The production of pressure-flaked blades seems to have been largely restricted to the major sites of the Prepalatial period, suggesting that influence over those with skilled technical know-how was one of the means by which elites created and maintained their status (Carter 1994; 1999, 70–81). As to where those performing funerary rites at Livari got their blades we simply cannot say as yet; we cannot currently appreciate just how exotic these products would have seemed to these people. They might have been knapped by a resident specialist at the neighboring (unexcavated) settlement (Schlager et al. 2001, 192–201), or were perhaps procured through trade partners living in the more cosmopolitan centers on the northern or eastern coast. Alternatively, a skilled knapper, a character of renown, may have been brought to the cemetery to ply their craft as a component of the funerary rites themselves, the host displaying and accruing their status through this theatrical product of their connections (Carter 2007).

14.7. The Livari Prepalatial Chipped Stone in Its Broader Context

We now turn to considering the Livari material within the broader context of chipped stone assemblages in Prepalatial/EBA burial practices more generally. In general terms the assemblage is typical for the period, because it is dominated by fine pressure-flaked blades, the majority of which were deposited at the site unused, having apparently been manufactured and procured specifically with the aim of using the implements in funerary rites. This is a practice that seems to have emerged in the EB I Cyclades, subsequently adopted by overseas communities during a period of Cycladic-driven establishment of socioeconomic relations (Carter 1994, 1998).

14.7.1. The Livari Material in Its Cretan Context

Obsidian blades have been documented from numerous Prepalatial burial contexts, not least in the Mesara tholoi, which provide the Livari assemblage with its closest comparisons, where it is estimated that well over half of the tombs contained such material (Carter 1998; 2010, table 91, fig. 69). In North-Central Crete analogous assemblages have been reported from the tholoi of Archanes-Phourni (Panagiotopoulos 2002; Papadatos 2005) and Krasi Pediados (Marinatos 1929), the Pyrgos and Kyparissi cave burials (Xanthoudides 1918; Alexiou 1951; Carter 1999, CXIV–CXLV), and the Gournes cemetery (Galanaki 2006). Further to the east, similar material has been recovered from funerary contexts in Mochlos, Hagia Photia, and Zakros (Hogarth 1900–1901; Soles 1992, 84; Carter 1999, CXIV–CXLV; Davaras and Betancourt 2004).

Unfortunately, it is extremely difficult to make direct comparisons with many of these assemblages, especially those from the Mesara, due to the effects of looting and/or the lack of detailed reportage from early publications. An earlier study would indicate that in terms of techno-typological considerations and life-histories, the blades from Livari were produced and consumed in much the same manner as witnessed in South-Central Crete. Concerning the quantity of material from the Livari assemblage, we can, however, tentatively suggest some intercommunity distinctions, as when we consider the data from Hagia Kyriaki (Blackman and Branigan 1982). Here the excavators recovered only 66 pieces (Carter 1999, CXIV–CXLV), representing a minimum of 21 blades deposited at the site over a significant period of time (EM I–MM IA; see Table 55), where one might be dealing with less than two blades per generation, compared to Livari's nine (while the tholos was looted, obsidian is not thought to have been targeted and thus underrepresented in the assemblage). One wonders if the smaller quantity of obsidian being consumed in Hagia Kyriaki's funerary rites might be partly related to the community's more isolated situation, located in the Hagiopharango Valley a few kilometers from the coastline, whereas the Livari community had direct access to the sea and in theory the maritime exchange routes articulated along the littoral. For what it is worth, one could also claim that the Lebena and Platanos assemblages are also "poorer" than that from Livari, while conversely Tholos B at Moni Odigitria and the Tholos Gamma/"Area of the Rocks" assemblages from Moni Odigitria and Archanes-Phourni might be viewed as having richer assemblages (Table 55). Given that the latter two sites are located further still from the sea than Hagia Kyriaki, the emphasis has to be on socioeconomic connectivity more generally, rather than a focus on proximity to the sea. Indeed, given the range of exotica and finely crafted items from these sites (Sakellarakis and Sapouna-Sakellaraki 1997, 118, 135; Papadatos 2005; Vasilakis and Branigan 2010), few would have an issue with the conclusion that the Moni Odigitria and Archanes communities were better connected than those performing their burial rites at Livari.

14.7.2. The Livari Trapezes and Eastern Mediterranean Traditions

Not all of the obsidian artifacts pertain to a Cycladic-originated tradition, for there is also a small amount of material—the seven trapezes—that arguably relate to practices associated with Levantine and Egyptian populations. On the basis of ethnographic parallels and iconographic representations from Predynastic Egypt and MM III Crete (Evans 1928, 48–50, fig. 23), these geometric implements are interpreted as small projectiles, of a type that is well attested in the Levant and Egypt during the later Chalcolithic of the 4th millennium B.C. (cf. Rosen 1997, 39–44; 2003, 753–754; Hikade 2003, 144–145; Coqueugniot 2004, 291, fig. 540:02, 03).

While conceptually the manufacture and use of trapezoidal points might have a Near Eastern or Egyptian origin, there are precious few other links with these regions attested in the Livari burial record, with the possible exception of the faience bead (which could also be Cretan), a single ivory cylinder seal, and a few pieces of gold. They do however suggest an alternative mode of identity construction within the community, that is, that certain characters may have been archers, with the act of hunting in post-Neolithic societies often viewed as a prestige pursuit (cf. Hamilakis 2003).

14.7.3. The Livari Material and Cretan-Cycladic Relations in the Earlier EBA

Here we finally turn to the question of connections between the people of Livari and those living to the north in the Cycladic islands. The ceramic assemblage has been shown to contain a range of ceramic vessels whose forms and fabrics are clearly Cycladic in style, specifically relating to the Kampos Group of late EB I. This is arguably the biggest difference that one can draw between the Livari tholos and its contemporaries in the Mesara, as ceramic and marble "Cycladica" are unknown from the latter region's burial record until early EB II (Carter 1998). The Cretan sites with "Kampos Group" affinity material being hitherto largely restricted to the northern coast, at the burial grounds of Hagia Photia and Petras, the Pyrgos, Kyparissi, and Amnisos caves, Gournes, and Krasi, plus the settlement of Poros Katsambas (Betancourt and Marinatos 2000; Davaras and Betancourt 2004; Papadatos 2007; Wilson, Day, and Dimopoulou-Rethemiotaki 2008; Tsipopoulou 2010). So what can the obsidian contribute to our understanding us of these Cretan-Cycladic relations?

While it has been claimed that the habit of burying fine obsidian blades/razors with the dead originated in the EB I Cyclades, the adoption of this tradition in Crete, with one or two exceptions, did not involve slavishly following Cycladic traditions. These regional (cultural) distinctions in practice can be viewed both in terms of how the items were consumed in the burial ground and how they were manufactured. The most obvious difference in how they were treated is the fact that most were interred in tholoi, house tombs, or caves, forms of burial that are local to Crete and unknown from the Cyclades. In turn, most of the obsidian blades from Crete's Prepalatial cemeteries were buried in association with a range of material culture that is quintessentially Cretan. Distinctions can also be viewed in the number of implements that were being buried with an individual, as, for example, the aforementioned assemblage of 20 blades from Tholos Gamma at Archanes-Phourni, which has no parallel from the contemporary Cyclades. In turn, the gathering and redeposition of obsidian outside the primary burial chamber, as with the open areas at Livari, the Ossuary Pit at Moni Odigitria, and the Area of the Rocks at Archanes-Phourni, is not something we associate with Cycladic burial habits (Carter 1999, 291–292; 2010, 159). While the treatment of the Livari obsidian in the burial ground can be viewed as un-Cycladic in many respects, what of the objects themselves? Can they be viewed as Cycladic both in terms of what they looked like and how they were made? Are they analogous to the Kampos Group–type ceramics, or do they derive from a South Cretan techno-typological tradition?

To answer this question we first have to sketch out a few basic points concerning the raw material and technical tradition(s) involved. Firstly, while these blades are made from a Cycladic raw material—Melian obsidian—this need not in itself represent evidence for cultural interaction between inhabitants of Livari (or their Cretan intermediaries) and those of the Cyclades. There is an earlier Neolithic precedent for Cretans directly procuring obsidian from Melos during a period when the islands were apparently uninhabited, while in EM IIB the maritime traders of Mochlos appear to have bypassed interacting with Cycladic peoples as they procured masses of Melian obsidian (Carter 2004a; 2009, 202). Turning to technology, we have long appreciated that the primary mode of working obsidian in the southern Aegean EBA was the production of fine, regular prismatic blades by the pressure-flaking technique (Torrence 1979; Evely 1993, 119–141; Carter 2009, 203–204). It is only more recently, however, that we have been able to discern subtle differences in how this technique was performed, some of which have quite distinct geographic, temporal, and contextual associations. For example, the late EB I Cyclades witnessed the emergence of a hyper-specialized version of the craft dedicated to the manufacture of especially long blades for consumption in funerary rituals, a tradition referred to as the "necrolithic" (Carter 2007). Theoretically, these are the types of blades that we should have at Livari if we want to make the argument that the obsidian from the cemetery is directly comparable to the Kampos Group–like ceramic vessels. So how does the material compare?

Simply stated, the Livari blades bear little resemblance to those from EB I–II Cycladic cemeteries, being significantly shorter, narrower, and thinner (Table 56; Fig. 55). Focusing on prismatic blades (*plein débitage*) from secure Prepalatial deposits, that is, removing the house tomb data, their average length is only 4.4 cm (n=8), the width and thickness being 0.78 and 0.2, respectively. This is in stark contrast to contemporary Cycladic products, which in settlements range between 7–10 cm, while burial material of the period tends to be longer still, culminating in a 22.5 cm blade from Aplomata on Naxos (Fig. 55; Carter 2007). As such, it is our opinion that while the consumption of obsidian blades in the Livari cemetery might ultimately represent the adoption of a Cycladic funerary practice, its articulation is eminently local in technique; they cannot be viewed as directly comparable to the Kampos Group–like ceramics. Technologically the Livari blades can also be distinguished from those of contemporary northern coast burials and settlements such as the Pyrgos Cave, Poros-Katsambas, Priniatikos Pyrgos, and Kalo Chorio, whose products derived from a hybrid Cycladic-Cretan technical tradition. Conversely, the Livari material is broadly comparable to that from the tholos tombs of the Mesara and Archanes-Phourni, although the complete rock shelter blades are on the whole slightly shorter; a 5.39 cm long core from Gerokampos II (Lebena) is representative of the South-Central Cretan products (Carter 1999, CXIV–CXLV; Alexiou and Warren 2004, 137, fig. 37, pl. 122C). In sum, the Livari knappers appear to have been practicing a technical tradition in common with those living in South-Central Crete, Archanes, and as far north as Knossos.

My aim in this comparative technical analysis has been to define shared modes of consumption, or "communities of practice" (Knappett 2011, 98–123). Following debates from the sociology of technology it can be argued that common forms of technical practice imply a significant level of on-the-ground interaction between populations, traditions that were likely transmitted from parent to child within a community and shared amongst members of other settlements through intermarriage and other deeply binding socioeconomic relations (cf. Gosselain 2000). The funerary arena of these small-scale communities would have represented an important stage upon which these relationships were forged and maintained, a recognized space within which kin, affines, and trade partners would have gathered from afar to honor the dead, offer gifts, swap tales, and share their knowledge of “how things are done” (cf. Dobres and Hoffman 1994; Dietler and Herbich 1998, 246–247). It was through the bonding acts of drinking, gifting, and commemorating the recently deceased and the revered ancestors that these peoples’ traditions and views of the world would have been reproduced, articulated through language, song, dance, cuisine, and crafting.

PART IV

Appendices and Concordances

Appendix A

Analysis of Prepalatial Pottery with Scanning Electron Microscopy

by

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A.1. Introduction

The technological study of the pottery has been complemented with scaning electron microscopy (SEM), the examination of clay microstructure under high magnification, allowing for an estimation of the firing temperature. The selection of samples for analysis was guided by the wares and the preservation of the surface layers in order to have a representative picture of all ware types present in the assemblage. For this reason, it was not always feasible to examine samples that were analyzed also by petrography, and the correlation with the petrographic fabrics is only occasional. The clay body and the surface of each sample were analyzed separately. The analysis was performed at the Technological Educational Institute of Athens, Department of Antiquities and Works of Art Conservation using a JEOL JSM 5310 electronic microscope with Energy Dispersive X-ray Spectroscopy (EDAX) Oxford Link coupled to the SEM providing semiquantitative elemental analysis. The results are presented in Tables 57 and 58. The terminology used follows Yiannis Maniatis and Michael Tite (1981).

A.2. Analytical Results

A.2.1. Dark Gray Burnished Ware

Samples: SEM1 (**P17**; Pl. 38:a, b), SEM2 (Pl. 38:c, d), SEM3 (**P107**; Pl. 38:e, f)

The vessels in this ware are characterized by a dark gray to almost black burnished surface and a gray to dark gray core, which in rare cases can be reddish brown. From the three samples, only one (SEM3) was also analyzed by thin section petrography and was found to belong to petrographic Fabric Group 8 (red with chert fragments). The analysis showed that samples SEM1 and SEM3 were manufactured with noncalcareous clays and the body microstructure shows no evidence of vitrification (NV), which is indicative of a low firing temperature (<750ºC). Sample SEM2 is slightly different: the amount of calcium in the clay is higher (CaO 5%), and this has facilitated the development of the clay filaments. The body microstructure exhibits initial vitrification (IV) and the firing temperature has been estimated at ca. 800ºC. The surface layer is fairly discrete for all three samples, it measures ca. 5–7 µm, it is nonvitrified, and it displays a degree of compaction due to burnishing. The gray/black color of the surface is the result of a short period of reducing atmosphere that prevailed in the kiln, hence the color variation of the core (Kilikoglou 1994, 72).

A.2.2. Dark Burnished Ware

Samples: SEM4 (**P169**; Pl. 39:a, b), SEM5 (**P174**; Pl. 39:c, d), SEM6 (**P173**; Pl. 39:e), SEM7 (Pl. 40:a, b)

In this ware the surface of the vessels is covered with a thin and heavily burnished slip. The color of the surface varies from red/reddish brown to dark brown and black. Macroscopically it appears that all vessels are manufactured in a semicoarse to coarse fabric tempered with calcite. One (SEM4) has been analyzed by thin section petrography and belongs to petrographic Fabric Group 1. From the four DBW samples analyzed by SEM, three (SEM4, SEM5, SEM7) have a red surface and one (SEM6) a black surface. The analysis showed that all samples were manufactured with noncalcareous clays and fired at low temperatures (<750ºC), as was the case for the DGBW vessels. The body microstructure displays no vitrification (NV), whereas the surface layer is thicker than that of the DGBW and ranges between 10–15 µm.

A.2.3. Dark-on-Light Painted Ware

Sample: SEM8 (**P300**; Pl. 40:c–e)

This ware is characterized by a smoothed surface covered with a thin wash or slip on which reddish-brown painted decoration has been applied. Macroscopically, the clay fabric is semifine yellowish buff and fired soft to medium. The sample analyzed belongs to the main group with painted wares, Fabric Group 4b, with sedimentary, metamorphic, and igneous rock fragments. The analysis with SEM showed a completely different raw material selection and firing than the other wares. The base clay is calcareous (CaO 13%) and so are the buff background and the red slip, which were analyzed separately, indicating that the same (or a similar) raw material had been used for the clay mix, the wash of the surface, and the slip of the decoration. The percentage of CaO, K_2O and FeO are lower for the buff wash and the red decoration.

The dark-on-light decoration is the result of an oxidizing-reducing-oxidizing firing cycle, known as the iron reduction technique (Kilikoglou 1994, 73). The body microstructure shows well-developed clay filaments with extensive vitrification and bloating pores indicative of a temperature around 1,000ºC (V_c/V_{c+}). The surface layers of the buff wash and the red decoration measure ca. 20 µm each.

A.2.4. Red Slipped and Burnished Ware

Samples: SEM9 (**P214**; Pl. 41:a, b), SEM10 (Pl. 41:c, d)

This ware is characterized by the application of a thick slip that is heavily burnished. Macroscopically, the color of the slip ranges from red to reddish brown and is different from the color of the fabric, which varies from pinkish to brown. Of the two samples, one was analyzed with petrography and proved to be a petrographic loner (LIV54) in a fine fabric with metamorphics. The clay of both samples is noncalcareous and the body microstructure displays no vitrification (NV) due to the low firing temperature (<750ºC). The surface layer has a thickness of 15 µm.

A.2.5. Vasiliki Ware

Sample: SEM11 (**P309**; Pl. 41:e, f, 42:a)

This ware is macroscopically characterized by its mottled surface with three intermingling colors, orange, red, and black, on an orange background. The clay fabric of the VW vessels found at Livari is fine and contains hardly any inclusions. Petrographic analysis demonstrated that this ware exists in several compositionally different fabrics and the sample analyzed is a petrogaphic loner. Examination with SEM of the clay body and the black and red areas separately showed that the raw material used for the clay body as well as the surface slip was a noncalcareous clay, most likely the same in both. The values for FeO and K_2O are lower for the surface. The body microstructure does not display any vitrification (NV) and firing temperature must have been low (<750ºC). The surface layers (background, black, red) are very thin, ca. 8 µm.

A.2.6. White-on-Dark Painted Ware

Samples: SEM12 (Pl. 42:c–f), SEM13 (Pl. 43:a–c)

This ware is macroscopically similar to the R/BSW in terms of surface treatment and firing, the only difference being the presence of creamy, white-painted decoration on the exterior and/or the interior of the vessel. The petrographic analysis showed that the WODW exists in a range of fabrics. Analysis with SEM demonstrated that there is a significant difference with the R/BSW: the use of a calcareous raw material for the manufacture of the vessels (CaO 11%). The dark background and the white decoration were examined separately and the percentages of CaO, K_2O, and FeO are lower than those of the clay body. The body microstructure displays well-developed clay filaments, indicating a high firing temperature around 1,000ºC (V_c/V_{c+}). The black and white layers of the surface measure ca. 15–20 µm each.

A.2.7. Red/Black Slipped Ware

Samples: SEM14 (Pl. 43:d, e), SEM15 (Pl. 43:f)

This ware is characterized by the application of a solid monochrome slip on the surface of the vessels, ranging in color between red and black. Petrographic analysis showed that the vessels of this ware belong to a range of fabric groups, all rare and most likely imported to Livari. The two samples analyzed by SEM were not analyzed by petrography and therefore it is not possible to make the connection between recipe of manufacture and firing technology. Their compositions are fairly similar, the values of all oxides being close. The raw material for both samples is a noncalcareous clay used for the body and the slip. The body microstructure of both samples displays extensive vitrification (V_c) and the estimated firing temperature is 850–950ºC. This temperature range is corroborated by the structure of the surface: the slip layer is smooth without many bloating pores and measures ca. 10 µm.

A.3. Discussion

The analysis with SEM demonstrated some technological characteristics of the manufacture of the pottery found at Livari, complementing the information acquired through thin section petrography. The clay body and surface of selected samples from all wares represented in the assemblage were analyzed separately, and the information provided relates to the choice of the raw materials, the treatment of the surface, and the firing temperature and atmosphere.

There is a marked difference in clay selection between the burnished and the painted wares: the former (DGBW, DBW, RSBW, R/BSW, VW) were are all manufactured with non- or low-calcareous clays, whereas the latter (DOLW, WODW) were made with calcareous raw materials. This difference is also seen in the firing process: the wares characterized by a smoothed or burnished surface seem to have been fired at low temperatures (below 750ºC) in an oxidized atmosphere, occasionally followed by a short period of reduction. The painted wares were fired at higher temperatures (ca. 1,000ºC) following the iron reduction technique. As to the surface treatment, the surface layer of the burnished wares varies in thickness between 8 and 15 µm, whereas for the painted wares the surface layer is thicker, ca. 15–20 µm.

Appendix B

Analysis of Metallic and Faience Artifacts with Portable X-Ray Fluorescence Spectroscopy

by

Katharine Hall

B.1. Aims and Method of Analysis

Compositional analysis of selected metallic and faience artifacts was carried out in order to (a) identify possible alloys that were used for the production of metallic artifacts, and (b) to establish the macroscopic identification of the material of bead **J69** as faience.

Analysis was carried out using portable X-ray fluorescence spectrometry (pXRF), a technique that provides an elemental analysis of a surface using an X-ray generator to excite surfaces into emitting characteristic secondary X-rays, which are then collected and analyzed. A fast, entirely nondestructive technique, it can be used to examine artifacts that can never be sampled, and it has become commonly used in archaeology (Karydas and Zarkadas 2008). A Bruker AXS Tracer III–V unit (X-ray tube, Rh target, 5 mm spot size) was used to collect data on the elemental composition. Identical settings were used for all analyzed artifacts (40 kV, 10 µA, Ti-Al Filter) in order to enable comparisons within the data set.

The Bruker unit and software provide a spectrum for each analysis in which the position of a peak on the x-axis (Kev) enables identification of the element and the size of the peak on the y-axis is related to the amount present. The aim of the analysis was to gain an understanding of the basic composition of the artifacts by identifying the presence or absence of major and minor elements. Since pXRF analyzes surfaces with little penetration into materials, and all measurements were taken from corrosion layers, quantitative measurements were not attempted and the data is presented in terms of the major and minor elements detected. Peaks are listed in size order, largest first. Very small peaks correspond to peaks smaller than the background peak of rhodium contributed by the anode. For full catalog entries of the objects analyzed, see Chapters 9 and 11.

B.2. Analytical Results

B.2.1. Gold Objects

Silver is clearly present in all three gold artifacts, as is copper in much smaller amounts (Table 59). Iron may also be present as an alloy component. All three spectra are very similar when overlaid. These artifacts were sampled after gentle cleaning and had no corrosion layers or adhering surface soil, which might otherwise have contributed some iron oxides.

J74. Bangle. Surface analyzed: gold surface; no soil accretion or corrosion layers. Spectrum peaks: gold (large); silver (small); iron, copper (very small).

J75. Foil. Surface analyzed: flat gold surface; no soil accretion or corrosion layers. Spectrum peaks: gold (large); silver (small); copper (very small).

J76. Sheet. Surface analyzed: flat gold surface; no soil accretion or corrosion layers. Spectrum peaks: gold (large); silver (small); copper, iron (very small).

B.2.2. Lead Object

The iron and calcium measured must be present as elements from the burial environment incorporated into the thick layer of corrosion on this artifact (Table 60). The identification of the material as lead, based on the visual appearance of the corrosion products, is confirmed.

M35. Strip. Surface analyzed: crack in lead corrosion layer; pure metal phase visible. Spectrum peaks: lead (large); silver (small); iron, copper (very small).

B.2.3. Silver Objects

Although these artifacts had been classed as silver before analysis based on the appearance of the corrosion products, it was obvious in at least one case (**J2**) that copper corrosion product, and therefore copper, was also present. It should be noted that the silver artifacts were analyzed before cleaning, and therefore the results must be interpreted with caution (Table 61).

Bromine is always detected and must indicate the presence of silver bromide as a major corrosion product, which should not have been a surprise (Hedges 1976). Silver corrosion products usually are assumed to be mainly silver chloride and silver sulphide. Iron is always present in small amounts, probably deriving from the burial environment and incorporated into surface corrosion layers.

Copper and lead were detected in small amounts in several artifacts but were absent in others. It is impossible, however, to confirm the absence of these elements in uncleansed artifacts. This is well illustrated in the case of **J17**, the only silver artifact that could be analyzed both before and after cleaning. The spectra show that before cleaning only silver, bromine, and iron were detected, whereas after cleaning (which reduced but did not entirely remove corrosion layers), large amounts of copper were detected (in fact the copper peaks in this spectrum are larger than the silver peaks). Obviously, the thick gray silver corrosion layers are not at all representative of the underlying pure metal phase. In another example, spectra for **J2** show how different the results can be depending on whether areas of copper or silver corrosion are analyzed. Again, the silver corrosion contains only silver and bromine as major elements, while the copper corrosion contains copper and silver as major elements and, interestingly, gold in small amounts. To conclude: at least three artifacts contain large amounts of copper as well as silver, **J2**, **J16**, and **J17** (which is basically a copper-based artifact). Other artifacts are covered with thick, dense silver corrosion layers, which may or may not be masking large amounts of copper as well as minor elements such as lead, arsenic, and gold.

The three ring-shaped pendants from Livari are interesting because they seem to have three different compositions: **J2**, already discussed, has copper and silver as major elements; **J1**, discussed below with the copper-based artifacts, has copper as a major element with silver as a minor element; and **J3**, about which we are unclear because of the thick corrosion, has silver as a major element with at least some copper. In all cases, however, it seems that we are dealing with different types of copper-silver alloy and not with silver-coated objects. This is particularly clear in the case of **J2**, in which silver corrosion layers were identified microscopically not only on the surface but also inside a crack that goes deep inside the core of the object.

J2. Pendant. (1) Surface analyzed: area of silver corrosion; dense gray silver corrosion layers, very thick. Spectrum peaks: bromine, silver (large); copper, calcium, iron (very small). (2) Surface analyzed: area of copper corrosion; damaged area of silver corrosion revealing underlying layers of green copper corrosion. Spectrum peaks: bromine, copper, silver (large); calcium (small); iron, gold (very small).

J3. Pendant. Surface analyzed: covered in dense, very thick, grayish-silver corrosion layers. Spectrum peaks: bromine, silver (large); calcium, iron (small); copper (very small).

J4. Pendant. Surface analyzed: dense grayish-silver corrosion layers. Spectrum peaks: silver, bromine (large); iron (small).

J5. Pendant. Surface analyzed: dense grayish-silver corrosion layers. Spectrum peaks: silver, bromine (large); iron (small); calcium, copper (very small).

J16. Pendant. Surface analyzed: test cleaned area at pure metal phase. Spectrum peaks: silver, copper, bromine (large); lead, iron (very small).

J17. Pendant. (1) Before cleaning. Surface analyzed: dense grayish-silver corrosion layers. Spectrum peaks: silver, bromine (large); iron, calcium (very small). (2) After cleaning. Surface analyzed: smooth dark green patina just above pure metal phase. Spectrum peaks: copper (large); silver, iron, bromine (small).

J18. Pendant. Surface analyzed: dense grayish-silver corrosion layers. Spectrum peaks: silver, bromine (large); iron (very small).

J72. Bead. Surface analyzed: dense grayish-silver corrosion layers; very thin artifact; an X-radiograph shows it is entirely mineralized to grayish-silver corrosion layers with no pure metal phase remaining. Spectrum peaks: silver, bromine (large); iron (small); calcium, copper (very small).

B.2.4. Copper-Based Objects

Copper-based artifacts were analyzed after cleaning, which reduced (but did not entirely remove) corrosion layers. Clear peaks were obtained for copper, tin, silver, arsenic, lead, iron, and bismuth, while gold was not detected. The iron may derive either from the burial environment, as discussed, or from the original smelting furnace charge, but the other elements must be representative of what is present in the pure metal phase, so some conclusions can be made about artifact compositions.

Most of the 41 artifacts analyzed are composed of copper with a small amount of arsenic and lead (Table 62). The two minor elements are represented by spectrum peaks of a similar size, and which element has the larger peaks seems to vary depending on which spot on an object is analyzed. In addition, a few artifacts were found to contain tin and several others to contain silver.

Tin was found in only four artifacts, fishhooks **M36–M39**. They are all dated to the LM IA period, so the presence of tin is not surprising. The spectra for **M36** and **M37** are almost identical, **M38** seems to contain more lead and arsenic, and **M39** may contain more tin. It is interesting to note that the fifth fishhook, **M25**, which is dated to the Prepalatial period, contains no tin, but arsenic. This again is not surprising if considered that tin bronzes appeared in southern Aegean metallurgy in EM II, but became more frequent toward the end of the 3rd millennium B.C.

Silver is present as a minor element in five copper-based artifacts. Midrib daggers **M4** and **M5** have very similar spectra: copper with significant peaks of silver and no arsenic present. The other midrib dagger of this type (**M3**) does not share this composition; instead, it contains copper and arsenic with no silver. The same is the case for the flat daggers **M1** and **M2**, which also contain arsenic, but no silver. It is worth noting the condition of dagger **M5**; it was covered in thick layers of warty copper corrosion, which were not reduced much by cleaning. Results indicate that the copper corrosion layers are more representative of the pure metal phase than the thick layers of silver corrosion discussed with the silver artifacts. Silver was also found in **M31**, a small fragment of copper, which also showed small peaks of lead and arsenic. In the spectra for fragment **M33,** silver is seen as very small peaks together with small peaks of arsenic and lead. Silver was also detected in small amounts in the ring-shaped pendant **J1**, already discussed above with silver artifacts of the same form (**J2** and **J3**). As discussed above, the content of silver in copper-based objects seems to indicate alloying rather than silver coating. This is clear in the case of dagger **M4**, of which two spots were analyzed, one on the surface and the other at the break; both gave similar spectra with high contents of silver, clearly suggesting that silver was added to the copper, rather than simply coating the surface of the object.

J1. Pendant. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); iron, silver, arsenic (small); lead, calcium (very small).

J71. Bead. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, lead (small); iron, calcium (very small).

J73. Bead. Surface analyzed: uneven corrosion layer. Spectrum peaks: copper (large); arsenic, calcium, iron (small); lead, bismuth (very small).

M1. Dagger. Surface analyzed: flat area of cuprite close to pure metal phase. Spectrum peaks: copper (large); arsenic, iron, calcium (very small).

M2. Dagger. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic (small); iron, calcium, lead (very small).

M3. Dagger. Surface analyzed: uneven area of cuprite. Spectrum peaks: copper (large); arsenic (small); iron, lead, calcium (very small).

M4. Dagger. (1) Surface analyzed: smooth green corrosion on the surface. Spectrum peaks: copper, silver (large); iron, bromine (small); lead, calcium (very small). (2) Surface analyzed: green corrosion on break surface. Spectrum peaks: copper, silver (large); iron, bromine (small); lead, calcium (very small).

M5. Dagger. Surface analyzed: thick, uneven green corrosion. Spectrum peaks: copper, silver (large); bromine (small); iron, calcium, lead (very small).

M6. Awl. Surface analyzed: uneven green corrosion. Spectrum peaks: copper (large); iron, arsenic (small); calcium (very small).

M7. Awl. Surface analyzed: green corrosion. Spectrum peaks: copper (large); iron (small); arsenic, calcium (very small).

M9. Awl. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, iron, lead (small); calcium (very small).

M10. Awl. Surface analyzed: thin, smooth patina; cuprite in some areas. Spectrum peaks: copper (large); arsenic, iron, lead (small); calcium (very small).

M11. Awl. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic (small); iron, calcium (very small).

M12. Awl. Surface analyzed: thin, smooth patina; cuprite in some areas. Spectrum peaks: copper (large); arsenic, lead (small); iron, bismuth, calcium (very small).

M13. Awl. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, lead (small); iron, bismuth, calcium (very small).

M14. Awl. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, lead (small); iron, calcium (very small).

M15. Awl. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron (small); calcium, lead (very small).

M16. Awl. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, lead (small); iron, calcium (very small).

M17. Awl. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); lead, iron, arsenic (small); iron, calcium (very small).

M18. Awl. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, iron (small); lead, calcium (very small).

M19. Awl. Surface analyzed: thin, smooth patina; cuprite in some areas. Spectrum peaks: copper (large); arsenic, lead, iron (small); calcium (very small).

M20. Awl. Surface analyzed: entirely uncleaned because of organic remains on surface. Spectrum peaks: copper (large); iron (small); calcium, arsenic, lead (very small).

M21. Awl. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron (small); lead, calcium (very small).

M22. Awl. Surface analyzed: thin, smooth patina with big cuprite warts. Spectrum peaks: copper (large); arsenic, iron, lead (small); chlorine, calcium (very small).

M23. Awl. Surface analyzed: green corrosion layer. Spectrum peaks: copper (large); arsenic (small); iron, lead, bismuth, calcium, chlorine (very small).

M24. Awl(?). Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron (small); calcium, lead, bismuth (very small).

M25. Fishhook. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, lead (small); iron, calcium (very small).

M26. Scraper. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, iron (small); calcium, lead (very small).

M28. Nail. Surface analyzed: uneven green corrosion. Spectrum peaks: copper (large); iron (small); calcium, lead (very small).

M29. Nail. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron (small); lead, calcium (very small).

M30. Bent rod. Surface analyzed: green corrosion. Spectrum peaks: copper (large); arsenic, iron (small); calcium (very small).

M31. Fragment. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); lead, iron, arsenic (small); silver, calcium (very small).

M32. Fragment. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron, lead (small); calcium (very small).

M33. Fragment. Surface analyzed: green corrosion/cuprite warts. Spectrum peaks: copper (large); arsenic, iron, lead (small); calcium, silver (very small).

M34. Wire. Surface analyzed: smooth dark green corrosion. Spectrum peaks: copper (large); iron (small); calcium, lead, arsenic, bismuth (very small).

M36. Fishhook. Surface analyzed: uneven black patina with powdery green below. Spectrum peaks: copper (large); iron, tin (small); calcium, arsenic (very small).

M37. Fishhook. Surface analyzed: uneven black patina with powdery green below. Spectrum peaks: copper (large); tin, iron (small); calcium, arsenic (very small).

M38. Fishhook. Surface analyzed: uneven green corrosion; many cuprite warts. Spectrum peaks: copper (large); iron, tin, arsenic (small); lead, calcium (very small).

M39. Fishhook. Surface analyzed: smooth patina missing in one area, cuprite below. Spectrum peaks: copper (large); tin, iron (small); calcium, lead (very small).

B.2.5. Faience Object

The artifact was examined using a low power dissecting microscope (x10 plus zoom). The bead (**J69**) has a glossy, compact, greenish-brown surface. Where this is missing (about half the surface area of the bead), the interior matrix is visible. This matrix is bright white or very pale green in patches, and it appears crystalline with smaller and larger grains of silica visible within it. This appearance is consistent with Minoan faience (Panagiotaki 1999, 617–620).

Portable XRF settings were changed for this bead (40kV, 18μA, no filter). The pXRF spectrum shows large peaks for copper and small peaks for iron and tin (Table 63). This result would be consistent with faience with a copper-based glaze. Iron is a constituent of quartz used to make faience paste, and tin might be present if bronze scraps rather than pure copper were used as a colorant. Unfortunately, settings were not optimized to examine the lower end of the spectrum for silica and calcium. Large distinct peaks for these elements would confirm a vitreous material rather than a metallic copper-based bead. The observations from microscopic examination can, however, be taken as conclusive proof that this bead is not metallic.

J69. Bead. Surface analyzed: undamaged surface. Spectrum peaks: copper (large); iron, tin (small).

Concordance A

Siteia Museum, Excavation, and Catalog Numbers

Siteia Museum Number	Excavation Number	Catalog Number
13724	09.145	**S1**
13725	09.165	**S2**
13726	09.174	**S5**
13727	09.263	**S4**
13728	09.352	**S6**
13729	09.354	**S3**
13732	08.022	**J11**
13733	08.030	**J74**
13734	08.055	**J19**
13735	08.090	**J16**
13736	08.091	**J21**
13737	08.123	**J20**
13738	08.127	**J17**
13739	09.169	**J75**
13740	09.242a	**J7**

Siteia Museum Number	Excavation Number	Catalog Number
13741	09.277	**J15**
13742	09.279	**J1**
13743	09.337	**J3**
13744	09.338	**J12**
13745	09.346	**J10**
13746	09.348	**J13**
13747	08.009	**M1**
13748	08.016	**M6**
13749	09.154	**M10**
13750	09.223	**M2**
13751	08.095	**P286**
13752	08.097	**P78**
13753	09.021	**P235**
13754	09.023	**P236**
13755	09.197	**P341**
13756	09.286	**P188**
13757	09.321	**P335**
13758	09.336	**P38**
13730	09.123, 09.124, 09.129	**M35, M36, M37**
13731	09.096	**S7**
13764	09.046	**P352**
13765	09.061	**P353**
13766	09.062	**P351**
13767	09.063	**P354**
13768	09.077	**P356**
13769	09.107	**P357**

Concordance B

Pottery Groups and Contexts

Pottery Group	Date (dd/mm/yyyy)	Area	Trench	Stratum
08.01	18/08/2008	tholos tomb	A	I
08.02	19/08/2008	tholos tomb	B	I
08.03	19/08/2008	tholos tomb	C	I
08.04	20/08/2008	tholos tomb	D	I
08.05	20/08/2008	tholos tomb	E	I
08.06	20/08/2008	tholos tomb	A–E	I
08.07	20/08/2008	tholos tomb	E	III
08.08	20/08/2008	tholos tomb	B	III
08.09	22/08/2008	tholos tomb	B	II
08.10	22/08/2008	tholos tomb	D	II
08.11	25/08/2008	tholos tomb	C	III
08.12	04/09/2008	tholos tomb	A	II
08.13	04/09/2008	tholos tomb	C	III
08.14	04/09/2008	tholos tomb	A–E	III
08.15	05/09/2008	tholos tomb	A	III

Pottery Group	Date (dd/mm/yyyy)	Area	Trench	Stratum
08.16	05/09/2008	tholos tomb	C	IV
08.17	08/09/2008	tholos tomb	B	III
08.18	08/09/2008	tholos tomb	B	III
08.19	08/09/2008	tholos tomb	B	III
08.20	09/09/2008	tholos tomb	D	III
08.21	09/09/2008	tholos tomb	D	III
08.22	09/09/2008	tholos tomb	A–D	III
08.23	10/09/2008	tholos tomb	B	III
08.24	10/09/2008	tholos tomb	B	III
08.25	12/09/2008	tholos tomb	D	III
08.26	12/09/2008	tholos tomb	D	III
08.27	12/09/2008	tholos tomb	A–D	IV
08.28	12/09/2008	tholos tomb	A–D	IV
08.29	15/09/2008	tholos tomb	A–E	IV
08.30	15/09/2008	tholos tomb	E	III
08.31	15/09/2008	tholos tomb	A–D	III
09.01	21/07/2009	Open Area 3	A3	I
09.02	21/07/2009	Open Area 3	A1	II
09.03	22/07/2009	Open Area 3	A3	II
09.04	23/07/2009	Open Area 3	B2	I
09.05	23/07/2009	Open Area 3	A2	I
09.06	23/07/2009	Open Area 3	A2	II
09.07	24/07/2009	Open Area 1	A2	II
09.08	24/07/2009	Open Area 3	B5	II
09.09	24/07/2009	house tomb	Rooms 1, 2	II
09.10	24/07/2009	Open Area 2	A4	II
09.11	27/07/2009	Open Area 3	B6	I
09.12	27/07/2009	house tomb	Room 1	II
09.13	28/07/2009	Open Area 4	F2	I
09.14	29/07/2009	house tomb	Room 1	II
09.15	29/07/2009	house tomb	Room 1	II
09.16	29/07/2009	house tomb	Room 2	II
09.17	29/07/2009	Open Area 4	F2	II
09.18	30/07/2009	house tomb	Room 2	II
09.19	31/07/2009	Open Area 3	B6	II
09.20	31/07/2009	Open Area 4	C1	I
09.21	31/07/2009	Open Area 4	C1	II
09.22	03/08/2009	house tomb	Room 1	II
09.23	03/08/2009	Open Area 3	B6	II

Pottery Group	Date (dd/mm/yyyy)	Area	Trench	Stratum
09.24	03/08/2009	Open Area 3	B6	II
09.25	03/08/2009	Open Area 4	E6	I
09.26	03/08/2009	Open Area 4	E6	II
09.27	03/08/2009	Open Area 4	E2	I
09.28	04/08/2009	house tomb	Room 2	II
09.29	04/08/2009	house tomb	Room 2	II
09.30	04/08/2009	Open Area 4	E6	II
09.31	04/08/2009	Open Area 3	B3	I
09.32	05/08/2009	house tomb	Room 1	II
09.33	05/08/2009	house tomb	Room 2	II
09.34	05/08/2009	Open Area 3	B6	II
09.35	06/08/2009	house tomb	Room 1	II
09.36	06/08/2009	rock shelter	1	1
09.37	06/08/2009	rock shelter	1	1
09.38	06/08/2009	house tomb	Room 1	II
09.39	07/08/2009	house tomb	Room 1	II
09.40	07/08/2009	rock shelter	2	1
09.41	10/08/2009	house tomb	Room 2	II
09.42	10/08/2009	house tomb	Room 2	II
09.43	11/08/2009	rock shelter	3	1
09.44	11/08/2009	rock shelter	1	1
09.45	12/08/2009	rock shelter	1A	2
09.46	12/08/2009	rock shelter	1A	2
09.47	12/08/2009	rock shelter	2A	2
09.48	12/08/2009	rock shelter	2B	2
09.49	12/08/2009	Open Area 3	B3	II
09.50	12/08/2009	house tomb	Room 1	III
09.51	13/08/2009	rock shelter	3A	2
09.52	13/08/2009	rock shelter	3B	2
09.53	13/08/2009	rock shelter	3A	3
09.54	13/08/2009	rock shelter	3B	3
09.55	31/08/2009	rock shelter	3A	3
09.56	01/09/2009	rock shelter	4	1
09.57	01/09/2009	Open Area 4	F2	II
09.58	02/09/2009	rock shelter	4B	1
09.59	02/09/2009	rock shelter	4A	1
09.60	03/09/2009	rock shelter	4B	2
09.61	03/09/2009	rock shelter	4A	2
09.62	03/09/2009	rock shelter	4A	2

Pottery Group	Date (dd/mm/yyyy)	Area	Trench	Stratum
09.63	03/09/2009	rock shelter	4B	3
09.64	03/09/2009	rock shelter	4A	3
09.65	04/09/2009	rock shelter	5	1
09.66	04/09/2009	rock shelter	5	1
09.67	04/09/2009	rock shelter	5	2
09.68	07/09/2009	rock shelter	5	3
10.01	05/07/2010	rock shelter	4B	1, 2
10.02	05/07/2010	rock shelter	4B	3
10.03	06/07/2010	rock shelter	4B	4
10.04	06/07/2010	rock shelter	4B	5
10.05	07/07/2010	Open Area 4	G4	II
10.06	07/07/2010	Open Area 4	G7	II
10.07	07/07/2010	Open Area 4	G4	II
10.08	07/07/2010	Open Area 4	G7	II
10.09	07/07/2010	Open Area 4	G7	II
10.10	08/07/2010	Open Area 4	G7	II
10.11	08/07/2010	Open Area 4	G7	II
10.12	08/07/2010	rock shelter	6	1, 2
10.13	08/07/2010	rock shelter	6	3, 4
10.14	09/07/2010	Open Area 3	B5	II
10.15	09/07/2010	Open Area 3	B5	II
10.16	09/07/2010	Open Area 3	A3	II
10.17	13/07/2010	rock shelter	6	1, 2
10.18	13/07/2010	Open Area 3	D5	II
10.19	13/07/2010	Open Area 2	A4	II
10.20	14/07/2010	Open Area 2	A4	II
10.21	14/07/2010	rock shelter	6	3, 4
10.22	15/07/2010	Open Area 2	A4	II
10.23	15/07/2010	Open Area 3	B2	II
10.24	15/07/2010	Open Area 3	B2	II
10.25	16/07/2010	Open Area 4	D9	II
10.26	16/07/2010	Open Area 2	A4	II
10.27	20/07/2010	Open Area 2	A4	II
10.28	20/07/2010	Open Area 4	D9	II
10.29	21/07/2010	Open Area 4	D2	II
10.30	21/07/2010	Open Area 4	D9	II

References

Abbreviations follow the conventions recommended in the *American Journal of Archaeology*.

Alexiou, S. 1951. “Πρωτομινωικαὶ ταφαὶ παρὰ τῷ Κανλὶ-Καστέλλι Ἡρακλείου,” *CretChron* 5, pp. 275–294.

Alexiou, S., and P.M. Warren. 2004. *The Early Minoan Tombs of Lebena, Southern Crete* (*SIMA* 30), Sävedalen.

Antonova, I., V. Tolstikov, and M. Treister. 1996. *The Gold of Troy: Searching for Homer’s Fabled City*, London.

Aruz, J., ed. 2003. *Art of the First Cities: The Third Millennium* B.C. *from the Mediterranean to the Indus*, New York.

Bellot-Gourlet, L., O. Pelon, and M. Sériadès. 2010. “À propos des obsidiennes du palais de Malia,” *BCH* 134, pp. 1–29.

Betancourt, P.P. 1984. *East Cretan White-on-Dark Ware: Studies on a Handmade Pottery of the Early to Middle Minoan Periods* (*University Museum Monograph* 51), Philadelphia.

———. 2006. *The Chrysokamino Metallurgy Workshop and Its Territory* (*Hesperia Suppl.* 36), Princeton.

———. 2008. *The Bronze Age Begins: The Ceramics Revolution of Early Minoan I and the New Forms of Wealth That Transformed Prehistoric Society*, Philadelphia.

———. 2013. *Aphrodite’s Kephali: An Early Minoan I Defensive Site in Eastern Crete* (*Prehistory Monographs* 41), Philadelphia.

Betancourt, P.P., T.K. Gaisser, E. Koss, R.F. Lyon, F.R. Matson, S. Montgomery, G.H. Myer, and C.P. Swann. 1979. *Vasilike Ware: An Early Bronze Age Pottery Style in Crete. Results of the Philadelphia Vasilike Ware Project* (*SIMA* 56), Göteborg.

Betancourt, P.P., C. Davaras, H.M.C. Dierckx, S.C. Ferrence, J. Hickman, P. Karkanas, P.J.P. McGeorge, J.D. Muhly, D.S. Reese, E. Stravopodi, and L. Langford-Verstegen. 2008. “Excavations in the

Hagios Charalambos Cave: A Preliminary Report," *Hesperia* 77 [4], pp. 539–605.

Betancourt, P.P., and N. Marinatos. 2000. "Τὸ σπήλαιο τῆς Αμνισοῦ: Η έρευνα τοῦ 1992," *ArchEph* 139, pp. 179–236.

Blackman, D.J., and K. Branigan. 1982. "The Excavation of the EM Tholos Tomb at Agia Kyriaki, Agiofarango, Southern Crete," *BSA* 77, pp. 1–59.

Boyd Hawes, H. 1908. *Gournia, Vasiliki, and Other Prehistoric Sites on the Isthmus of Hierapetra, Crete. Excavations of the Wells-Houston-Cramp Expedition 1901, 1903, 1904*, Philadelphia.

Brandl, M. 2010. "Chert Source Areas and Provenance Studies of Chipped Stone Artifacts in Southeastern Crete," *ÖJh* 79, pp. 324–341.

Branigan, K. 1970. *The Tombs of Mesara: A Study of Funerary Architecture and Ritual in Southern Crete, 2800–1700 B.C.*, London.

———. 1974. *Aegean Metalwork of the Early and Middle Bronze Age*, Oxford.

———. 1984. "Early Minoan Society: The Evidence from the Mesara Tholoi Reviewed," in *Aux origines de l'hellénisme: Le Crète et la Grèce. Hommage à Henri van Effenterre* (*Publications de la Sorbonne, Historie ancienne et médiévale* 15), C. Nicolette, ed., Paris, pp. 29–37.

———. 1993. *Dancing with Death: Life and Death in Southern Crete c. 3000–2000 B.C.*, Amsterdam.

———. 1994. "The Corbelling Controversy—Another Contribution," *Cretan Studies* 4, pp. 65–69.

———. 2010. "Metalwork," in Vasilakis and Branigan 2010, pp. 147–150.

Branigan, K., ed. 1998. *Cemetery and Society in the Aegean Bronze Age* (*Sheffield Studies in Aegean Archaeology* 1), Sheffield.

Branigan, K., and T. Campbell-Green. 2010. "Pottery," in Vasilakis and Branigan 2010, pp. 69–143.

Brodie, N., J. Doole, G. Gavalas, and C. Renfrew, eds. 2008. *Horizon. A Colloquium on the Prehistory of the Cyclades* (*McDonald Institute Monographs*), Cambridge.

Broodbank, C. 2000. *An Island Archaeology of the Early Cyclades*, Cambridge.

Calligas, P.G. 1984. "Euboea and the Cyclades," in *Cycladica. Studies in Memory of N.P. Goulandris. Proceedings of the Seventh British Museum Classical Colloquium, June 1983*, J.L. Fitton, ed., London, pp. 88–98.

Carter, T. 1994. "Southern Aegean Fashion Victims: An Overlooked Aspect of Early Bronze Age Burial Practices," in *Stories in Stone. Proceedings of Anniversary Conference at St. Hilda's College, Oxford, April 1993* (*Lithics Study Society Occasional Paper* 4), N. Ashton and A. David, eds., London, pp. 127–144.

———. 1998. "Reverberations of the 'International Spirit': Thoughts upon 'Cycladica' in the Mesara," in Branigan, ed., 1998, pp. 59–77.

———. 1999. *Through a Glass Darkly: Obsidian and Society in the Southern Aegean Early Bronze Age*, Ph.D. diss., University College London.

———. 2004a. "Mochlos and Melos: A Special Relationship? Creating Identity and Status in Minoan Crete," in *Crete beyond the Palaces. Proceedings of the Crete 2000 Conference* (*Prehistory Monographs* 10), L.P. Day, M.S. Mook, and J.D. Muhly, eds., Philadelphia, pp. 291–307.

———. 2004b. "The Stone Implements," in *Mochlos* IC: *Period III. Neopalatial Settlement on the Coast: The Artisans' Quarter and the Farmhouse at Chalinomouri. The Small Finds* (*Prehistory Monographs* 9), J.S. Soles and C. Davaras, eds., Philadelphia, pp. 61–107.

———. 2007. "The Theatrics of Technology: Consuming Obsidian in the Early Cycladic Burial Arena," in *Rethinking Craft Specialization in Complex Societies: Archaeological Analyses of the Social Meaning of Production* (*Archaeological Papers of the American Anthropological Association* 17), R.K. Flad and Z.X. Hruby, eds., Arlington, VA, pp. 88–107.

———. 2009. "L'obsidienne égéenne: Charactérisation, utilisation et culture," in *L'homme et le précieux: Matières minérales précieuses de la Préhistoire à aujourd'hui* (*BAR-IS* 1934), M.-H. Moncel and F. Fröhlich, eds., Oxford, pp. 199–212.

———. 2010. "Of Blades and Burials, Flakes, and Funerals: The Chipped Stone from Moni Odigitria," in Vasilakis and Branigan 2010, pp. 151–169.

Carter, T., and V. Kilikoglou. 2007. "From Reactor to Royalty? Aegean and Anatolian Obsidians from Quartier Mu, Malia (Crete)," *JMA* 20 [1], pp. 115–143.

Coqueugniot, É. 2004. "L'outillage lithique," in *Khirbet al Umbashi: Villages et campements de pasteurs dans le "Désert Noir" (Syrie) à l'Âge du Bronze* (*Bibliothèque Archéologique et Historique* 171), F. Braemer, J.-C. Échallier, and A. Taraqji, eds., Beirut, pp. 289–292.

D'Annibale, C. 2008. "Obsidian in Transition: The Technological Reorganisation of the Obsidian Industry from Kephala Petras (Siteia) between Final Neolithic IV and Early Minoan I," in Isaakidou and Tomkins, eds., 2008, pp. 191–200.

Davaras, C., and P.P. Betancourt. 2004. *The Hagia Photia Cemetery* I: *The Tomb Groups and Architecture* (*Prehistory Monographs* 14), Philadelphia.

———. 2012. *The Hagia Photia Cemetery* II: *The Pottery* (*Prehistory Monographs* 34), Philadelphia.

Dawkins, R.M. 1903. "Pottery from Zakro," *JHS* 23, pp. 248–260.

Day, P.M., A. Hein, L. Joyner, V. Kilikoglou, E. Kiriatzi, A. Tsolakidou, and D.E. Wilson. 2012. "Petrographic and Chemical Analysis of the Pottery," in Davaras and Betancourt 2012, pp. 115–138.

Day, P.M., L. Joyner, E. Kiriatzi, and M. Relaki. 2005. "Petrographic Analysis of Some Final Neolithic–Early Minoan II Pottery from the Kavousi Area," in *Kavousi* I: *The Archaeological Survey of the Kavousi Region* (*Prehistory Monographs* 16), D.C. Haggis, Philadelphia, pp. 177–195.

Day, P.M., and D.E. Wilson. 2004. "Ceramic Change and the Practice of Eating and Drinking in Early Bronze Age Crete," in *Food, Cuisine, and Society in Prehistoric Greece* (*Sheffield Studies in Aegean Archaeology* 5), P. Halstead and J.C. Barrett, eds., Oxford, pp. 45–62.

Day, P.M., D.E. Wilson, and E. Kiriatzi. 1998. "Pots, Labels, and People: Burying Ethnicity in the Cemetery of Aghia Photia, Siteias," in Branigan, ed., 1998, pp. 133–149.

Dierckx, H.M.C., and B. Tsikouras. 2007. "Petrographic Characterization of Rocks from the Mirabello Bay Region, Crete, and Its Application to Minoan Archaeology: The Provenance of Stone Implements from Minoan Sites," in *Bulletin of the Geological Society of Greece XXXVII. Proceedings of the 11th International Congress, Athens, May 2007*, Athens, pp. 1768–1779.

Dietler, M., and I. Herbich. 1998. "Habitus, Techniques, Style: An Integrated Approach to the Social Understanding of Material Culture and Boundaries," in *The Archaeology of Social Boundaries*, M.T. Stark, ed., Washington, pp. 232–263.

Dobres, M.-A., and C.R. Hoffman. 1994. "Social Agency and the Dynamics of Prehistoric Technology," *Journal of Archaeological Method and Theory* 1 [3], pp. 211–258.

Doonan, R.C.P., P.M. Day, and N. Dimopoulou-Rethemiotaki. 2007. "Lame Excuses for Emerging Complexity in Early Bronze Age Crete: The Metallurgical Finds from Poros Katsambas and Their Context," in *Metallurgy in the Early Bronze Age Aegean* (*Sheffield Studies in Aegean Archaeology* 7), P.M. Day and R.C.P. Doonan, eds., Oxford, pp. 98–122.

Doumas, C. 1977. *Early Bronze Age Burial Habits in the Cyclades* (*SIMA* 48), Göteborg.

Effinger, M. 1996. *Minoischer Schmuck* (*BAR-IS* 646), Oxford.

Englezou, M. 2005. *Ελληνιστική κεραμική Κρήτης: Κεντρική Κρήτη* (*Δημοσιεύματα του Αρχαιολογικού Δελτίου* 89), Athens.

Eiring, L.J. 2000. "Hellenistic Pottery from Pyrgos at Myrtos," in *Ε΄ Επιστημονική συνάντηση για την Ελληνιστική κεραμική: Χρονολογικά προβλήματα. Κλειστά σύνολα, εργαστήρια*, Athens, pp. 53–60.

Evans, A.J. 1895. *Cretan Pictographs and Prae-Phoenician Script, with an Account of a Sepulchral Deposit at Hagios Onouphrios near Phaestos in Its Relation to Primitive Cretan and Aegean Culture*, London.

———. 1928. *The Palace of Minos at Knossos* II, London.

Evely, R.D.G. 1993. *Minoan Crafts: Tools and Techniques. An Introduction* I (*SIMA* 92), Göteborg.

Faure, P. 1958. "Spéléologie et topographie crétoises," *BCH* 82, pp. 495–515.

Fountoulakis, M. 1987. "Some Unusual Burial Practices in the Early Helladic Necropolis of Manika," in *Thanatos: Les coutoumes funéraires en Egée à l'Âge du Bronze. Actes du colloque de Liège, 21–23 avril 1986* (*Aegaeum* 1), R. Laffineur, ed., Liège, pp. 29–32.

Galanaki, K. 2006. "Πρωτομινωικό ταφικό σύνολο στην πρώην Αμερικανική Βάση Γουρνών Πεδιάδος," in *Πεπραγμένα Θ΄ Διεθνοῦς Κρητολογικοῦ Συνεδρίου* Α' (2), Herakleion, pp. 227–242.

Gerontakou, E. 2011. *Μεταβατική ΜΜ ΙΙΙΒ–ΥΜ ΙΑ στην Ανατολική Κρήτη: Το παράδειγμα της Ζάκρου*, Ph.D. diss., University of Athens.

Getz-Gentle, P. 1996. *Stone Vessels of the Cyclades in the Early Bronze Age*, University Park, PA.

Giumlia-Mair, A. 2011. "Appendix: Composition of the Mochlos Sistrum," in "The Mochlos Sistrum and Its Origins," J.S. Soles, in *Metallurgy: Understanding How, Learning Why. Studies in Honor of James D. Muhly* (*Prehistory Monographs* 29), P.P. Betancourt and S.C. Ferrence, eds., Philadelpia, pp. 141–144.

Goodison, L., and C. Guarita. 2005. "A New Catalogue of the Mesara-Type Tombs," *SMEA* 47, pp. 171–212.

Gosselain, O.P. 2000. "Materializing Identities: An African Perspective," *Journal of Archaeological Method and Theory* 7 [3], pp. 187–217.

Haggis, D.C. 1996. "Excavations at Kalo Khorio, East Crete," *AJA* 100, pp. 645–681.

———. 1997. "The Typology of the Early Minoan I Chalice and the Cultural Implications of Form and Style in Early Bronze Age Ceramics," in *Texnh: Craftsmen, Craftswomen, and Craftsmanship in the Aegean Bronze Age. Proceedings of the 6th International Aegean Conference, Philadelphia, Temple University, 18–21 April 1996* (*Aegaeum* 16), R. Laffineur and P.P. Betancourt, eds., Liège, pp. 219–299.

Haggis, D.C., M. Mook, T. Carter, and L.M. Snyder. 2007. "Excavations at Azoria, 2003–2004, Part 2: The Final Neolithic, Late Prepalatial, and Early Iron Age Occupation," *Hesperia* 76, pp. 665–716.

Hamilakis, Y. 1998. "Eating the Dead: Mortuary Feasting and the Politics of Memory in the Aegean Bronze Age Societies," in Branigan, ed., 1998, pp. 115–132.

———. 2003. "The Sacred Geography of Hunting, the Political Economy of Space," in *Zooarchaeology in Greece: Recent Advances* (*BSA Studies* 9), E. Kotjabopoulou, Y. Hamilakis, P. Halstead, C.S. Gamble, and P. Elefanti, eds., Athens, pp. 239–247.

Hatzaki, E. 2007. "Neopalatial (MM IIIB–LM IB): KS 178, Gypsades Well (Upper Deposit), and SEX North House Groups," in Momigliano, ed., 2007, pp. 151–196.

Hayden, J.H. 2003. "Final Neolithic–Early Minoan I/IIA Settlement in the Vrokastro Area, Eastern Crete," *AJA* 107, pp. 363–412.

Hayes, J.W. 1971. "Four Early Roman Groups from Knossos," *BSA* 66, pp. 249–275.

Hedges, R.E.M. 1976. "On the Occurrence of Bromine in Corroded Silver," *Studies in Conservation* 21, pp. 44–46.

Hikade, T. 2003. "Getting the Ritual Right—Fishtail Knives in Predynastic Egypt," in *Egypt: Temple of the Whole World. Studies in Honour of Jan Assmann* (*Studies in the History of Religions* 97), S. Meyer and J. Assmann, eds., Leiden, pp. 137–151.

Hogarth, D.G. 1900–1901. "Excavations at Zakro, Crete," *BSA* 7, 121–149.

Hood, S., and G. Cadogan. 2011. *Knossos Excavations 1957–1961: Early Minoan* (*BSA Suppl.* 46), London.

Hübner, G. 1993. *Die Applikenkeramik von Pergamon: Eine Bildersprache im Dienst des Herrscherkultes* (*Pergamenische Forschungen* 7), Berlin.

IGME. 1959. Geological Map of Greece, 1:50.000, Ziros Sheet, Athens.

Isaakidou, V., and P. Tomkins, eds. 2008. *Escaping the Labyrinth: The Cretan Neolithic in Context* (*Sheffield Studies in Aegean Archaeology* 8), Oxford.

Jarman, M.R. 1972. "Appendix VIII: The Obsidian," in *Myrtos: An Early Bronze Age Settlement in Crete* (*BSA Suppl.* 7), P.M. Warren, London, pp. 326–328.

Karantzali, E. 1996. *Le Bronze Ancien dans les Cyclades et en Crète: Les relations entre les deux régions. Influence de la Grèce Continentale* (*BAR-IS* 631), Oxford.

———. 2006. "The Pottery of Phases I and II and a Note on the Pottery from the Bastion Area," in *Markiani Amorgos: An Early Bronze Age Fortified Settlement. Overview of the 1985–1991 Investigations* (*BSA Suppl.* 40), L.I. Marangou, C. Renfrew, C. Doumas, and G. Gavalas, eds., London, pp. 101–130.

———. 2008. "The Transition from EB I to EB II in the Cyclades and Crete: Historical and Cultural Repercussions for Aegean Communities," in Brodie et al., eds., 2008, pp. 241–260.

Kariotis, S. 2003. "Ακρωτήρι Θήρας: Μία πρώτη ανάγνωση της στρωματογραφικής ακολουθίας στην Πλατεία Διπλών Κεράτων," in *Αργοναύτης. Τιμητικός τόμος για τον καθηγητή Χρίστου Γ. Ντούμα από τους μαθητές του στο Πανεπιστήμιο Αθηνών (1980–2000)*, A. Vlachopoulos and K. Birtacha, eds., Athens, pp. 419–444.

Karydas, A.G., and C. Zarkadas. 2008. "Report on the XRF Measurements at Piraeus Archaeological Museum," in Reinholdt 2008, pp. 99–104.

Kilikoglou, V. 1994. "Scanning Electron Microscopy," in "Ceramic Regionalism in Prepalatial Central Crete: The Mesara Imports from EM IB to EM IIA Knossos," D.E. Wilson and P.M. Day, *BSA* 89, pp. 70–75.

Knappett, C. 2011. *An Archaeology of Interaction: Network Perspectives on Material Culture and Society*, Oxford.

Knappett, C., and T.F. Cunningham. 2003. "Three Neopalatial Deposits from Palaikastro, East Crete," *BSA* 98, pp. 107–187.

Krzyszkowska, O. 1984. "Ivory from Hippopotamus Tusk in the Aegean Bronze Age," *Antiquity* 58 [223], pp. 123–125.

———. 2005. *Aegean Seals: An Introduction* (*BICS Suppl.* 85), London.

Laumonier, A. 1977. *La céramique hellénistique à reliefs* I: *Ateliers "Ioniens"* (*Exploration archéologique de Délos* 31), Athens.

Maniatis, Y., M. Panagiotaki, A. Kaczmarczyk, M.S. Tite, and A.J. Shortland. 2008. "Faience Production in the Eastern Mediterranean," in *Production Technology of Faience and Related Early Vitreous Materials* (*Oxford University School of Archaeology*

Monograph 72), M.S. Tite and A.J. Shortland, Oxford, pp. 111–128.

Maniatis, Y., and M.S. Tite. 1981. "Technological Examination of Neolithic–Bronze Age Pottery from Central and Southeast Europe and from the Near East," *JAS* 8 [1], pp. 59–76.

Manning, S.W. 1995. *The Absolute Chronology of the Aegean Early Bronze Age: Archaeology, Radiocarbon, and History* (*Monographs in Mediterranean Archaeology* 1), Sheffield.

Marinatos, S. 1929. "Πρωτομινωικὸς θολωτὸς τάφος παρὰ τὸ χωρίον Κράσι Πεδιάδος," *ArchDelt* 12, pp. 102–141.

Momigliano, N. 2007. "Late Prepalatial (EM III–MM IA): South Front House Foundation Trench, Upper East Well, and House C/RRS Fill Groups," in Momigliano, ed., 2007, pp. 79–103.

Momigliano, N., ed. 2007. *Knossos Pottery Handbook: Neolithic and Bronze Age (Minoan)* (*BSA Studies* 14), London.

Momigliano, N., and D.E. Wilson. 1996. "Knossos 1993: Excavations Outside the South Front of the Palace," *BSA* 91, pp. 1–57.

Mortzos, C. 1972. "Πάρτιρα, μία πρώιμος μινωικὴ κεραμεικὴ ὁμὰς," *Εθνικό και Καποδιστριανό Πανεπιστίμιο Αθηνών Ἐπετηρίδα Ἐπιστημονικῶν Ἐρευνῶν* Γ', pp. 386–421.

Myer, G.H., and P.P. Betancourt. 1990. "The Fabrics at Kommos," in *Kommos* II: *The Final Neolithic through Middle Minoan III Pottery*, P.P. Betancourt, Princeton, pp. 1–13.

Nodarou, E. 2007. "Exploring Patterns of Intra Regional Pottery Distribution in Late Minoan IIIA–B East Crete: The Evidence from the Petrographic Analysis of Three Ceramic Assemblages," in *Archaeometric and Archaeological Approaches to Ceramics. Papers Presented at EMAC '05, 8th European Meeting on Ancient Ceramics, Lyon 2005* (*BAR-IS* 1691), S.Y. Waksman, ed., Oxford, pp. 75–83.

———. 2011. *Pottery Production, Distribution, and Consumption in Early Minoan West Crete: An Analytical Perspective* (*BAR-IS* 2210), Oxford.

———. 2012. "Pottery Fabrics and Recipes in the Final Neolithic and Early Minoan I Period: The Analytical Evidence from the Settlement and the Rock Shelter of Kephala Petras," in *Petras, Siteia: 25 Years of Excavations and Studies. Acts of a Two-Day Conference Held at the Danish Institute at Athens, 9–10 October 2010* (*Monographs of the Danish Institute at Athens* 16), M. Tsipopoulou, ed., Athens, pp. 81–88.

Nodarou, E., and C. Rathossi. 2008. "Petrographic Analysis of Selected Animal Figurines from Syme Viannou," in *The Sanctuary of Hermes and Aphrodite at Syme Viannou* IV: *Animal Images of Clay* (*Βιβλιοθήκη τῆς ἐν Ἀθήναις Ἀρχαιολογικῆς Ἑταιρείας* 278), P. Muhly, Athens, pp. 165–182.

Nowicki, K. 2002. "The End of the Neolithic in Crete," *Aegean Archaeology* 6, pp. 7–72.

Panagiotaki, M. 1999. "Minoan Faience- and Glass-Making: Techniques and Origins," in *Meletemata. Studies in Aegean Archaeology Presented to Malcolm H. Wiener as He Enters His 65th Year* (*Aegaeum* 20), P.P. Betancourt, V. Karageorghis, R. Laffineur, and W.-D. Niemeier, eds., Liège, pp. 617–623.

Panagiotaki, M., Y. Maniatis, D. Kavoussanaki, G. Hatton, and M.S. Tite. 2004. "The Production Technology of Aegean Bronze Age Vitreous Materials," in *Invention and Innovation: The Social Context of Technological Change* 2. *Egypt, the Aegean, and the Near East, 1650–1150 b.c.*, J. Bourriau and J. Phillips, eds., Oxford, pp. 149–175.

Panagiotopoulos, D. 2002. *Das Tholosgrab E von Phourni bei Archanes: Studien zu einem frühkretischen Grabfund und seinem kulturellen Kontext* (*BAR-IS* 1014), Oxford.

Pantelidou-Gofa, M. 2005. *Τσέπι Μαραθῶνος: Τὸ Πρωτοελλαδικὸ νεκροταφεῖο* (*Βιβλιοθήκη τῆς ἐν Ἀθήναις Ἀρχαιολογικῆς Ἑταιρείας* 235), Athens.

Papadakis, N.P. 1976a. "Ἀρχαιολογικὰ εὑρήματα στὸ Κουφονῆσι Σητείας," *Amaltheia* 28, pp. 186–206.

———. 1976b. "Κουφονῆσι Σητείας," *ArchDelt* 31 (B', 2 Chronika), pp. 382–383.

———. 1978a. "Ἀρχαῖο θέατρο στὸ Κουφονῆσι Σητείας," *AAA* 21, pp. 77–83.

———. 1978b. "Κουφονῆσι Σητείας: Χρονικὸ τῶν ἀνασκαφῶν," *Amaltheia* 36, p. 260.

Papadatos, Y. 2005. *Tholos Tomb Gamma: A Prepalatial Tholos Tomb at Phourni, Archanes* (*Prehistory Monographs* 17), Philadelphia.

———. 2007. "Beyond Cultures and Ethnicity: A New Look at Material Culture Distribution and Inter-Regional Interaction in the Early Bronze Age Southern Aegean," in *Mediterranean Crossroads*, S. Antoniadou and A. Pace, eds., Oxford, pp. 419–451.

———. 2008. "The Neolithic–Early Bronze Age Transition in Crete: New Evidence from the Settlement at Petras Kephala, Siteia," in Isaakidou and Tomkins, eds., 2008, pp. 261–275.

———. 2012. "Back to the Beginnings: The Earliest Habitation at Petras on the Basis of the Evidence from the FN–EM I Settlement on Kephala," in *Petras, Siteia: 25 Years of Excavations and Studies. Acts of a Two-Day Conference Held at the Danish Institute at Athens, 9–10 October 2010* (*Monographs of the Danish Institute at Athens* 16), M. Tsipopoulou, ed., Athens, pp. 69–79.

Papadatos, Y., and P. Tomkins. 2011. "Final Neolithic and Early Minoan Pottery from the Pediada Survey," in *Πεπραγμένα του Ι' Διεθνοῦς Κρητολογικοῦ Συνεδρίου* A' (3), Chania, pp. 713–726.

Papadatos, Y., P. Tomkins, E. Nodarou, and Y. Iliopoulos. Forthcoming. "The Beginning of Early Bronze Age in Crete: Continuities and Discontinuities in the Ceramic Assemblage at Petras Kephala, Siteia," in *The Aegean Early Bronze Age: New Evidence*, C. Doumas, A. Giannikouri, and O. Kouka, eds., Athens.

Papathanassopoulos, G. 1961–1962. "Κυκλαδικὰ Νάξου," *ArchDelt* 17, pp. 104–151.

Pelegrin, J. 2012. "New Experimental Observations for the Characterization of Pressure Blade Production Techniques," in *The Emergence of Pressure Blade Making: From Origin to Modern Experimentation*, P.M. Desrosiers, ed., New York, pp. 465–500.

Pendlebury, H.W., J.D.S. Pendlebury, and M.B. Money-Coutts. 1935–1936. "Excavation in the Plain of Lasithi I: The Cave of Trapeza," *BSA* 36, pp. 5–131.

Perlès, C. 1984. "Débitage laminaire de l'obsidienne dans le Néolithique de Franchthi (Grèce): Techniques et place dans l'économie de l'industrie lithique," in *Préhistoire de la Pierre Taillée* II: *Économie du débitage laminaire*, J. Tixier, M.-L. Inizan, and H. Roche, eds., Valbonne, pp. 129–137.

———. 1990. *Les industries lithiques taillées de Franchthi (Argolide, Grèce)* II: *Les industries du Mésolithique et du Néolithique Initial* (*Franchthi* 5), Bloomington.

Philaniotou, O. 2008. "Naxos, Tsikniades: An Early Cycladic Cemetery," in Brodie et al., eds., 2008, pp. 195–207.

Pini, I., ed. 1975. *Kleinere griechische Sammlungen* (*CMS* V), Berlin.

Platon, L. 2010. "On the Dating and Character of the 'Zakros Pits Deposit,'" in *Cretan Offerings. Studies in Honour of Peter Warren* (*BSA Studies* 18), O. Krzyszkowska, ed., London, pp. 243–257.

Platon, N., ed. 1969. *Iraklion Archäologisches Museum: Die Siegel der Vorpalastzeit* (*CMS* II, 1), Mainz.

Poursat, J.-C., and C. Knappett. 2005. *La poterie du Minoen Moyen II: Production et utilisation. Fouilles exécutées à Malia, le Quartier Mu* IV (*ÉtCrét* 33), Athens.

Rambach, J. 2000. *Kykladen* II: *Die frühe Bronzezeit. Frühbronzezeitliche Beigabensittenkreise auf den Kykladen. Relative Chronologie und Verbreitung* (*Beiträge zur ur- und frühgeschichtlichen Archäologie des Mittelmeer-Kulturraumes* 34), Bonn.

Reinholdt, C. 2008. *Der frühbronzezeitliche Schmuckhortfund von Kap Kolonna: Ägina und die Ägäis im Goldzeitalter des 3. Jahrtausends v. Chr.* (*Österreichische Akademie der Wissenschaften Denkschriften der Gesamtakademie* 46), Vienna.

Renfrew, C. 1972. *The Emergence of Civilisation*, London.

Rosen, S.A. 1997. *Lithics after the Stone Age: A Handbook of Stone Tools from the Levant*, Walnut Creek, CA.

———. 2003. "Early Multi-Resource Nomadism: Excavations at the Camel Site in the Central Negev," *Antiquity* 77, pp. 749–760.

Rotroff, S.I. 1982. *Hellenistic Pottery: Athenian and Imported Moldmade Bowls* (*Agora* 22), Princeton.

Sackett, L.H. 1992. *Knossos: From Greek City to Roman Colony. Excavations at the Unexplored Mansion* II (*BSA Suppl.* 21), Oxford.

Sakellarakis, Y., and E. Sapouna-Sakellaraki. 1997. *Archanes: Minoan Crete in a New Light*, Athens.

Sampson, A. 2002. *The Neolithic Settlement at Ftelia, Mykonos*, Rhodes.

Sapouna-Sakellaraki, E. 1987. "New Evidence from the Early Bronze Age Cemetery at Manika, Chalkis," *BSA* 82, pp. 233–264.

Sbonias, K. 1995. *Frühkretische Siegel: Ansätze für eine Interpretation der sozial-politischen Entwicklung auf Kreta wärhend der Frühbronzezeit* (*BAR-IS* 620), Oxford.

———. 2010. "Seals from the Cemetery," in Vasilakis and Branigan 2010, pp. 201–225.

Schachermeyr, F. 1938. "Vorbericht über eine Expedition nach Ostkreta," *AA* 53, pp. 466–480.

Schäfer, J. 1968. *Hellenistische Keramik aus Pergamon* (*Pergamenische Forschungen* 2), Berlin.

Schlager, N. 2011. "Livari. Eine frühe Siedlungskammer in Südostkreta," in *Österreichische Forschungen zur ägäischen Bronzezeit 2009. Akten der Tagung vom 6. bis 7. März 2009 am Fachbereich Altertumswissenschaften der Universität Salzburg*, F. Blakolmer, C. Reinholdt, J. Weilhartner, and G. Nightingale, eds., Wien, pp. 271–282.

Schlager, N., J. Böhm, K. Schaller, B. Pulsinger, G.A. Plattner, M. Goriany, K. Karolyi, W.K. Kovacsovics, A. Glaser, Y. Fornwagner, and A. Angelinoudi. 2001. "Pleistozäne, neolithische, bronzezeitliche, und rezente Befunde und Ruinen im Fernen Osten Kretas: Dokumentation 2000," *ÖJh* 70, pp. 157–220.

Soles, J.S. 1992. *The Prepalatial Cemeteries at Mochlos and Gournia and the House Tombs of Bronze Age Crete* (*Hesperia Suppl.* 24), Princeton.

Sotirakopoulou, P. 2008. "Akrotiri Thera: The Late Neolithic and Early Bronze Age Phases in the Light of Recent Excavations at the Site," in Brodie et al., eds., 2008, pp. 121–134.

Stos-Gale, Z.A., and C.F. Macdonald. 1991. "Sources of Metals and Trade in the Bronze Age Aegean," in *Bronze Age Trade in the Mediterranean. Papers Presented at the Conference Held at Rewley House, Oxford, in December 1989* (*SIMA* 9), N.H. Gale, ed., Oxford, pp. 249–288.

Strasser, T.F. 2008. "Stones of Contention: Regional Axe Production and Hidden Landscapes on Neolithic Crete," in Isaakidou and Tomkins, eds., 2008, pp. 155–164.

Strasser, T.F., E. Panagopoulou, C.N. Runnels, P.M. Murray, N. Thompson, P. Karkanas, F.W. McCoy, and K.W. Wegmann. 2010. "Stone Age Seafaring in the Mediterranean: Evidence from the Plakias Region for Lower Palaeolithic and Mesolithic Habitation of Crete," *Hesperia* 79, pp. 145–190.

Tixier, J. 1984. "Le débitage par pression," in *Préhistoire de la pierre taillée* II: *Économie du débitage laminaire*, J. Tixier, M.-L. Inzan, and H. Roche, eds., Valbonne, pp. 57–70.

Tod, M.N. 1902–1903. "Excavations at Palaikastro, II: Hagios Nikolaos," *BSA* 9, pp. 336–343.

Todaro, S. 2001. "Nuove prospettive sulla produzione in stile Pyrgos nella Creta meridionale: Il caso della pisside e della coppa su base ad anello," *Creta Antica* 2, pp. 11–28.

———. 2003. "Haghia Triada nel periodo Antico Minoico," *Creta Antica* 4, pp. 69–95.

———. 2005. "EM–MM IA Ceramic Groups at Phaistos: Towards the Definition of a Prepalatial Ceramic Sequence in South Central Crete," *Creta Antica* 6, pp. 11–46.

Tomkins, P. 2007. "Neolithic: Strata IX–VIII, VII–VIB, VIA–V, IV, IIIB, IIIA, IIB, IIA, and IC Groups," in Momigliano, ed., 2007, pp. 9–48.

Tomkins, P., and P.M. Day. 2001. "Production and Exchange of the Earliest Ceramic Vessels in the Aegean: A View from Early Neolithic Knossos, Crete," *Antiquity* 75 [288], pp. 259–260.

Tomkins, P., P.M. Day, and V. Kilikoglou. 2004. "Knossos and the Early Neolithic Landscape of the Herakleion Basin," in *Knossos: Palace, City, State. Proceedings of the Conference in Herakleion organised by the British School at Athens and the 23rd Ephoreia of Prehistoric and Classical Antiquities of Herakleion, in November 2000, for the Centenary of Sir Arthur Evans's Excavations at Knossos* (*BSA Studies* 12), G. Cadogan, E. Hatzaki, and A. Vasilakis, eds., London, pp. 51–59.

Torrence, R. 1979. "A Technological Approach to Cycladic Blade Industries," in *Papers in Cycladic Prehistory* (*UCLAMon* 14), J.L. Davis and J.F. Cherry, eds., Los Angeles, pp. 66–85.

Tsipopoulou, M. 2010. "Προανακτορική ταφική βραχοσκεπή στον Πετρά Σητείας: Πρώτη ανακοίνωση," in *Αρχαιολογικό Ἔργο Κρήτης* I: *Πρακτικά της 1ης Συνάντησης, Ρέθυμνο, 28–30 Νοεμβρίου 2008*, M. Andrianakis and I. Tzachili, eds., Rethymnon, pp. 121–133.

Tzedakis, J. 1967. "Ἀρχαιότητες καὶ μνημεῖα Δυτικῆς Κρήτης," *ArchDelt* 22 (B', 2 Chronika), pp. 425–429.

———. 1968. "Ἀρχαιότητες καί μνημεῖα Δυτικῆς Κρή-της," *ArchDelt* 23 (B', 2 Chronika), pp. 413–420.

Vagnetti, L. 1972–1973. "L'insediamento neolitico di Festòs," *ASAtene* 50–51, pp. 7–138.

———. 1996. "The Final Neolithic: Crete Enters the Wider World," *Cretan Studies* 5, pp. 29–39.

Vagnetti, L., A. Christopoulou, and I. Tzedakis. 1989. "Saggi negli stati Neolitici," in *Scavi a Nerokourou, Kydonias* (*Incunabula graeca* 91), I. Tzedakis and A. Sacconi, eds., Rome, pp. 9–97.

Varoucha, E.A. 1925–1926. "Κυκλαδικοὶ τάφοι τῆς Πάρου," *ArchEph* 104, pp. 98–114.

Vasilakis, A. 1996. *Ο χρυσός και ο άργυρος στην Κρήτη κατά την Πρώιμη περίοδο του Χαλκού*, Herakleion.

———. 2010. "Excavation and Architecture of the Cemetery," in Vasilakis and Branigan 2010, pp. 47–65.

Vasilakis, A., and K. Branigan. 2010. *Moni Odigitria: A Prepalatial Cemetery and Its Environs in the Asterousia, Southern Crete* (*Prehistory Monographs* 30), Philadelphia.

Vaughan, S.J. 2002. "Petrographic Analysis of Fabrics from the Pseira Cemetery," in *Pseira* VI: *The Pseira Cemetery* 1. *The Surface Survey* (*Prehistory Monographs* 5), P.P. Betancourt and C. Davaras, eds., Philadelphia, pp. 147–165.

Vogeikoff-Brogan, N. 2014. *Mochlos* III: *The Late Hellenistic Settlement. The Beam Press Complex* (*Prehistory Monographs* 48), Philadelphia.

Vogeikoff-Brogan, N., J. Eiring, M.-C. Boileau, and I.K. Whitbread. 2004. "Transport Amphoras and Wine Trade in East Crete in the Late Hellenistic Period. Evidence from Mochlos and Pyrgos Myrtos," in *ΣΤ´ Επιστημονική Συνάντηση για την Ελληνιστική Κεραμική, Βόλος, 17–23 Απριλίου 2000*, Athens, pp. 327–332.

Warren, P.M. 1965. "The First Minoan Stone Vases and Early Minoan Chronology," *CretChron* 19, pp. 7–43.

———. 1969. *Minoan Stone Vases*, Cambridge.

———. 1972. *Myrtos: An Early Bronze Age Settlement in Crete* (*BSA Suppl.* 7), London.

———. 1973. "The Mitata of Nidha and Early Minoan Tholos Tombs," *AAA* 6, pp. 450–456.

———. 1984. "Early Minoan–Early Cycladic Chronological Correlations," in *The Prehistoric Cyclades: Contributions to a Workshop on Cycladic Chronology*, J.A. MacGillivray and R.L.N. Barber, eds., Edinburgh, pp. 55–62.

———. 2007. "The Roofing of Early Minoan Round Tombs: The Evidence of Lebena Tomb II (Gerokampos) and of Cretan Mitata," in *Krinoi kai Limenes: Studies in Honor of Joseph and Maria Shaw* (*Prehistory Monographs* 22), P.P. Betancourt, M.C. Nelson, and H. Williams, eds., Philadelphia, pp. 9–10.

Warren, P., and V. Hankey. 1989. *Aegean Bronze Age Chronology,* Bristol.

Warren, P., J. Tzedhakis, and J.R.A. Grieg. 1974. "Debla, an Early Minoan Settlement in Western Crete," *BSA* 69, pp. 299–342.

Whitbread, I.K. 1995. *Greek Transport Amphorae: A Petrological and Archaeological Study* (*Fitch Laboratory Occasional Paper* 4), Athens.

Whitelaw, T.M., P.M. Day, E. Kiriatzi, V. Kilikoglou, and D.E. Wilson. 1997. "Ceramic Traditions at EM IIB Myrtos, Fournou Korifi," in *Texnh: Craftsmen, Craftswomen, and Craftmanship in the Aegean Bronze Age. Proceedings of the 6th International Aegean Conference, Philadelphia, Temple University, 18–21 April 1996* (*Aegaeum* 16), R. Laffineur and P.P. Betancourt, eds., Liège, pp. 265–274.

Wilson, D.E. 1985. "The Pottery and the Architecture of the EM IIA West Court House at Knossos," *BSA* 80, pp. 281–364.

———. 2007. "Early Prepalatial (EM I–II): EM I Well, West Court House, North-East Magazines, and South Front Groups," in Momigliano, ed., 2007, pp. 49–78.

Wilson, D.E., and P.M. Day. 1994. "Ceramic Regionalism in Prepalatial Central Crete: The Mesara Imports at EM I to EM IIA Knossos," *BSA* 89, pp. 1–88.

———. 2000. "EM I Chronology and Social Practice: Pottery from the Early Palace Tests at Knossos," *BSA* 95, pp. 21–63.

Wilson, D.E., P.M. Day, and N. Dimopoulou-Rethemiotaki. 2004. "The Pottery from Early Minoan I–IIB Knossos and Its Relations with the Harbour site of Poros-Katsambas," in *Knossos: Palace, City, State. Proceedings of the Conference in Herakleion organised by the British School at Athens and the 23rd Ephoreia of Prehistoric and Classical Antiquities of Herakleion, in November 2000, for the Centenary of Sir Arthur Evans's Excavations at Knossos* (*BSA Studies* 12), G. Cadogan, E. Hatzaki, and A. Vasilakis, eds., London, pp. 67–74.

———. 2008. "The Gateway Port of Poros-Katsambas: Trade and Exchange between North-Central Crete and the Cyclades in EB I–II," in Brodie et al., eds., 2008, pp. 261–270.

Wroncka, T. 1959. "Pour un atlas archéologique de la Crète minoenne: Sitia I," *BCH* 83, pp. 523–542.

Xanthoudides, S. 1918. "Μέγας Πρωτομινωϊκός τάφος Πύργου," *ArchDelt* 4, pp. 136–170.

———. 1924. *The Vaulted Tombs of Mesará: An Account of Some Early Cemeteries of Southern Crete*, J.P. Droop, trans., London.

Yule, P. 1980. *Early Cretan Seals: A Study of Chronology*, Mainz am Rhein.

Zapheiropoulou, P. 1984. "The Chronology of the Kampos Group," in *The Prehistoric Cyclades: Contributions to a Workshop on Cycladic Chronology*, J.A. MacGillivray and R.L.N. Barber, eds., Edinburgh, pp. 31–40.

———. 2008. "Early Bronze Age Cemeteries of the Kampos Group on Ano Kouphonisi," in Brodie et al., eds., 2008, pp. 183–194.

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Tables

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P1	08.20.08	08.20	tholos	D:III	RBBW	FN	cheesepot		cooking
P2	08.28.01	08.28	tholos	A–D:IV	RBBW	FN	cheesepot		cooking
P3	08.27.02	08.27	tholos	A–D:IV	RBBW	FN	bowl		cooking
P4	10.16.01	10.16	Open Area 3	A3:II	WW	EM I–II	plate		cooking
P5	08.02.05	08.02	tholos	B:1	DGBW	EM I	chalice		drinking
P6	09.05.01	09.05	Open Area 3	A2:II	DGBW	EM I	chalice		drinking
P7	09.60.02	09.60	rock shelter	4:2	DGBW	EM I	chalice		drinking
P8	09.66.05	09.66	rock shelter	5:1	DGBW	EM I	chalice		drinking
P9	09.192b	09.46	rock shelter	1:2	DGBW	EM I	chalice		drinking
P10	10.02.01	10.02	rock shelter	4:3	DGBW	EM I	chalice		drinking
P11	10.22.02	10.22	Open Area 2	A4:II	DGBW	EM I	chalice		drinking
P12	10.13.01	10.13	rock shelter	6:3	DGBW	EM I	chalice		drinking
P13	10.16.03	10.16	Open Area 3	A3:II	DGBW	EM I	chalice		drinking
P14	10.20.24	10.20	Open Area 2	A4:II	DGBW	EM I	chalice		drinking
P15	10.22.01	10.22	Open Area 2	A4:II	DGBW	EM I	chalice		drinking
P16	08.12.03a	08.12	tholos	A:II	DGBW	EM I	chalice		drinking
P17	09.40.01	09.40	rock shelter	2:1	DGBW	EM I	chalice		drinking
P18	09.405	09.40, 09.44, 09.51, 09.53, 09.59, 09.67	rock shelter	2:1, 3:2, 3:3, 4:1, 5:2	DGBW	EM I	chalice		drinking
P19	10.053	10.20	Open Area 2	A4:II	DGBW	EM I	chalice		drinking
P20	10.082	10.20	Open Area 2	A4:II	DGBW	EM I	chalice		drinking
P21	10.16.02	10.16	Open Area 3	A3:II	DGBW	EM IIA	goblet		drinking
P22	10.22.04	10.22	Open Area 2	A4:II	DGBW	EM IIA	goblet		drinking
P23	09.40.08	09.40	rock shelter	2:1	DGBW	EM IIA	goblet		drinking
P24	09.55.04	09.55	rock shelter	3:3	DGBW	EM IIA	goblet		drinking
P25	09.08.01	09.08	Open Area 3	B5:II	DGBW	EM IIA	goblet		drinking
P26	09.24.01	09.24	Open Area 3	B6:II	DGBW	EM IIA	goblet		drinking
P27	10.20.18	10.20	Open Area 2	A4:II	DGBW	EM IIA	goblet		drinking
P28	10.20.20	10.20	Open Area 2	A4:II	DGBW	EM IIA	goblet		drinking
P29	10.039	10.20	Open Area 2	A4:II	DGBW	EM IIA	goblet		drinking
P30	10.081	10.27	Open Area 2	A4:II	DGBW	EM IIA	goblet		drinking
P31	09.196	09.47, 09.60	rock shelter	2:2, 4:2	DGBW	EM IIA	spouted bowl	hemispherical	pouring

Table 1. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P32	09.409	09.47, 09.62, 09.64, 09.67	rock shelter	2:2, 4:2, 5:2	DGBW	EM IIA	spouted bowl	hemispherical	pouring
P33	10.073	10.27	Open Area 2	A4:II	DGBW	EM IIA	spouted bowl	hemispherical	pouring
P34	10.05.02	10.05	Open Area 4	H4:II	DGBW	EM IIA	spouted bowl	hemispherical	pouring
P35	08.01.01	08.01	tholos	A:I	DGBW	EM IIA	spouted bowl	conical	pouring
P36	10.24.03	10.24	Open Area 3	B2:II	DGBW	EM IIA	spouted bowl	conical	pouring
P37	08.024	08.08	tholos	B:III	DGBW	EM IIA	jug		pouring
P38	09.336	09.67	rock shelter	5:2	DGBW	EM IIA	teapot		pouring
P39	10.03.04	10.03	rock shelter	4:3	DGBW	EM I	bowl	ring footed	serving
P40	08.065	08.17	tholos	B:III	DGBW	EM I	bowl	ring footed	serving
P41	09.66.01	09.66	rock shelter	5:1	DGBW	EM I	bowl	ring footed	serving
P42	09.40.07	09.40	rock shelter	2:1	DGBW	EM I–IIA	bowl	deep	serving
P43	09.52.04	09.52	rock shelter	3:2	DGBW	EM I–IIA	bowl	deep	serving
P44	09.52.05	09.52	rock shelter	3:2	DGBW	EM I–IIA	bowl	deep	serving
P45	10.03.02	10.03	rock shelter	4:3	DGBW	EM I–IIA	bowl	deep	serving
P46	10.27.01	10.27	Open Area 2	A4:II	DGBW	EM I–IIA	dish		serving
P47	09.410	09.67	rock shelter	5:2	DGBW	EM I	pyxis	spherical	storage
P48	10.36	10.20, 10.22	Open Area 2	A4:II	DGBW	EM I	pyxis	spherical	storage
P49	10.029	10.13	rock shelter	3:3	DGBW	EM I	pyxis	spherical	storage
P50	08.11.08	08.11	tholos	C:III	DGBW	EM I	pyxis	spherical	storage
P51	08.20.06	08.20	tholos	D:III	DGBW	EM I	pyxis	spherical	storage
P52	09.66.04	09.66	rock shelter	5:1	DGBW	EM I	pyxis	spherical	storage
P53	09.67.02	09.67	rock shelter	5:2	DGBW	EM I	pyxis	spherical	storage
P54	09.26.01	09.26	Open Area 4	E6:II	DGBW	EM I	pyxis	spherical	storage
P55	09.30.01	09.30	Open Area 4	E6:II	DGBW	EM I	pyxis	spherical	storage
P56	10.20.35	10.20	Open Area 2	A4:II	DGBW	EM I	pyxis	spherical	storage
P57	09.40.09	09.40	rock shelter	2:1	DGBW	EM I	pyxis	spherical	storage
P58	09.43.07	09.43	rock shelter	3:1	DGBW	EM I	pyxis	spherical	storage
P59	09.53.07	09.53	rock shelter	3:3	DGBW	EM I	pyxis	spherical	storage
P60	09.55.02	09.55	rock shelter	3:3	DGBW	EM I	pyxis	spherical	storage
P61	09.66.03	09.66	rock shelter	5:1	DGBW	EM I	pyxis	spherical	storage
P62	10.20.19	10.20	Open Area 2	A4:II	DGBW	EM I	pyxis	spherical	storage

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P63	10.20.25a	10.20	Open Area 2	A4:II	DGBW	EM I	pyxis	spherical	storage
P64	10.23.04	10.23	Open Area 3	B2:II	DGBW	EM I	pyxis	spherical	storage
P65	10.05.04	10.05	Open Area 4	H4:II	DGBW	EM I	pyxis	spherical	storage
P66	09.51.05	09.51	rock shelter	3:2	DGBW	EM I	pyxis	spherical	storage
P67	09.241	09.03, 09.40, 09.44, 09.54, 09.60	rock shelter	2:1, 3:3, 4:2	DGBW	EM I	pyxis	ring footed	storage
P68	08.079	08.20	tholos	D:III	DGBW	EM I	pyxis	ring footed	storage
P69	08.30.01	08.30	tholos	E:III	DGBW	EM I–IIA	pyxis	collar neck	storage
P70	09.67.03	09.67	rock shelter	5:2	DGBW	EM I–IIA	pyxis	collar neck	storage
P71	10.20.23	10.20	Open Area 2	A4:II	DGBW	EM I–IIA	pyxis	collar neck	storage
P72	10.22.07	10.22	Open Area 2	A4:II	DGBW	EM IIA	pyxis	collar neck	storage
P73	09.396	09.51, 09.52, 09.59,09.61, 09.67	rock shelter	3:2, 4:1, 4:2, 5:2	DGBW	EM I–IIA	pyxis	large globular	storage
P74	08.108	08.25	tholos	D:III	DGBW	EM I–IIA	pyxis	large globular	storage
P75	08.109	08.25	tholos	D:III	DGBW	EM I	pyxis	flanged	storage
P76	09.10.05	09.10	Open Area 3	A4:II	DGBW	EM I	pyxis	flanged	storage
P77	09.390	09.43, 09.54, 09.55, 09.60	rock shelter	3:1, 3:3, 4:2	DGBW	EM I	pyxis	flanged	storage
P78	08.097	08.24	tholos	B:III	DGBW	EM I	pyxis	miniature biconical	storage
P79	09.395	09.03, 09.47, 09.60	rock shelter	2:2, 3:3, 4:2	DGBW	EM I	pyxis	miniature biconical	storage
P80	08.11.12	08.11	tholos	C:III	DGBW	EM I	pyxis	miniature biconical	storage
P81	10.20.12	10.20	Open Area 2	A4:II	DGBW	EM I	pyxis		storage
P82	09.322	09.64	rock shelter	4:3	DGBW	EM I	lid	high with projecting lugs	storage
P83	09.385	09.40, 09.43, 09.53, 09.61, 09.62, 09.66	rock shelter	2:1, 3:1, 3:3, 4:2, 5:1	DGBW	EM I	lid	high with projecting lugs	storage
P84	08.063	08.17	tholos	B:III	DGBW	EM I	lid	high with projecting lugs	storage
P85	08.01.03	08.01	tholos	A:I	DGBW	EM I	lid	high with projecting lugs	storage
P86	08.12.11	08.12	tholos	A:II	DGBW	EM I	lid	high with projecting lugs	storage
P87	09.24.03	09.24	Open Area 3	A4:II	DGBW	EM I	lid	high with projecting lugs	storage
P88	09.51.06	09.51	rock shelter	3:2	DGBW	EM I	lid	high with projecting lugs	storage

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P89	09.52.01	09.52	rock shelter	3:2	DGBW	EM I	lid	high with projecting lugs	storage
P90	09.52.03	09.52	rock shelter	3:2	DGBW	EM I	lid	high with projecting lugs	storage
P91	09.60.07	09.60	rock shelter	4:2	DGBW	EM I	lid	high with projecting lugs	storage
P92	08.039	08.10	tholos	D:III	DGBW	EM I	lid	flanged with perforations	storage
P93	09.393	09.51	rock shelter	3:2	DGBW	EM I	lid	flanged with perforations	storage
P94	10.03.01	10.03	rock shelter	4:3	DGBW	EM I	lid	flanged with perforations	storage
P95	09.287	09.59	rock shelter	4:1	DGBW	EM I	lid	low	storage
P96	09.315	09.63	rock shelter	4:3	DGBW	EM I	lid	low	storage
P97	09.394	09.60	rock shelter	4:2	DGBW	EM I	lid	low	storage
P98	09.398	09.40, 09.61	rock shelter	2:1, 4:2	DGBW	EM I	lid	low	storage
P99	09.402	09.51, 09.55, 09.60	rock shelter	3:2, 3:3, 4:2	DGBW	EM I	lid	low	storage
P100	09.407	09.40, 09.43	rock shelter	2:1, 3:1	DGBW	EM I	lid	low	storage
P101	10.061	10.22	Open Area 2	A4:II	DGBW	EM I	lid	low	storage
P102	08.03.02	08.03	tholos	C:I	DGBW	EM I	lid	low	storage
P103	08.08.02	08.08	tholos	B:III	DGBW	EM I	lid	low	storage
P104	08.15.04	08.15	tholos	A:III	DGBW	EM I	lid	low	storage
P105	09.51.03	09.51	rock shelter	3:2	DGBW	EM I	lid	low	storage
P106	08.01.04	08.01	tholos	A:I	DGBW	EM I–IIA	lid	discoid	storage
P107	09.60.05	09.60	rock shelter	4:2	DGBW	EM IIA	lid	discoid	storage
P108	09.61.04	09.61	rock shelter	4:2	DGBW	EM I–IIA	lid	discoid	storage
P109	10.16.04	10.16	Open Area 3	A3:II	DGBW	EM I–IIA	lid	discoid	storage
P110	08.08.04	08.08	tholos	B:III	DGBW	EM I	alabastron		storage
P111	08.11.05	08.11	tholos	C:III	DGBW	EM I	alabastron		storage
P112	09.50.03	09.50	house tomb	1:III	DGBW	EM I	alabastron		storage
P113	09.55.05	09.55	rock shelter	3:3	DGBW	EM I	alabastron		storage
P114	09.3.02	09.3	Open Area 3	A3:II	DGBW	EM I–IIA	pyxis	decoration	storage
P115	08.11.07	08.11	tholos	C:III	DGBW	EM IIA	pyxis	decoration	storage
P116	08.12.05	08.12	tholos	A:II	DGBW	EM I–IIA	pyxis	decoration	storage
P117	08.12.10	08.12	tholos	A:II	DGBW	EM I–IIA	pyxis	decoration	storage

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P118	08.17.20	08.17	tholos	B:III	DGBW	EM I–IIA	pyxis	decoration	storage
P119	08.23.01	08.23	tholos	B:III	DGBW	EM I–IIA	pyxis	decoration	storage
P120	09.10.02	09.10	Open Area 2	A4:II	DGBW	EM I–IIA	pyxis	decoration	storage
P121	09.23.04	09.23	Open Area 3	B6:II	DGBW	EM I–IIA	pyxis	decoration	storage
P122	09.23.05	09.23	Open Area 3	B6:II	DGBW	EM I–IIA	pyxis	decoration	storage
P123	09.43.06	09.43	rock shelter	3:1	DGBW	EM I–IIA	pyxis	decoration	storage
P124	09.59.04	09.59	rock shelter	4:1	DGBW	EM IIA	pyxis	decoration	storage
P125	09.3.03	09.3	Open Area 3	A3:II	DGBW	EM IIA	pyxis	decoration	storage
P126	08.09.01	08.09	tholos	B:II	OBBW	EM I	chalice		drinking
P127	08.12.03b	08.12	tholos	A:II	OBBW	EM I–IIA	spouted bowl	hemispherical	pouring
P128	08.04.03	08.04	tholos	D:I	OBBW	EM I–IIA	bowl	ring footed	serving
P129	08.01.07	08.01	tholos	A:I	OBBW	EM I	pyxis	spherical	storage
P130	08.15.03	08.15	tholos	A:III	OBBW	EM I	pyxis	spherical	storage
P131	08.12.12	08.12	tholos	A:II	OBBW	EM I	pyxis	spherical	storage
P132	08.17.07	08.17	tholos	B:III	OBBW	EM I	pyxis	spherical	storage
P133	08.17.17	08.17	tholos	B:III	OBBW	EM I	pyxis	ring footed	storage
P134	08.09.02	08.09	tholos	B:II	OBBW	EM I	lid	high with projecting lugs	storage
P135	08.17.03	08.17	tholos	B:III	OBBW	EM I	lid	high with projecting lugs	storage
P136	10.037	10.20	Open Area 2	A4:II	DBW	EM I	chalice		drinking
P137	08.12.06	08.12	tholos	A:II	DBW	EM I	chalice		drinking
P138	10.20.32	10.20	Open Area 2	A4:II	DBW	EM I	chalice		drinking
P139	09.61.03a	09.61	rock shelter	4:2	DBW	EM I	cup		drinking
P140	09.64.02	09.64	rock shelter	4:3	DBW	EM I	cup		drinking
P141	08.04.04	08.04	tholos	D:I	DBW	EM I	cup		drinking
P142	09.43.09	09.43	rock shelter	3:1	DBW	EM I	cup		drinking
P143	09.163	09.43	rock shelter	3:1	DBW	EM I	spouted bowl		pouring
P144	09.384	09.43, 09.51, 09.53, 09.55, 09.61, 09.67, 09.68	rock shelter	3:1, 3:2, 3:3, 4:2, 5:2, 5:3	DBW	EM I	spouted bowl		pouring
P145	09.403	09.43, 09.44, 09.54, 09.59, 09.67	rock shelter	3:1, 3:3, 4:1, 5:2	DBW	EM I	spouted bowl		pouring
P146	09.389	09.36, 09.40	rock shelter	1:1, 2:1	DBW	EM I	spouted bowl		pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P147	09.51.01	09.51	rock shelter	3:2	DBW	EM I	spouted bowl		pouring
P148	08.17.12	08.17	tholos	B:III	DBW	EM I	spouted bowl		pouring
P149	09.59.02	09.59	rock shelter	4:1	DBW	EM I	spouted bowl		pouring
P150	09.60.08	09.60	rock shelter	4:2	DBW	EM I	spouted bowl		pouring
P151	09.232	09.53	rock shelter	3:3	DBW	EM I	spouted bowl		pouring
P152	09.230	09.40, 09.53	rock shelter	2:1, 3:3	DBW	EM I	bowl	hemispherical	serving
P153	08.08.01	08.08	tholos	B:III	DBW	EM I	bowl	hemispherical	serving
P154	08.17.04	08.17	tholos	B:III	DBW	EM I	bowl	hemispherical	serving
P155	10.20.03	10.20	Open Area 2	A4:II	DBW	EM I	bowl	hemispherical	serving
P156	10.20.07	10.20	Open Area 2	A4:II	DBW	EM I	bowl	hemispherical	serving
P157	08.12.01	08.12	tholos	A:II	DBW	EM I	bowl	conical	serving
P158	09.400	09.61, 09.63	rock shelter	4:2, 4:3	DBW	EM I	bowl	with tab handle	serving
P159	09.61.02	09.61	rock shelter	4:2	DBW	EM I	bowl	with tab handle	serving
P160	09.43.05	09.43	rock shelter	3:1	DBW	EM I	bowl	with tab handle	serving
P161	08.10.03	08.10	tholos	D:II	DBW	EM I	dish		serving
P162	08.11.01	08.11	tholos	C:III	DBW	EM I	dish		serving
P163	09.40.05	09.40	rock shelter	2:1	DBW	EM I	deep bowl/jar		storage
P164	10.24.06	10.24	Open Area 3	B2:II	DBW	EM I	deep bowl/jar		storage
P165	09.61.05	09.61	rock shelter	4:2	DBW	EM I	deep bowl/jar		storage
P166	08.15.01	08.15	tholos	A:III	DBW	EM I	pyxis		storage
P167	08.17.05	08.17	tholos	B:III	DBW	EM I	pyxis		storage
P168	09.59.01	09.59	rock shelter	4:1	DBW	EM I	pyxis		storage
P169	09.161	09.40, 09.43, 09.47, 09.60, 09.61, 09.63	rock shelter	2:1, 2:2, 3:1, 4:2, 4:3	DBW	EM I	pyxis		storage
P170	08.20.13	08.20	tholos	D:III	DBW	EM I	pyxis		storage
P171	09.40.02	09.40	rock shelter	2:1	DBW	EM I	pyxis		storage
P172	10.19.02	10.19	Open Area 2	A4:II	DBW	EM I	pyxis		storage
P173	09.55.01	09.55	rock shelter	3:3	DBW	EM I	pyxis		storage
P174	09.53.05	09.53	rock shelter	3:3	DBW	EM I	pyxis		storage
P175	09.54.01	09.54	rock shelter	3:3	DBW	EM I	pyxis		storage
P176	09.282	09.58	rock shelter	4:1	DBW	EM I	lid	with projecting lugs	storage
P177	10.20.04	10.20	Open Area 2	A4:II	DBW	EM I	lid	with projecting lugs	storage

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P178	10.20.06	10.20	Open Area 2	A4:II	DBW	EM I	lid	with projecting lugs	storage
P179	10.20.09	10.20	Open Area 2	A4:II	DBW	EM I	lid	with projecting lugs	storage
P180	08.10.08	08.10	tholos	D:II	DBW	EM I	lid	with projecting lugs	storage
P181	09.55.03	09.55	rock shelter	3:3	DBW	EM I	lid	with projecting lugs	storage
P182	09.56.01	09.56	rock shelter	4:1	DBW	EM I	lid	with projecting lugs	storage
P183	09.59.05	09.59	rock shelter	4:1	DBW	EM I	lid	with projecting lugs	storage
P184	09.48.01	09.48	rock shelter	2:2	DBW	EM I	lid	with projecting lugs	storage
P185	09.48.04	09.48	rock shelter	2:2	DBW	EM I	lid	with projecting lugs	storage
P186	09.52.06	09.52	rock shelter	3:2	DBW	EM I	lid	with projecting lugs	storage
P187	09.236	09.43, 09.53	rock shelter	3:1, 3:3	DBW	EM I	lid	with projecting lugs	storage
P188	09.286	09.59	rock shelter	4:1	DBW	EM I	lid	with projecting lugs	storage
P189	09.238	09.53	rock shelter	3:3	DBW	EM I	lid	with perforations	storage
P190	09.239	09.53	rock shelter	3:3	DBW	EM I	lid	with perforations	storage
P191	09.260	09.43, 09.55	rock shelter	3:1, 3:3	DBW	EM I	lid	with perforations	storage
P192	09.61.03b	09.61	rock shelter	4:2	DBW	EM I	lid	with perforations	storage
P193	09.162	09.43	rock shelter	3:1	DBW	EM I	lid	without lugs or perforations	storage
P194	09.43.02	09.43	rock shelter	3:1	DBW	EM I	lid	without lugs or perforations	storage
P195	09.408	09.36	rock shelter	1:1	DBW	EM I	lid	without lugs or perforations	storage
P196	08.17.16	08.17	tholos	B:III	DBW	EM I	lid	cylindrical	storage
P197	08.043	08.11	tholos	C:III	DBW	EM I	lid	spool	storage
P198	10.23.06	10.23	Open Area 3	B2:II	DBW	EM I	alabastron		storage
P199	10.24.05	10.24	Open Area 3	B2:II	DBW	EM I	alabastron		storage
P200	08.25.03	08.25	tholos	D:III	DBW	EM I	alabastron		storage
P201	09.51.02	09.51	rock shelter	3:2	DBW	EM I	alabastron		storage
P202	09.34.01	09.34	Open Area 3	A:II	DBW	EM I	bottle		storage
P203	09.40.03	09.40	rock shelter	2:1	DBW	EM I	bottle		storage
P204	09.53.06	09.53	rock shelter	3:3	DBW	EM I	bottle		storage
P205	08.15.02	08.15	tholos	A:III	RSBW	EM I	chalice		drinking
P206	10.27.02	10.27	Open Area 2	A4:II	RSBW	EM IIB	spouted bowl		pouring
P207	09.391	09.36, 09.43, 09.60, 09.62	rock shelter	1:1, 3:1, 4:2	RSBW	EM II	teapot		pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P208	09.312	09.47, 09.53, 09.60, 09.63	rock shelter	2:2, 3:2, 3:3, 4:2	RSBW	EM I	pyxis	biconical	storage
P209	08.11.10	08.11	tholos	C:III	RSBW	EM I	pyxis	biconical	storage
P210	08.25.02	08.25	tholos	D:III	RSBW	EM I	pyxis	biconical	storage
P211	09.43.03	09.43	rock shelter	3:1	RSBW	EM I	pyxis	biconical	storage
P212	09.406	09.40, 09.55, 09.63	rock shelter	2:1, 3:3, 4:3	RSBW	EM I–IIA	pyxis	spherical	storage
P213	09.64.01	09.64	rock shelter	4:3	RSBW	EM I–IIA	pyxis	spherical	storage
P214	09.63.01a	09.63	rock shelter	4:3	RSBW	EM I–IIA	pyxis	spherical	storage
P215	08.078	08.20	tholos	D:III	RSBW	EM I	lid	high with projecting lugs	storage
P216	08.20.14	08.20	tholos	D:III	RSBW	EM I	lid	high with projecting lugs	storage
P217	08.20.09	08.20	tholos	D:III	RSBW	EM I	lid	with perforations	storage
P218	09.08.02	09.08	Open Area 3	B5:II	RSBW	EM I	lid	with perforations	storage
P219	09.30.02	09.30	Open Area 4	E6:II	RSBW	EM I	lid	with perforations	storage
P220	09.58.03	09.58	rock shelter	4:1	RSBW	EM I	lid	with perforations	storage
P221	10.085	10.20, 10.22	Open Area 2	A4:II	RSBW	EM I–IIA	jar		storage
P222	10.22.05	10.22	Open Area 2	A4:II	RSBW	EM I–IIA	jar		storage
P223	08.038	08.10	tholos	D:II	RBW	EM I	chalice		drinking
P224	08.04.02	08.04	tholos	D:I	RBW	EM I	chalice		drinking
P225	08.021	08.08	tholos	B:III	RBW	EM I–II	bowl		serving
P226	08.064	08.17	tholos	B:III	RBW	EM I–II	bowl		serving
P227	08.19.09	08.19	tholos	B:III	RBW	EM IIA	pyxis		storage
P228	08.01.09	08.01	tholos	A:I	FGW	EM IIA	pyxis	ring footed	storage
P229	08.11.02	08.11	tholos	C:III	FGW	EM IIA	pyxis	pedestal	storage
P230	09.63.03	09.63	rock shelter	4:3	FGW	EM IIA	pyxis	spherical	storage
P231	08.02.01a	08.02	tholos	B:I	FGW	EM IIA	lid	low cylindrical	storage
P232	08.13.03	08.13	tholos	C:III	FGW	EM IIA	lid	conical	storage
P233	09.313	09.63	rock shelter	4:3	DOLW	EM I–II	spouted bowl		pouring
P234	09.020	09.07	Open Area 1	A2:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P235	09.021	09.07	Open Area 1	A2:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P236	09.023	09.07	Open Area 1	A2:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P237	10.038	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P238	10.041	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P239	10.042	10.20, 10.22, 10.26	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P240	10.044	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P241	10.045	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P242	10.046	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P243	10.091	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P244	10.089	10.19, 10.20, 10.22	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P245	10.093	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P246	10.090	10.20, 10.22	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P247	10.094	10.20, 10.22	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P248	08.11.11	08.11	tholos	C:III	DOLW	EM IIA	jug	with cutaway spout	pouring
P249	09.54.02	09.54	rock shelter	3:3	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P250	10.20.36	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P251	10.20.37	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P252	10.20.38	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P253	10.20.39	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P254	10.20.40	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with cutaway spout	pouring
P255	10.20.41	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	with cutaway spout	pouring
P256	09.022	09.07	Open Area 1	A2:II	DOLW	EM I–IIA	jug	with pinched rim	pouring
P257	10.079	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	with pinched rim	pouring
P258	09.193	09.46	rock shelter	1:2	DOLW	EM IIA	jug	with pinched rim	pouring
P259	08.020	08.08	tholos	B:III	DOLW	EM IIA	juglet	with pinched rim	pouring
P260	09.294	09.60	rock shelter	4:2	DOLW	EM IIA	jug	juglet	pouring
P261	09.53.03	09.53	rock shelter	3:3	DOLW	EM IIA	jug	large	pouring
P262	09.60.03	09.60	rock shelter	4:2	DOLW	EM IIA	jug	large	pouring
P263	09.030	09.07	Open Area 1	A2:II	DOLW	EM IIA	jug	unidentified	pouring
P264	10.083	10.10, 10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring
P265	09.66.02	09.66	rock shelter	5:1	DOLW	EM I–IIA	jug	unidentified	pouring
P266	09.293	09.60	rock shelter	4:2	DOLW	EM I–IIA	jug	unidentified	pouring
P267	10.040	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring
P268	10.084	10.20, 10.22	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P269	10.087	10.20	Open Area 2	A4:II	DOLW	EM IIA	jug	unidentified	pouring
P270	09.192a	09.40, 09.46, 09.54	rock shelter	1:2, 2:1, 3:3	DOLW	EM IIA	jug	unidentified	pouring
P271	10.088	10.20, 10.22	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring
P272	09.10.04	09.10	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring
P273	10.093	10.20, 10.22	Open Area 2	A4:II	DOLW	EM I–IIA	jug	unidentified	pouring
P274	09.388	09.40, 09.59	rock shelter	2:1, 4:1	DOLW	EM I–II	bowl	conical	serving
P275	08.10.07	08.10	tholos	D:II	DOLW	EM I–II	bowl	ring footed	serving
P276	09.3.01	09.3	Open Area 3	A3:II	DOLW	EM IIA	bowl	pedestal	serving
P277	08.02.06	08.02	tholos	B:I	DOLW	EM I	pyxis	collar neck	storage
P278	08.02.04	08.02	tholos	B:I	DOLW	EM I	pyxis	collar neck	storage
P279	09.237	09.53	rock shelter	3:3	DOLW	EM I	pyxis	with tubular neck	storage
P280	08.10.06	08.10	tholos	D:II	DOLW	EM I–IIA	pyxis	unidentified	storage
P281	08.12.07	08.12	tholos	A:II	DOLW	EM I–IIA	pyxis	unidentified	storage
P282	08.19.05	08.19	tholos	B:III	DOLW	EM I–IIA	pyxis	unidentified	storage
P283	08.30.02	08.30	tholos	E:III	DOLW	EM I–IIA	pyxis	unidentified	storage
P284	08.12.08	08.12	tholos	A:II	DOLW	EM I–IIA	pyxis	unidentified	storage
P285	09.48.03	09.48	rock shelter	2:2	DOLW	EM I–IIA	pyxis	unidentified	storage
P286	08.095	08.24	tholos	B:III	DOLW	EM IIA	lid	high with projecting lugs	storage
P287	09.3.06	09.3	Open Area 3	A3:II	DOLW	EM I–IIA	lid	high with projecting lugs	storage
P288	10.20.34	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	lid	high with projecting lugs	storage
P289	10.24.01	10.24	Open Area 3	B2:II	DOLW	EM I	lid	high with projecting lugs	storage
P290	10.078	10.20, 10.22	Open Area 2	A4:II	DOLW	EM I–IIA	lid	high with projecting lugs	storage
P291	10.20.33	10.20	Open Area 2	A4:II	DOLW	EM I	lid	flanged with perforations	storage
P292	10.23.07	10.23	Open Area 3	B2:II	DOLW	EM I	lid	flanged with perforations	storage
P293	10.29.02	10.29	Open Area 4	D2:II	DOLW	EM I	lid	flanged with perforations	storage
P294	09.397	09.44, 09.53, 09.59	rock shelter	3:3, 4:1	DOLW	EM I	lid	low	storage
P295	09.23.01	09.23	Open Area 3	B2:II	DOLW	EM I	lid	low	storage
P296	08.20.11	08.20	tholos	D:III	DOLW	EM I–IIA	jug/jar/pyxis		pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P297	10.17.01	10.17	rock shelter	6:3	DOLW	EM I	jug/jar/pyxis		pouring
P298	09.02.01	09.02	Open Area 3	A1:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P299	09.02.02	09.02	Open Area 3	A1:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P300	09.58.02	09.58	rock shelter	4:1	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P301	10.080	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P302	10.20.15	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P303	10.05.03	10.05	Open Area 4	G4:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P304	10.092	10.20	Open Area 2	A4:II	DOLW	EM I–IIA	jug/jar/pyxis		pouring
P305	08.13.08	08.13	tholos	C:III	VW	EM IIB	cup		drinking
P306	08.20.12	08.20	tholos	D:III	VW	EM IIB	cup		drinking
P307	08.17.14	08.17	tholos	B:III	VW	EM IIB	goblet		drinking
P308	08.24.02	08.24	tholos	B:III	VW	EM IIB	goblet		drinking
P309	09.36.01	09.36	rock shelter	1:1	VW	EM IIB	goblet		drinking
P310	10.23.01	10.23	Open Area 3	B2:II	VW	EM IIB	jug		pouring
P311	10.23.02	10.23	Open Area 3	B2:II	VW	EM IIB	jug		pouring
P312	08.040	08.10	tholos	D:II	VW	EM IIB	teapot		pouring
P313	09.413	09.36, 09.37, 09.40, 09.43	rock shelter	1:1, 2:1, 3:1	VW	EM IIB	amphora		storage
P314	09.383	09.36, 09.40, 09.43, 09.45, 09.54	rock shelter	1:1, 1:2, 2:1, 3:1, 3:3	R/BSW	EM III–MM IA	cup	one handled	drinking
P315	09.399	09.51, 09.59, 09.63	rock shelter	3:2, 4:1, 4:3	R/BSW	EM III–MM IA	cup	handleless	drinking
P316	10.043	10.20	Open Area 2	A4:II	R/BSW	EM III	goblet		drinking
P317	09.3.05	09.3	Open Area 3	A3:II	R/BSW	EM IIB–III	jug	beak spouted	pouring
P318	09.404	09.40, 09.43, 09.47, 09.51, 09.55, 09.61, 09.63	rock shelter	2:1, 2:2, 3:1, 3:2, 3:3, 4:2, 4:3	R/BSW	EM IIB–III	jug	beak spouted	pouring
P319	09.382	09.02, 09.03, 09.13, 09.43, 09.47, 09.52, 09.53, 09.56, 09.59, 09.61, 09.66	rock shelter	2:2, 3:1, 3:2, 3:3, 4:1, 4:2, 5:1	R/BSW	EM IIB–III	jug	with cutaway spout	pouring
P320	09.160	09.40, 09.43	rock shelter	2:1, 3:1	R/BSW	EM IIB–III	jug	with cutaway spout	pouring
P321	09.261	09.55	rock shelter	3:3	R/BSW	EM IIB–III	jug	juglet	pouring
P322	08.20.02	08.20	tholos	D:III	R/BSW	EM IIB–III	jug	juglet	pouring
P323	08.02.02	08.02	tholos	B:I	R/BSW	EM IIB–III	spouted bowl	hemispherical	pouring

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P324	09.387	09.36, 09.37, 09.40, 09.43, 09.44, 09.46, 09.52, 09.60	rock shelter	1:1, 1:2, 2:1, 3:1, 3:2, 4:2	R/BSW	EM III	spouted bowl	conical	pouring
P325	08.17.11	08.17	tholos	B:III	R/BSW	EM III	spouted bowl	conical	pouring
P326	09.36.02	09.36	rock shelter	1:1	R/BSW	EM III	spouted bowl	conical	pouring
P327	10.27.04	10.27	Open Area 2	A4:II	R/BSW	EM III	bridge spouted jar		pouring
P328	09.10.03	09.10	Open Area 2	A4:II	R/BSW	EM IIB	teapot		pouring
P329	08.10.04	08.10	tholos	D:II	R/BSW	EM IIB	bowl	conical	serving
P330	09.411	09.64	rock shelter	2:1, 3:1, 4:1, 4:2	R/BSW	EM III	bowl	hemispherical	serving
P331	10.20.01	10.20	Open Area 2	A4:II	R/BSW	EM III–MM IA	bowl	pedestal	serving
P332	09.386	09.36, 09.37, 09.48	rock shelter	1:1, 2:2	R/BSW	EM IIB–III	dish		serving
P333	08.10.10	08.10	tholos	D:II	R/BSW	EM IIB–III	dish		serving
P334	08.10.11	08.10	tholos	D:II	R/BSW	EM IIB–III	dish		serving
P335	09.321	09.01, 09.40, 09.43, 09.47, 09.52, 09.60, 09.64	rock shelter	2:1, 2:2, 3:1, 3:2, 4:2, 4:3	WODW	EM III	cup	handleless conical	drinking
P336	09.06.01	09.06	Open Area 3	A2:II	WODW	EM III	cup	handleless conical	drinking
P337	09.44.01	09.44	rock shelter	1:1	WODW	EM III	cup	handleless conical	drinking
P338	09.220	09.51	rock shelter	3:2	WODW	EM III	cup	handleless hemispherical	drinking
P339	09.44.02	09.44	rock shelter	1:1	WODW	EM III	cup	one handled hemispherical	drinking
P340	10.29.01	10.29	Open Area 3	D2:II	WODW	EM III	cup	one handled hemispherical	drinking
P341	09.197	09.47	rock shelter	2:2	WODW	EM IIB–III	spouted bowl		pouring
P342	09.240	09.54	rock shelter	3:3	WODW	EM IIB–III	spouted bowl		pouring
P343	09.392	09.40, 09.47, 09.52, 09.55, 09.59, 09.67	rock shelter	2:1, 2:2, 3:2, 3:3, 4:1, 5:2	WODW	EM IIB–III	spouted bowl		pouring
P344	09.320	09.64	rock shelter	4:3	WODW	EM IIB–III	jug		pouring
P345	09.43.04	09.43	rock shelter	3:1	WODW	EM IIB–III	dish		serving
P346	09.56.07	09.56	rock shelter	4:1	WODW	EM IIB–III	dish		serving
P347	09.060	09.18	house tomb	2:II	MW	MM IIIB–LM IA	cup	straight sided	drinking
P348	10.048	10.20	Open Area 2	A4:II	MW	MM IIIB–LM IA	cup	straight sided	drinking
P349	10.086	10.19, 10.20	Open Area 2	A4:II	MW	MM IIIB–LM IA	cup	straight sided	drinking
P350	10.22.06	10.22	Open Area 2	A4:II	MW	MM IIIB–LM IA	cup	straight sided	drinking

Table 1, cont. List of cataloged pottery.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Ware	Date	Shape	Type	Function
P351	09.062	09.18	house tomb	2:II	MW	LM IA	juglet		pouring
P352	09.046	09.12	house tomb	1:II	MW	LM IA	amphora	oval mouthed	storage
P353	09.061	09.18	house tomb	2:II	PW	LM IA	cup	conical	drinking
P354	09.063	09.18	house tomb	2:II	PW	LM IA	cup	conical	drinking
P355	09.076	09.22	house tomb	1:II	LOD	LM IA	juglet		pouring
P356	09.077	09.22	house tomb	1:II	LOD	LM IA	juglet		pouring
P357	09.107	09.32	house tomb	1:II	DOL	LM IA	cup	hemispherical	drinking
P358	09.40.11a	09.40	rock shelter	2:1	DOL	LM IA	cup	hemispherical	drinking
P359	09.106	09.32	house tomb	1:II	DOL	LM IA	bowl	in-and-out	drinking
P360	09.221	09.51	rock shelter	3:2	MW	MM III–LM I	bowl	shallow	serving
P361	09.043	09.12	house tomb	1:II	CW	MM III–LM I	jar		storage
P362	08.10.01	08.10	tholos	D:II	PW	MM III–LM I	spouted jar		cooking
P363	08.10.09	08.10	tholos	D:II	PW	MM III–LM I	jar		cooking
P364	10.003	10.02	rock shelter	6:2		Roman		bowl	
P365	10.012	10.03	rock shelter	6:3		Roman		bowl	
P366	09.280	09.58	rock shelter	4:1		Roman		bowl	
P367	09.289	09.59	rock shelter	4:1		Roman		lamp	
P368	09.401	09.43, 09.53, 09.59, 09.62, 09.63	rock shelter	3:1		Roman		lid	

Table 1, cont. List of cataloged pottery.

TABLE 2

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Date	Description	Material
B1	08.008	08.02	tholos	B:I	FN–EM I	axe	stone
B2	08.046	08.12	tholos	A:II	EM IIB–III	figurine	clay
B3	09.172	09.43	rock shelter	3:1	EM I–III	tool	bone
B4	09.244	09.51	rock shelter	3:2	EM I–III	tool	bone
B5	09.252	09.53	rock shelter	3:3	EM I–III	tool	bone
B6	09.379	09.54	rock shelter	3:3	EM I–III	tool	bone
B7	09.380	09.48	rock shelter	2:2	EM I–III	tool	bone
B8	09.246	09.51	rock shelter	3:2	EM I–III	handle	bone
B9	08.023	08.008	tholos	B:III	EM I–III	sherd	clay
B10	08.102	08.24	tholos	B:III	EM I–III	pumice	pumice
CS1	08.100	08.24	tholos	B:III	EM I–III	blade	obsidian
CS2	08.16	08.17	tholos	B:III	EM I–III	blade	obsidian
CS3	08.74	08.19	tholos	B:III	EM I–III	blade	obsidian
CS4	08.44	08.11	tholos	C:III	EM I–III	blade	obsidian
CS5	08.49	08.12	tholos	A:II	EM I–III	blade	obsidian
CS6	08.82	08.20	tholos	D:III	EM I–III	blade	obsidian
CS7	08.100	08.24	tholos	B:III	EM I–III	blade	obsidian
CS8	08.68	08.17	tholos	B:III	EM I–III	blade	obsidian
CS9	08.68	08.17	tholos	B:III	EM I–III	blade	obsidian
CS10	08.130	08.31	tholos	A–D:III	EM I–III	blade	chert
CS11	08.36	08.10	tholos	D:II	EM I–III	blade	chert
CS12	09.226	09.53	rock shelter	3:3	EM I–III	blade	obsidian
CS13	09.249	09.51	rock shelter	3:2	EM I–III	blade	obsidian
CS14	09.249	09.51	rock shelter	3:2	EM I–III	blade	obsidian
CS15	09.258	09.55	rock shelter	3:3	EM I–III	blade	obsidian
CS16	09.134	09.40	rock shelter	2:1	EM I–III	blade	obsidian
CS17	09.298	09.61	rock shelter	4:2	EM I–III	blade	obsidian
CS18	09.330	09.66	rock shelter	5:1	EM I–III	blade	obsidian
CS19	10.35	10.17	rock shelter	6:1, 6:2	EM I–III	blade	obsidian
CS20	09.319	09.64	rock shelter	4:3	EM I–III	blade	obsidian
CS21	09.330	09.66	rock shelter	5:1	EM I–III	blade	obsidian
CS22	09.298	09.61	rock shelter	4:2	EM I–III	blade	obsidian
CS23	09.276	09.58	rock shelter	4:1	EM I–III	blade	obsidian
CS24	09.307	09.62	rock shelter	4:2	EM I–III	blade	obsidian
CS25	09.285	09.59	rock shelter	4:1	EM I–III	blade	obsidian
CS26	09.319	09.64	rock shelter	4:3	EM I–III	blade	obsidian
CS27	09.314	09.63	rock shelter	4:3	EM I–III	blade	obsidian
CS28	09.330	09.66	rock shelter	5:1	EM I–III	trapeze	obsidian
CS29	09.183	09.45	rock shelter	1:2	EM I–III	trapeze	obsidian
CS30	09.73	09.22	rock shelter	1:II	EM I–III	flake	obsidian
CS31	09.147	09.41	rock shelter	2:II	EM I–III	blade	obsidian
CS32	09.54	09.14	rock shelter	1:II	EM I–III	blade	obsidian
CS33	09.130	09.39	rock shelter	1:II	EM I–III	trapeze	obsidian
CS34	09.147	09.41	rock shelter	2:II	EM I–III	trapeze	obsidian
CS35	09.38	09.12	rock shelter	1:II	EM I–III	trapeze	obsidian

Table 2. List of cataloged small finds.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Date	Description	Material
CS36	10.63	10.23	Open Area 3	B2:II	EM I–III	blade	obsidian
CS37	10.63	10.23	Open Area 3	B2:II	EM I–III	blade	obsidian
CS38	10.16	10.06	Open Area 4	G7:II	EM I–III	blade	obsidian
CS39	09.27	09.07	Open Area 3	A2:II	EM I–III	blade	obsidian
CS40	10.68	10.24	Open Area 3	B2:II	EM I–III	blade	obsidian
J1	09.279	09.58	rock shelter	4:1	EM I–IIA	pendant	copper and silver
J2	09.138	09.40	rock shelter	2:1	EM I–IIA	pendant	copper and silver
J3	09.337	09.67	rock shelter	5:2	EM I–IIA	pendant	silver
J4	08.025	08.08	tholos	B:III	EM I–IIA	pendant	silver
J5	08.077	08.20	tholos	D:III	EM I–IIA	pendant	silver
J6	08.019	08.07	tholos	E:III	EM I–III	bead, rhombiod	stone
J7	09.242a	09.51	rock shelter	3:2	EM I–III	pendant	stone
J8	09.242b	09.51	rock shelter	3:2	EM I–III	pendant	stone
J9	09.251	09.53	rock shelter	3:3	EM I–III	pendant	stone
J10	09.346	09.40	rock shelter	2:1	EM I–III	pendant	stone
J11	08.022	08.07	tholos	E:III	EM I–III	pendant	shell
J12	09.338	09.67	rock shelter	5:2	EM I–III	pendant	stone
J13	09.348	09.48	rock shelter	2:2	EM I–III	pendant	stone
J14	09.170	09.43	rock shelter	3:1	EM IIA	pendant	bone
J15	09.277	09.58	rock shelter	4:1	EM IIA	pendant	bone
J16	08.090	08.23	tholos	B:III	EM I–IIA	pendant	silver
J17	08.127	08.15	tholos	A:III	EM I–IIA	pendant	copper and silver
J18	08.062	08.17	tholos	B:III	EM I–IIA	pendant	silver
J19	08.055	08.15	tholos	A:III	EM I–IIA	pendant	stone
J20	08.123	08.30	tholos	E:III	EM I–IIA	pendant	stone
J21	08.091	08.23	tholos	B:III	EM I	pendant	stone
J22	09.248	09.51	rock shelter	3:2	EM I–III	pendant	stone
J23	09.139	09.40	rock shelter	2:1	EM I–III	pendant	stone
J24	09.360	09.55	rock shelter	3:3	EM IIA	pendant	bone
J25	08.034a	08.09	tholos	B:II	EM I–III	bead, discoid	stone
J26	08.034b	08.09	tholos	B:II	EM I–III	bead, discoid	stone
J27	08.092	08.23	tholos	B:III	EM I–III	bead, discoid	stone
J28	08.122	08.29	tholos	A–E:IV	EM I–III	bead, discoid	stone
J29	09.140a	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J30	09.140b	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J31	09.151a	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J32	09.151b	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J33	09.151c	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J34	09.151d	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J35	09.152	09.40	rock shelter	2:1	EM I–III	bead, discoid	stone
J36	09.167a	09.43	rock shelter	3:1	EM I–III	bead, discoid	stone
J37	09.167b	09.43	rock shelter	3:1	EM I–III	bead, discoid	stone
J38	09.168	09.43	rock shelter	3:1	EM I–III	bead, discoid	stone
J39	09.245	09.51	rock shelter	3:2	EM I–III	bead, discoid	stone
J40	09.247	09.51	rock shelter	3:2	EM I–III	bead, discoid	stone

Table 2, cont. List of cataloged small finds.

TABLE 2

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Date	Description	Material
J41	09.255a	09.53	rock shelter	3:3	EM I–III	bead, discoid	stone
J42	09.255b	09.53	rock shelter	3:3	EM I–III	bead, discoid	stone
J43	09.264a	09.55	rock shelter	3:3	EM I–III	bead, discoid	stone
J44	09.264b	09.55	rock shelter	3:3	EM I–III	bead, discoid	stone
J45	09.278	09.58	rock shelter	4:1	EM I–III	bead, discoid	stone
J46	09.295	09.60	rock shelter	4:2	EM I–III	bead, discoid	stone
J47	09.302a	09.61	rock shelter	4:2	EM I–III	bead, discoid	stone
J48	09.302b	09.61	rock shelter	4:2	EM I–III	bead, discoid	stone
J49	09.323	09.64	rock shelter	4:3	EM I–III	bead, discoid	stone
J50	09.339	09.67	rock shelter	5:2	EM I–III	bead, discoid	stone
J51	09.349a	09.47	rock shelter	2:2	EM I–III	bead, discoid	stone
J52	09.349b	09.47	rock shelter	2:2	EM I–III	bead, discoid	stone
J53	09.350	09.53	rock shelter	3:3	EM I–III	bead, discoid	stone
J54	09.351	09.60	rock shelter	4:2	EM I–III	bead, discoid	stone
J55	09.353	09.64	rock shelter	4:3	EM I–III	bead, discoid	stone
J56	09.358	09.48	rock shelter	2:2	EM I–III	bead, discoid	stone
J57	10.004	10.02	rock shelter	4:2	EM I–III	bead, discoid	stone
J58	10.034	10.17	rock shelter	3:1	EM I–III	bead, discoid	stone
J59	10.015	10.06	Open Area 4	H7:II	EM I–III	bead, discoid	stone
J60	09.205	09.47	rock shelter	2:2	EM I–III	bead, cylindrical	stone
J61	09.206	09.47	rock shelter	2:2	EM I–III	bead, cylindrical	stone
J62	09.207	09.47	rock shelter	2:2	EM I–III	bead, cylindrical	bone
J63	09.215	09.44	rock shelter	2:1	EM I–III	bead, cylindrical	stone
J64	09.344	09.68	rock shelter	5:3	EM I–III	bead, cylindrical	stone
J65	09.359	09.53	rock shelter	3:3	EM I–III	bead, cylindrical	stone
J66	09.175	09.43	rock shelter	3:1	EM I–III	bead, spherical	stone
J67	09.301	09.61	rock shelter	4:2	EM I–III	bead, spherical	stone
J68	10.005	10.02	rock shelter	4:1	EM I–III	bead, spherical	stone
J69	09.180	09.44	rock shelter	2:1	EM I–III	bead, spherical	faience
J70	10.009	10.03	rock shelter	3:3	EM IIA	bead	bone
J71	09.203	09.47	rock shelter	2:2	EM I–III	bead	copper and serpentinite
J72	08.107	08.25	tholos	D:III	EM I–III	bead	silver
J73	09.142	09.40	rock shelter	2:1	EM I–III	bead	copper
J74	08.030	08.08	tholos	B:III	EM I–III	bangle	gold
J75	09.169	09.43	rock shelter	3:1	EM I–III	foil	gold
J76	09.303	09.61	rock shelter	4:2	EM I–III	sheet	gold
J77	09.224	09.51	rock shelter	3:2	EM I–III	decorative boss	silver
J78	09.357	09.18	house tomb	2:II	LM IA	bead, discoid	stone
M1	08.009	08.03	tholos	C:III	EM I–III	dagger	copper
M2	09.223	09.52	rock shelter	3:2	EM I–III	dagger	copper
M3	09.331	09.66	rock shelter	5:1	EM I–III	dagger	copper
M4	09.243	09.51	rock shelter	3:2	EM I–III	dagger	copper
M5	09.316	09.62	rock shelter	4:2	EM I–III	dagger	copper
M6	08.016	08.07	tholos	E:III	EM I–III	awl	copper
M7	08.096	08.24	tholos	B:III	EM I–III	awl	copper

Table 2, cont. List of cataloged small finds.

Catalog No.	Excavation No.	Pottery Group	Area	Trench/Sector/ Room:Stratum/Layer	Date	Description	Material
M8	09.010	09.02	Open Area 3	A1:II	EM I–III	awl	copper
M9	09.141	09.40	rock shelter	2:1	EM I–III	awl	copper
M10	09.154	09.40	rock shelter	2:1	EM I–III	awl	copper
M11	09.155	09.40	rock shelter	2:1	EM I–III	awl	copper
M12	09.181	09.45	rock shelter	1:2	EM I–III	awl	copper
M13	09.184	09.45	rock shelter	1:2	EM I–III	awl	copper
M14	09.185	09.45	rock shelter	1:2	EM I–III	awl	copper
M15	09.189	09.46	rock shelter	1:2	EM I–III	awl	copper
M16	09.204	09.47	rock shelter	2:2	EM I–III	awl	copper
M17	09.208	09.48	rock shelter	2:2	EM I–III	awl	copper
M18	09.256	09.53	rock shelter	3:3	EM I–III	awl	copper
M19	09.266	09.55	rock shelter	3:3	EM I–III	awl	copper
M20	09.267	09.55	rock shelter	3:3	EM I–III	awl	copper
M21	09.268	09.55	rock shelter	3:3	EM I–III	awl	copper
M22	09.300	09.61	rock shelter	4:2	EM I–III	awl	copper
M23	09.340	09.67	rock shelter	5:2	EM I–III	awl	copper
M24	09.143	09.40	rock shelter	2:1	EM I–III	awl(?)	copper
M25	09.231	09.54	rock shelter	3:3	EM I–III	fishhook	copper
M26	09.265	09.55	rock shelter	3:3	EM I–III	scraper	copper
M27	09.144	09.40	rock shelter	2:1	EM I–III	pin	copper
M28	09.166	09.43	rock shelter	3:1	EM I–III	nail	copper
M29	09.176	09.43	rock shelter	3:1	EM I–III	nail	copper
M30	09.254	09.53	rock shelter	3:3	EM I–III	bent rod	copper
M31	09.304	09.61	rock shelter	4:2	EM I–III	fragment	copper
M32	09.356	09.64	rock shelter	4:3	EM I–III	fragment	copper
M33	09.355	09.48	rock shelter	2:2	EM I–III	fragment	copper
M34	09.156	09.40	rock shelter	2:1	EM I–III	wire	copper
M35	09.288	09.59	rock shelter	4:1	EM I–III	strip	lead
M36	09.123	09.38	house tomb	1:II	LM IA	fishhook	copper
M37	09.124	09.38	house tomb	1:II	LM IA	fishhook	copper
M38	09.129	09.39	house tomb	1:II	LM IA	fishhook	copper
M39	09.003	09.01	Open Area 3	A3:I	LM IA	fishhook	copper
S1	09.145	09.40	rock shelter	2:1	EM II–III	seal	bone
S2	09.165	09.43	rock shelter	3:1	EM II–III	seal	bone
S3	09.354	09.48	rock shelter	2:2	EM II–III	seal	bone
S4	09.263	09.55	rock shelter	3:3	EM II–III	seal	bone
S5	09.174	09.43	rock shelter	3:1	EM I–II	seal	stone
S6	09.352	09.60	rock shelter	4:2	EM I–II	seal	stone
S7	09.096	09.29	house tomb	1:II	LM IA	seal	stone
V1	09.308	09.40, 09.61, 09.62	rock shelter	2:1, 4:2	EM II–III	stone vase	calcite
V2	09.153	09.40	rock shelter	2:1	EM IIA	stone vase	chlorite schist
V3	09.173	09.43	rock shelter	2:1	EM IIA	stone vase	chlorite schist
V4	10.064	10.23	Open Area 3	B2:II	EM IIA	stone vase	chlorite schist
V5	09.281	09.58	rock shelter	4:1	EM II–III	stone vase	chlorite

Table 2, cont. List of cataloged small finds.

Date	Quantity	%	Weight (g)	%
EM I–IIA	148	29%	1,474	35%
EM IIB–III	4	1%	40	1%
Later	4	1%	18	0%
Not dated	332	64%	2,338	55%
Burned	28	5%	356	9%
Total	516	100%	4,226	100%

Table 3. Uncataloged sherds from the tholos tomb, Stratum I.

Date	Quantity	%	Weight (g)	%
EM I–IIA	246	36%	2,278	31%
EM IIB–III	5	1%	30	0%
Later	119	17%	2,320	31%
Not dated	252	36%	2,094	28%
Burned	66	10%	698	10%
Total	688	100%	7,420	100%

Table 4. Uncataloged sherds from the tholos tomb, Stratum II.

Date/ Description	Quantity	%	Weight (g)	%
EM I–IIA	586	42%	5,134	47%
EM IIB–III	23	2%	346	3%
Later	2	0%	50	0%
Not dated	656	47%	4,536	41%
Burned	133	9%	956	9%
Total	1,400	100%	11,022	100%

Table 5. Uncataloged sherds from the tholos tomb, Stratum III.

Date	Quantity	Percentage
FN	1	2%
EM I	35	61%
EM I–IIA	7	12%
EM IIA	8	14%
EM IIB	4	7%
EM IIB–III	1	2%
EM III	1	2%
Total	57	100%

Table 6. Cataloged sherds and vases from the tholos tomb, Stratum III.

Date/ Description	Quantity	%	Weight (g)	%
EM I–IIA	343	44%	2,824	48
EM IIB–III	13	2%	188	3
Later	1	0%	46	1
Not dated	337	43%	2,176	37
Burned	85	11%	640	11
Total	779	100%	5,874	100

Table 7. Uncataloged sherds from the tholos tomb, Stratum III, Sectors B and D (southern half of tomb).

Date	Quantity	Percentage
FN	1	2%
EM I	24	59%
EM I–IIA	6	15%
EM IIA	5	13%
EM IIB	3	7%
EM IIB–III	1	2%
EM III	1	2%
Total	41	100%

Table 8. Cataloged sherds and vases from the tholos tomb, Stratum III, Sectors B and D (southern half of tomb).

Date/ Description	Quantity	%	Weight (g)	%
EM I–IIA	128	37%	1,380	48%
EM IIB–III	10	3%	158	5%
Later	0	0%	0	0%
Not dated	195	55%	1,306	44%
Burned	17	5%	102	3%
Total	350	100%	2,946	100%

Table 9. Uncataloged sherds from the tholos tomb, Stratum III, and Sectors A and C (northern half of tomb).

Date	Quantity	Percentage
FN	0	0%
EM I	9	64%
EM I–IIA	0	0%
EM IIA	4	29%
EM IIB	1	7%
EM IIB–III	0	0%
EM III	0	0%
Total	14	100%

Table 10. Cataloged sherds and vases from the tholos tomb, Stratum III, Sectors A and C (northern half of tomb).

Date/Description	Quantity	Percentage	Weight (g)	Percentage
FN	18	9%	80	7%
EM I–IIA	57	27%	214	19%
EM IIB–III	0	0%	0	0%
Later	0	0%	0	0%
Not dated	125	60%	830	73%
Burned	8	4%	18	1%
Total	208	100%	1,142	100%

Table 11. Uncataloged sherds from tholos tomb, Stratum IV.

Trench	Layer	Clay Vases	Stone Vases	Stone Beads	Copper Items	Bone Items	Metal Jewels	Stone Items	Seals
1	1	11	—	1	—	—	—	—	—
1	2	5	—	—	4	1	—	—	—
1	3	—	—	—	—	—	—	—	—
2	1	27	3	7	7	2	1	1	—
2	2	14	—	5	3	2	1	1	1
2	3	—	—	—	—	—	—	—	—
3	1	27	—	4	2	2	1	—	1
3	2	24	—	2	2	2	1	1	—
3	3	37	—	6	8	4	—	—	1
4	1	22	—	—	1	1	2	1	—
4	2	32	—	5	3	—	1	—	1
4	3	19	—	2	1	—	—	—	—
5	1	7	—	—	1	—	—	—	—
5	2	10	—	1	1	—	1	1	—
5	3	1	—	1	—	—	—	—	—
6	1	—	—	—	—	—	—	—	—
6	2	1	—	—	—	—	—	—	—
6	3	4	—	—	—	—	—	—	—
Total		241*	3	34	33	14	8	5	4

Table 12. Distribution of finds in the burial rock shelter. *The actual number of the clay vases from the burial rock shelter is smaller because many of the sherds recorded in the excavation were joined to form a single vase.

Trench	EM I–IIA		EM IIB–III		Later		Not Dated		Total	
	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.
1	75 (25%)	736 (42%)	22 (7%)	292 (17%)	21 (7%)	162 (9%)	180 (61%)	552 (32%)	298	1,742
2	247 (38%)	1,662 (55%)	21 (3%)	286 (9%)	27 (4%)	200 (7%)	362 (55%)	878 (29%)	657	3,026
3	633 (42%)	4,018 (49%)	44 (3%)	1,076 (13%)	168 (11%)	1,168 (14%)	669 (44%)	1,958 (24%)	1,514	8,220
4	364 (29%)	3,420 (48%)	18 (2%)	170 (3%)	329 (26%)	1,598 (22%)	540 (43%)	1,902 (27%)	1,251	7,090
5	104 (48%)	1,080 (63%)	8 (4%)	60 (4%)	22 (10%)	246 (15%)	82 (38%)	310 (18%)	216	1,696
Total	1,423 (36%)	10,916 (50%)	113 (3%)	1,884 (9%)	567 (14%)	3,374 (15%)	1,833 (47%)	5,600 (26%)	3,936	21,774

Table 13. Uncataloged sherd distribution in the trenches of the rock shelter by quantity and weight (g).

Layer	EM I–IIA		EM IIB–III		Later		Not Dated		Total	
	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.	Quantity	Wt.
1	497 (24%)	3,268 (32%)	57 (3%)	1,000 (10%)	456 (22%)	2,818 (26%)	1,080 (51%)	3,268 (32%)	2,090	10,354
2	580 (52%)	5,122 (69%)	32 (3%)	614 (8%)	84 (8%)	400 (6%)	409 (37%)	1,282 (17%)	1,105	7,418
3	346 (47%)	2,526 (63%)	24 (3%)	270 (7%)	27 (4%)	156 (4%)	344 (46%)	1,050 (26%)	741	4,002
Total	1,423 (36%)	10,916 (50%)	113 (3%)	1,884 (9%)	567 (14%)	3,374 (15%)	1,833 (47%)	5,600 (26%)	3,936	21,774

Table 14. Uncataloged sherd distribution in the layers of the rock shelter by quantity and weight (g).

Trench	EM I–IIA	EM IIB–III	Hellenistic/Roman	Total
Trench 1	5	11	0	16
Trench 2	26	14	0	40
Trench 3	64	22	1	87
Trench 4	57	14	2	73
Trench 5	16	2	0	18
Trench 6	2	0	3	5
Total	170	63	6	239

Table 15. Distribution of cataloged pottery in the trenches of the rock shelter.

Layer	EM I–IIA	EM IIB–III	Hellenistic/ Roman	Total
Layer 1	59	31	3	93
Layer 2	62	22	1	85
Layer 3	49	10	2	61
Total	170	63	6	239

Table 16. Distribution of cataloged pottery in the layers of the rock shelter.

Date	Quantity	%
FN	0	0%
EM I	88	64%
EM I–IIA	15	12%
EM IIA	13	9%
EM IIB	2	1%
EM IIB–III	11	8%
EM III	9	6%
Total	138	100%

Table 17. Cataloged Prepalatial pottery from the rock shelter.

Date	Quantity	Percentage	Weight (g)	Percentage
FN	0	0%	0	0%
EM I–IIA	1,423	36%	10,916	50%
EM IIB–III	113	3%	1,884	9%
Later	567	14%	3,374	15%
Not dated	1,833	47%	5,600	26%
Total	3,936	100%	21,774	100%

Table 18. Uncataloged sherds from the rock shelter.

Layer	Quantity	Percentage	Weight (g)	Percentage
Layer 1	456	80%	2,818	84%
Layer 2	84	15%	400	12%
Layer 3	27	5%	156	4%
Total	567	100%	3,374	100%

Table 19. Distribution of later pottery sherds (Hellenistic/Roman and modern) in the layers of the burial rock shelter.

Catalog No.	Shape	Date	Trench	Layer
P18	chalice	EM I	2, 3A, 4A, 5	1, 2, 3
P32	spouted bowl	EM IIA	2A, 4A, 4B, 5	2, 3
P67	pyxis	EM I	2, 3B, 4B	1, 2, 3
P73	pyxis	EM I	3A, 3B, 4A, 5	1, 2
P77	pyxis	EM I	3A, 3B, 4B	1, 2, 3
P83	pyxis lid	EM I	2, 3A, 4A, 5	1, 2, 3
P144	spouted bowl	EM I	3A, 4A, 5	1, 2, 3
P145	spouted bowl	EM I	3B, 4A, 5	1, 2, 3
P169	pyxis	EM I	2A, 3A, 4A, 4B	1, 2, 3
P207	teapot	EM II	1, 3, 4B	1, 2

Table 20. Origin of joining sherds for particular vases found in the rock shelter.

Catalog No.	Shape	Date	Trench	Layer
P208	pyxis	EM I	2A, 3A, 4B	2, 3
P270	jug	EM IIA	1B, 2B, 3B	1, 2, 3
P313	amphora	EM IIB	1, 2, 3	1
P314	cup	EM III–MM IA	1A, 2, 3B	1, 2, 3
P318	jug	EM IIB–III	2A, 3A, 4A, 4B	1, 2, 3
P319	jug	EM IIB–III	2A, 3A, 3B, 4A, 5	1, 2, 3
P324	spouted bowl	EM III	1B, 2, 3B, 4B	1, 2
P330	bowl	EM III	2, 3, 4A, 4B	1, 2
P335	cup	EM III	2A, 3B, 4A, 4B	1, 2
P343	spouted bowl	EM IIB–III	2A, 3A, 3B, 4A, 5	1, 2, 3

Table 20, cont. Origin of joining sherds for particular vases found in the rock shelter.

Date	Quantity	%
FN	0	0%
EM I	22	31%
EM I–IIA	25	35%
EM IIA	17	24%
EM IIB	1	1%
EM IIB–III	1	1%
EM III	3	4%
LM IA	3	4%
Total	72	100%

Table 21. Cataloged sherds and vases from Open Area 2, Stratum II.

Function	Shape	Quantity	%	Function %
Drinking	chalice	7	11%	19%
	goblet	5	8%	
Pouring	jug	28	45%	47%
	spouted bowl	1	2%	
Serving	bowl	2	3%	5%
	dish	1	2%	
Storage	pyxis	9	15%	29%
	pyxis lid	7	11%	
	jar	2	3%	
Total		62	100%	100%

Table 22. Functions and shapes represented in the Prepalatial cataloged pottery from Open Area 2, Stratum II.

Date	Quantity	Percentage	Weight (g)	Percentage
EM I–IIA	1,132	62%	16,433	74%
EM IIB–III	14	1%	294	1%
Later	66	4%	925	4%
Not dated	611	33%	4,736	21%
Total	1,823	100%	22,388	100%

Table 23. Uncataloged sherds from Open Area 2, Stratum II.

Function	Shape	Quantity	Percentage	Function %
Drinking	chalice	2	5%	18%
	goblet	3	8%	
	cup	2	5%	
Pouring	jug	2	5%	10%
	spouted bowl	2	5%	
Serving	plate	1	3%	6%
	bowl	1	3%	
Storage	pyxis	9	23.5%	66%
	pyxis lid	9	23.5%	
	deep bowl	1	3%	
	alabastron	2	5%	
	bottle	1	3%	
	jar	3	8%	
Total		38	100%	100%

Table 24. Functions and shapes represented in the Prepalatial cataloged pottery from Open Area 3, Stratum II.

Ware	Tholos (Stratum III)		Rock Shelter (Layers 1–3)		Open Areas 1, 2 (Stratum II)		Open Areas 3, 4		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
RBBW	0	0%	0	0%	0	0%	0	0%	0	0%
WW	1	0%	3	0%	0	0%	27	8%	31	1%
DGBW	286	46%	818	53%	192	17%	147	43%	1,443	40%
OBBW	6	1%	0	0%	0	0%	0	0%	6	0%
DBW	80	13%	505	33%	67	6%	27	8%	679	19%
RSBW	14	2%	36	2%	0	0%	4	1%	54	1%
RBW	0	0%	3	0%	0	0%	0	0%	3	0%
FGW	2	0%	1	0%	0	0%	0	0%	3	0%
DOLW	211	34%	58	4%	873	77%	114	33%	1,256	34%
VW	16	3%	4	0%	0	0%	5	2%	25	1%
R/BSW	7	1%	68	5%	6	0%	14	4%	95	3%
WODW	0	0%	41	3%	0	0%	3	1%	44	1%
Total	623	100%	1,537	100%	1,138	100%	341	100%	3,639	100%

Table 25. Distribution of wares in the cemetery by quantity of cataloged and uncataloged sherds.

Ware	Tholos (Stratum III)		Rock Shelter (Layers 1–3)		Open Areas 1, 2 (Stratum II)		Open Areas 3, 4		Total	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
RBBW	0	0%	0	0%	0	0%	0	0%	0	0%
WW	4	0%	156	1%	0	0%	86	3%	246	1%
DGBW	1,486	26%	4,272	33%	2,912	18%	1,186	40%	9,856	25%
OBBW	168	3%	0	0%	0	0%	0	0%	168	0%
DBW	1,006	17%	4,686	37%	954	6%	254	9%	6,900	18%
RSBW	120	2%	276	2%	0	0%	44	2%	440	1%
RBW	0	0%	24	0%	0	0%	0	0%	24	0%
FGW	106	2%	16	0%	0	0%	0	0%	122	0%
DOLW	2,578	44%	1,502	12%	12,567	76%	1,120	38%	17,767	47%
VW	216	4%	204	2%	0	0%	86	3%	506	2%
R/BSW	130	2%	1,224	9%	20	0%	116	4%	1,490	4%
WODW	0	0%	456	4%	0	0%	42	1%	498	2%
Total	5,814	100%	12,816	100%	16,453	100%	2,934	100%	38,017	100%

Table 26. Distribution of wares in the cemetery by weight.

Function	Shape	Quantity	Percentage	Function %
Drinking	chalice	16	13%	21%
	goblet	10	8%	
Pouring	jug	1	1%	7%
	spouted bowl	6	5%	
	teapot	1	1%	
Serving	bowl	7	6%	7%
	dish	1	1%	
Storage	pyxis	47	39%	65%
	pyxis lid	28	23%	
	alabastra	4	3%	
Total		121	100%	100%

Table 27. Functions and shapes of the cataloged DGBW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	chalice	1	10%	10%
Pouring	spouted bowl	1	10%	10%
Serving	bowl	1	10%	10%
Storage	pyxis	5	50%	70%
	pyxis lid	2	20%	
Total		10	100%	100%

Table 28. Functions and shapes of the cataloged OBBW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	chalice	3	4%	10%
	cup	4	6%	
Serving	bowl	9	13%	16%
	dish	2	3%	
Pouring	spouted bowl	9	13%	13%
Storage	pyxis	10	14%	61%
	pyxis lid	22	31%	
	deep bowl/jar	3	4%	
	alabastron	4	6%	
	bottle	4	6%	
Total		70	100%	100%

Table 29. Functions and shapes of the cataloged DBW pottery.

Function	Shape	Number	Percentage	Function %
Drinking	chalice	1	6%	6%
Pouring	spouted bowl	1	6%	12%
	teapot	1	6%	
Storage	pyxis	7	38%	82%
	pyxis lid	6	33%	
	jar	2	11%	
Total		18	100%	100%

Table 30. Functions and shapes of the cataloged RSBW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	chalice	2	40%	40%
Serving	bowl	2	40%	40%
Storage	pyxis	1	20%	20%
Total		5	100%	100%

Table 31. Functions and shapes of the cataloged RBW pottery.

Function	Shape	Quantity	Percentage	Function %
Storage	pyxis	3	60%	100%
	lid	2	40%	
Total		5	100%	100%

Table 32. Functions and shapes of the cataloged FGW pottery.

Function	Shape	Quantity	Percentage	Function %
Serving	bowl	3	4%	4%
Pouring	jug	49	68%	69%
	spouted bowl	1	1%	
Storage	pyxis	9	13%	27%
	pyxis lid	10	14%	
Total		72	100%	100%

Table 33. Functions and shapes of the cataloged DOLW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	cup	2	22%	56%
	goblet	3	34%	
Pouring	jug	2	22%	33%
	teapot	1	11%	
Storage	amphora	1	11%	11%
Total		9	100%	100%

Table 34. Functions and shapes of the cataloged VW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	cup	2	10%	15%
	goblet	1	5%	
Serving	bowl	3	14%	28%
	dish	3	14%	
Pouring	jug	6	28%	57%
	spouted bowl	4	19%	
	bridge-spouted jar	1	5%	
	teapot	1	5%	
Total		21	100%	100%

Table 35. Functions and shapes of the cataloged R/BSW pottery.

Function	Shape	Quantity	Percentage	Function %
Drinking	cup	6	50%	50%
Serving	dish	2	17%	17%
Pouring	jug	1	8%	33%
	spouted bowl	3	25%	
Total		12	100%	100%

Table 36. Functions and shapes of the cataloged WODW pottery.

Sample no.	Catalog no.	Ware	Date	Shape	Fabric	Description
LIV01	**P320**	R/BSW	EM IIB–III	jug	2a	metamorphic
LIV02	**P169**	DBW	EM I	pyxis	1a	calcite tempered
LIV04	**P266**	DOLW	EM I–IIA	jug	4b	south coast with pellets
LIV05	**P82**	DGBW	EM I	lid	5	fine gray calcareous
LIV06	**P319**	R/BSW	EM IIB–III	jug	6	with quartz and micrite
LIV07	**P313**	VW	EM IIB	amphora	4a	south coast with pellets
LIV08	**P136**	DBW	EM I	chalice	1c	calcite tempered
LIV09	**P237**	DOLW	EM IIA	jug	6	with quartz and micrite
LIV10	**P239**	DOLW	EM IIA	jug	3a	Mirabello with granodiorite
LIV11	**P301**	DOLW	EM I–IIA	jug/jar/pyxis	4b	south coast with pellets
LIV12	**P264**	DOLW	EM I–IIA	jug	4b	south coast with pellets
LIV13	**P85**	DGBW	EM I	lid	5	fine gray calcareous
LIV17	**P229**	FGW	EM IIA	bowl	loner	
LIV18	**P111**	DGBW	EM I	alabastron	5	fine gray calcareous
LIV19	**P209**	RSBW	EM I	pyxis	loner	
LIV20	**P137**	DBW	EM I	chalice	1a	calcite tempered
LIV21	**P117**	DGBW	EM I–IIA	pyxis	5	fine gray calcareous
LIV22	**P232**	FGW	EM IIA	lid	6	with quartz and micrite
LIV24	**P305**	VW	EM IIB	cup	3a	Mirabello with granodiorite
LIV25	**P205**	RSBW	EM I	chalice	loner	south coast related
LIV26	**P148**	DBW	EM I	spouted bowl	1a	calcite tempered
LIV27	**P307**	VW	EM IIB	goblet	loner	south Coast related
LIV29	**P227**	RBW	EM IIA	pyxis	8	red with chert
LIV30	—	DOLW	EM I–IIA	jug or pyxis	9	grog tempered
LIV31	—	DGBW	EM I–IIA	lid	5	fine gray calcareous
LIV33	**P296**	DOLW	EM I–IIA	jug/jar/pyxis	loner	south coast related
LIV34	—	DOLW	EM I–II	bowl/chalice	9	grog tempered
LIV36	**P298**	DOLW	EM I–IIA	jug/jar/pyxis	2b	metamorphic
LIV37	**P336**	WODW	EM III	cup	7	red with quartz
LIV38	**P328**	R/BSW	EM IIB	teapot	2a	metamorphic
LIV39	**P309**	VW	EM IIB	goblet	loner	
LIV40	—	WODW	EM III	cup	loner	
LIV41	—	DOLW	EM I–IIA	bowl or pyxis	3b	Mirabello with granodiorite

Table 37. List of cataloged petrographic samples.

TABLE 37

Sample no.	Catalog no.	Ware	Date	Shape	Fabric	Description
LIV42	**P194**	DBW	EM I	lid	1b	calcite and grog tempered
LIV43	**P345**	WODW	EM IIB–III	dish	4c	south coast with pellets
LIV45	**—**	DOLW	EM I–IIA	lid	4c	south coast with pellets
LIV46	**P261**	DOLW	EM IIA	jug	4c	south coast with pellets
LIV47	**P204**	DBW	EM I	bottle	1b	calcite and grog tempered
LIV48	**P300**	DOLW	EM I–IIA	jug/jar/pyxis	4b	south coast with pellets
LIV49	—	DGBW	EM I–IIA	alabastron	5	fine gray calcareous
LIV50	**P183**	DBW	EM I	lid	1c	calcite tempered
LIV51	**P107**	DGBW	EM I	lid	8	red with chert
LIV53	**P165**	DBW	EM I	deep bowl/jar	1a	calcite tempered
LIV54	**P214**	RSBW	EM I–IIA	pyxis	loner	
LIV55	**P230**	FGW	EM IIA	pyxis	loner	
LIV57	**P303**	DOLW	EM I–IIA	jug/jar/pyxis	4b	south coast with pellets
LIV59	**P21**	DGBW	EM IIA	goblet	5	fine gray calcareous
LIV60	**P297**	DOLW	EM I	jug/jar/pyxis	2b	metamorphic
LIV61	**P331**	R/BSW	EM III	bowl	2a	metamorphic
LIV62	**P177**	DBW	EM I	lid	1a	calcite tempered
LIV63	**P81**	DGBW	EM I	pyxis	8	red with chert
LIV64	**P302**	DOLW	EM I–IIA	jug/jar/pyxis	7	red with quartz
LIV65	**P27**	DGBW	EM IIA	goblet	5	fine gray calcareous
LIV66	**P276**	DOLW	EM IIA	bowl	loner	
LIV68	**P288**	DOLW	EM I–IIA	lid	loner	south coast related
LIV69	**P251**	DOLW	EM I–IIA	jug	4b	south coast with pellets
LIV70	**P252**	DOLW	EM I–IIA	jug	4b	south coast with pellets
LIV71	**P255**	DOLW	EM IIA	jug	5	fine gray calcareous
LIV73	**P311**	VW	EM IIB	jug	4a	south coast with pellets
LIV74	**P289**	DOLW	EM I	lid	loner	
LIV75	—	DGBW	EM I–IIA	bowl	5	fine gray calcareous
LIV76	**P206**	RSBW	EM IIB	spouted bowl	loner	south coast related
LIV77	**P340**	WODW	EM III	cup	3a	Mirabello with granodiorite

Table 37, cont. List of cataloged petrographic samples.

Fabric	DGBW	DOLW	DBW	RSBW	FGW	RBW	VW	R/BSW	WODW	Total
1a	—	—	5	—	—	—	—	—	—	5
1b	—	—	2	—	—	—	—	—	—	2
1c	—	—	2	—	—	—	—	—	—	2
2a	—	—	—	—	—	—	—	3	—	3
2b	—	2	—	—	—	—	—	—	—	2
3a	—	1	—	—	—	—	1	—	1	3
3b	—	1	—	—	—	—	—	—	—	1
4a	—	—	—	—	—	—	2	—	—	2
4b	—	7	—	—	—	—	—	—	—	7
4c	—	2	—	—	—	—	—	—	1	3
5	9	1	—	—	—	—	—	—	—	10
6	—	1	—	—	1	—	—	1	—	3
7	—	1	—	—	—	—	—	—	1	2
8	2	—	—	—	—	1	—	—	—	3
9	—	2	—	—	—	—	—	—	—	2
Loner	—	2	—	2	2	—	1	—	1	8
Loner South Coast	—	1	—	2	—	—	1	—	—	4
Total	11	21	9	4	3	1	5	4	4	62

Table 38. Correlation of petrographic fabrics and wares.

Function	Vessel Type	DGBW	OBBW	DBW	RSBW	RBW	FGW	DOLW	Total
Drinking	chalice	16	1	3	1	2	—	—	23
	goblet	10	—	—	—	—	—	—	10
	cup	—	—	4	—	—	—	—	4
Pouring	jug	1	—	—	—	—	—	49	50
	spouted bowl	6	1	9	1	—	—	1	18
	teapot	1	—	—	1	—	—	—	2
	spouted jar	—	—	—	—	—	—	—	0
Serving	bowl	7	1	9	—	3	—	3	23
	dish	1	—	2	—	—	—	—	3
Storage	pyxis	47	5	10	7	—	3	9	81
	pyxis lid	28	2	22	6	—	2	10	70
	deep bowl	—	—	3	—	—	—	—	3
	bottle	—	—	4	—	—	—	—	4
	alabastron	4	—	4	—	—	—	—	8
	amphora	—	—	—	—	—	—	—	0
	jar	—	—	—	2	—	—	—	2
Total		121	10	70	18	5	5	72	301

Table 39. Correlation of wares and shapes in EM I–IIA (cataloged pottery).

Function	Vessel Type	VW	R/BSW	WODW	RSBW	Total
Drinking	chalice	—	—	—	—	0
	goblet	3	1	—	—	4
	cup	2	2	6	—	10
Pouring	jug	2	6	1	—	9
	spouted bowl	—	4	3	1	8
	teapot	1	1	—	—	2
	spouted jar	—	1	—	—	1
Serving	bowl	—	3	—	—	3
	dish	—	3	2	—	5
Storage	pyxis	—	—	—	—	0
	pyxis lid	—	—	—	—	0
	deep bowl	—	—	—	—	0
	bottle	—	—	—	—	0
	alabastron	—	—	—	—	0
	amphora	1	—	—	—	1
	jar	—	—	—	—	0
Total		9	21	12	1	43

Table 40. Correlation of wares and shapes in EM IIB–III (cataloged pottery).

Function	EM I–IIA	EM I–IIA (without storage vessels)	EM IIB–III
Drinking	37 (12%)	37 (27%)	14 (32%)
Pouring	71 (23%)	69 (51%)	20 (47%)
Serving	29 (10%)	29 (22%)	8 (19%)
Storage	165 (55%)	—	1 (2%)
Total	301 (100%)	135 (100%)	43 (100%)

Table 41. Pottery usage through time, in EM I–IIA and EM IIB–III.

<table>
<tr><th>Function</th><th>Vessel Type</th><th>EM I–IIA</th><th>Function %</th><th>EM IIB–III</th><th>Function %</th></tr>
<tr><td rowspan="3">Drinking</td><td>chalice</td><td>2 (4%)</td><td rowspan="3">4%</td><td>—</td><td rowspan="3">58%</td></tr>
<tr><td>goblet</td><td>—</td><td>2 (29%)</td></tr>
<tr><td>cup</td><td>—</td><td>2 (29%)</td></tr>
<tr><td rowspan="4">Pouring</td><td>jug</td><td>4 (8%)</td><td rowspan="4">10%</td><td>1 (14%)</td><td rowspan="4">42%</td></tr>
<tr><td>spouted bowl</td><td>1 (2%)</td><td>1 (14%)</td></tr>
<tr><td>teapot</td><td>—</td><td>1 (14%)</td></tr>
<tr><td>spouted jar</td><td>—</td><td>—</td></tr>
<tr><td rowspan="2">Serving</td><td>bowl</td><td>6 (12%)</td><td rowspan="2">14%</td><td>—</td><td rowspan="2">—</td></tr>
<tr><td>dish</td><td>1 (2%)</td><td>—</td></tr>
<tr><td rowspan="7">Storage</td><td>pyxis</td><td>22 (43%)</td><td rowspan="7">72%</td><td>—</td><td rowspan="7">—</td></tr>
<tr><td>pyxis lid</td><td>12 (23%)</td><td>—</td></tr>
<tr><td>deep bowl</td><td>—</td><td>—</td></tr>
<tr><td>bottle</td><td>—</td><td>—</td></tr>
<tr><td>alabastron</td><td>3 (6%)</td><td>—</td></tr>
<tr><td>amphora</td><td>—</td><td>—</td></tr>
<tr><td>jar</td><td>—</td><td>—</td></tr>
<tr><td colspan="2">Total</td><td>51</td><td>100%</td><td>7</td><td>100%</td></tr>
</table>

Table 42. Distribution of shapes in the tholos, Stratum III.

Function	Vessel Type	EM I–IIA	Function %	EM IIB–III	Function %
Drinking	chalice	7 (6%)	10%	—	31%
	goblet	2 (1%)		1 (5%)	
	cup	3 (3%)		6 (26%)	
Pouring	jug	10 (9%)	20%	5 (23%)	46%
	spouted bowl	11 (10%)		5 (23%)	
	teapot	2 (1%)		—	
	spouted jar	—		—	
Serving	bowl	11 (10%)	10%	1 (5%)	18%
	dish	—		3 (13%)	
Storage	pyxis	31 (28%)	60%	—	5%
	pyxis lid	35 (30%)		—	
	deep bowl	2 (1%)		—	
	bottle	—		—	
	alabastron	2 (1%)		—	
	amphora	—		1 (5%)	
	jar	—		—	
Total		116	100%	22	100%

Table 43. Distribution of shapes in the rock shelter (all layers).

Function	Vessel Type	EM I–IIA	Function %	EM IIB–III	Function %
Drinking	chalice	—	—	—	—
	goblet	—		—	
	cup	—		—	
Pouring	jug	5 (100%)	100%	—	—
	spouted bowl	—		—	
	teapot	—		—	
	spouted jar	—		—	
Serving	bowl	—	—	—	—
	dish	—		—	
Storage	pyxis	—	—	—	—
	pyxis lid	—		—	
	deep bowl	—		—	
	bottle	—		—	
	alabastron	—		—	
	amphora	—		—	
	jar	—		—	
Total		5	100%	—	—

Table 44. Distribution of shapes in Open Area 1.

Function	Vessel Type	EM I–IIA	Function %	EM IIB–III	Function %
Drinking	chalice	7 (11%)	19%	—	20%
	goblet	5 (8%)		1 (20%)	
	cup	—		—	
Pouring	jug	28 (45%)	47%	—	60%
	spouted bowl	1 (2%)		1 (20%)	
	teapot	—		1 (20%)	
	spouted jar	—		1 (20%)	
Serving	bowl	2 (3%)	5%	1 (20%)	20%
	dish	1 (2%)		—	
Storage	pyxis	19 (15%)	29%	—	—
	pyxis lid	7 (11%)		—	
	deep bowl	—		—	
	bottle	—		—	
	alabastron	—		—	
	amphora	—		—	
	jar	2 (3%)		—	
Total		62	100%	5	100%

Table 45. Distribution of Prepalatial shapes in Open Area 2.

Function	Vessel Type	EM I–IIA	Function %	EM IIB–III	Function %
Drinking	chalice	2 (6%)	15%	—	50%
	goblet	3 (9%)		—	
	cup	—		2 (50%)	
Pouring	jug	—	6%	2 (50%)	50%
	spouted bowl	2 (6%)		—	
	teapot	—		—	
	spouted jar	—		—	
Serving	bowl	1 (3%)	6%	—	—
	plate	1 (3%)		—	
Storage	pyxis	9 (26%)	73%	—	—
	pyxis lid	9 (26%)		—	
	deep bowl	1 (3%)		—	
	bottle	1 (3%)		—	
	alabastron	2 (6%)		—	
	amphora	—		—	
	jar	3 (9%)		—	
Total		31	100%	5	100%

Table 46. Distribution of shapes in Open Areas 3 and 4.

Location	Drinking	Pouring	Serving	Storing
Tholos	4	10	14	72
Rock shelter	10	20	10	60
Open Area 1		100		
Open Area 2	19	47	5	29
Open Areas 3 and 4	15	6	6	73

Table 47. Distribution of shapes in EM I–IIA by percentage.

Artifact	Quantity	Percentage
Dagger	5	14%
Awl	19	54%
Fishhook	1	3%
Scraper	1	3%
Pin	1	3%
Nail	2	6%
Miscellaneous	6	17%
Total	35	100%

Table 48. Types of Prepalatial metal artifacts.

Artifact type	Tholos	Rock shelter	Open Area 1	Open Area 2	Open Area 3	Total
Metal daggers	1 (20%)	4 (80%)	—	—	—	5
Metal awls	2 (11%)	16 (84%)	—	—	1 (5%)	19
Other metalwork	—	11 (100%)	—	—	—	11
Stone vases	—	4 (80%)	—	—	1 (20%)	5
Metal pendants	5 (62%)	3 (38%)	—	—	—	8
Other pendants	5 (31%)	11 (69%)	—	—	—	16
Beads	5 (10%)	43 (88%)	—	—	1 (2%)	49
Gold objects	1 (34%)	2 (66%)	—	—	—	3
Seals	—	6 (100%)	—	—	—	6
Bone tools	—	6 (100%)	—	—	—	6
Total	19	106	—	—	3	128

Table 49. Spatial distribution of Prepalatial finds in the areas of the cemetery.

Material	Quantity	Percentage
Bone	5	6%
Copper	4	5%
Faience	1	2%
Gold	3	4%
Shell	1	2%
Silver	8	10%
Stone	55	71%
Total	77	100%

Table 50. Raw materials represented in Prepalatial jewelry.

Type	Quantity	Percentage
Pendants	24	31%
Beads	49	64%
Miscellanea	4	5%
Total	77	100%

Table 51. Types of Prepalatial jewelry.

Area	Chipped Stone	Obsidian	Chert
Tholos Tomb	29	26 (90%)	3 (10%)
Rock Shelter	60	60 (100%)	—
House Tomb	51	51 (100%)	—
Open Areas	78	78 (100%)	—
Total	218	215 (99%)	3 (1%)

Table 52. Quantity and relative proportions of Bronze Age chipped stone tools from the Livari cemetery by raw material.

Stratum	Total	Sector			
		A	B	C	D
II	6	**CS5**			**CS11**
III	19		**CS1**, **CS2**, **CS3**, **CS7**, **CS8**, **CS9**	**CS4**	**CS6**
IV	4			**CS10**	

Table 53. Distribution and concordance of Bronze Age chipped stone tools from the tholos tomb by stratum and sector; **CS10** and **CS11** are of chert, the rest obsidian.

Stratum	Minimum	Obsidian	Chert
II	3 (3)	2 (2)	1 (1)
III	8 (6)	8 (6)	—
IV	3 (3)	1 (1)	2 (2)
Total	14 (12)	11 (9)	3 (3)

Table 54. Minimum counts of Bronze Age chipped stone tools from the tholos tomb by stratum and sector (number of blades in parentheses).

Site	Context	Date	Obsidian
Livari	all structures	late EM I–III, LM IA	218; min. 89 blades
Hagia Kyriaki	tholos chamber and pit	late EM I–IIA	29; min. 13 blades
Hagia Kyriaki	all structures	EM I–MM IA	66; min. 21 blades
Lebena	Papoura I	EM II–MM I	76; min. ca.30 blades
Lebena	Papoura Iß	EM II–MM I	11; min. ca.4 blades
Lebena	Yerokambos II	EM I–MM IA	124; min. ca. 50 blades
Lebena	Yerokambos IIa	EM I–MM IA	47; min. ca. 19 blades
Lebena	Zervou	EM I–MM IA	9; min. ca. 4 blades
Moni Odigitria	all contexts	EM I–MM IIA	474; min. 171 blades
Moni Odigitria	Tholos A	EM I–EM IIB	89; min. 41 blades
Moni Odigitria	Tholos B	EM IB–MM IB	385; min. 130 blades
Platanos	Tholos B?	EM II–MM II	81; min. 31 blades
Archanes	Tholos Epsilon (Unit 6)	EM IIA–B	40; min. 25 blades
Archanes	Tholos Gamma	EM IIA	57; min. 32 blades
Archanes	Area of the Rocks	EM IIA–III	962; min. 314 blades
Krasi Pediados	Tholos A	EM I–EM III	ca. 20; all fragments

Table 55. Quantifying Prepalatial obsidian assemblages from South- and North-Central Cretan tholos tombs. Lebena tomb data based on Alexiou and Warren 2004 and on Carter 1999, appendix four: when the obsidian was studied by Carter in 1996, the blades from each of the five tholoi had been boxed together and could not be separated. There was in fact a minimum of 133 blades from these cemeteries, i.e., the above figures are too low.

Site	Context	Date	Quantity	Width (cm)	Thickness (cm)
Livari	Prepalatial cemetery	EM I–III	125 (127)	0.78	0.21
Hagia Kyriaki	Tholos	EM I–IIA	66 (29)	0.64	0.18
Lebena	Papoura, Tomb I	EM II–MM I	35	0.79	0.23
Lebena	Yerokambos, Tomb II	(?)FN–MM IA	7	0.83	0.21
Moni Odigitria	Tholos A	EM I–MM IA	83	0.71	0.18
Moni Odigitria	Tholos B	EM I–MM IA	326 (328)	0.69	0.18
Platanos	Tholos B	EM II–MM II	26	0.83	0.22
Phourni-Archanes	Tholos Epsilon	EM IIA	23	0.65	0.19
Phourni-Archanes	Tholos Gamma	EM IIA	51	0.68	0.19
Phourni-Archanes	Area of the Rocks	EM IIA–III	841	0.73	0.16
Knossos, West Court House	Phase 2, foundation	EM IIA	85	0.83	0.23
Knossos, West Court House	Phase 3, occupation	EM IIA	169 (171)	0.76	0.21
Knossos, West Court House	Phase 4, infill	EM IIA	371 (372)	0.78	0.20

Table 56. Average width and thickness of prismatic blades (*plein débitage*) from Early Minoan and Cycladic contexts (data from Carter 2010, table 5).

Site	Context	Date	Quantity	Width (cm)	Thickness (cm)
Knossos, RRS "workshop"	RRS "workshop"	EM IIA	295	0.78	0.19
Phylakopi (Melos)	Obsidian deposit	EC III	517	0.98	0.31
Aplomata (Naxos)	cemetery	EC IIA	157 (158)	1.19	0.32
Agrilia (Ano Kouphonisi)	cemetery	Late EC I	208	1.00	0.26
Avdheli (Naxos)	cemetery	EC IIA	25	1.00	0.25
Hagioi Anargyroi (Naxos)	cemetery	Late EC I	31	1.07	0.28
Chalandriani (Syros)	cemetery	EC IIA	16	0.99	0.27
Tsikniadhes (Naxos)	cemetery	EC I–IIA	31 (32)	1.08	0.31
Tzavaris (Ano Kouphonisi)	cemetery	EC I–IIA	48	1.15	0.3

Table 56, cont. Average width and thickness of prismatic blades (*plein débitage*) from Early Minoan and Cycladic contexts (data from Carter 2010, table 5).

Sample No.	Catalog No.	Ware	Date	Shape	Petrography No.	Fabric	Description
SEM1	**P17**	DGBW	EM I	chalice			
SEM2	—	DGBW	EM I	jar			
SEM3	**P107**	DGBW	EM IIA	pyxis lid	LIV51	8	red with chert
SEM4	**P169**	DBW	EM I	pyxis	LIV02	1a	calcite tempered
SEM5	**P174**	DBW	EM I	pyxis			
SEM6	**P173**	DBW	EM I	pyxis			
SEM7	—	DBW	EM I	pyxis			
SEM8	**P300**	DOLW	EM I–IIA	jug/jar/pyxis	LIV48	4b	south coast
SEM9	**P214**	RSBW	EM I–IIA	pyxis	LIV54		
SEM10	—	RSBW	EM I–IIA	closed			
SEM11	**P309**	VW	EM IIB	goblet	LIV39	Loner	
SEM12	—	WODW	EM IIII	cup			
SEM13	—	WODW	EM III	cup			
SEM14	—	R/BSW	EM IIB–III	cup			
SEM15	—	R/BSW	EM IIB–III	closed			

Table 57. List of cataloged pottery samples analyzed with SEM.

Sample No.	Ware	Part Analyzed	CaO%	K_2O%	Fe_2O_3%	Vitrification	Estimated Firing Temperature
SEM1	DGBW	surface	0.86	2.80	6.11	NV	<750°C
		body	2.00	3.20	8.80		
SEM2	DGBW	surface	5.27	4.41	7.21	IV	ca. 800°C
		body	4.75	3.92	6.58		
SEM3	DGBW	surface	1.04	2.96	5.70	NV	<750°C
		body	n.d.	2.57	6.91		
SEM4	DBW	surface	0.77	3.85	6.69	NV	<750°C
		body	8.47	3.31	13.5		
SEM5	DBW	surface	1.20	2.70	4.86	NV	<750°C
		body	1.54	2.16	7.46		
SEM6	DBW	surface	n.d.	n.d.	n.d.	NV	<750°C
		body	2.50	2.62	7.97		
SEM7	DBW	surface	2.31	4.12	6.39	NV	<750°C
		body	2.48	2.60	6.13		
SEM8	DOLW	surface white	9.01	3.25	4.68	V_c/V_{c+}	ca. 1,000°C
		surface red	10.54	1.02	3.94		
		body	12.75	3.71	9.23		
SEM9	RSBW	surface	1.01	2.89	9.48	NV	<750°C
		body	0.63	2.27	9.79		
SEM10	RSBW	surface	3.98	2.59	5.77	NV	<750°C
		body	3.49	4.16	8.99		
SEM11	VW	surface red	2.01	1.58	4.46	NV	<750°C
		surface black	3.32	1.65	5.06		
		surface inside	3.41	2.82	5.74		
		body	1.54	2.16	7.04		
SEM12	WODW	surface black	1.40	6.40	8.88	V_c/V_{c+}	ca. 1,000°C
		surface white	3.97	3.81	5.35		
		body	10.49	2.15	8.10		
SEM13	WODW	surface black	1.88	3.56	5.40	V_c/V_{c+}	ca. 1,000°C
		surface white	7.10	2.04	4.05		
		body	10.66	1.69	7.77		
SEM14	R/BSW	surface	0.90	3.0	5.25	V_c	850°C–950°C
		body	1.47	3.3	7.48		
SEM15	R/BSW	surface	3.52	2.7	6.15	V_c	850°C–950°C
		body	1.31	3.7	6.19		

Table 58. Results of scanning electron microscopy (SEM) analysis. Abbreviations are as follows: NV = no vitrification; IV = initial vitrification; V_c/V_{c+} = extensive vitrification; V_c = extensive vitrification.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
J74	bangle	gold	silver	iron, copper
J75	foil	gold	silver	copper
J76	sheet	gold	silver	copper, iron

Table 59. Results of the pXRF analysis of gold objects.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
M35	strip	lead	silver	iron, copper

Table 60. Results of the pXRF analysis of the lead object.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
J2 (area of silver corrosion)	pendant	bromine, silver		copper, calcium, iron
J2 (area of copper corrosion)	pendant	bromine, copper, silver	calcium	iron, gold
J3	pendant	bromine, silver	calcium, iron	copper
J4	pendant	silver, bromine	iron	
J5	pendant	silver, bromine	iron	calcium, copper
J16	pendant	silver, copper, bromine		lead, iron
J17 (before cleaning)	pendant	silver, bromine		iron, calcium
J17 (after cleaning)	pendant	copper	silver, iron, bromine	
J18	pendant	silver, bromine		iron
J72	bead	silver, bromine	iron	calcium, copper

Table 61. Results of the pXRF analysis of silver objects.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
M1	dagger	copper		arsenic, iron, calcium
M2	dagger	copper	arsenic	iron, calcium, lead
M3	dagger	copper	arsenic	iron, lead, calcium
M4 (surface)	dagger	copper, silver	iron, bromine	lead, calcium
M4 (break)	dagger	copper, silver	iron, bromine	lead, calcium
M5	dagger	copper, silver	bromine	iron, calcium, lead
M6	awl	copper	iron, arsenic	calcium
M7	awl	copper	iron	arsenic, calcium

Table 62. Results of the pXRF analysis of copper-based objects.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
M9	awl	copper	arsenic, iron, lead	calcium
M10	awl	copper	arsenic, iron, lead	calcium
M11	awl	copper	arsenic	iron, calcium
M12	awl	copper	arsenic, lead	iron, bismuth, calcium
M13	awl	copper	arsenic, lead	iron, bismuth, calcium
M14	awl	copper	arsenic, lead	iron, calcium
M15	awl	copper	arsenic, iron	calcium, lead
M16	awl	copper	arsenic, lead	iron, calcium
M17	awl	copper	lead, iron, arsenic	iron, calcium
M18	awl	copper	arsenic, iron	lead, calcium
M19	awl	copper	arsenic, lead, iron	calcium
M20	awl	copper	iron	calcium, arsenic, lead
M21	awl	copper	arsenic, iron	lead, calcium
M22	awl	copper	arsenic, iron, lead	chlorine, calcium
M23	awl	copper	arsenic	iron, lead, bismuth, calcium, chlorine
M24	awl(?)	copper	arsenic, iron	calcium, lead, bismuth
M25	fishhook	copper	arsenic, lead	iron, calcium
M26	scraper	copper	arsenic, iron	calcium, lead
M28	nail	copper	iron	calcium, lead
M29	nail	copper	arsenic, iron	lead, calcium
M30	bent rod	copper	arsenic, iron	calcium
M31	fragment	copper	lead, iron, arsenic	silver, calcium
M32	fragment	copper	arsenic, iron, lead	calcium
M33	scraper	copper	arsenic, iron, lead	calcium, silver
M34	wire	copper	iron	calcium, lead, arsenic, bismuth
M36	fishhook	copper	iron, tin	calcium, arsenic
M37	fishhook	copper	tin, iron	calcium, arsenic
M38	fishhook	copper	iron, tin, arsenic	lead, calcium
M39	fishhook	copper	tin, iron	calcium, lead
J1	pendant	copper	iron, silver, arsenic	lead, calcium
J71	bead	copper	arsenic, lead	iron, calcium
J73	bead	copper	arsenic, calcium, iron	lead, bismuth

Table 62, cont. Results of the pXRF analysis of copper-based objects.

Catalog No.	Type	pXRF Spectrum Peaks		
		Large	Small	Very Small
J69	bead	copper	iron, tin	

Table 63. Results of the pXRF analysis of the faience object.

Figures

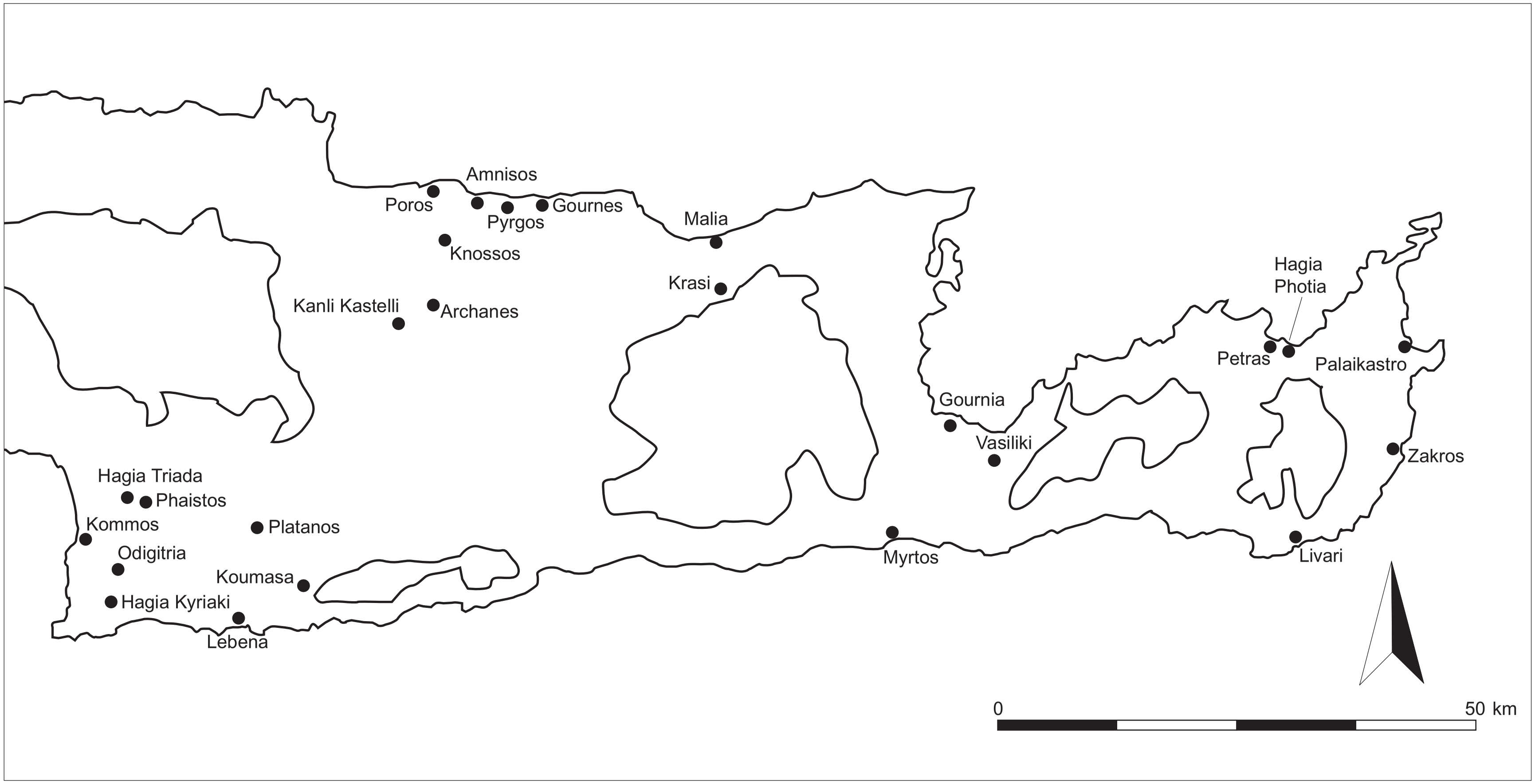


Figure 1. Map of Central and East Crete showing major sites mentioned in the text.

FIGURE 2

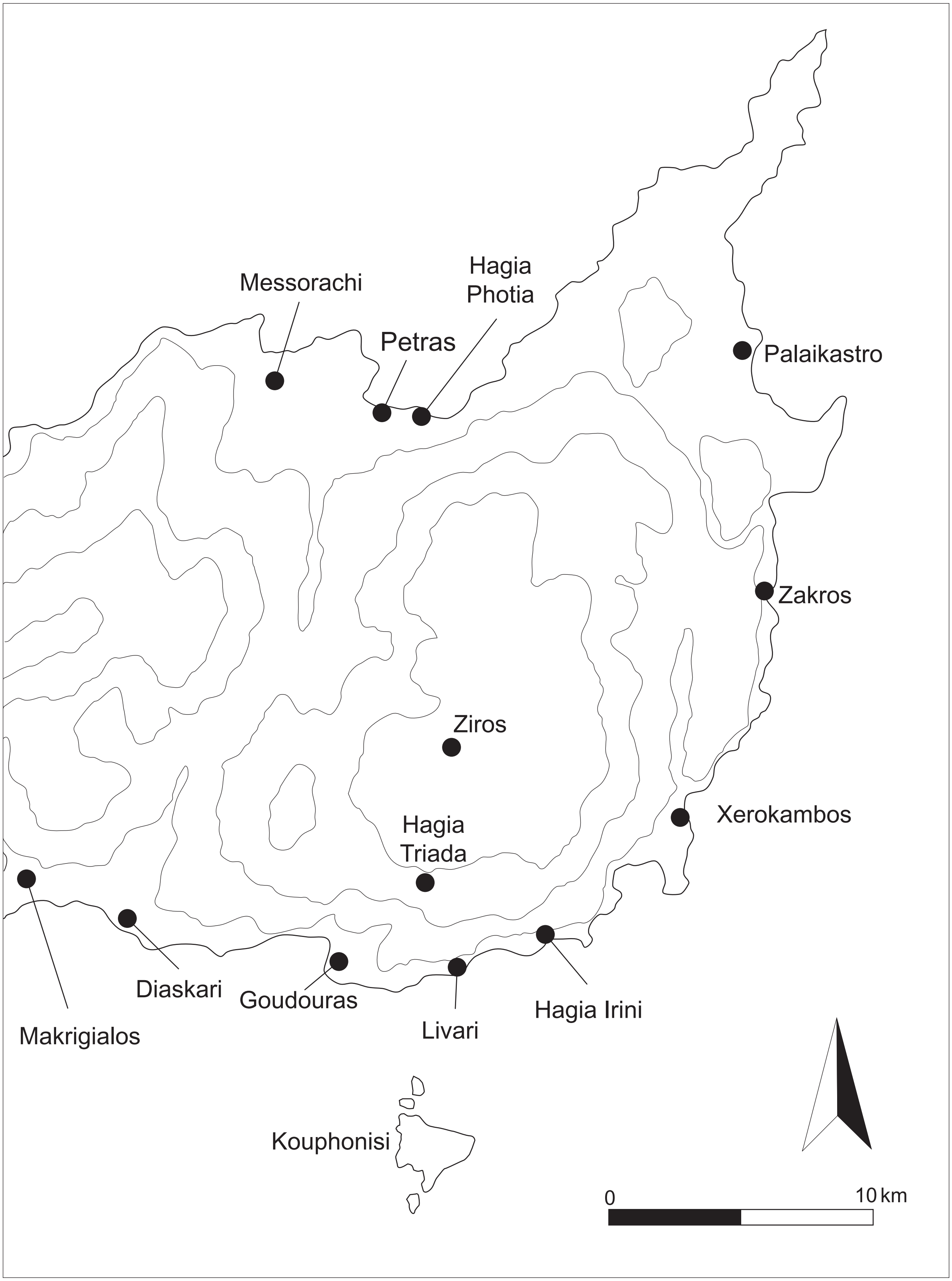


Figure 2. Map of East Crete.

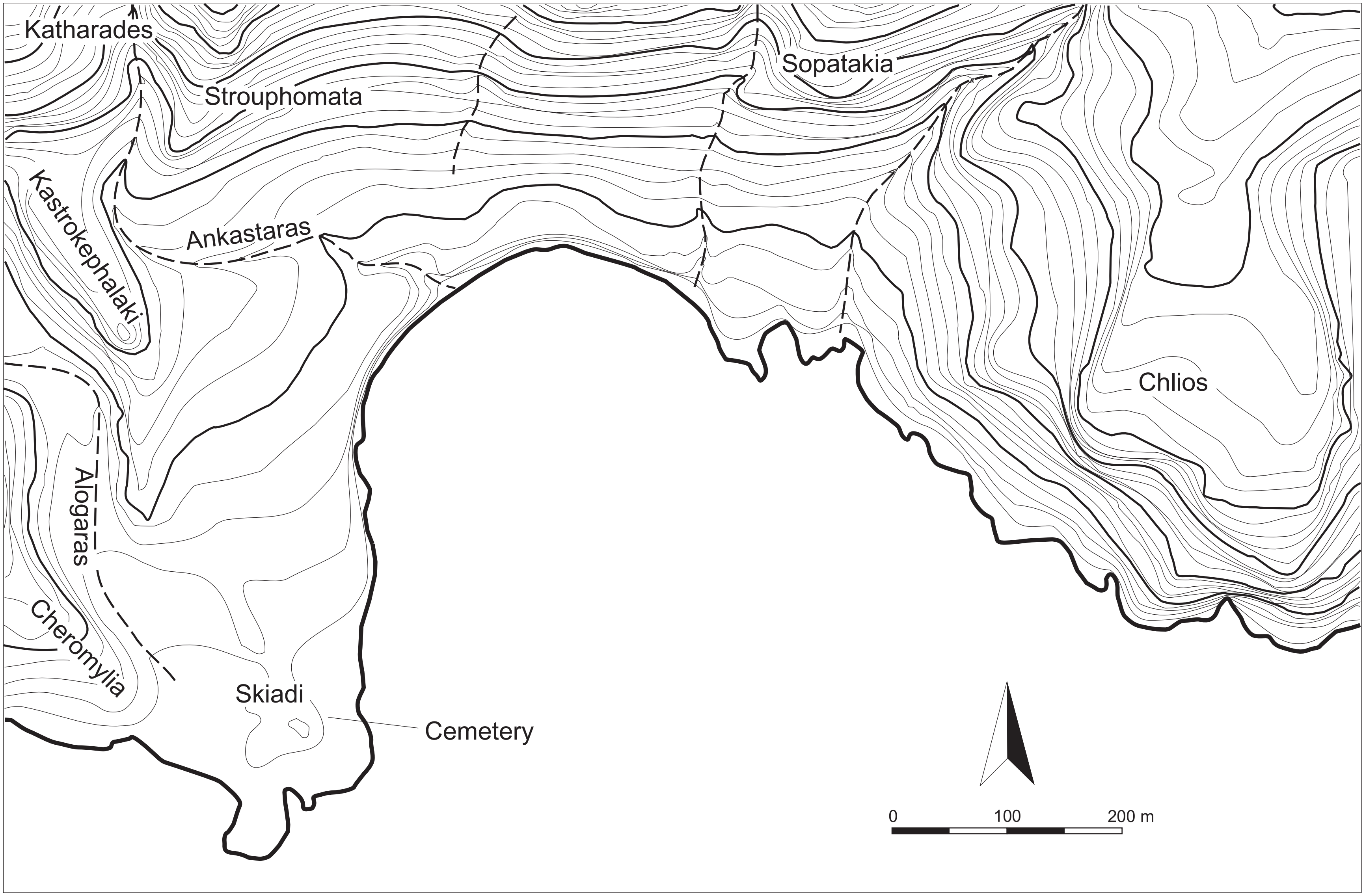


Figure 3. Map of the area of Livari.

FIGURE 4

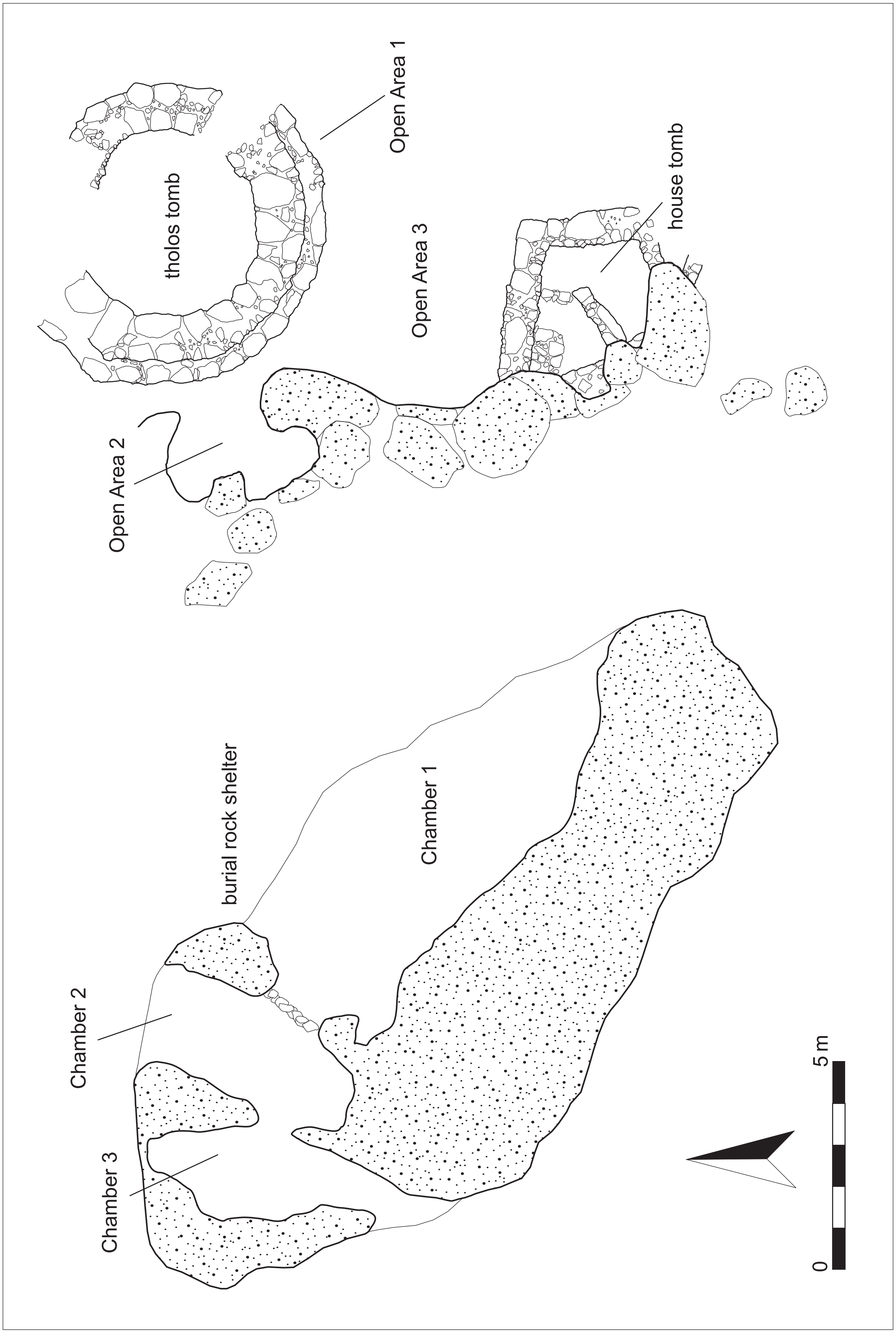


Figure 4. Plan of the cemetery.

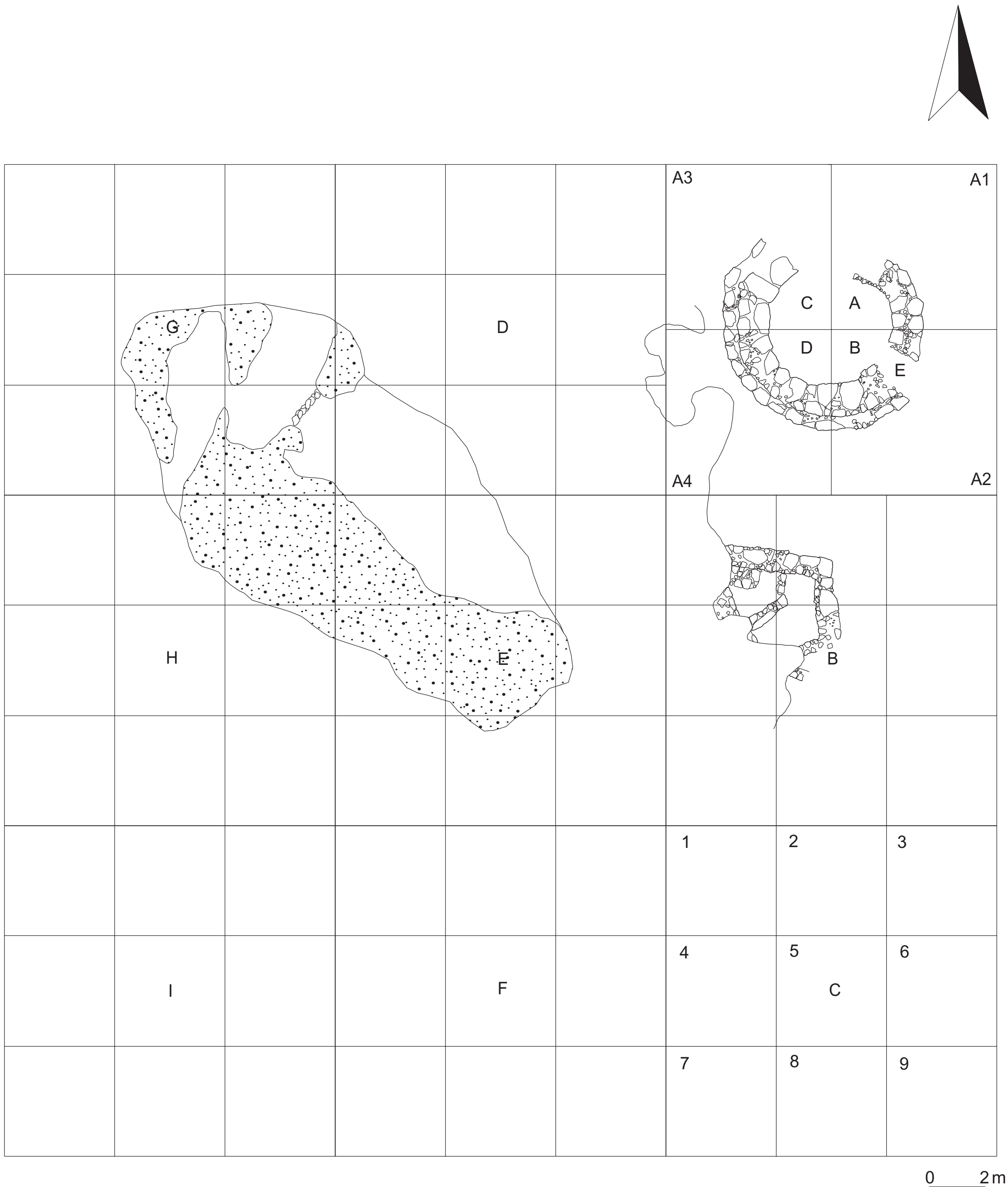


Figure 5. Plan of the cemetery showing excavation grid measuring 36 x 36 m.

FIGURE 6

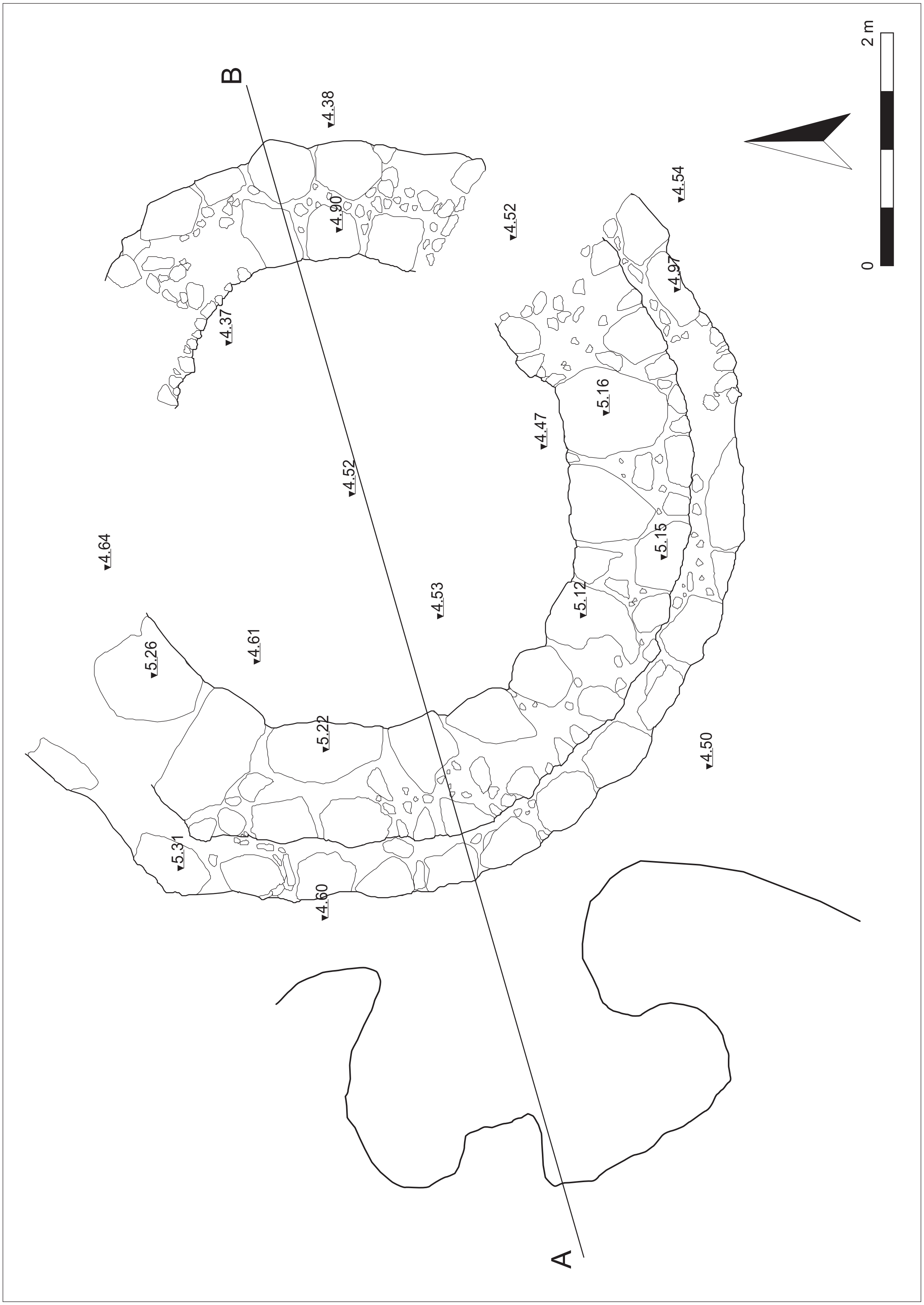


Figure 6. Plan of the tholos tomb.

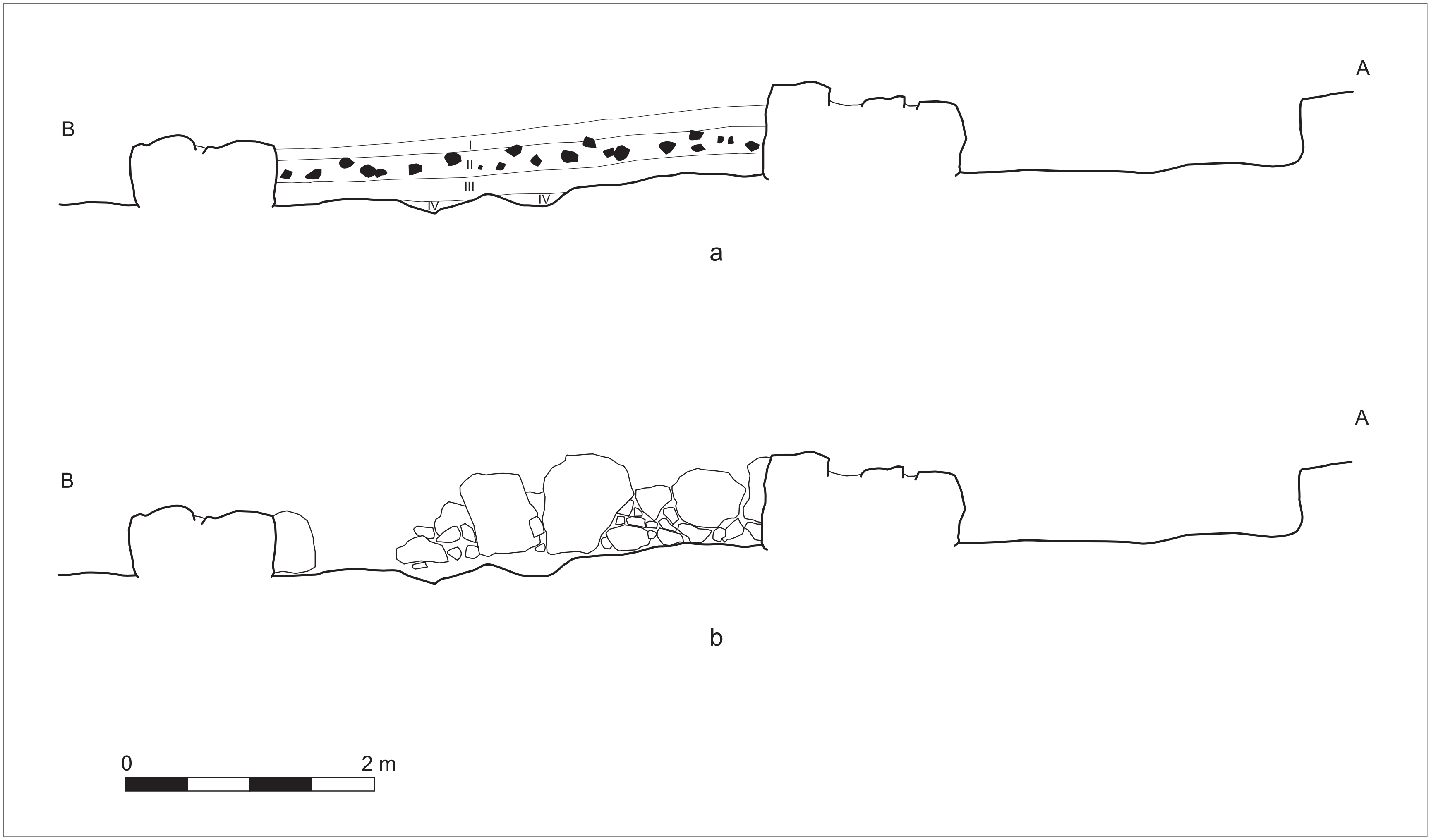


Figure 7. Sections of the tholos tomb showing the stratigraphy (a) and the entrance and southeastern exent of the tholos wall (b).

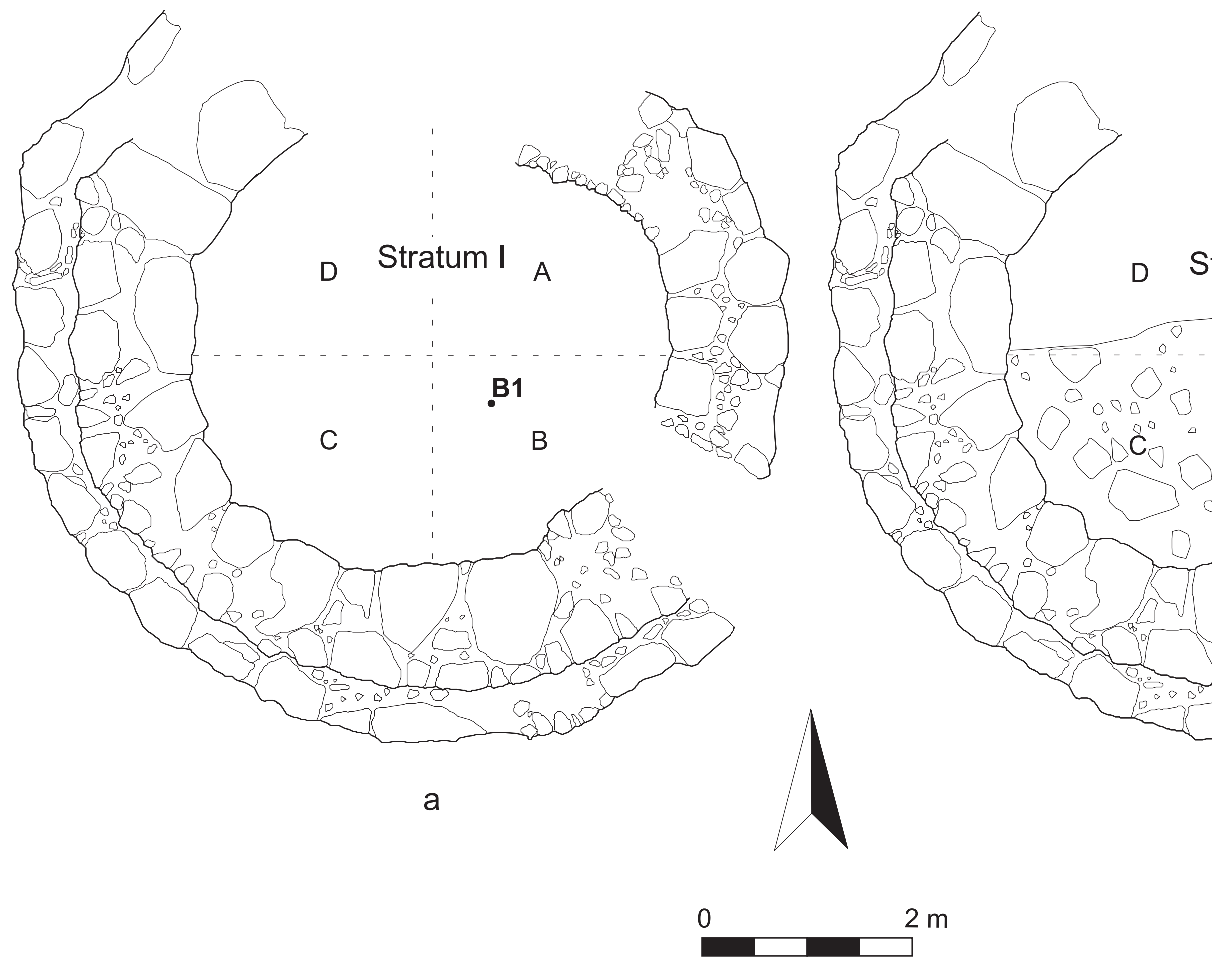


Figure 8. Tholos tomb: distribution of select finds in Stratum I (a) and Stratum II (b).

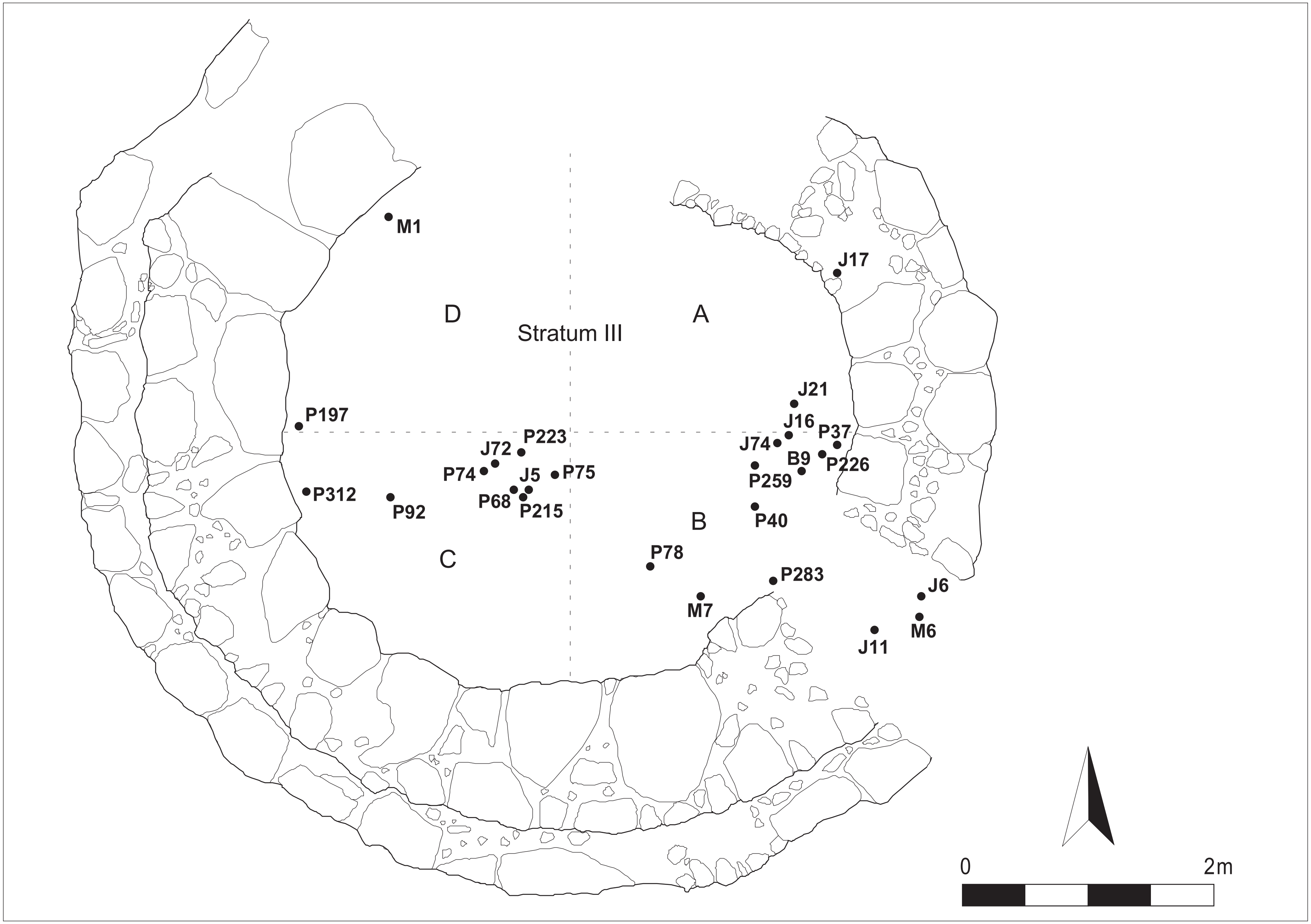


Figure 9. Tholos tomb: distribution of select finds in Stratum III.

FIGURE 10

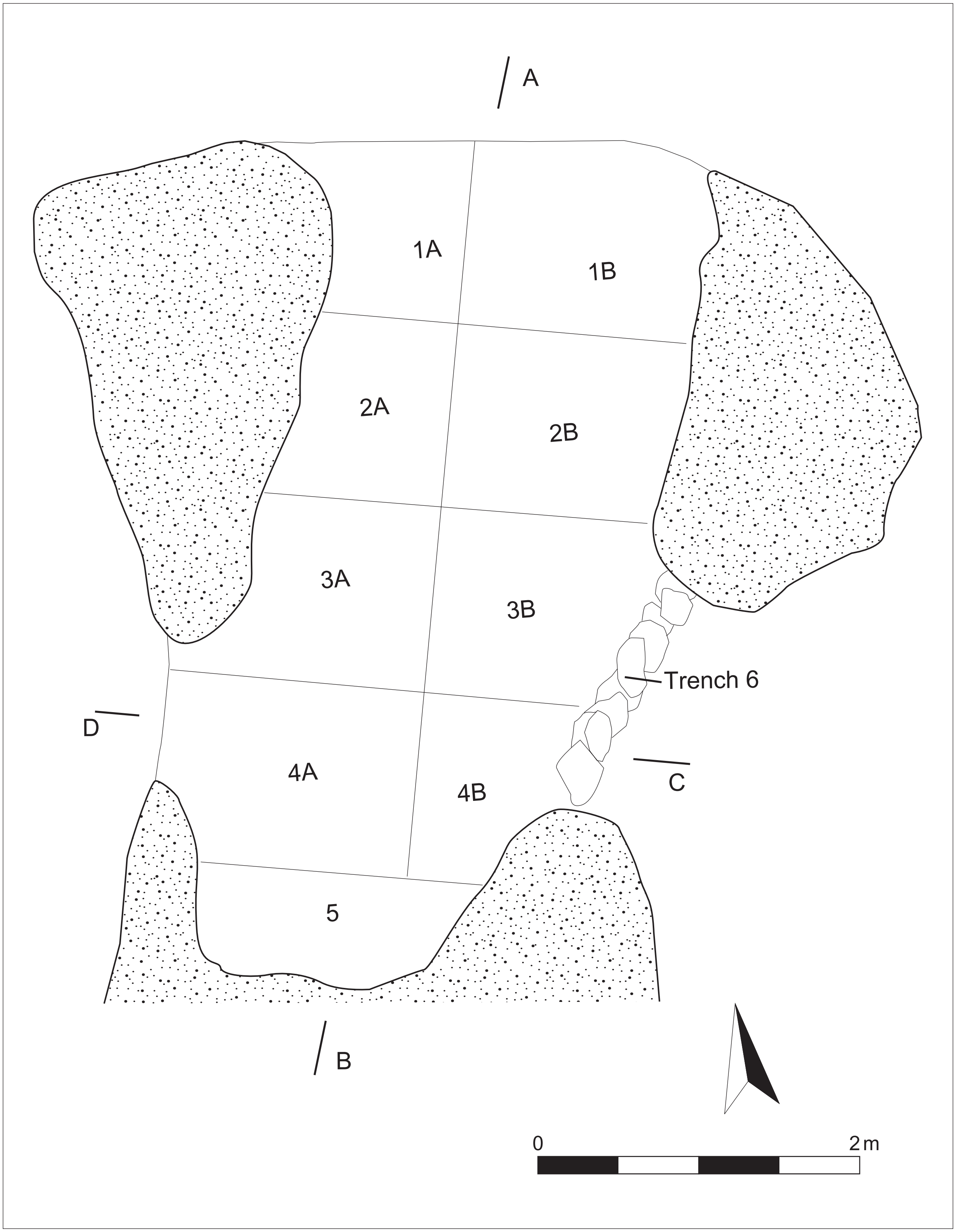


Figure 10. Burial rock shelter, Chamber 2: plan and excavation trenches.

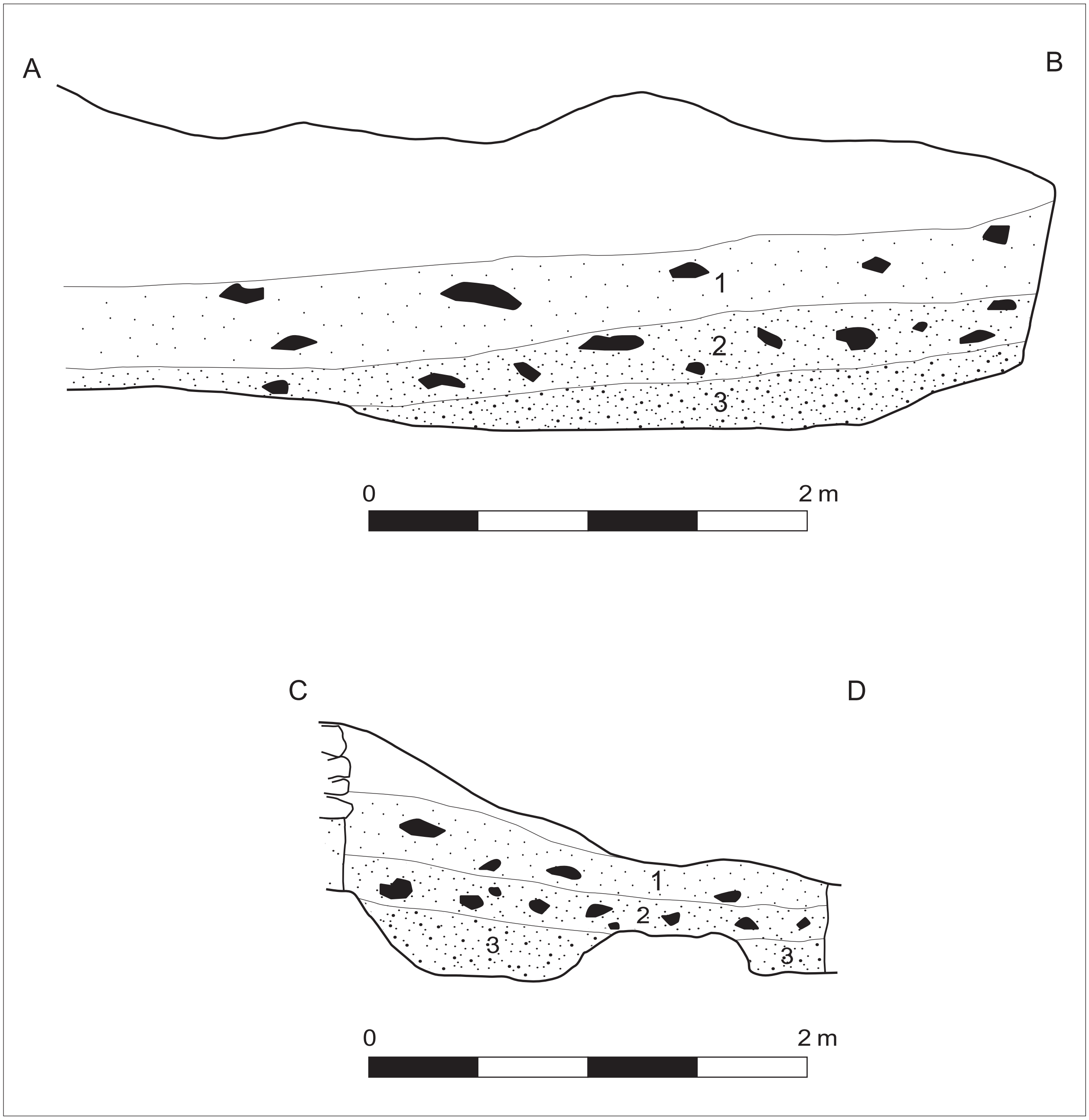


Figure 11. Sections of the burial rock shelter, Chamber 2.

FIGURE 12

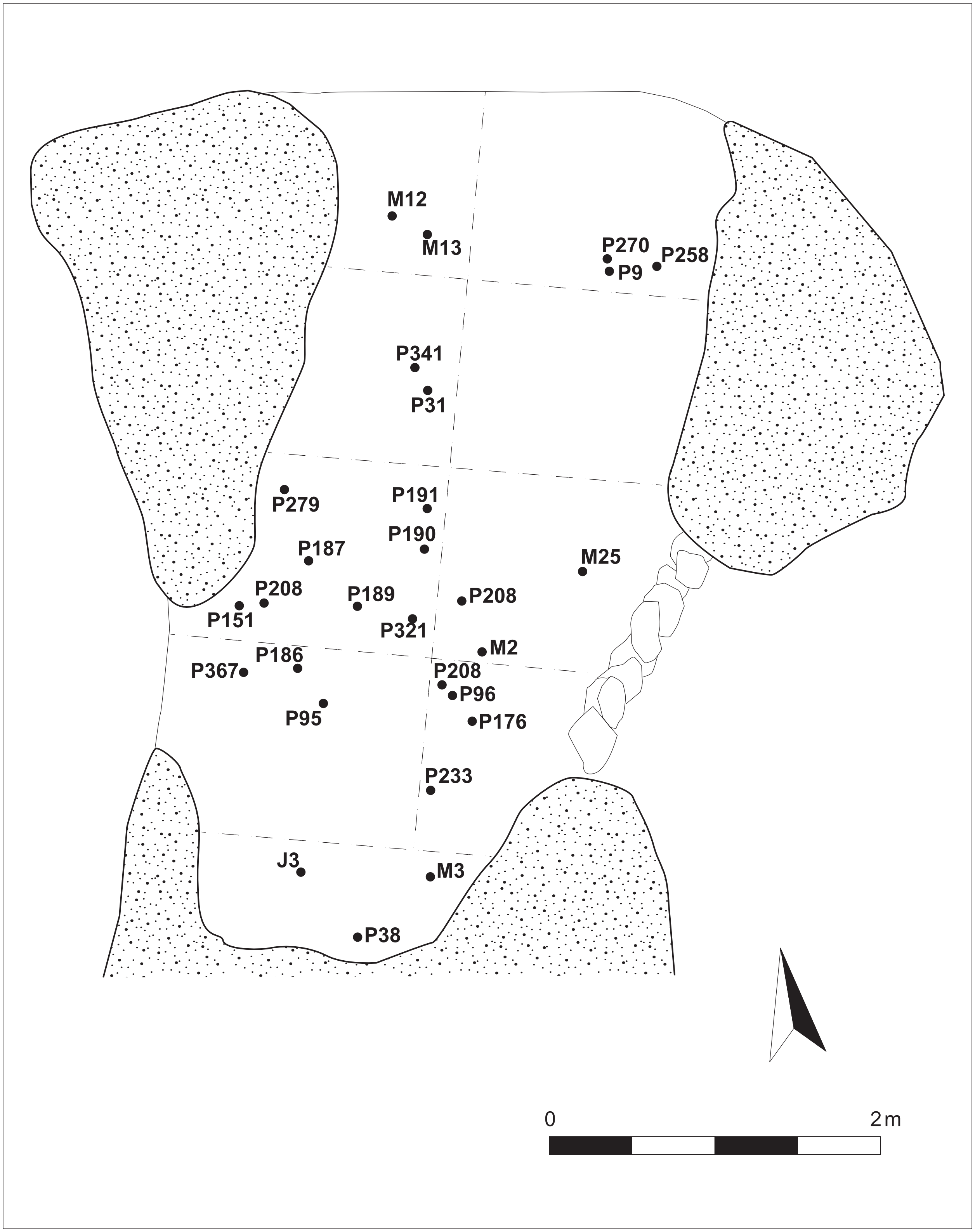


Figure 12. Burial rock shelter, Chamber 2: distribution of select finds.

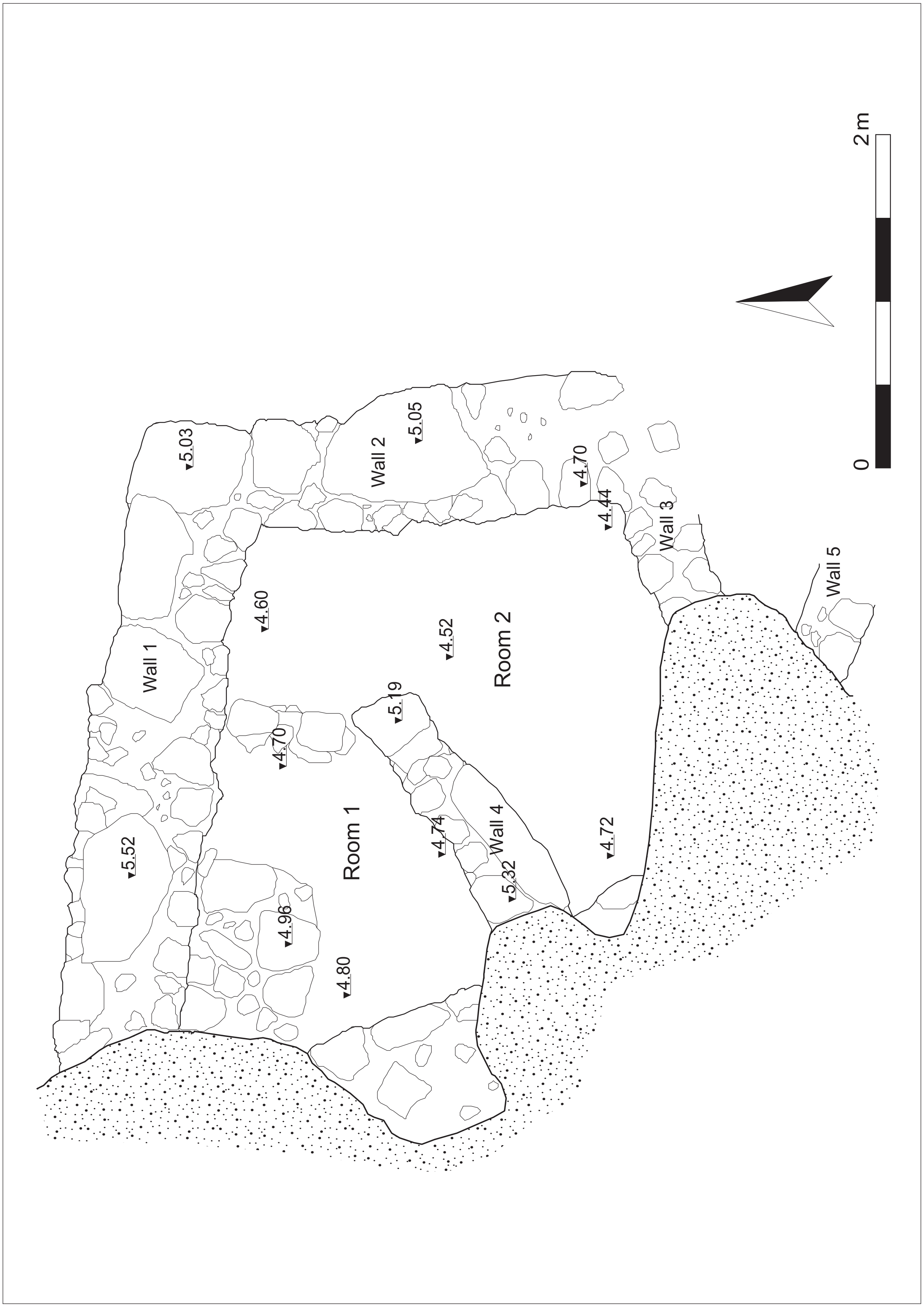


Figure 13. Plan of the house tomb.

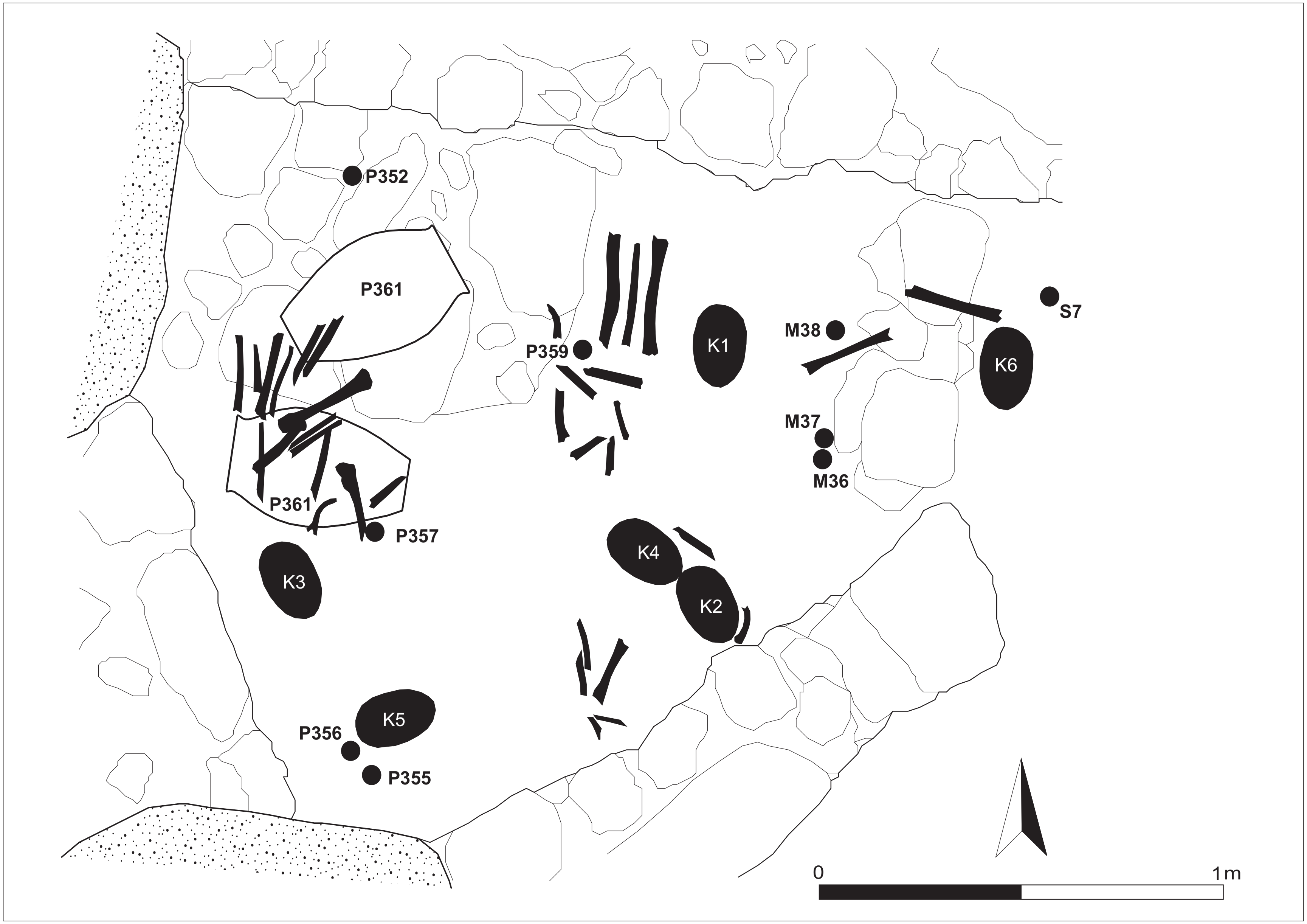


Figure 14. House tomb, Room 1: distribution of burials and select finds.

Figure 15. House tomb, Room 2: distribution of select finds.

FIGURE 16

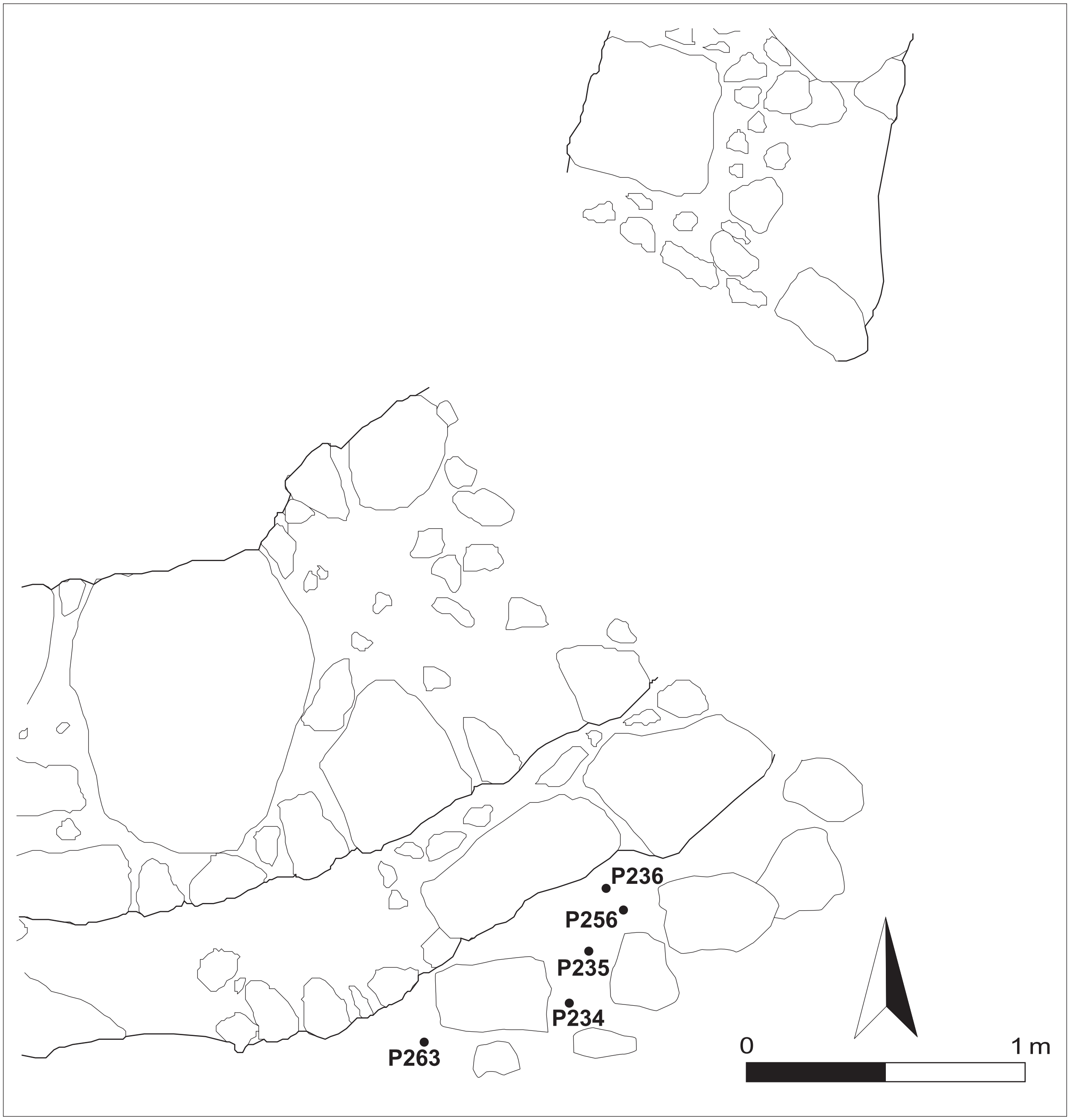


Figure 16. Open Area 1: distribution of select finds.

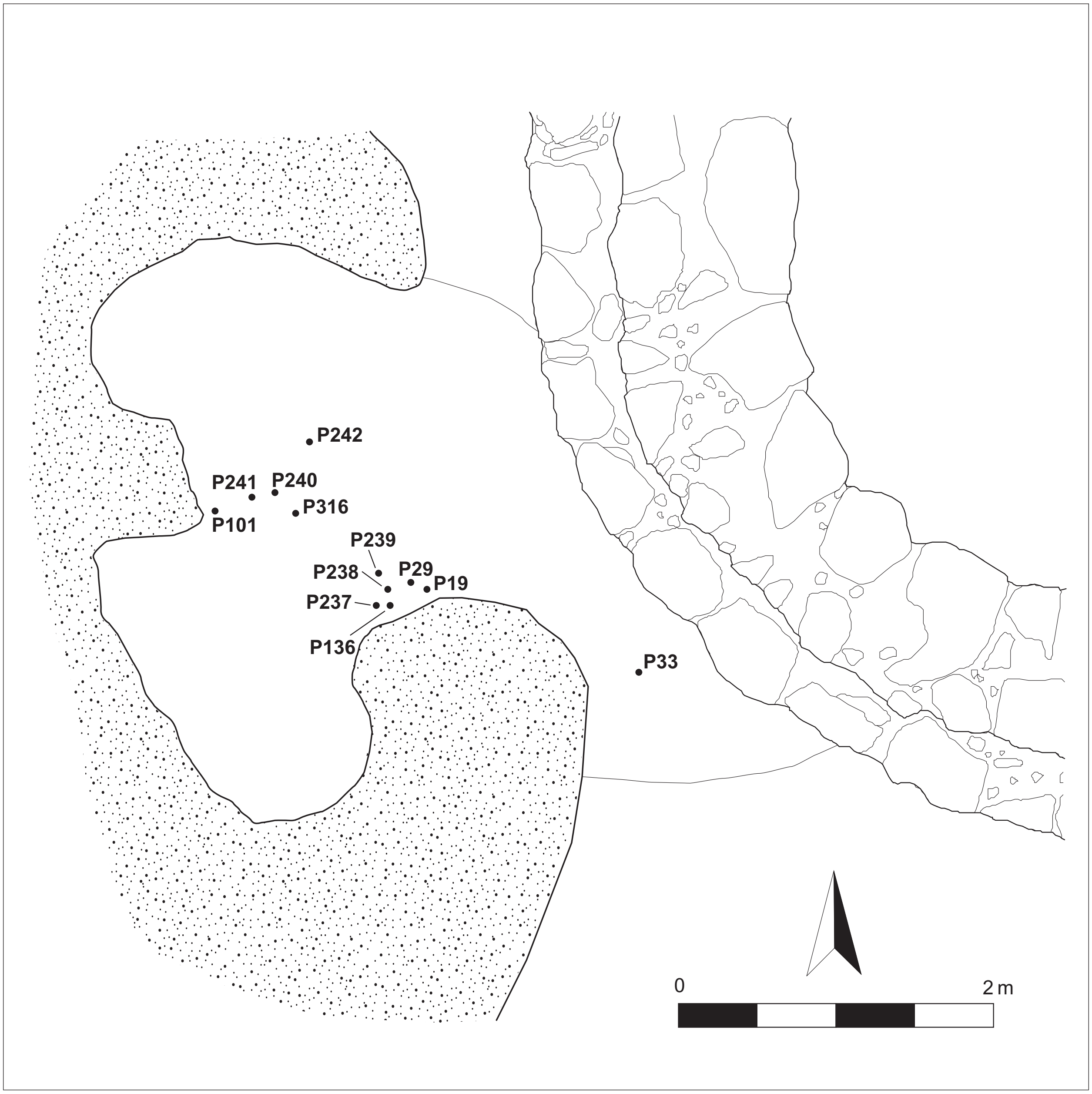


Figure 17. Open Area 2: distribution of select finds.

FIGURE 18

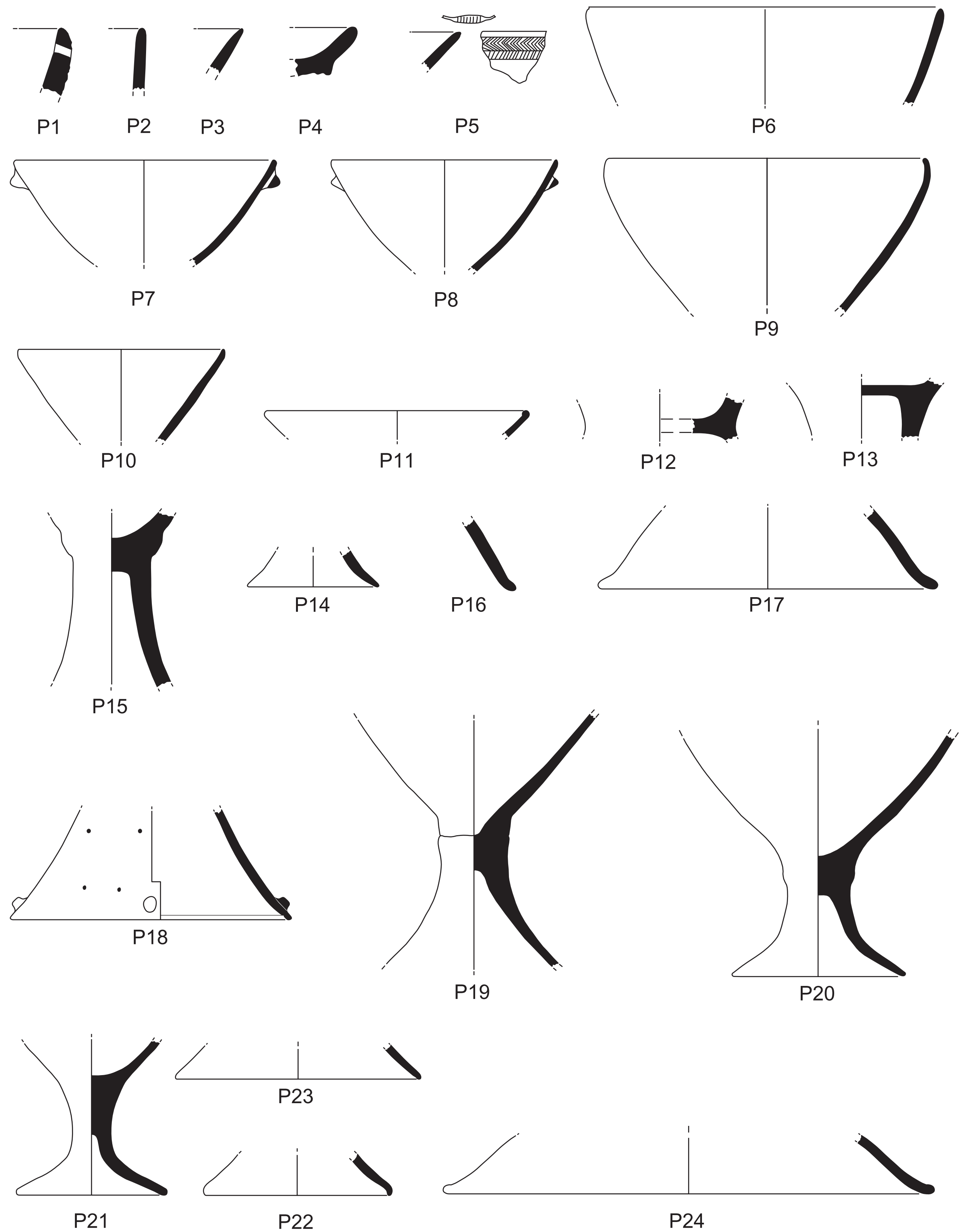


Figure 18. RBBW cheesepots (**P1**, **P2**), bowl (**P3**); WW plate (**P4**); DGBW chalices (**P5**–**P20**), goblets (**P21**–**P24**). Scale 1:3.

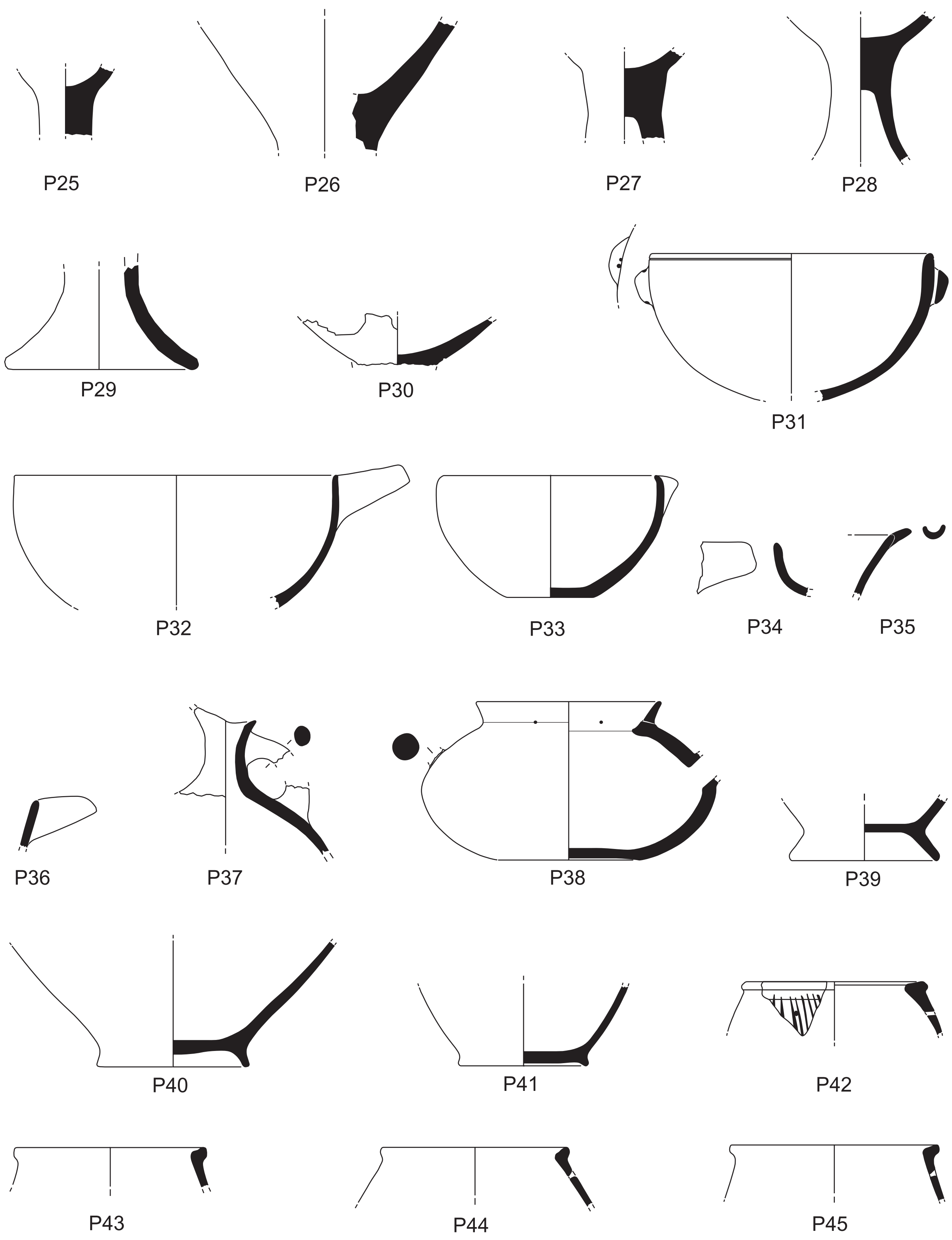


Figure 19. DGBW pottery: goblets (**P25**–**P30**); spouted bowls (**P31**–**P36**); jug (**P37**); teapot (**P38**); bowls (**P40**–**P45**). Scale 1:3.

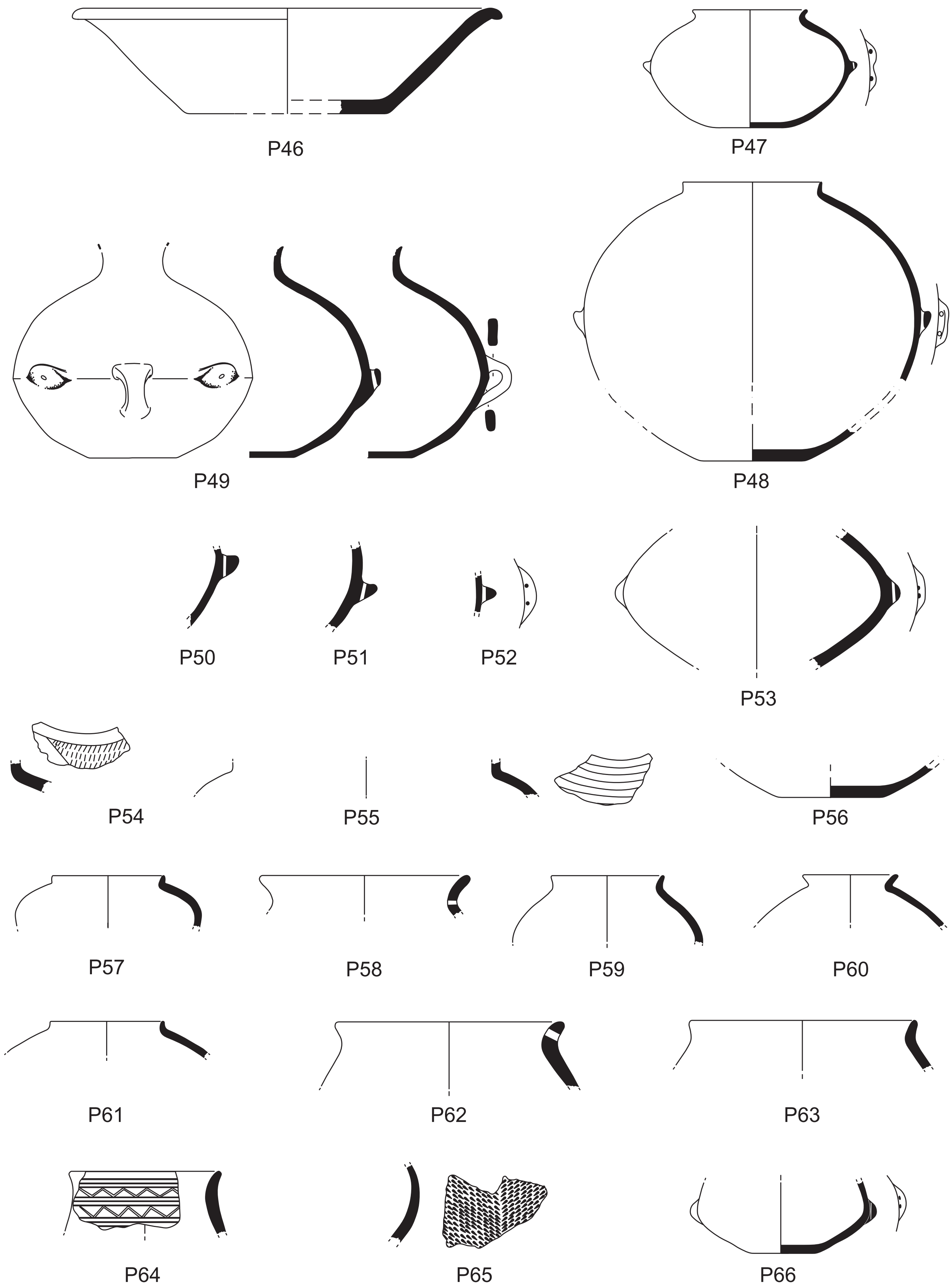


Figure 20. DGBW pottery: dish (**P46**); spherical pyxides (**P47**–**P66**). Scale 1:3.

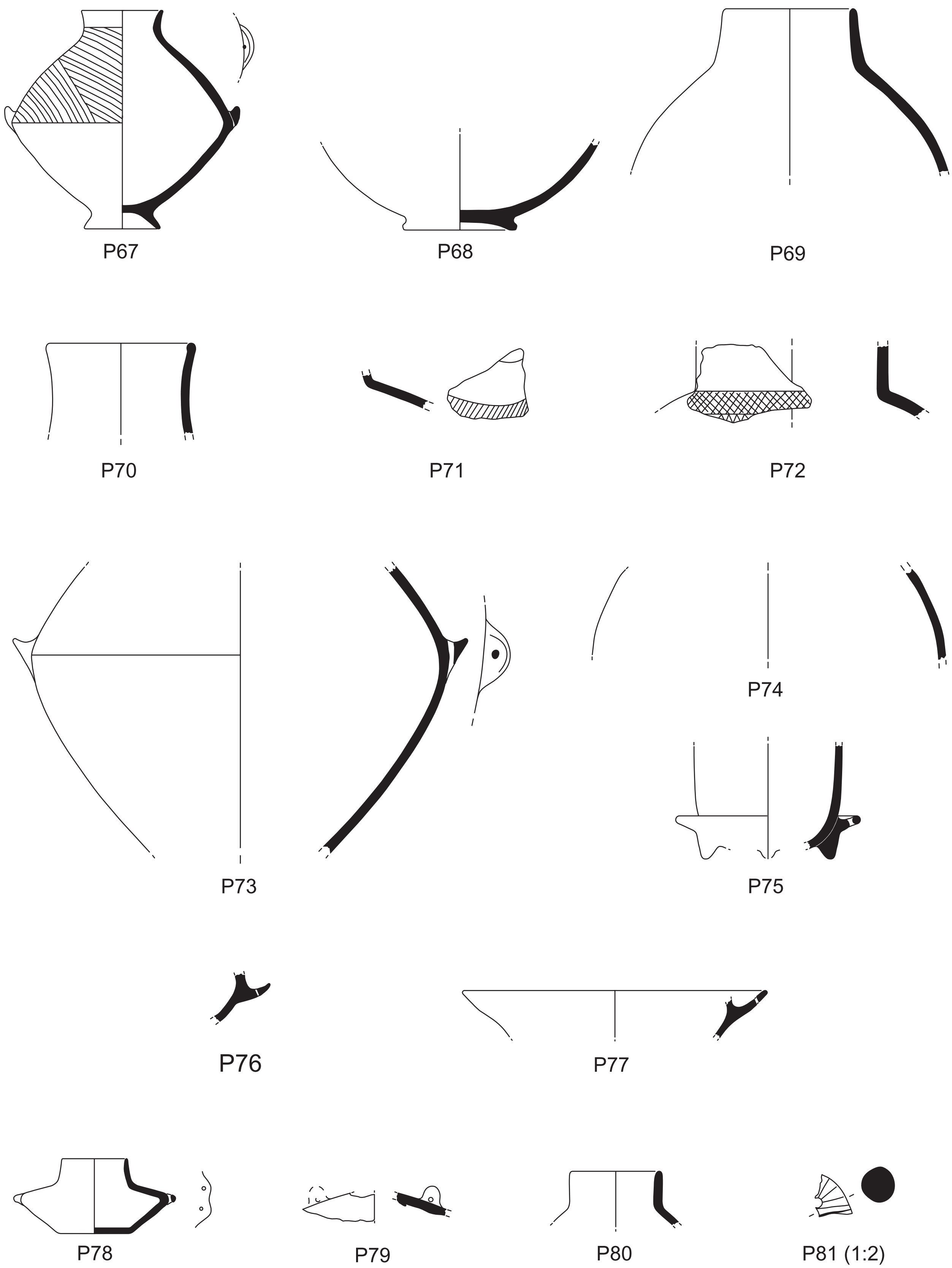


Figure 21. DGBW pyxides (**P67**–**P81**). Scale 1:3 unless otherwise indicated.

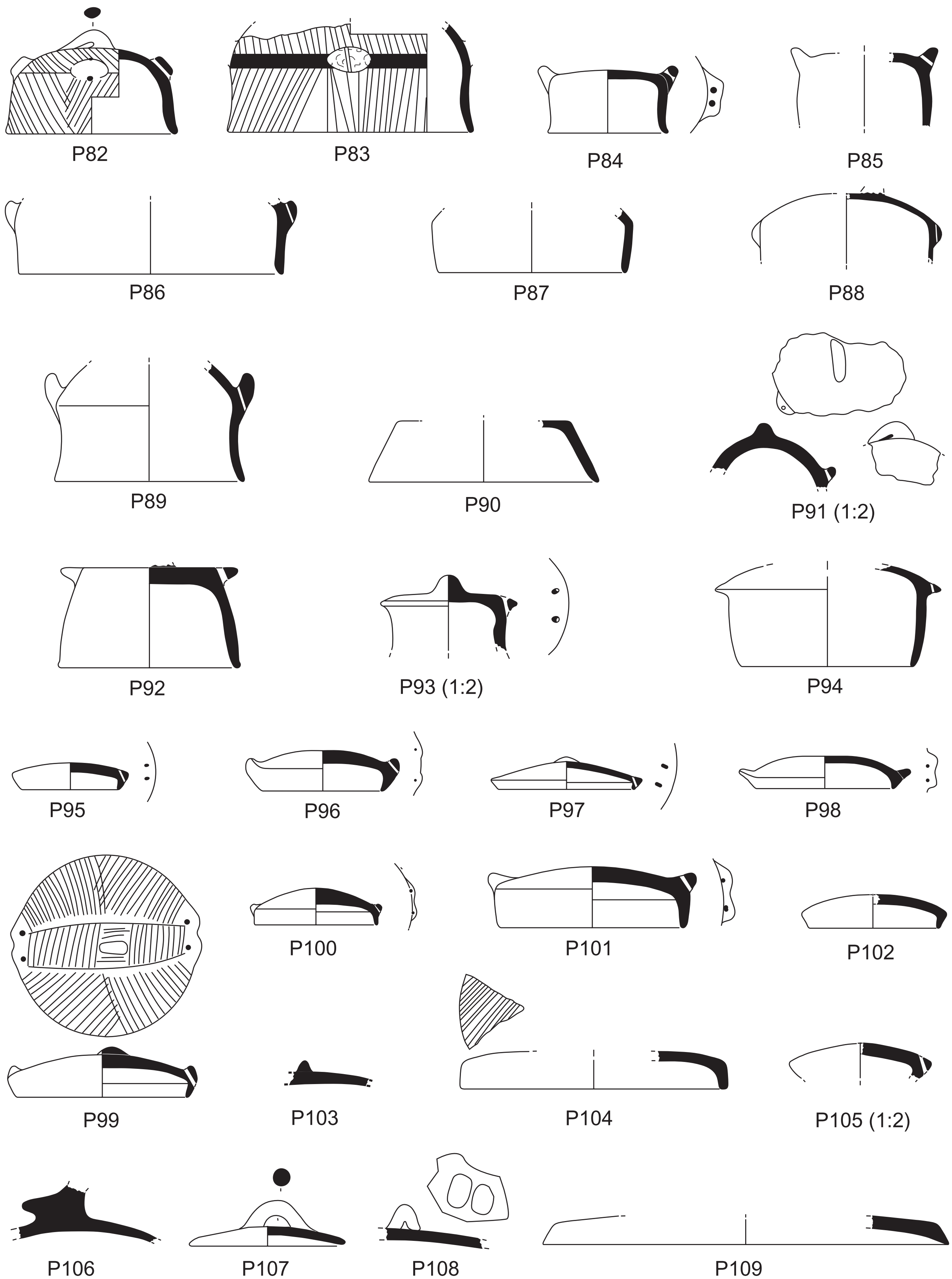


Figure 22. DGBW pyxis lids (**P82**–**P109**). Scale 1:3 unless otherwise indicated.

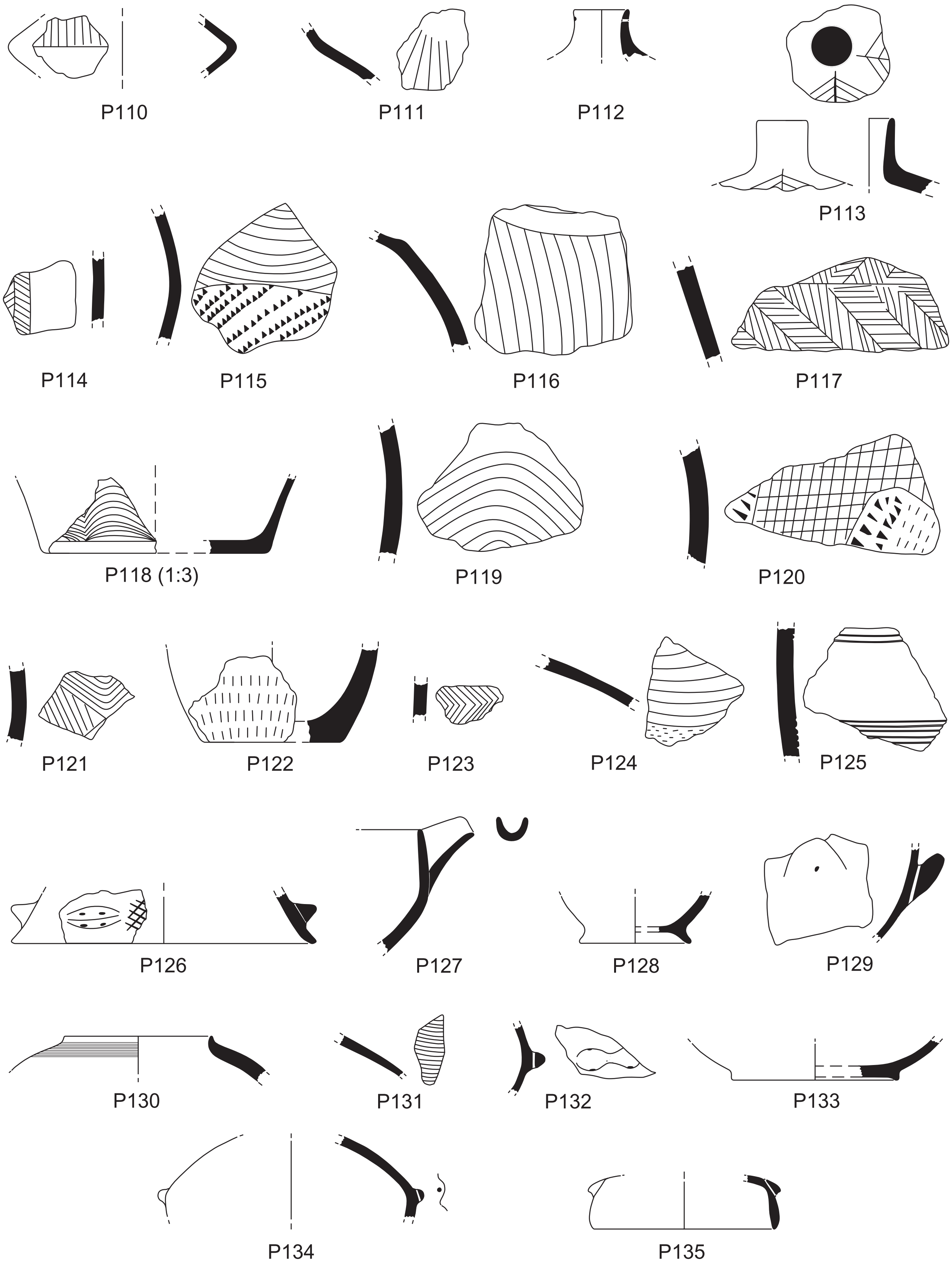


Figure 23. DGBW alabastra (**P110**–**P113**), decorated undiagnostic sherds (**P114**–**P125**) (scale 1:2 unless otherwise indicated); OBBW pottery (**P126**–**P135**) (scale 1:3).

FIGURE 24

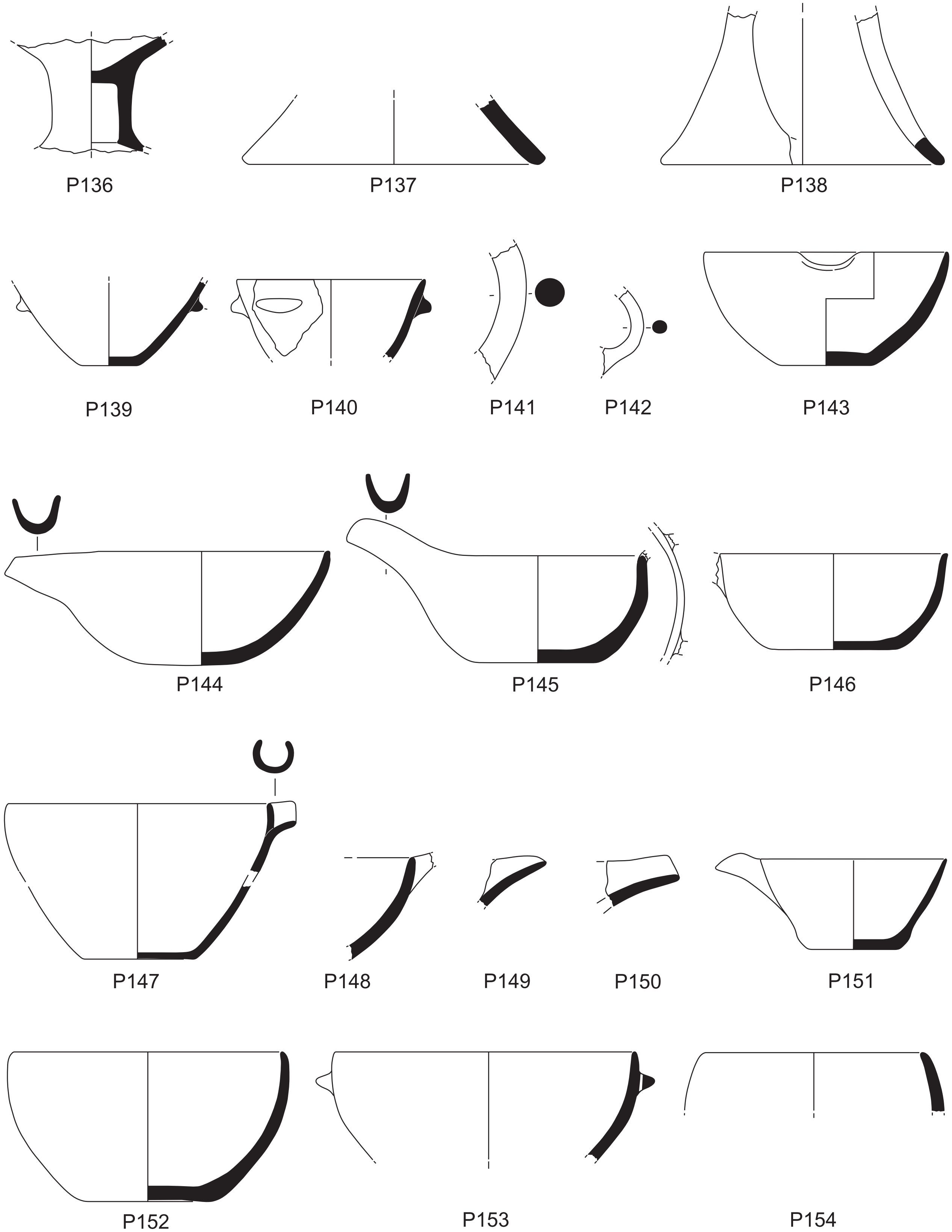


Figure 24. DBW pottery: chalices (**P136**–**P138**); cups (**P139**–**P142**); spouted bowls (**P143**–**P151**); bowls (**P152**–**P154**). Scale 1:3.

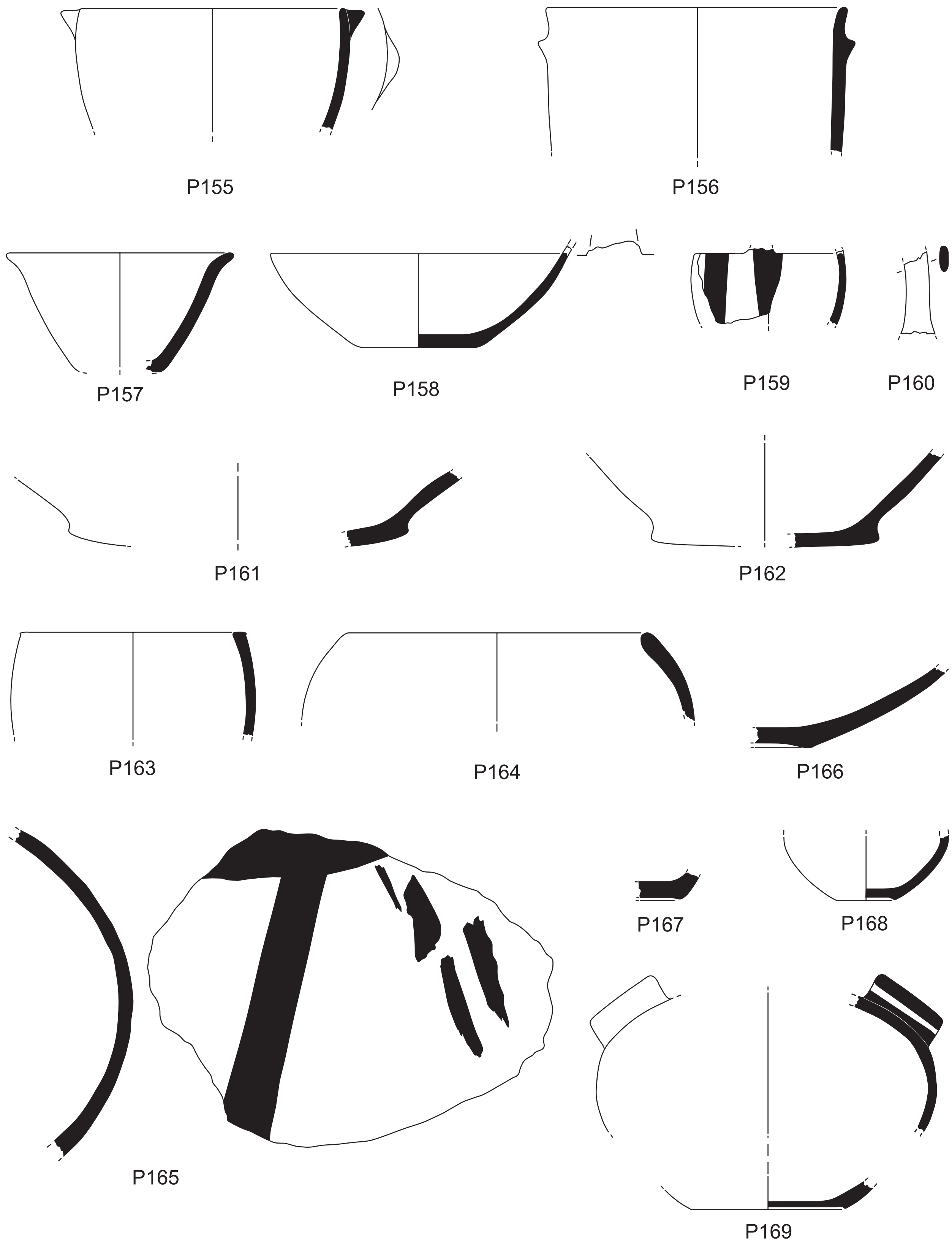


Figure 25. DBW pottery: bowls (**P155**–**P160**); dishes (**P161**, **P162**); deep bowls/jars (**P163**, **P164**); pyxides (**P166**–**P169**). Scale 1:3.

FIGURE 26

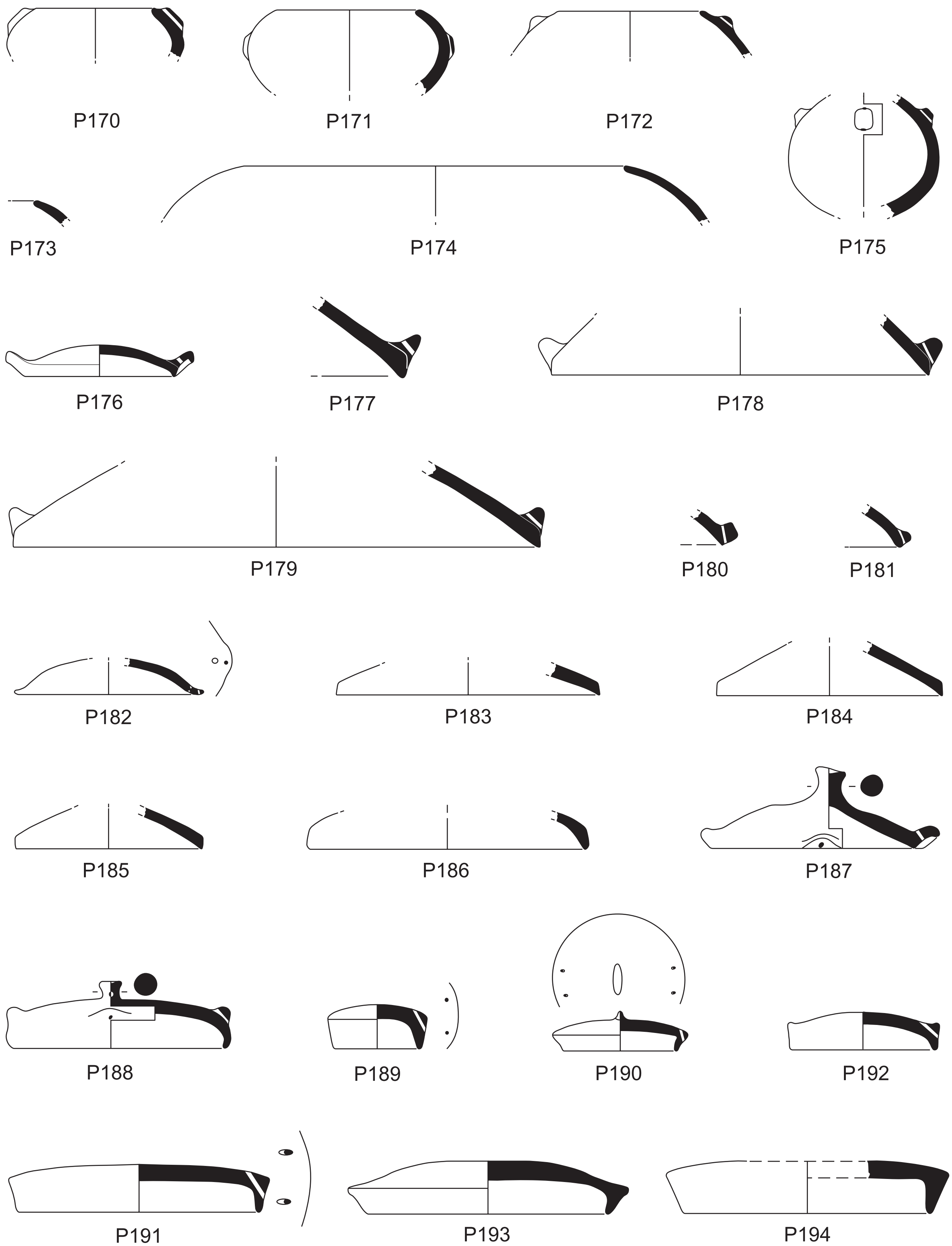


Figure 26. DBW pottery: pyxides (**P170**–**P175**); pyxis lids (**P176**–**P194**). Scale 1:3.

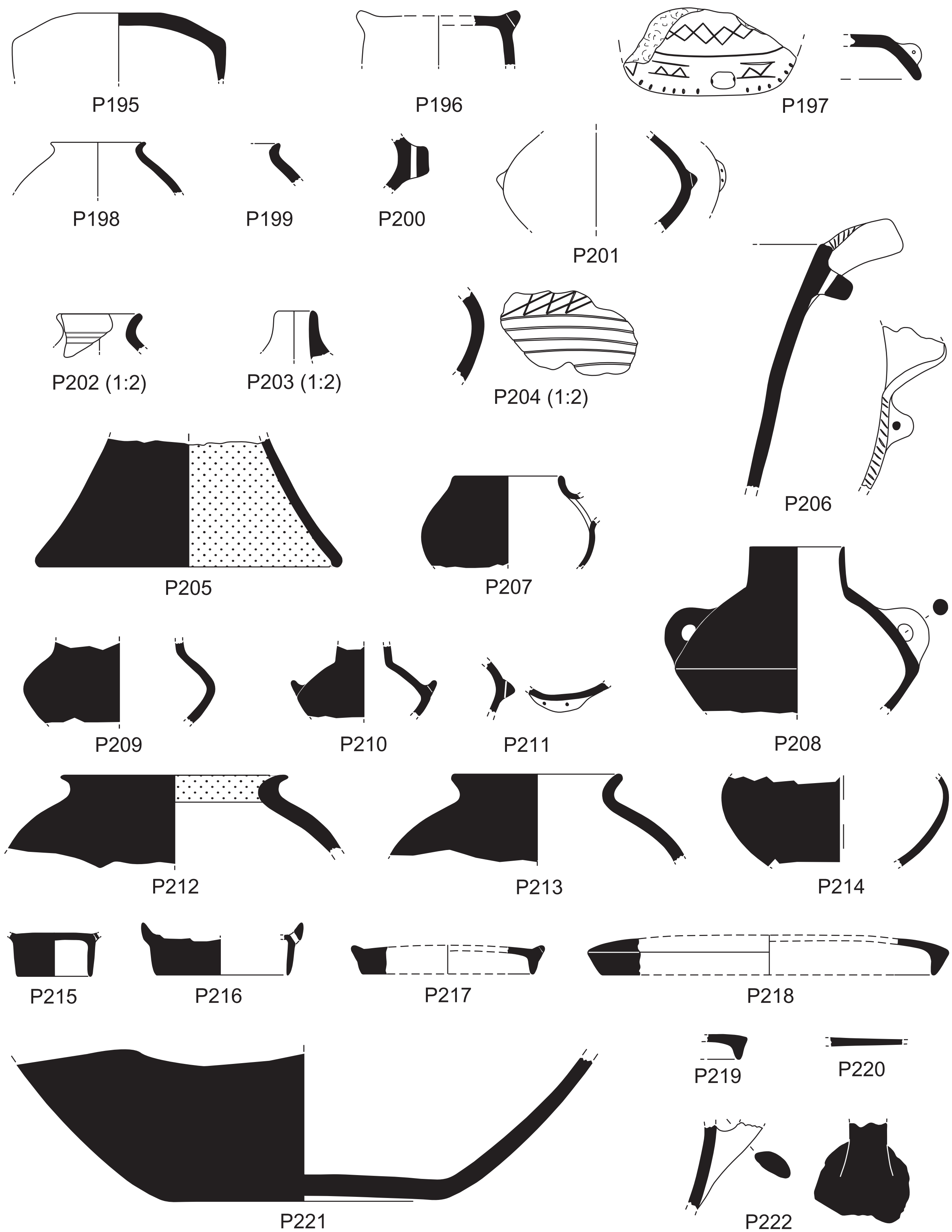


Figure 27. DBW pyxis lids (**P195**–**P197**), alabastra (**P198**–**P201**), bottles (**P202**–**P204**); RSBW chalice (**P205**), spouted bowl (**P206**), teapot (**P207**), pyxides (**P208**–**P214**), pyxis lids (**P215**–**P220**), jars (**P221**, **P222**). Scale 1:3 unless otherwise indicated.

FIGURE 28

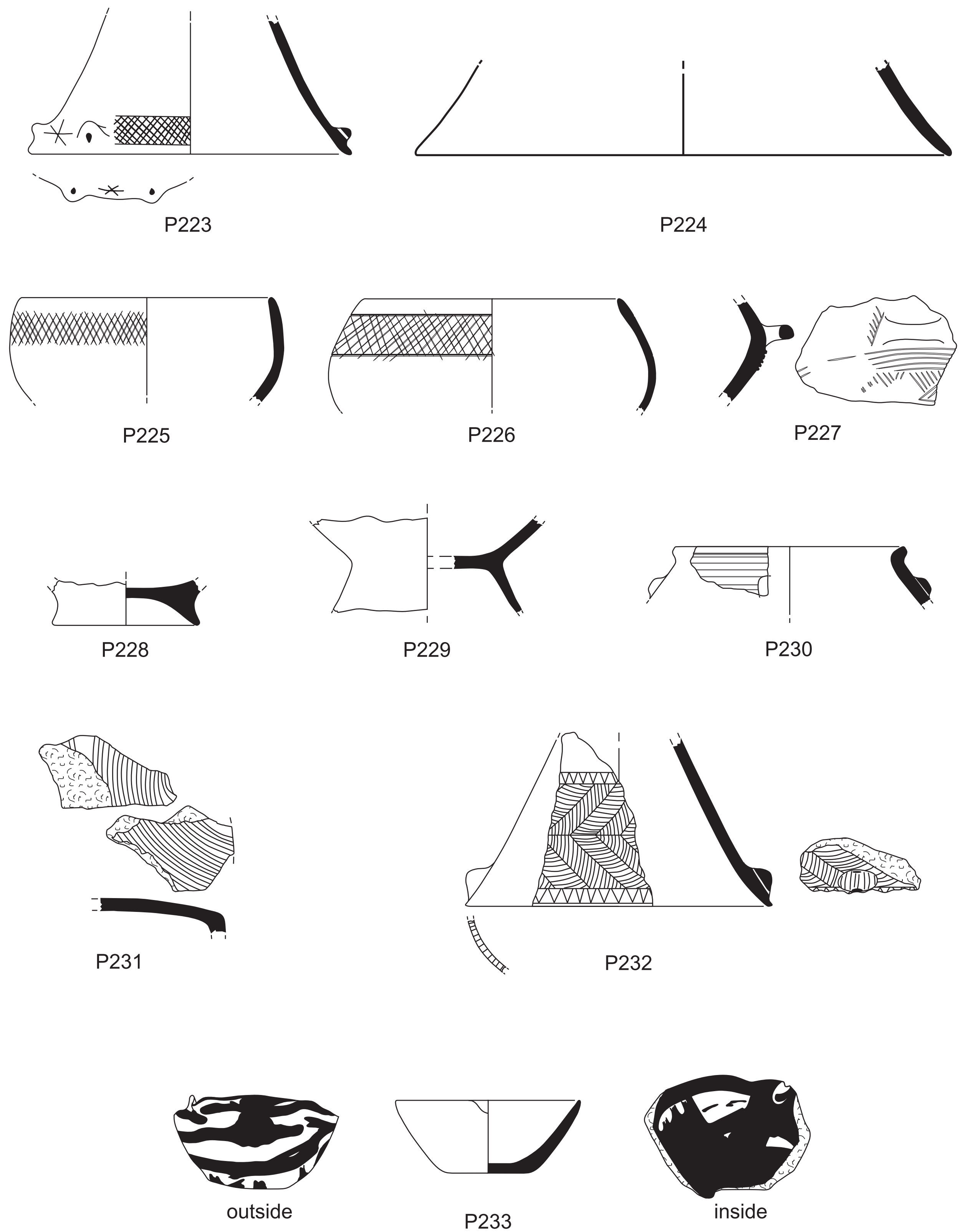
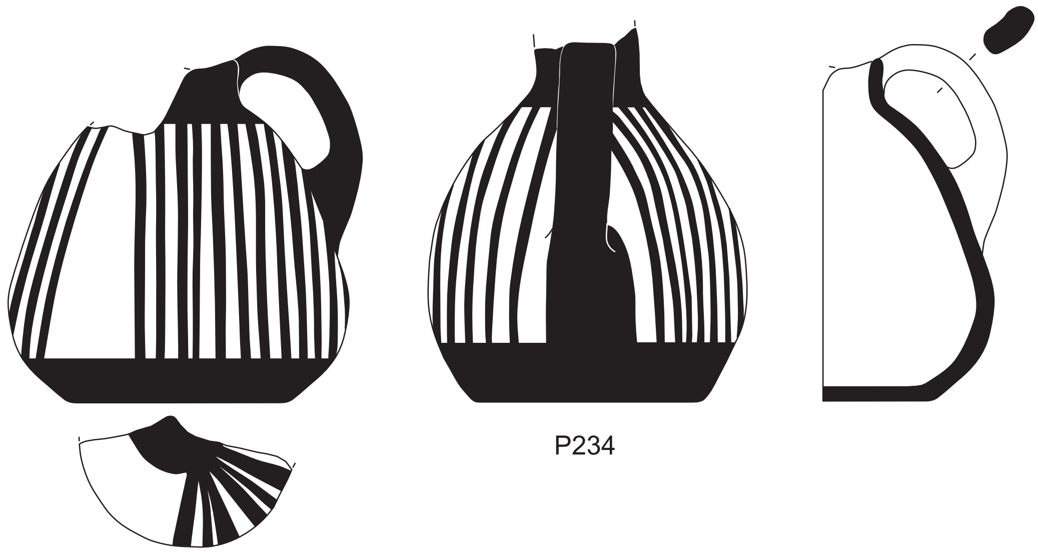


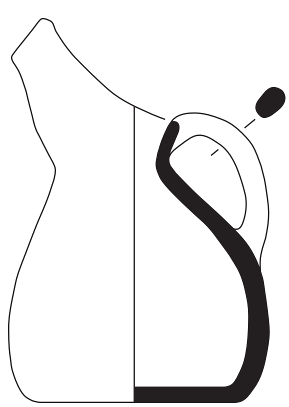
Figure 28. RBW chalices (**P223**, **P224**), bowls (**P225**, **P226**), pyxis (**P227**); FGW pyxides (**P228**–**P230**), pyxis lids (**P231**, **P232**); DOLW spouted bowl (**P233**). Scale 1:3.



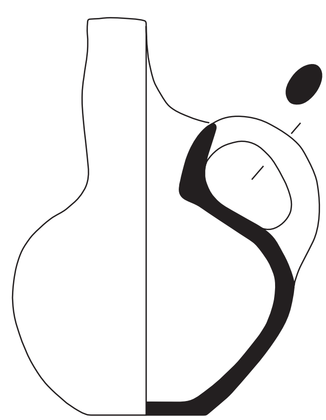
P234

P235

P236



P237



P238

Figure 29. DOLW jugs (**P234**–**P238**). Scale 1:3.

FIGURE 30

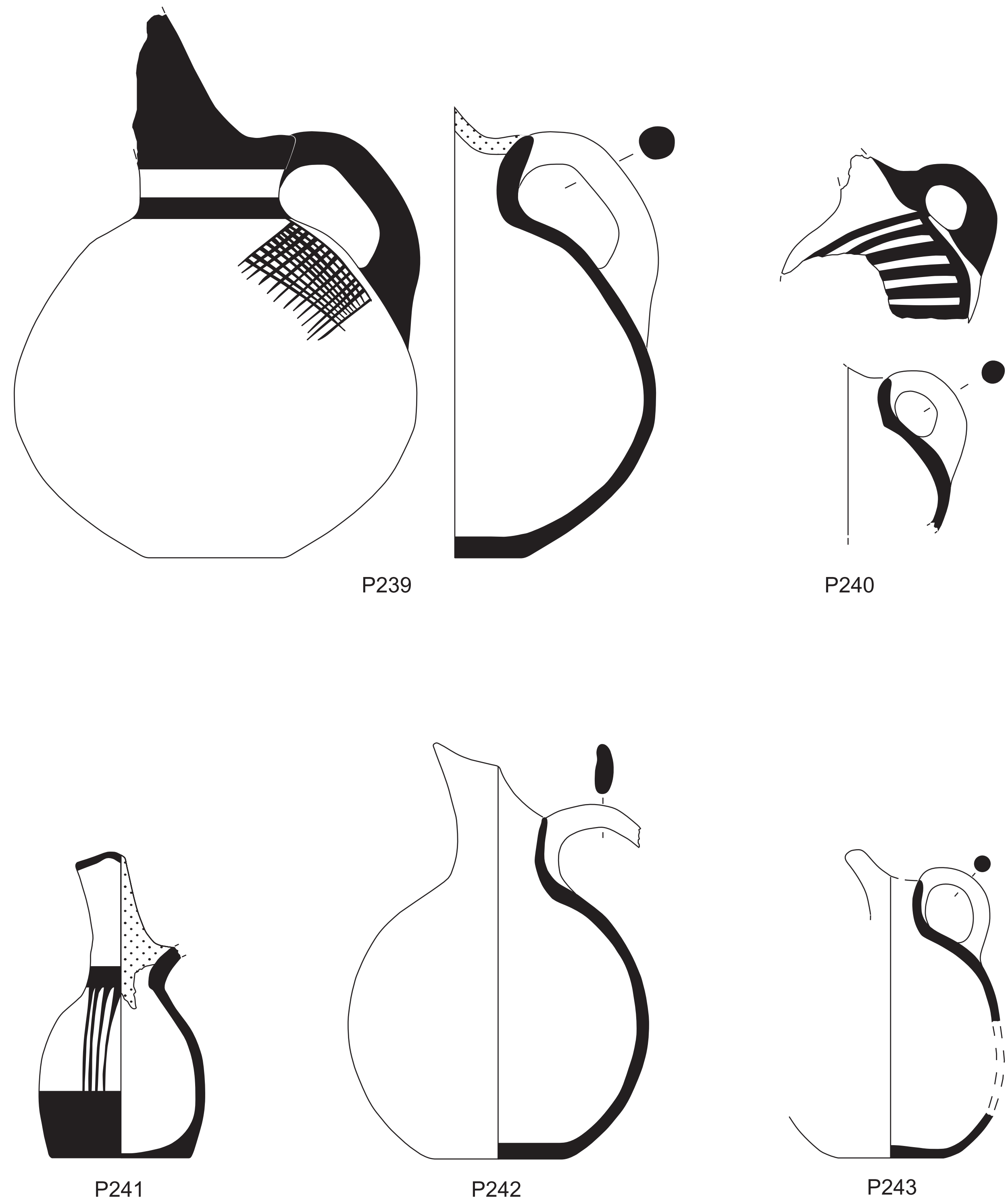


Figure 30. DOLW jugs (**P239**–**P243**). Scale 1:3.

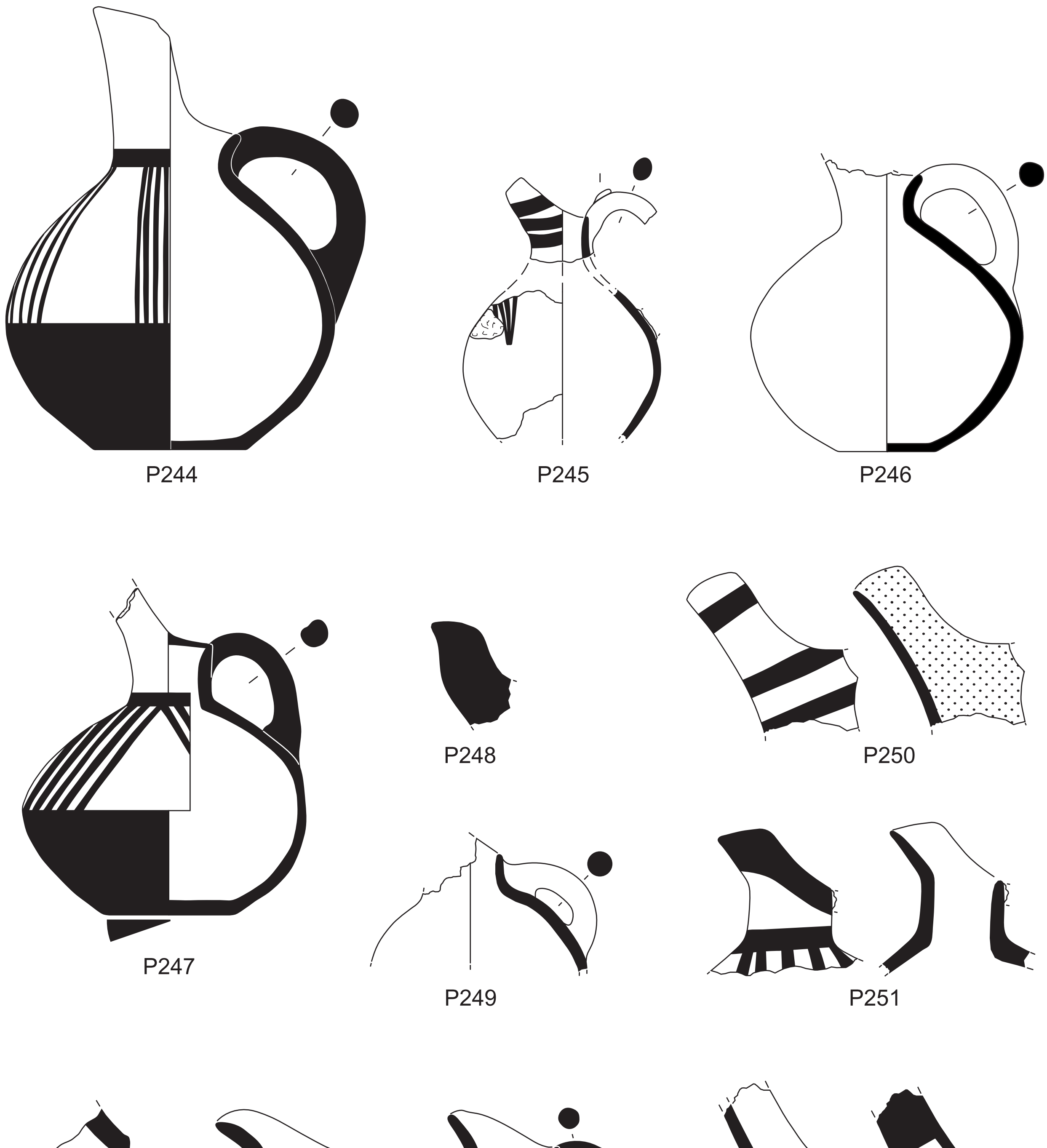
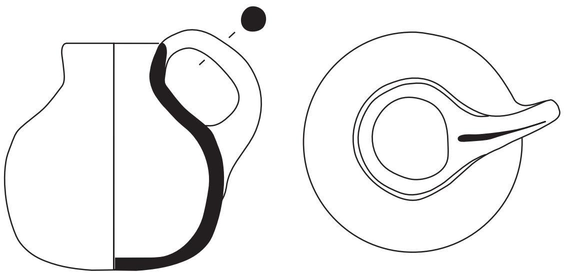
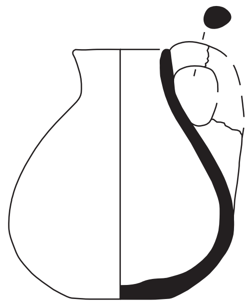


Figure 31. DOLW jugs (**P244**–**P255**). Scale 1:3.



P256

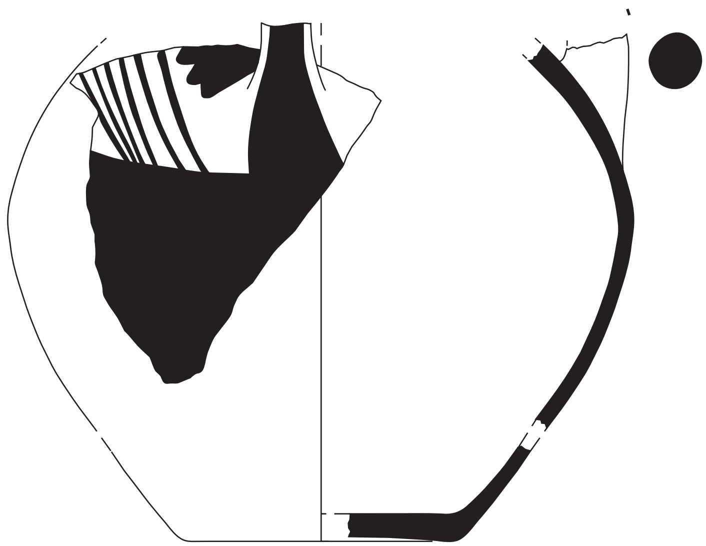
P258



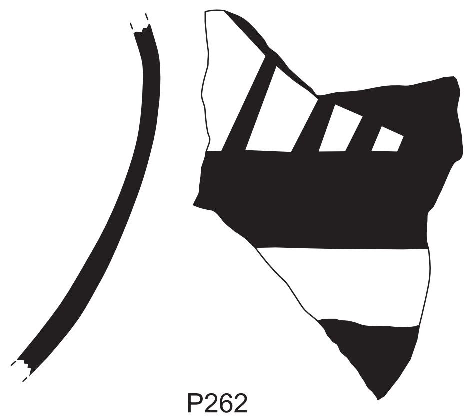
P257

P259

P260



P261



P262

P264

P263

Figure 32. DOLW jugs (**P256**–**P264**). Scale 1:3.

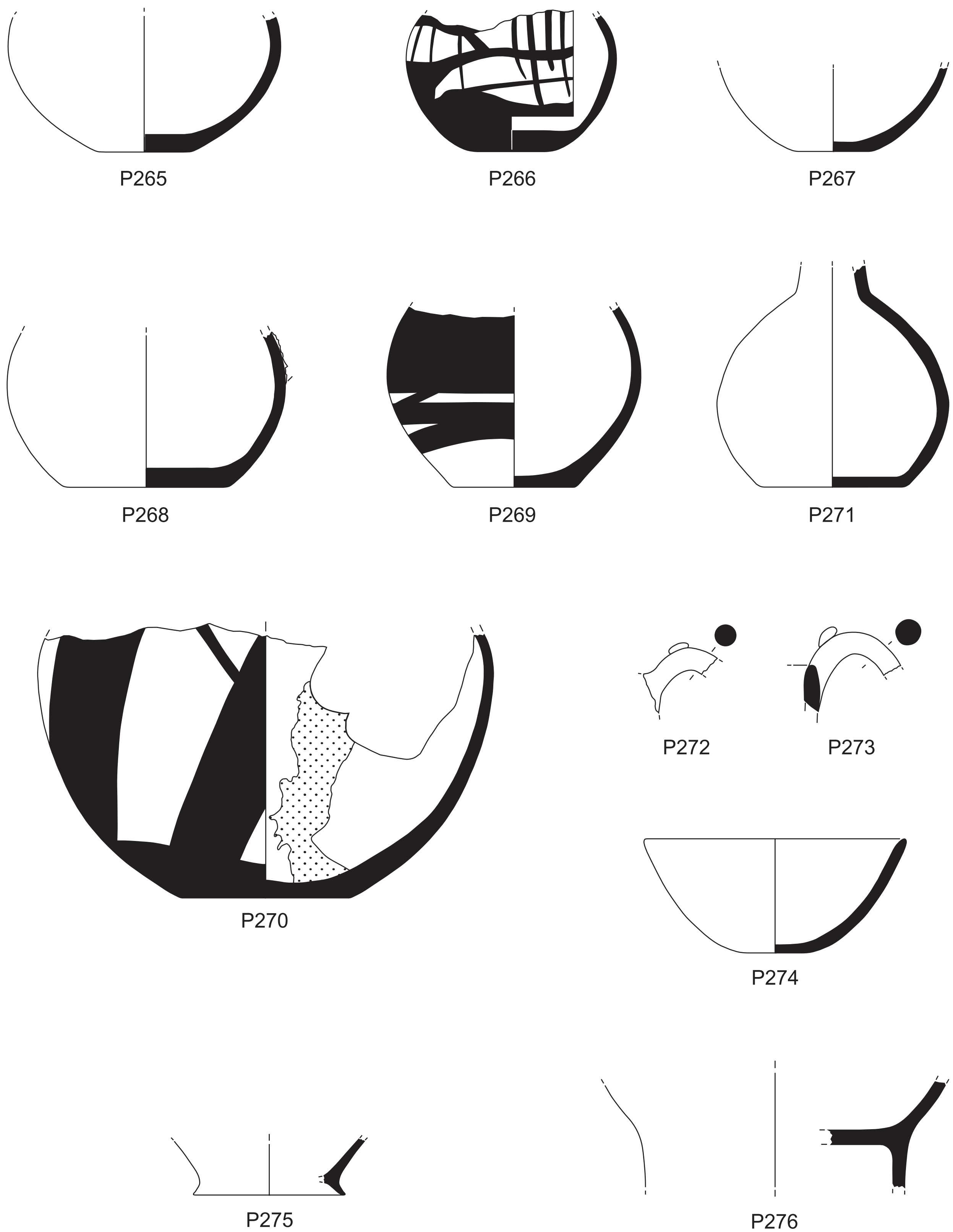


Figure 33. DOLW pottery: jugs (**P265**–**P273**); bowls (**P274**–**P276**). Scale 1:3.

FIGURE 34

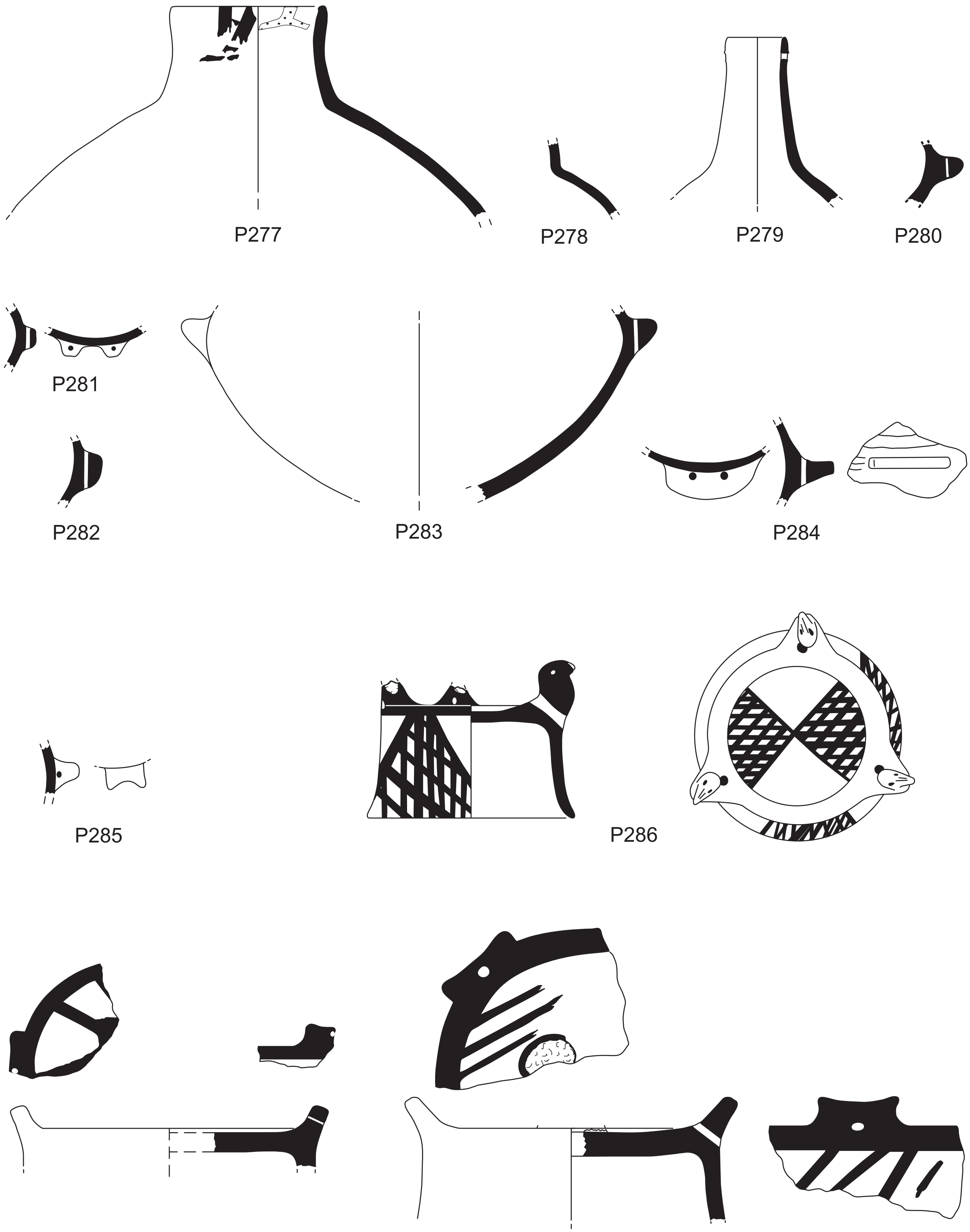


Figure 34. DOLW pottery: pyxides (**P277**–**P285**); pyxis lids (**P286**–**P288**). Scale 1:3.

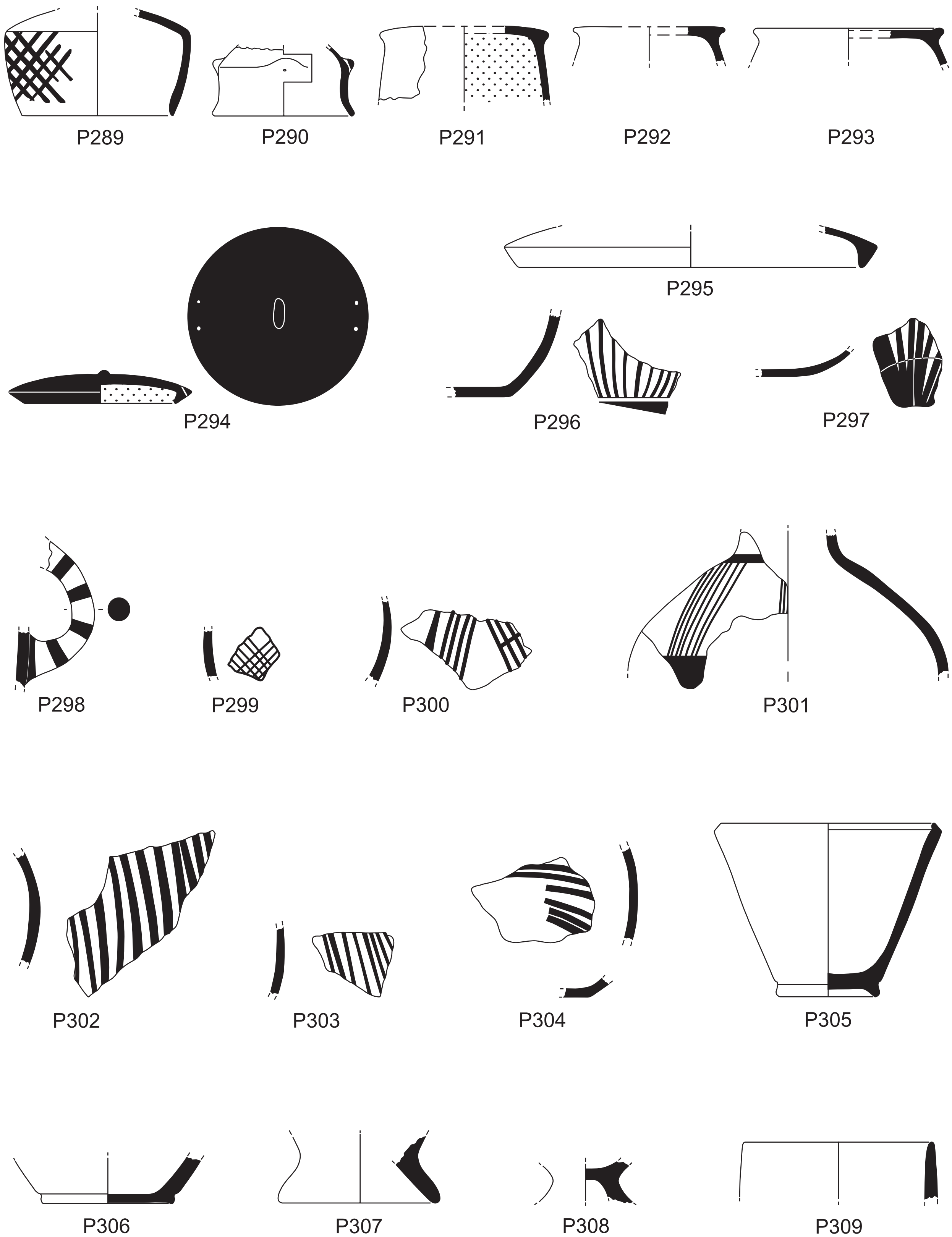


Figure 35. DOLW pyxis lids (**P289**–**P295**), unidentified closed shapes (**P296**–**P304**); VW cups (**P305**, **P306**) goblets (**P307**–**P309**). Scale 1:3.

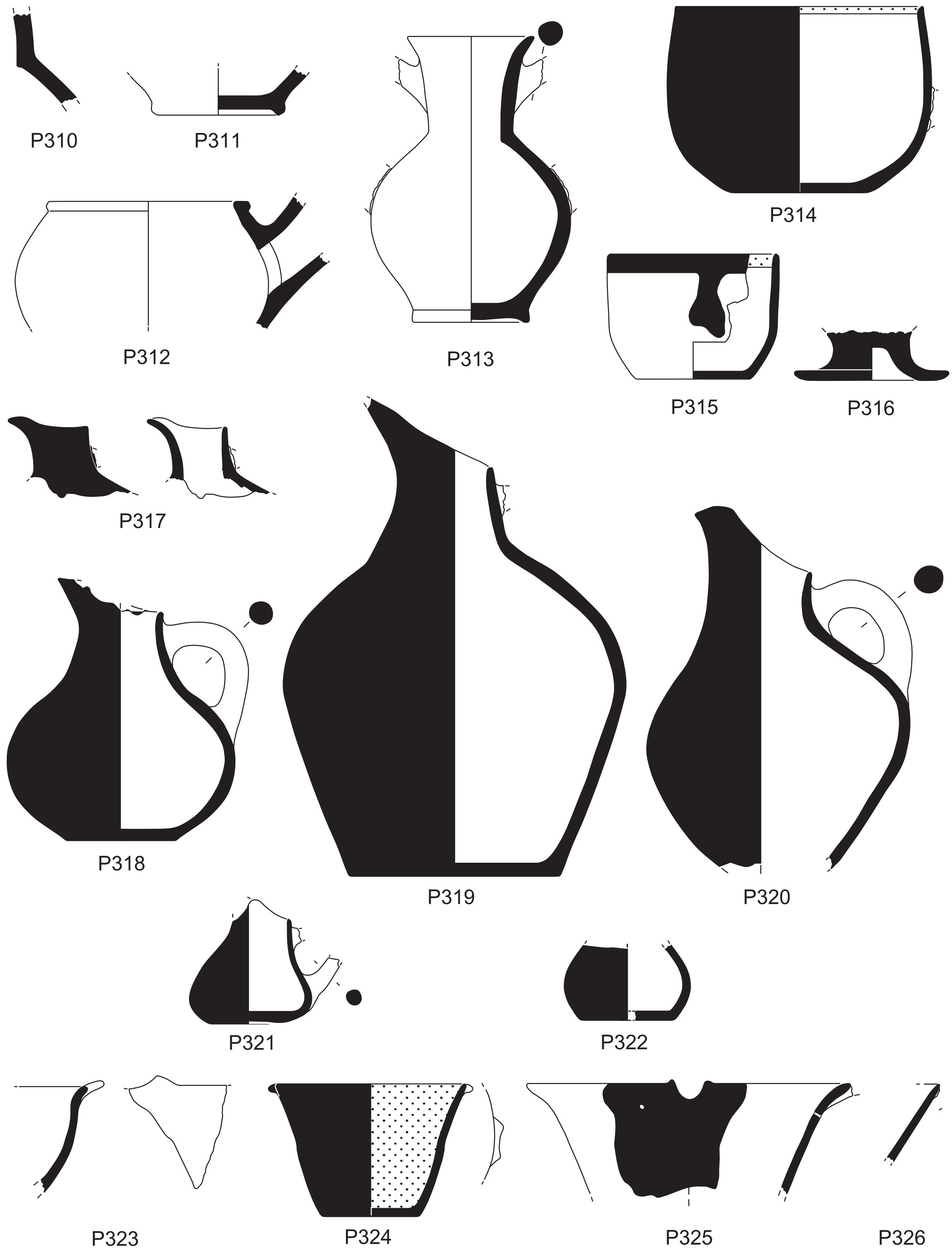


Figure 36. VW jugs (**P310**; **P311**), teapot (**P312**), amphora (**P313**); R/BSW cups (**P314**, **P315**), goblet (**P316**), jugs (**P317**–**P322**), spouted bowls (**P323**–**P326**). Scale 1:3.

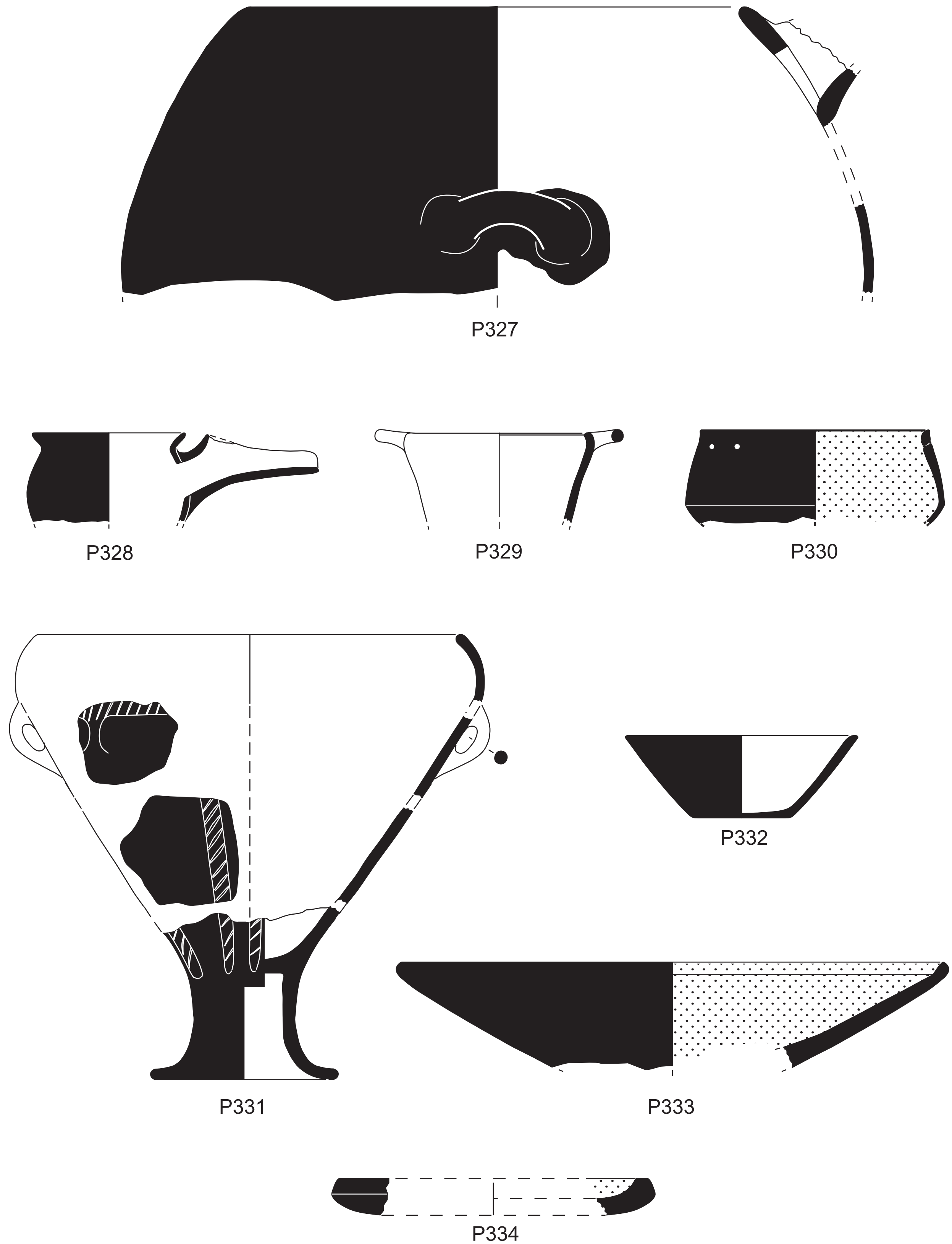


Figure 37. R/BSW pottery: bridge-spouted jar (**P327**); teapot (**P328**); bowls (**P329**, **P330**); pedestal bowl (**P331**); dishes (**P332**–**P334**). Scale 1:3.

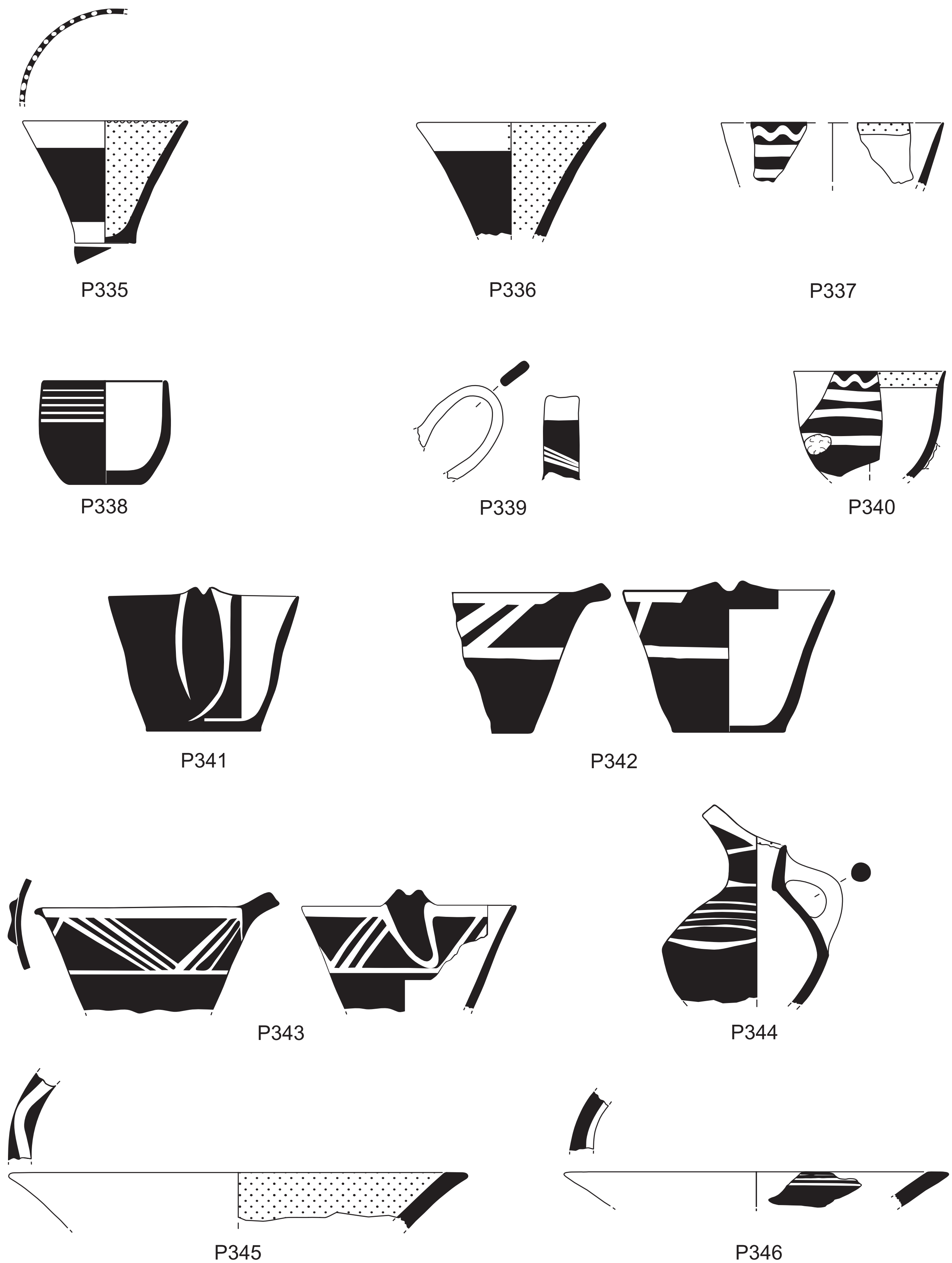


Figure 38. WODW pottery: cups (**P335**–**P339**); spouted bowls (**P341**–**P343**); jug (**P344**); dishes (**P345**, **P346**). Scale 1:3.

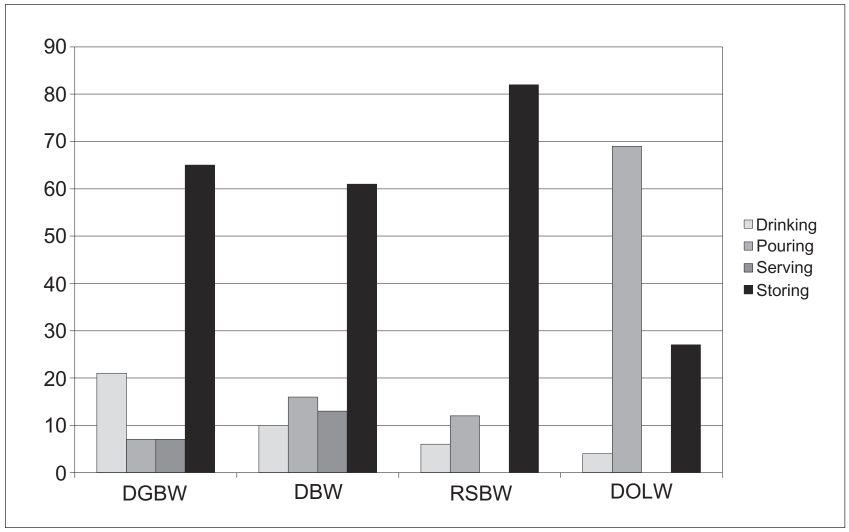


Figure 39. Correlation of main EM I–IIA wares and usage by percentage.

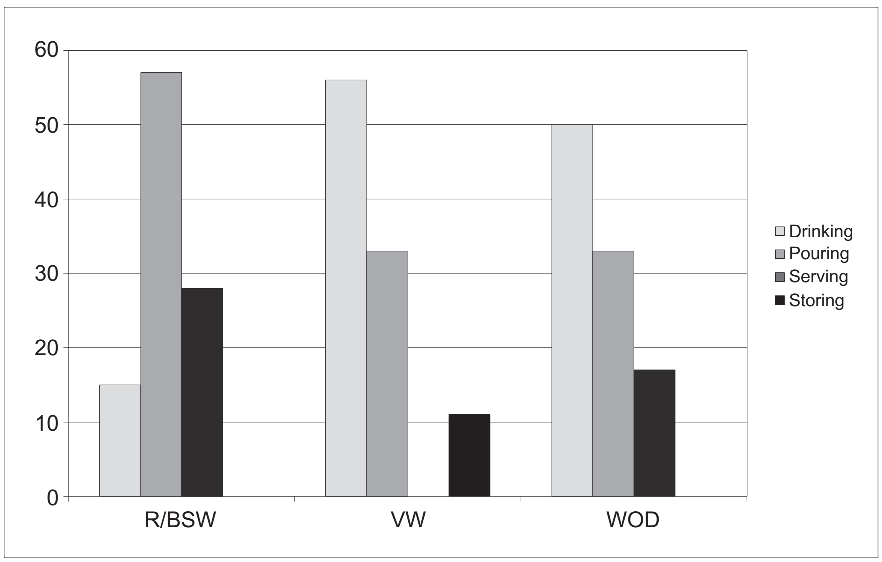


Figure 40. Correlation of main EM IIB–III wares and usage by percentage.

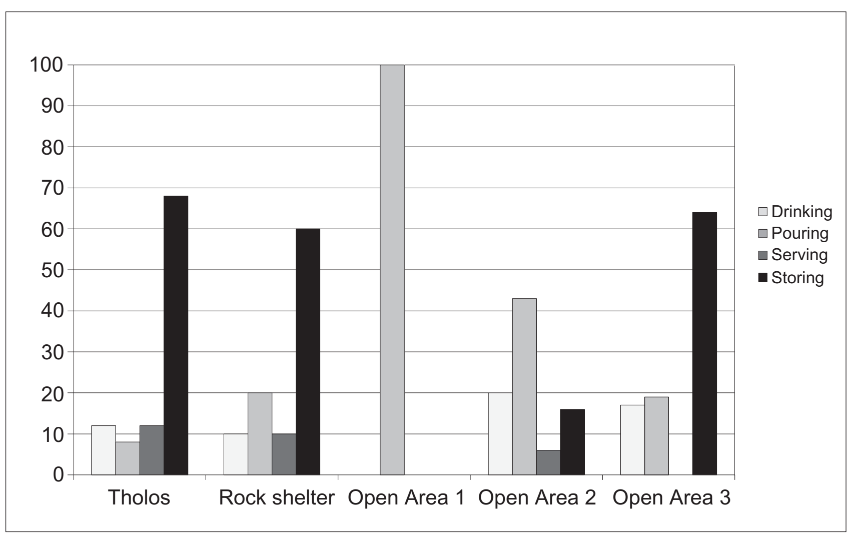


Figure 41. Spatial distribution of function categories in EM I–IIA by percentage.

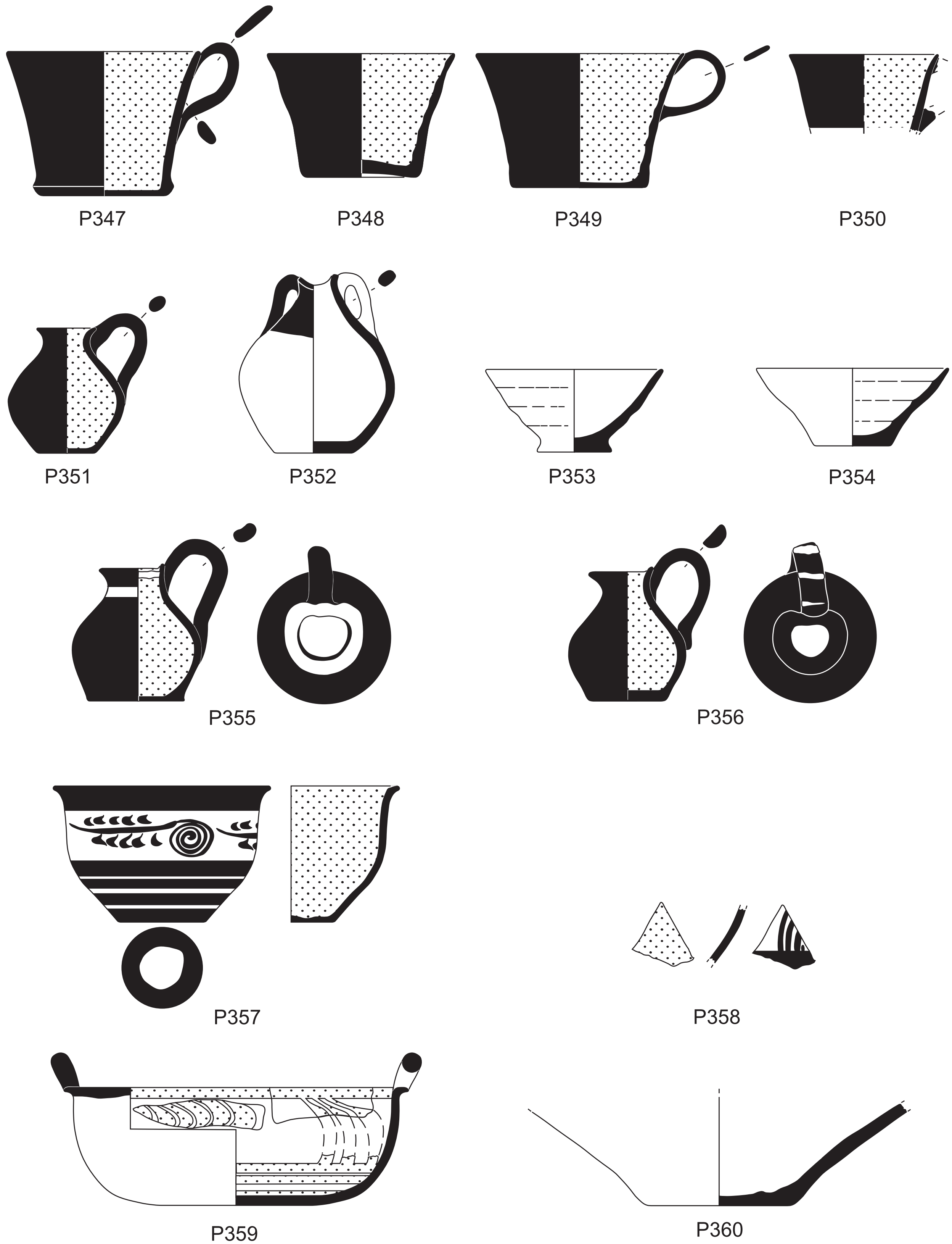
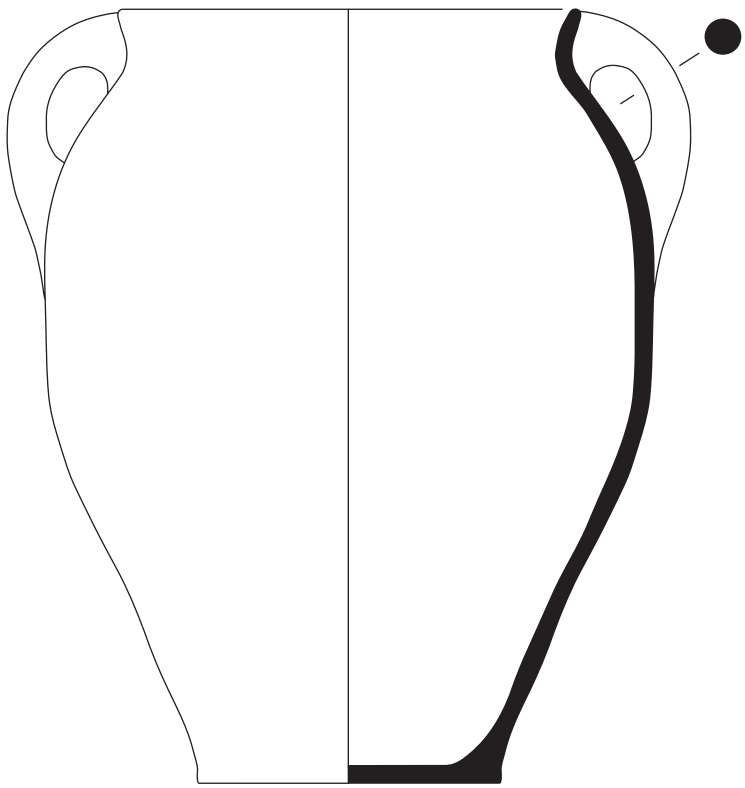
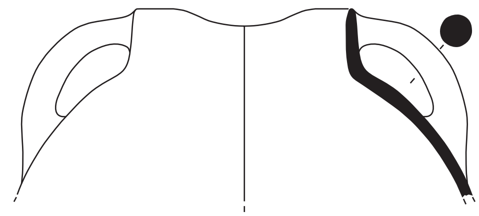


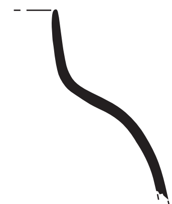
Figure 42. Neopalatial pottery: cups (**P347**–**P350**, **P353**, **P354**, **P357**, **P358**); bowls (**P359**, **P360**); juglets (**P351**, **P355**, **P356**); amphora (**P352**). Scale 1:3.



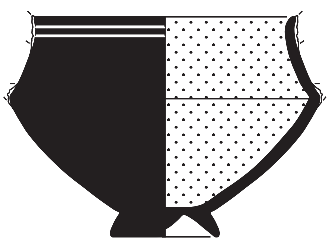
P361 (1:4)



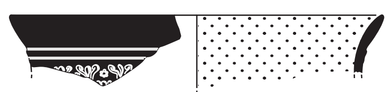
P362 (1:4)



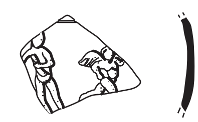
P363 (1:4)



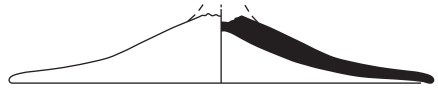
P364



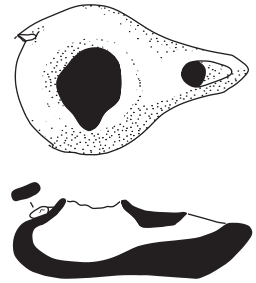
P365



P366



P368



P367

Figure 43. Neopalatial jars (**P361**–**P363**); Late Hellenistic/Early Roman pottery (**P364**–**P368**). Scale 1:3 unless otherwise indicated.

FIGURE 44

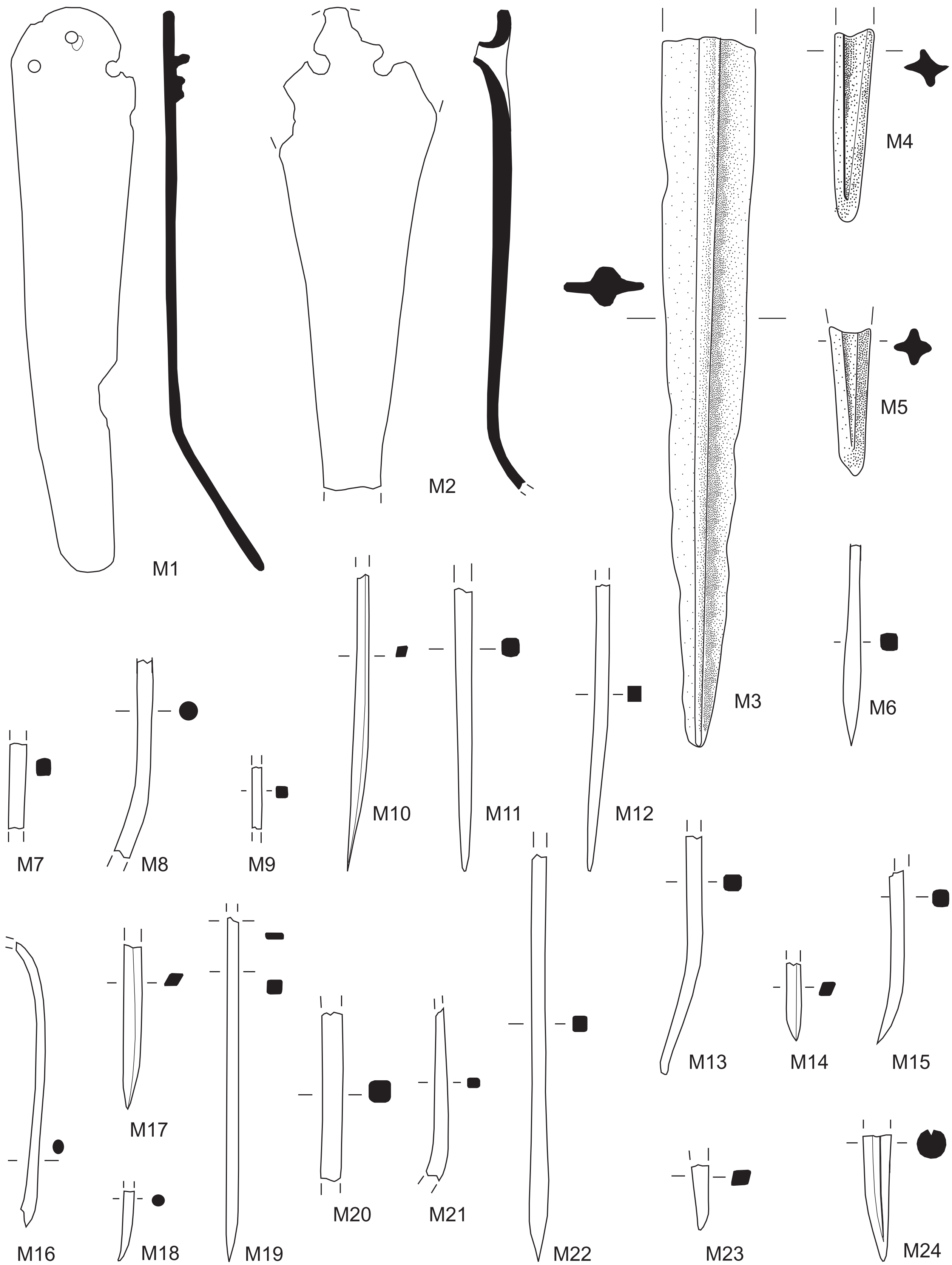


Figure 44. Metal daggers (**M1**–**M5**) and awls (**M6**–**M24**). Scale 1:1.

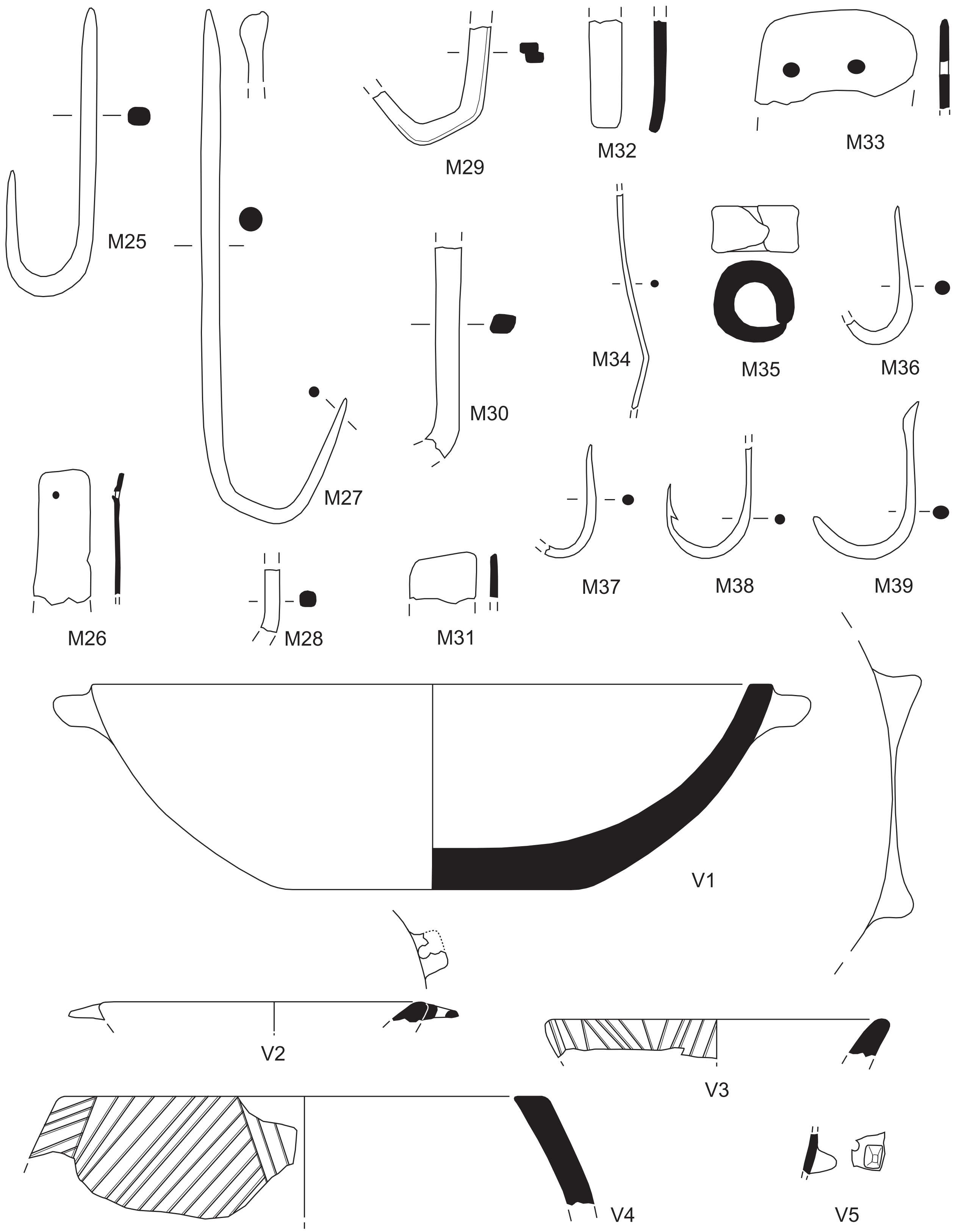


Figure 45. Fishhooks (**M25**, **M36**–**M39**), scraper (**M26**), pin (**M27**), nails (**M28**, **M29**), miscellaneous objects (**M30**–**M35**); stone vases (**V1**–**V5**). Scale 1:1.

FIGURE 46

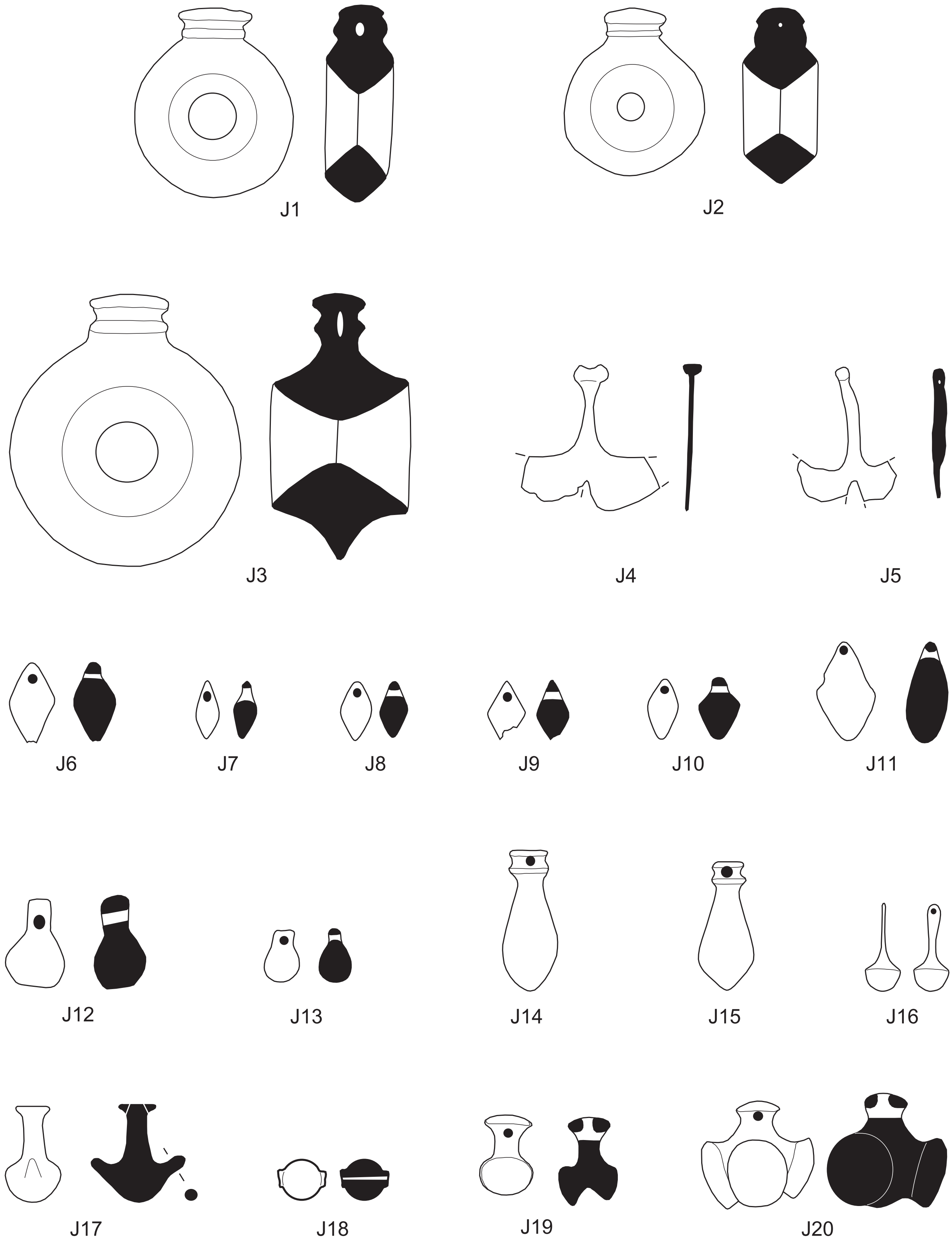


Figure 46. Pendants: copper (**J1**, **J2**); silver (**J3**–**J5**, **J16**–**J18**); bone (**J14**, **J15**); shell (**J11**), stone (**J6**–**J10**, **J12**, **J13**, **J119**, **J120**). Scale 1:3.

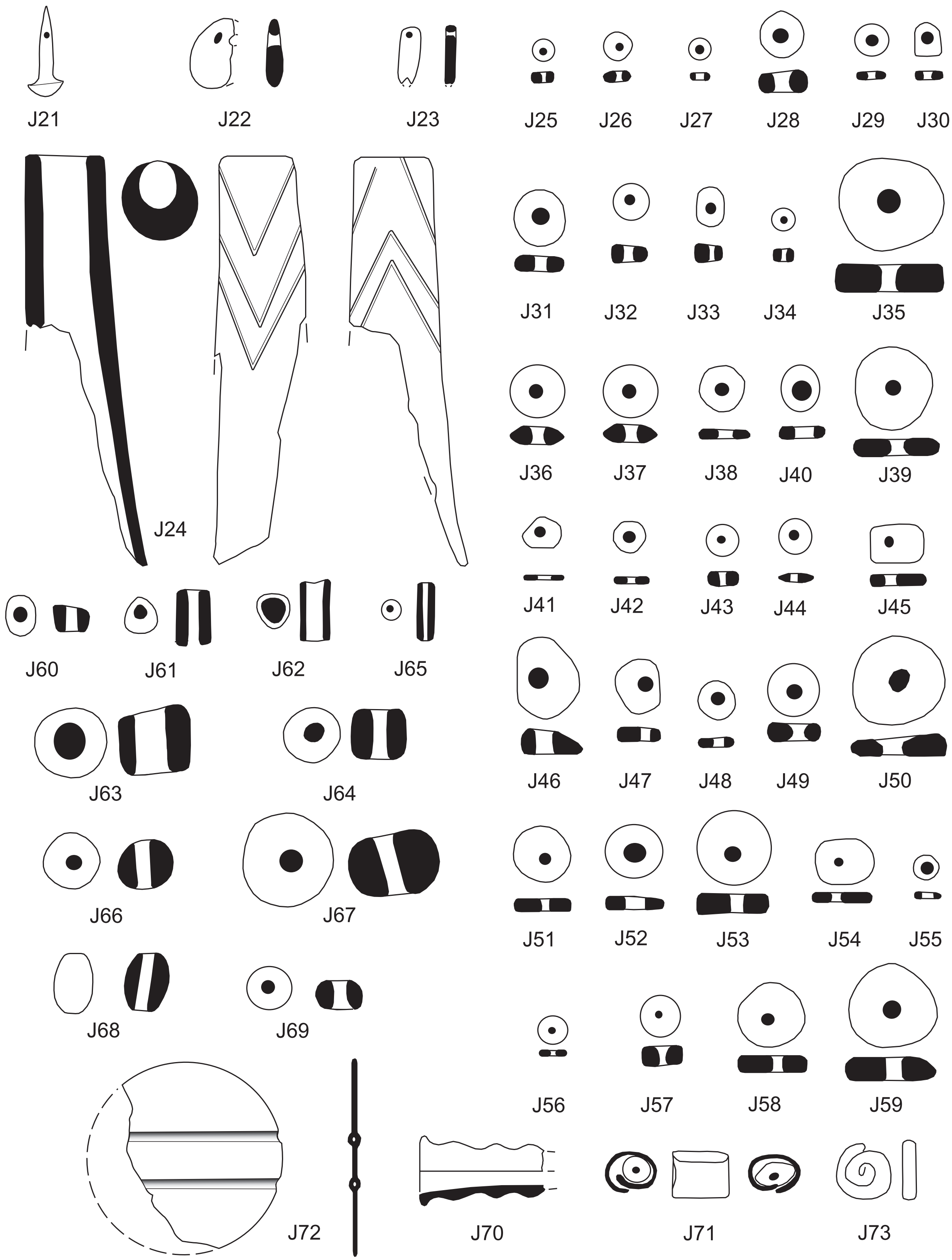


Figure 47. Stone (**J21**–**J23**) and bone (**J24**) pendants; stone (**J25**–**J61**, **J63**–**J68**), bone (**J62**, **J70**), faience (**J69**), copper (**J71**, **J73**), and silver (**J72**) beads. Scale 1:1.

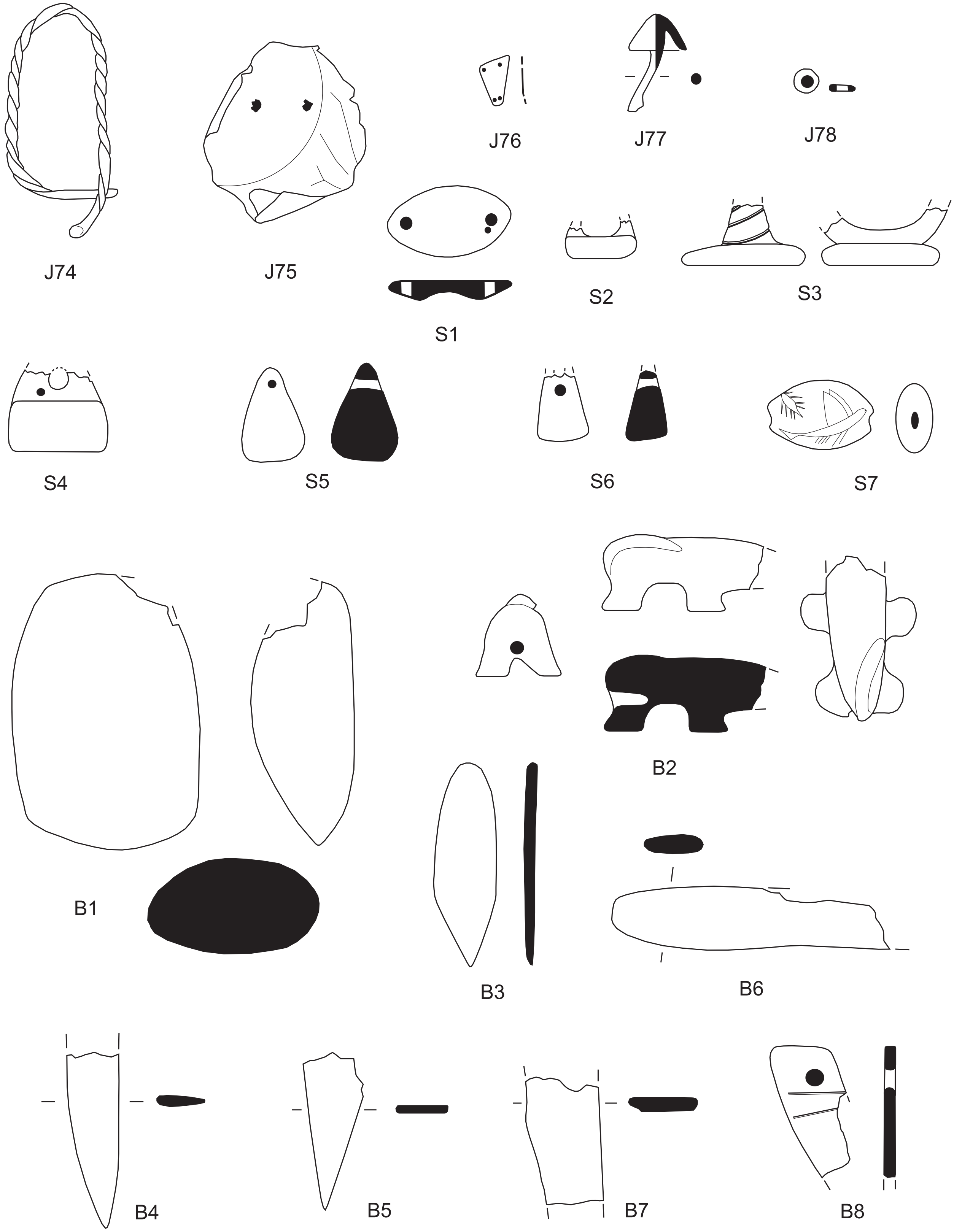


Figure 48. Gold (**J74**–**J76**), silver (**J77**), and stone (**J78**) jewelry (scale 1:1). Seals (**S1**–**S7**); stone axe (**B1**); clay figurine (**B2**); bone objects (**B3**–**B8**) (scale 1:3).

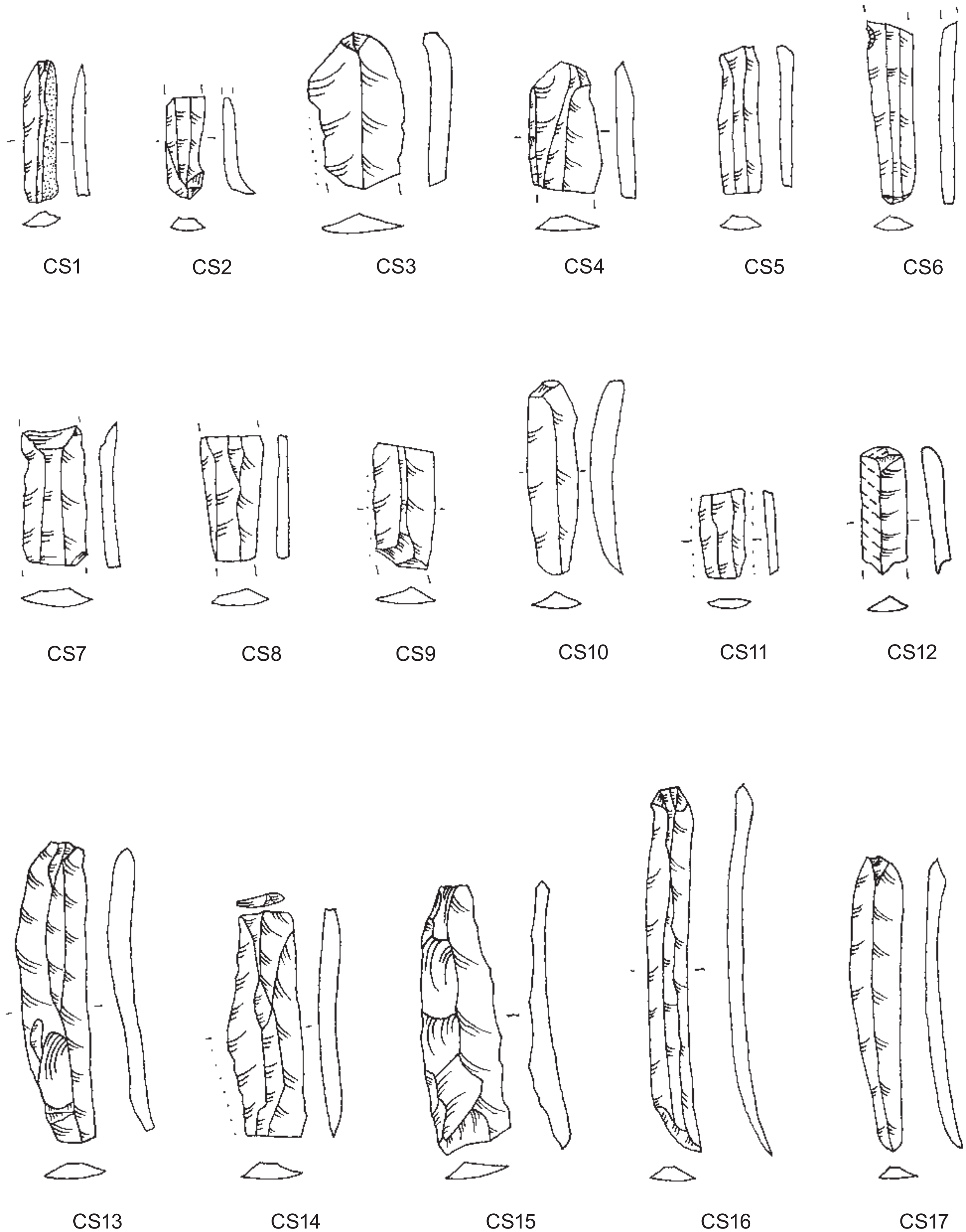


Figure 49. Chipped stone tools: chert (**CS10**, **CS11**); obsidian (**CS1**–**CS9**, **CS12**–**CS17**). Scale 1:1.

FIGURE 50

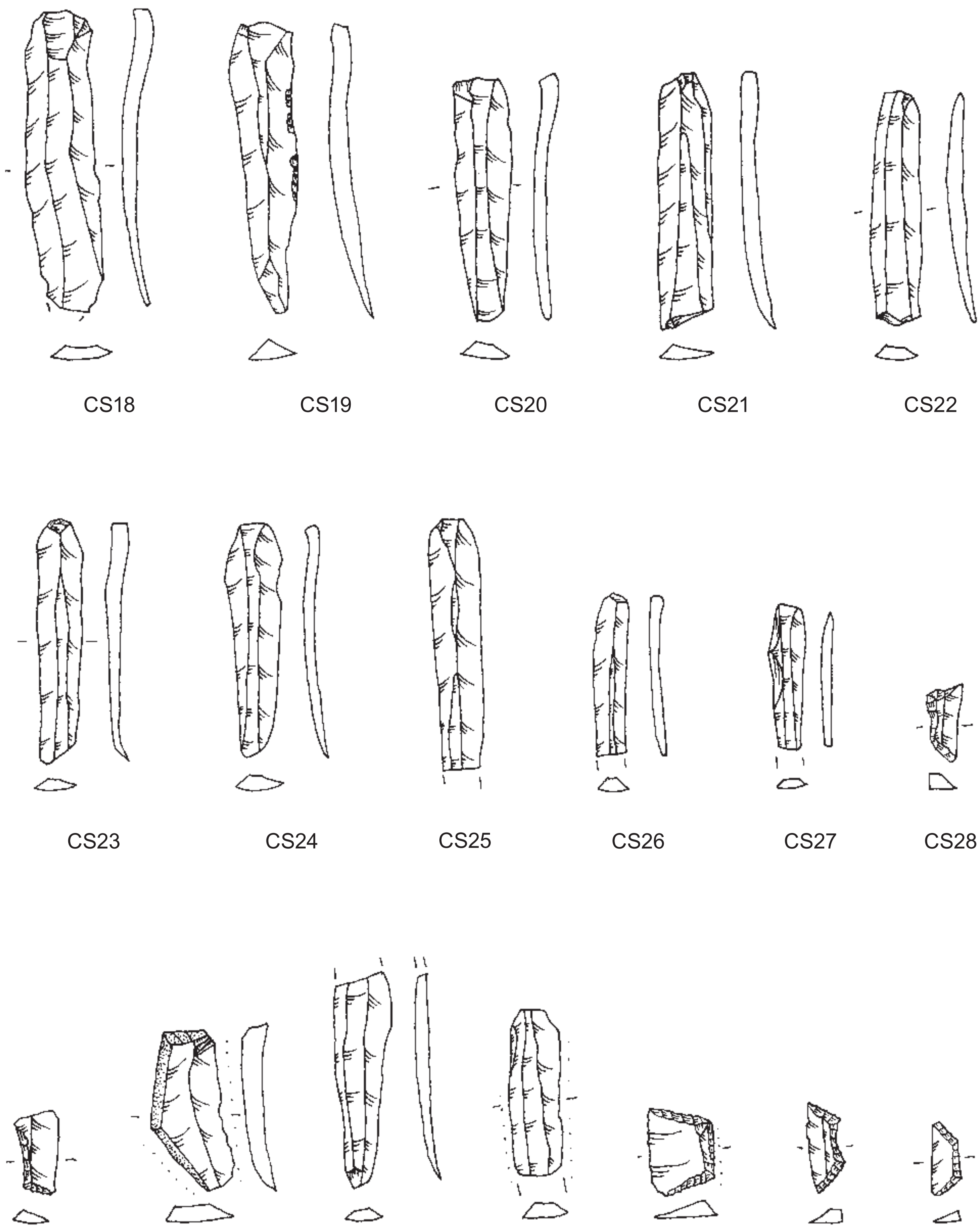
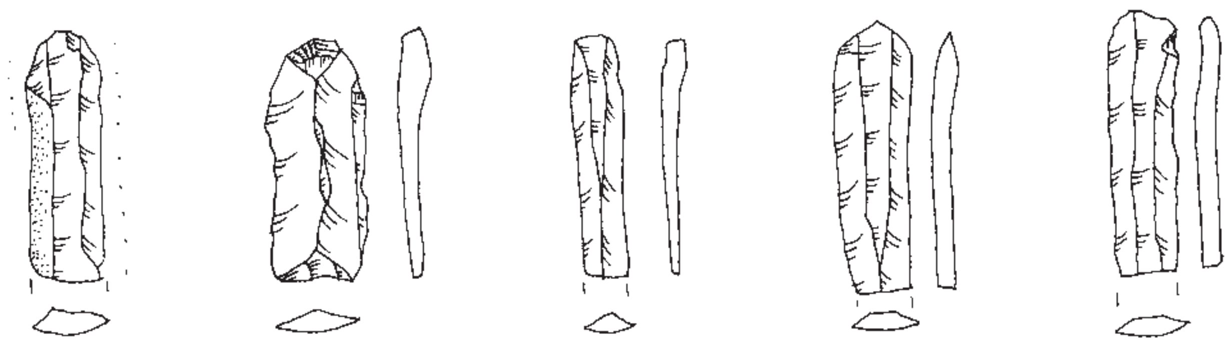


Figure 50. Obsidian chipped stone tools (**CS18**–**CS35**). Scale 1:1.



CS36 CS37 CS38 CS39 CS40

Figure 51. Obsidian chipped stone tools (**CS36**–**CS40**). Scale 1:1.

CS31

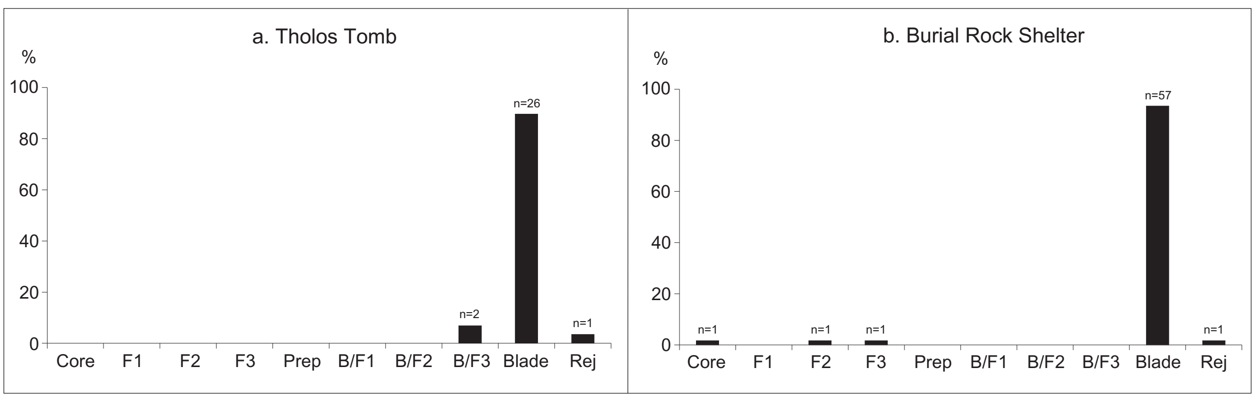


Figure 52. Techno-typological structure of the Livari obsidian assemblages: (a) tholos tomb; (b) burial rock shelter.

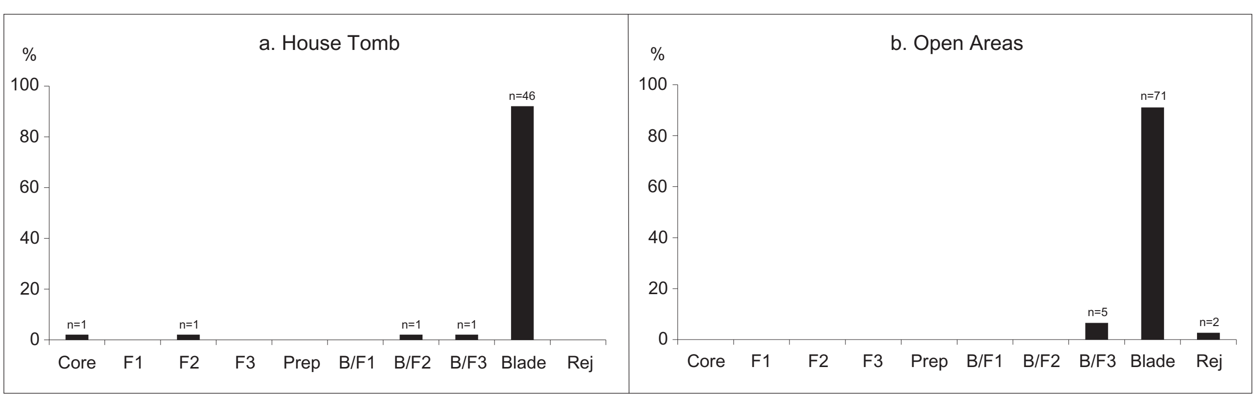


Figure 53. Techno-typological structure of the Livari obsidian assemblages: (a) house tomb; (b) open areas.

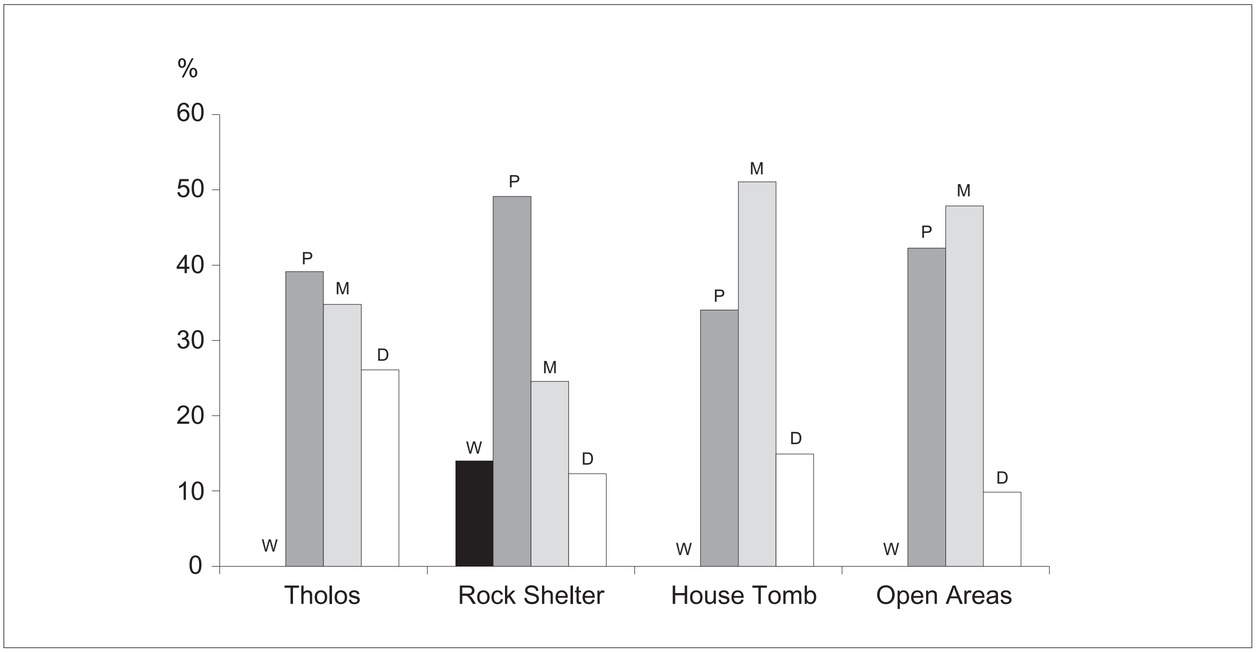


Figure 54. State of the Livari obsidian blade assemblages. D = distal; P = proximal; M = medial; W = whole.

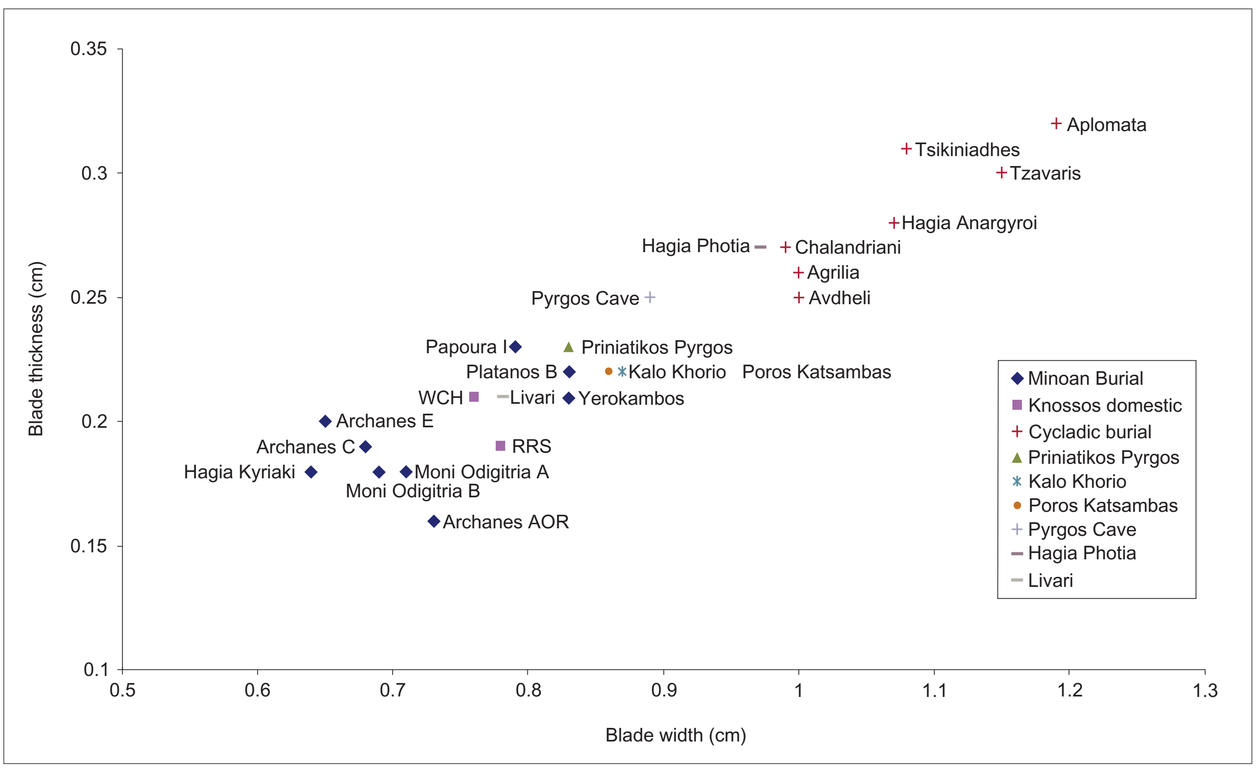


Figure 55. Width/thickness ratios of prismatic blades (*plein débitage*) from various Cretan and Cycladic assemblages.

Plates

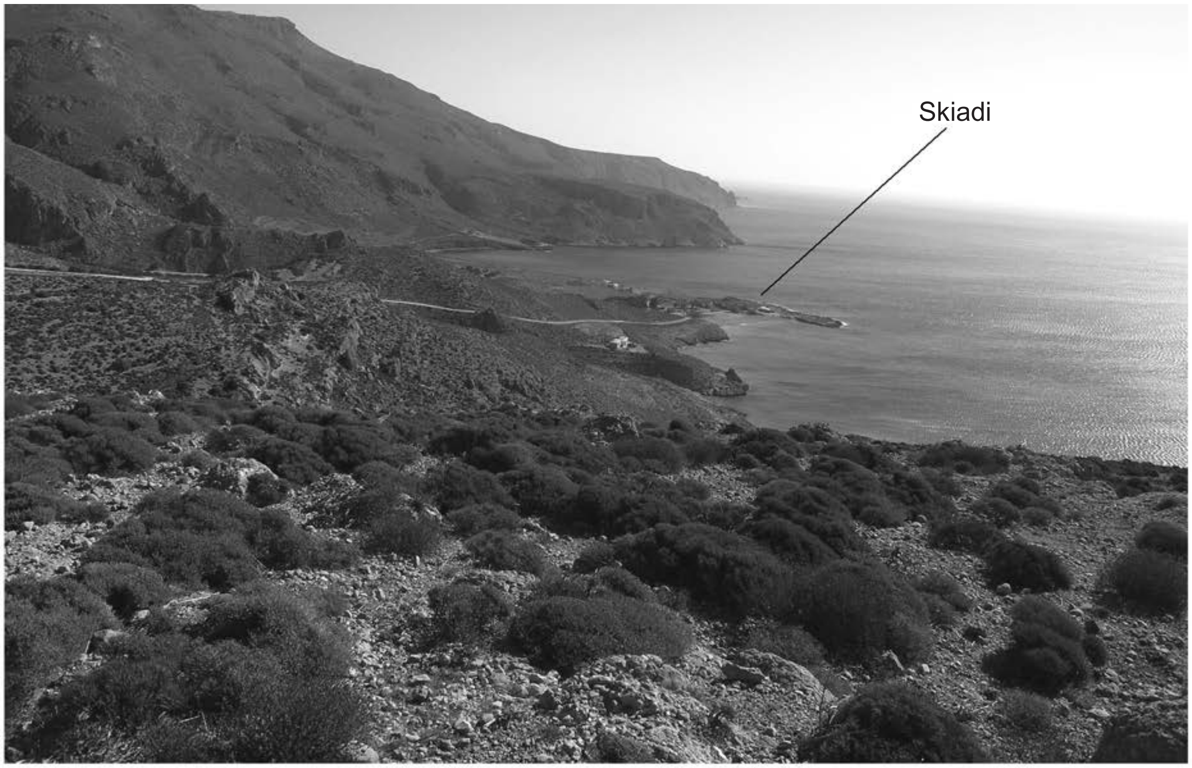


Plate 1A. The Livari plain from the northwest.

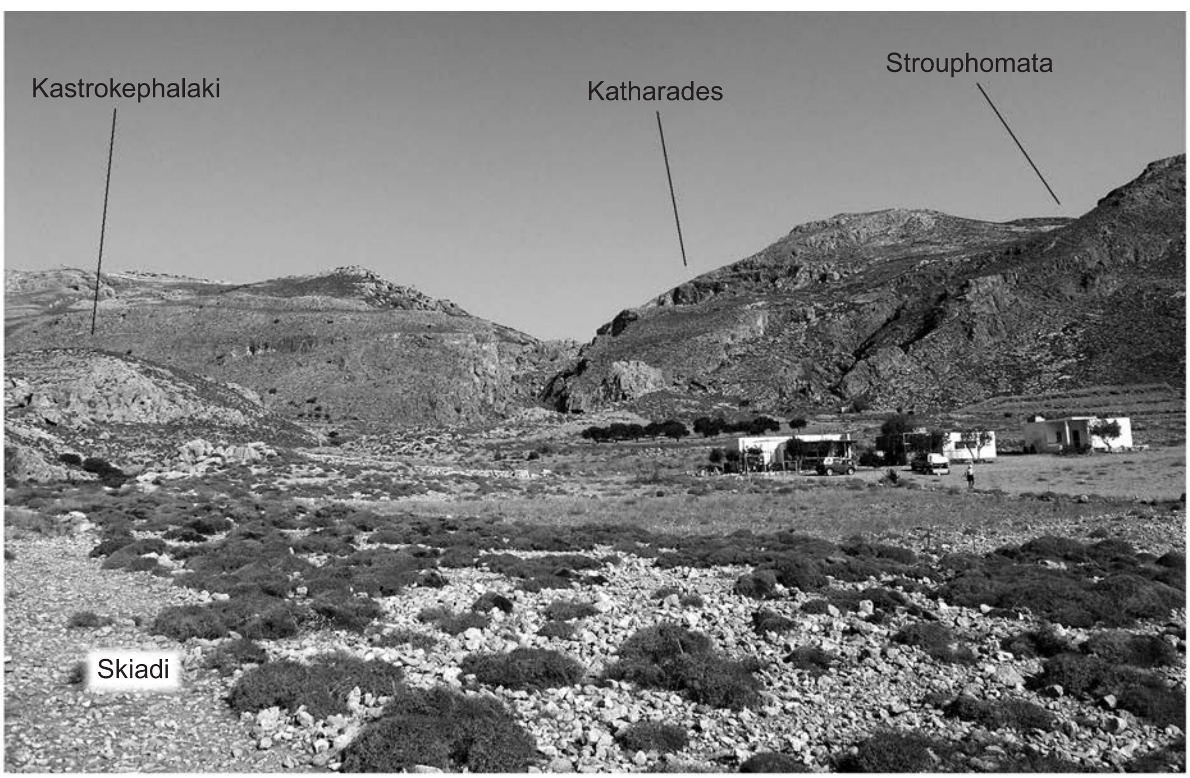


Plate 1B. The Livari plain looking north from Skiadi.

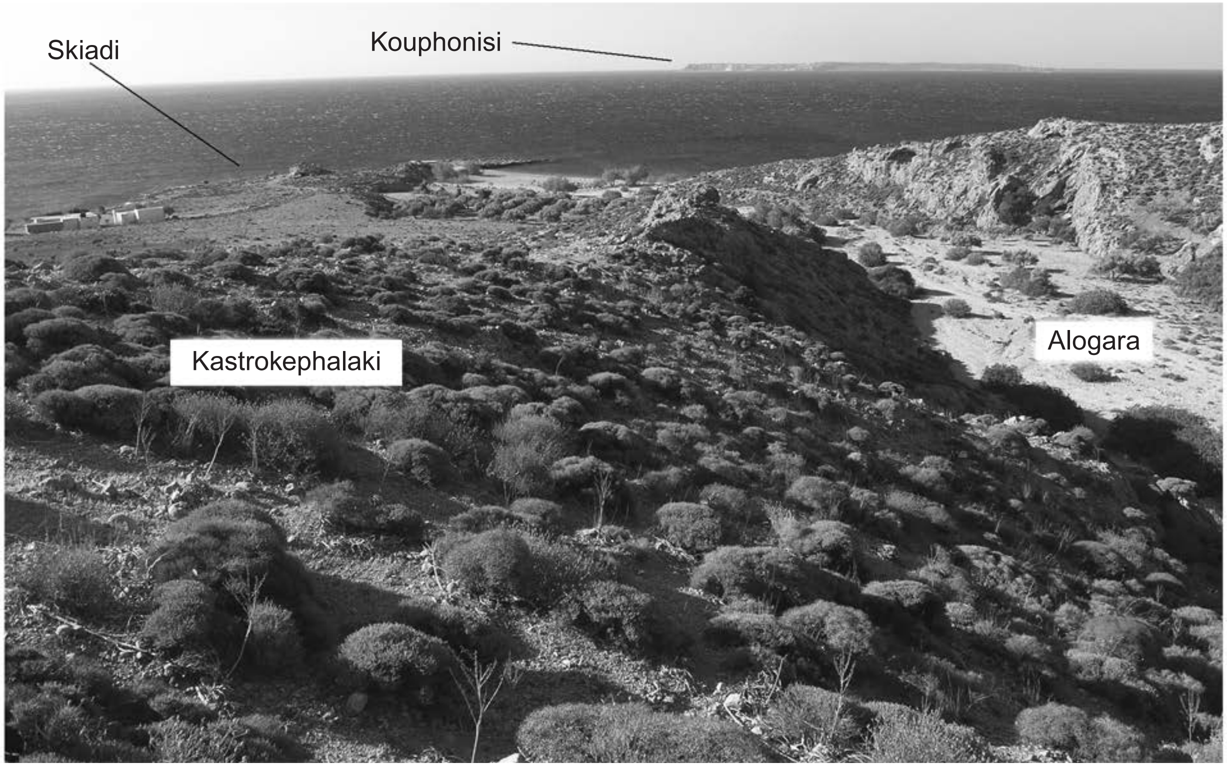


Plate 2A. Skiadi looking south from the Kastrokephalaki hill.

Plate 2B. The cemetery of Skiadi from the northeast.

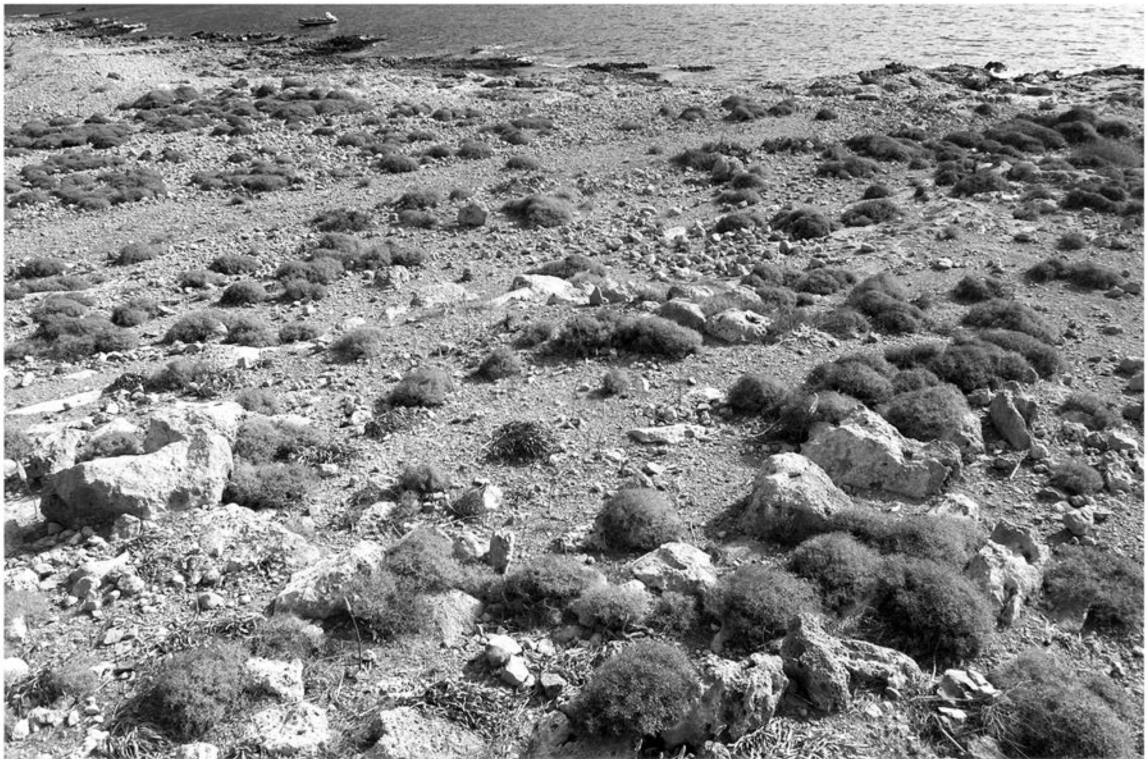


Plate 3A. The tholos tomb before excavation.

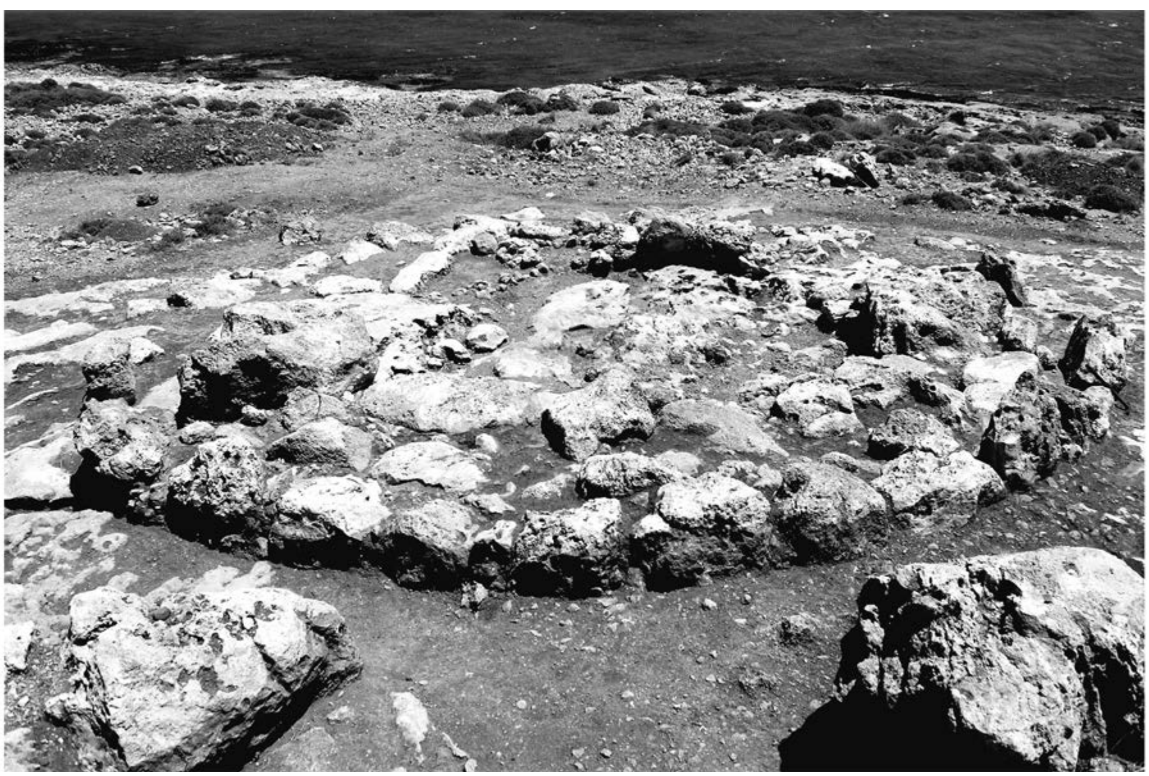


Plate 3B. The tholos tomb after excavation.

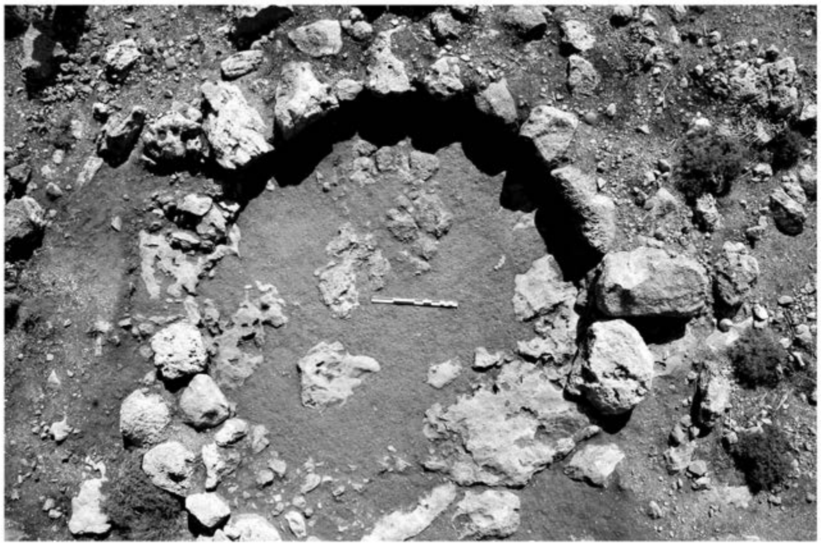


Plate 4A. Tholos tomb: aerial view after removal of the burial stratum (Stratum III).

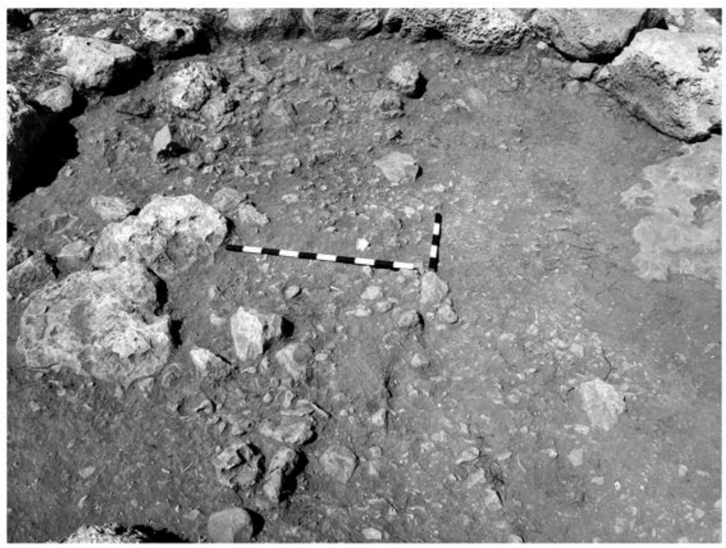


Plate 4B. Tholos tomb: Stratum II from the east.

Plate 4C. Tholos tomb: Stratum III from the south.

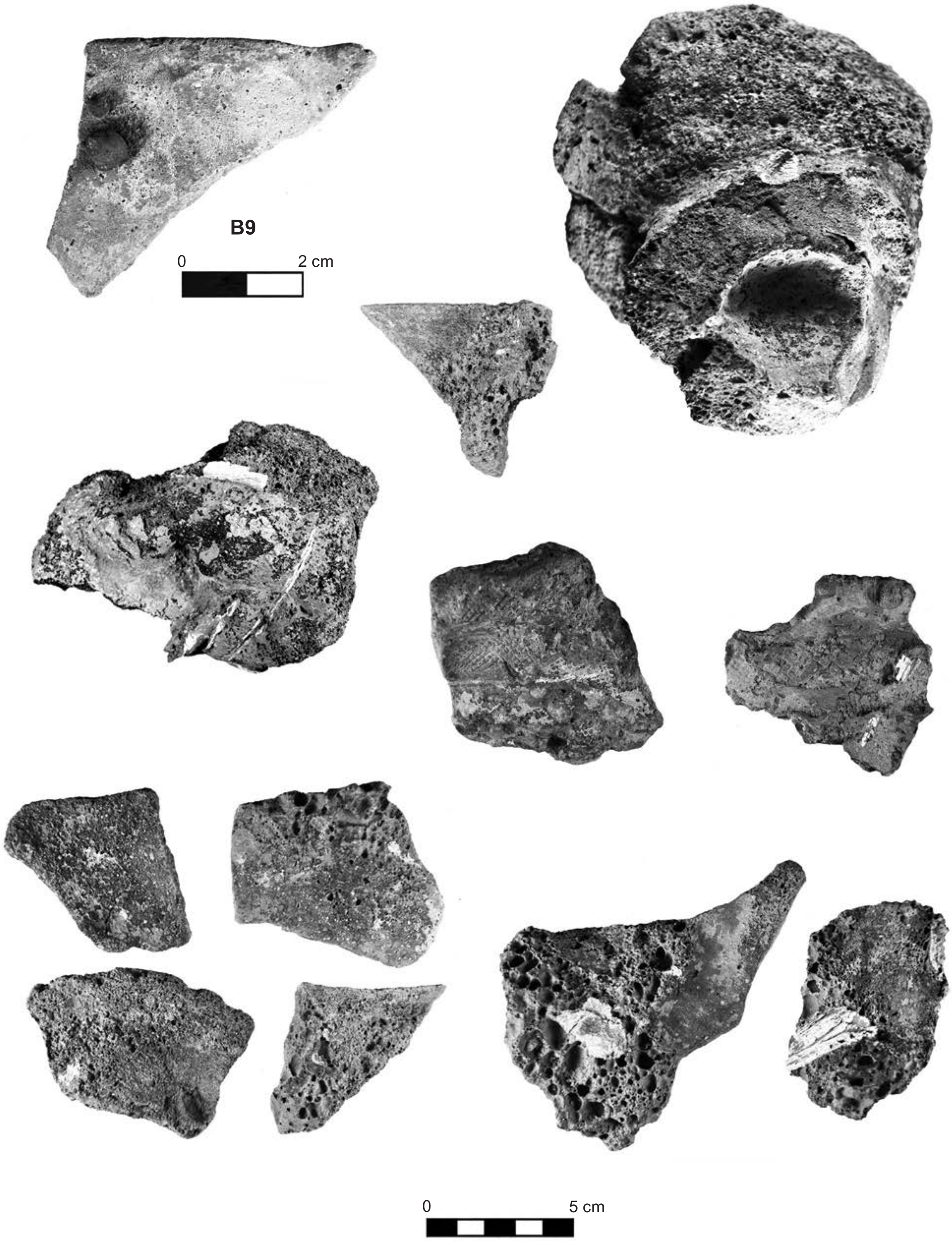


Plate 5. Sherd with adhered drops of copper (**B9**); uncataloged burned pottery sherds from the tholos tomb.

Plate 6A. Tholos tomb, burial stratum (Stratum III): jug (**P259**) and scatters of bones found underneath the destruction layer (Stratum II), in front of entrance.

Plate 6B. Tholos tomb, burial stratum (Stratum III): lid (**P84**).

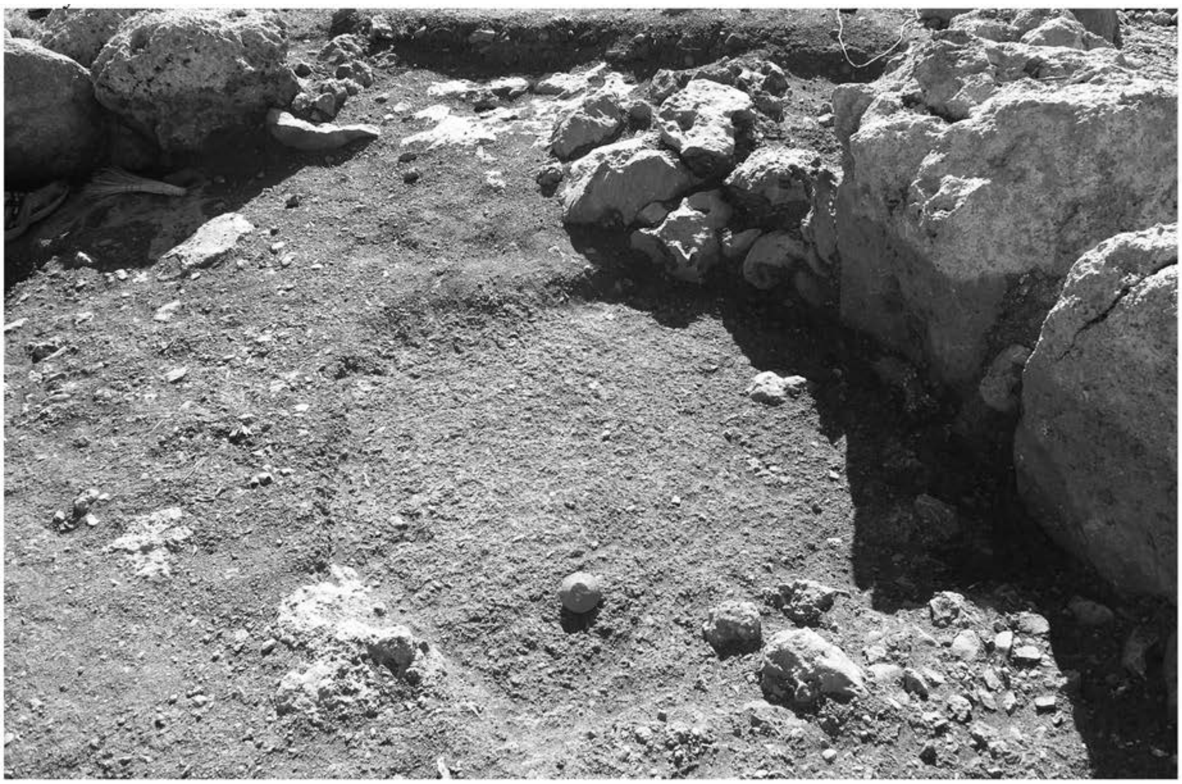


Plate 7A. Tholos Tomb, burial stratum (Stratum III): pyxis (**P78**) in front of the entrance, lying directly on floor.

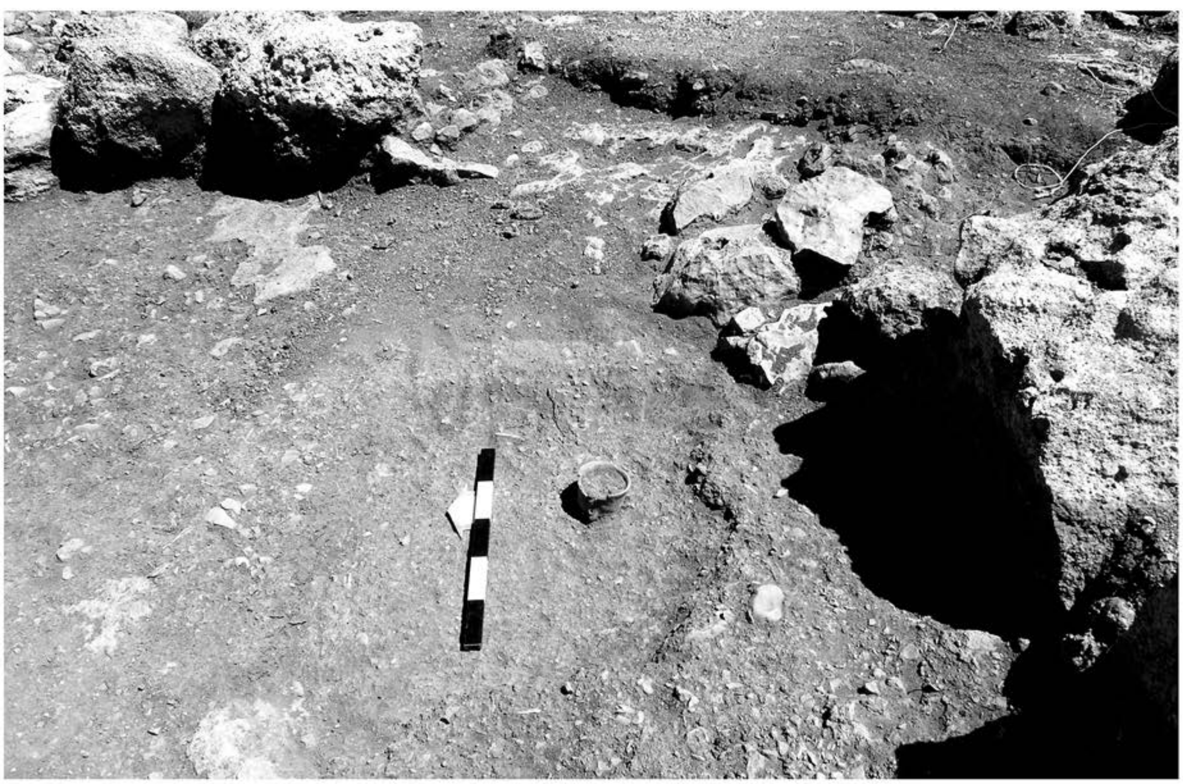


Plate 7B. Tholos Tomb, burial stratum (Stratum III): lid (**P286**) in front of the entrance, lying directly on floor.

Plate 8A. Tholos tomb: copper dagger (**M1**).

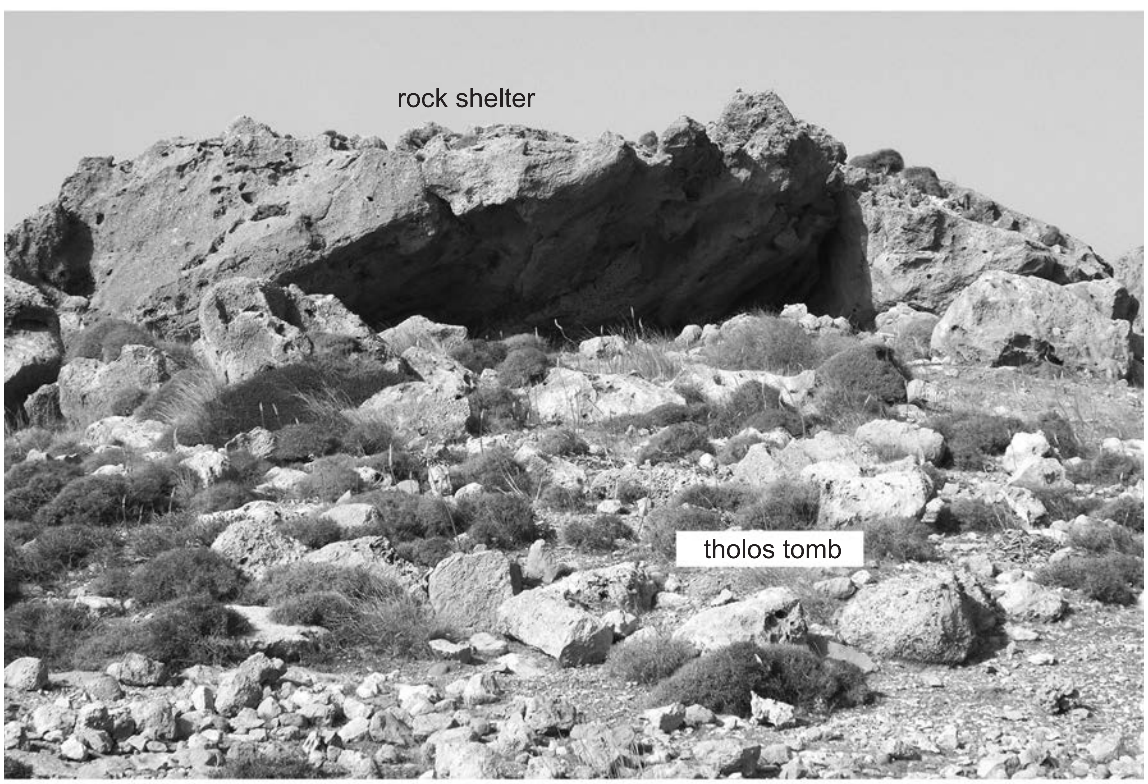


Plate 8B. The tholos tomb and the rock shelter (Chamber 1) from the southeast.

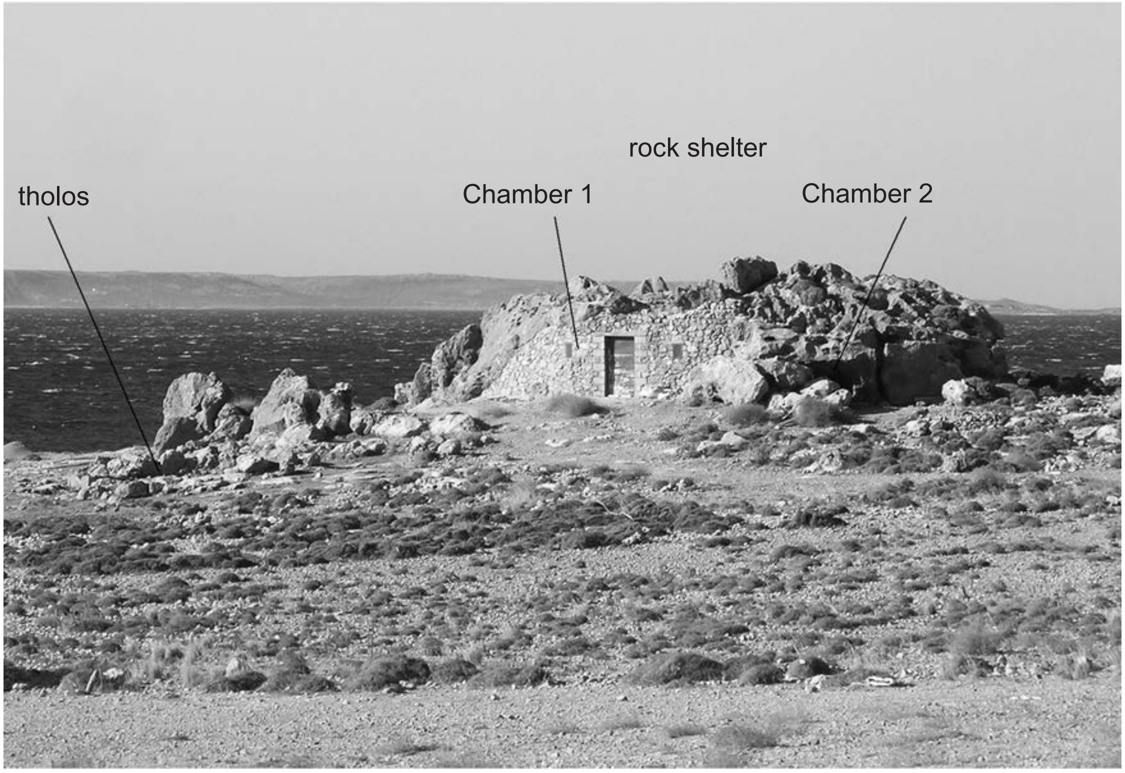


Plate 9A. The tholos tomb and the rock shelter (Chambers 1 and 2) from the northeast.

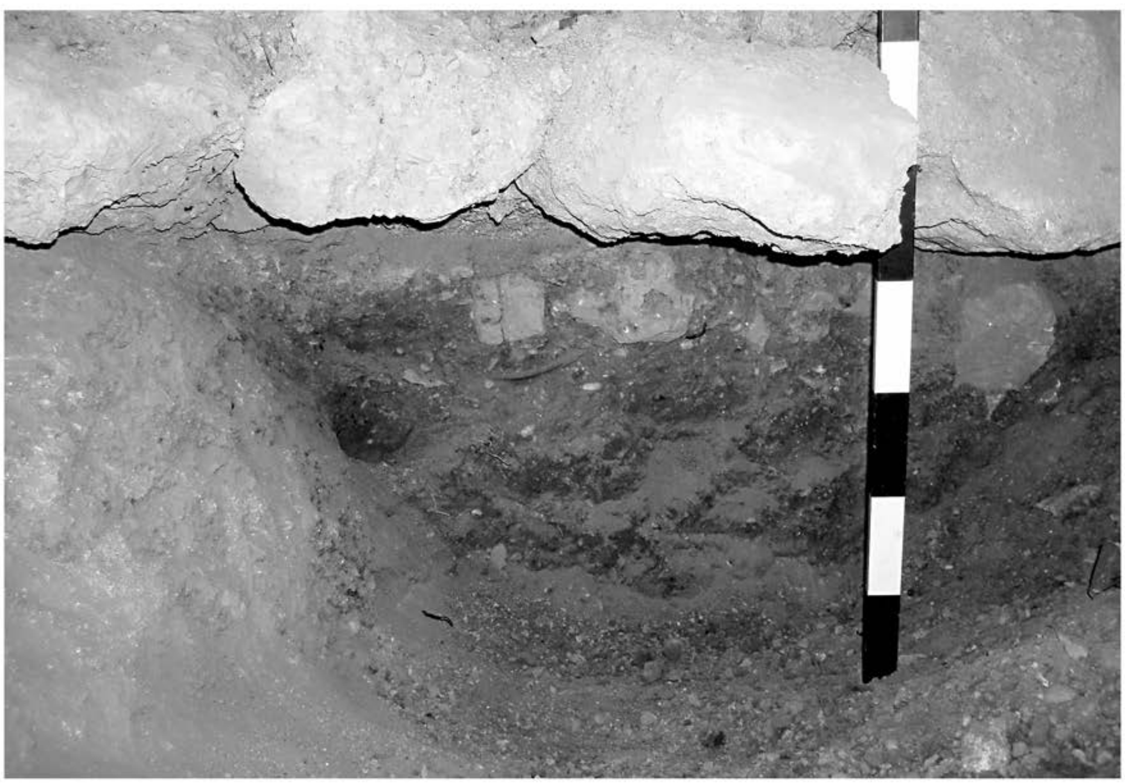


Plate 9B. Burial rock shelter: excavation of Trench 6 beneath modern wall.

Plate 10A. Burial rock shelter: stratigraphy between Trenches 2 and 3.

Plate 10B. Burial rock shelter: stratigraphy between Trenches 3 and 4.

Plate 11A. Burial rock shelter: jugs (**P258**, **P270**).

Plate 11B. Burial rock shelter: teapot (**P38**).

Plate 12A. The house tomb (foreground) and the tholos tomb (background) from the southwest.

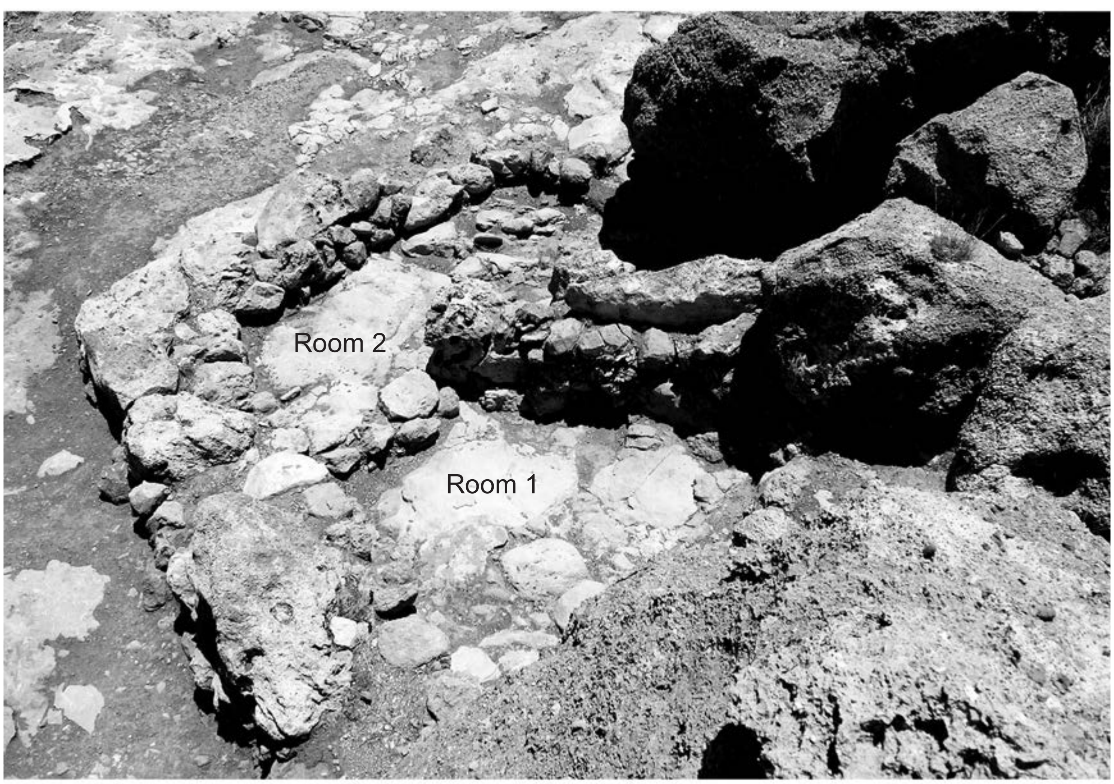


Plate 12B. The house tomb from the west.

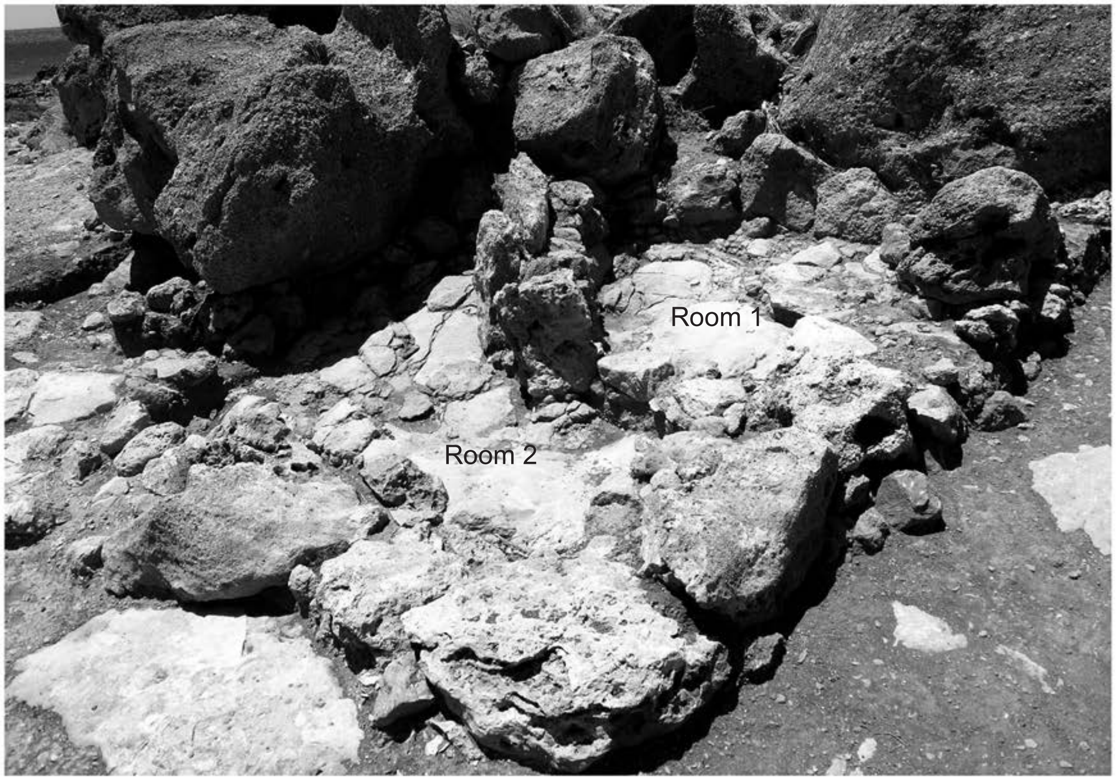


Plate 13A. The house tomb from the northeast.

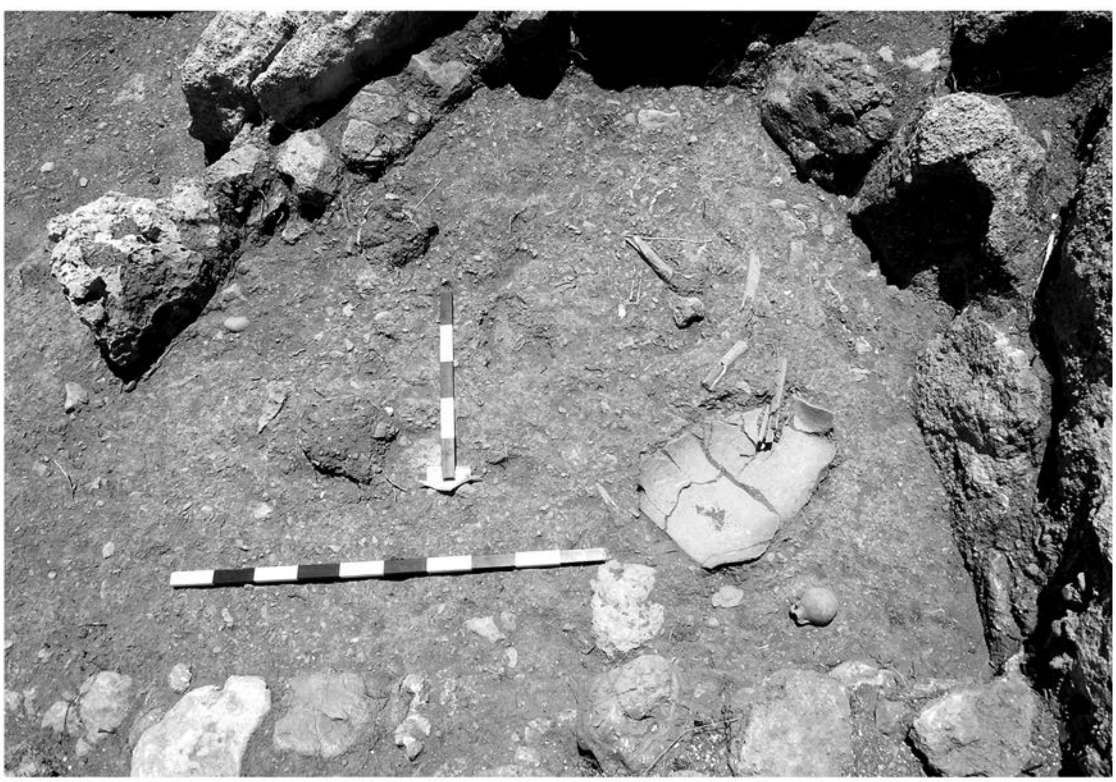


Plate 13B. House tomb, Room 1, from the north: bones of Groups 1, 3, and 4; jar (**P361**); amphora (**P352**).

Plate 14A. House tomb, Room 1, from the north: bones of Groups 1, 2, and 4; jar (**P361**); juglets (**P355**, **P356**).

Plate 14B. House tomb, Room 1, from the west: bones of Groups 1 and 2; jar (**P361**); juglets (**P355**, **P356**).

Plate 15A. House tomb, Room 1, from the north: bones of Groups 2 and 5; jar (**P361**) and cup (**P357**) underneath; juglets (**P355**, **P356**).

Plate 15B. House tomb, Room 1, from the north: cup (**P357**); bowl (**P359**).

Plate 16A. House tomb, Room 2, from the east: conical cups (**P353**, **P354**); cylindrical one-handled cup (**P347**); juglet (**P351**).

Plate 16B. Open Area 1 from the north: vases (**P234**–**P236**, **P256**, **P263**).

Plate 17A. Open Area 1 from the south: vases (**P234**–**P236**, **P256**, **P263**).

Plate 17B. Open Area 2 from the west.

Plate 18A. Open Area 2 from the north.

Plate 18B. Tholos tomb, interior: western part of tholos wall.

Plate 19A. Tholos tomb: northwestern part of tholos wall.

Plate 19B. Tholos tomb: entrance from inside tomb.

Plate 19C. House Tomb: internal wall.

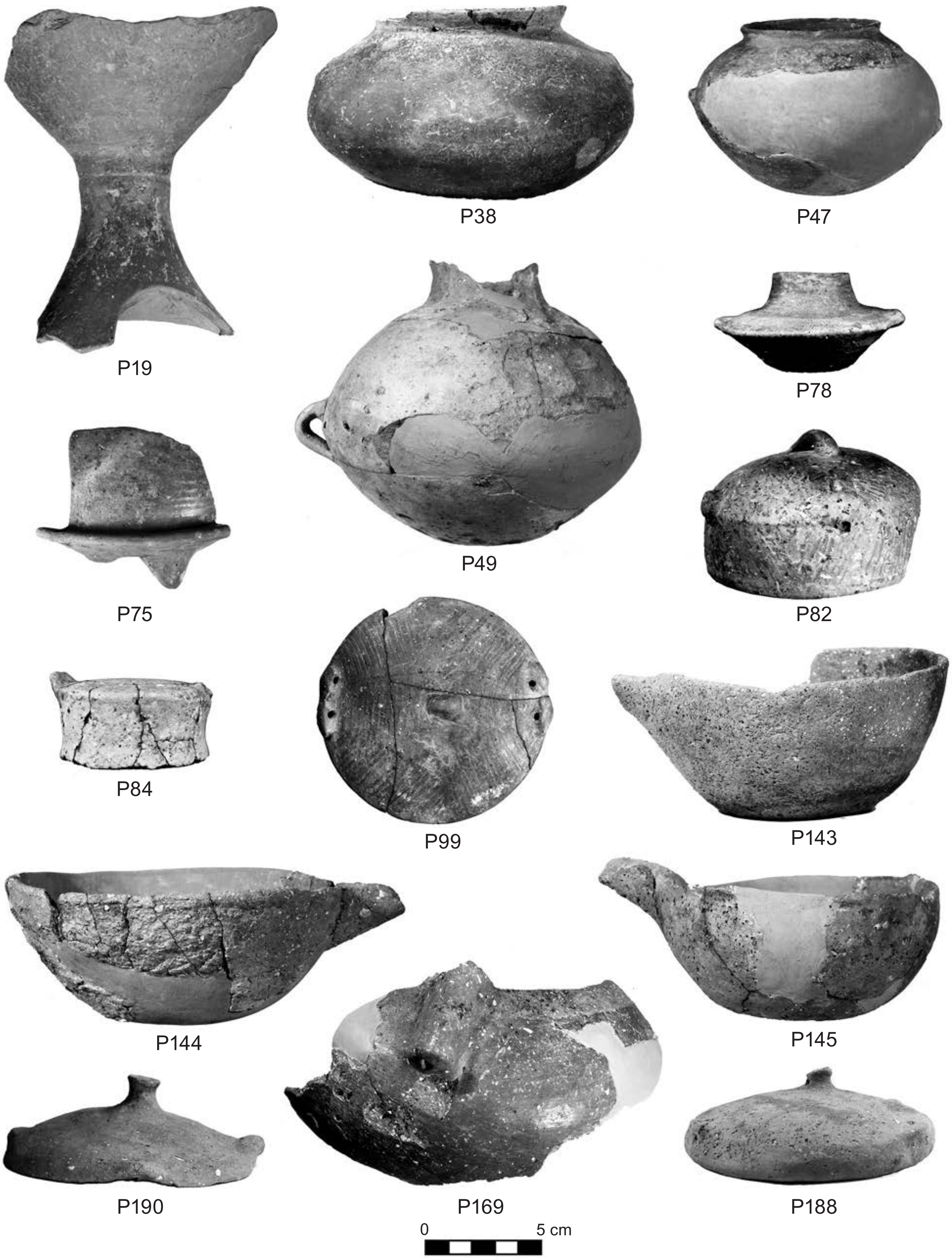


Plate 20. DGBW chalice (**P19**), teapot (**P38**), pyxides (**P47**, **P49**, **P75**, **P78**), pyxis lids (**P82**, **P84**, **P99**); DBW spouted bowls (**P143**–**P145**), pyxis (**P169**), pyxis lids (**P188**, **P190**).

P197

P208

P223

P215

P226

P233

P234

Plate 21. DBW pyxis lid (**P197**); RSBW pyxis (**P208**), pyxis lid (**P215**); RBW chalice (**P223**), bowl (**P226**); DOLW spouted bowl (**P233**), jug (**P234**).

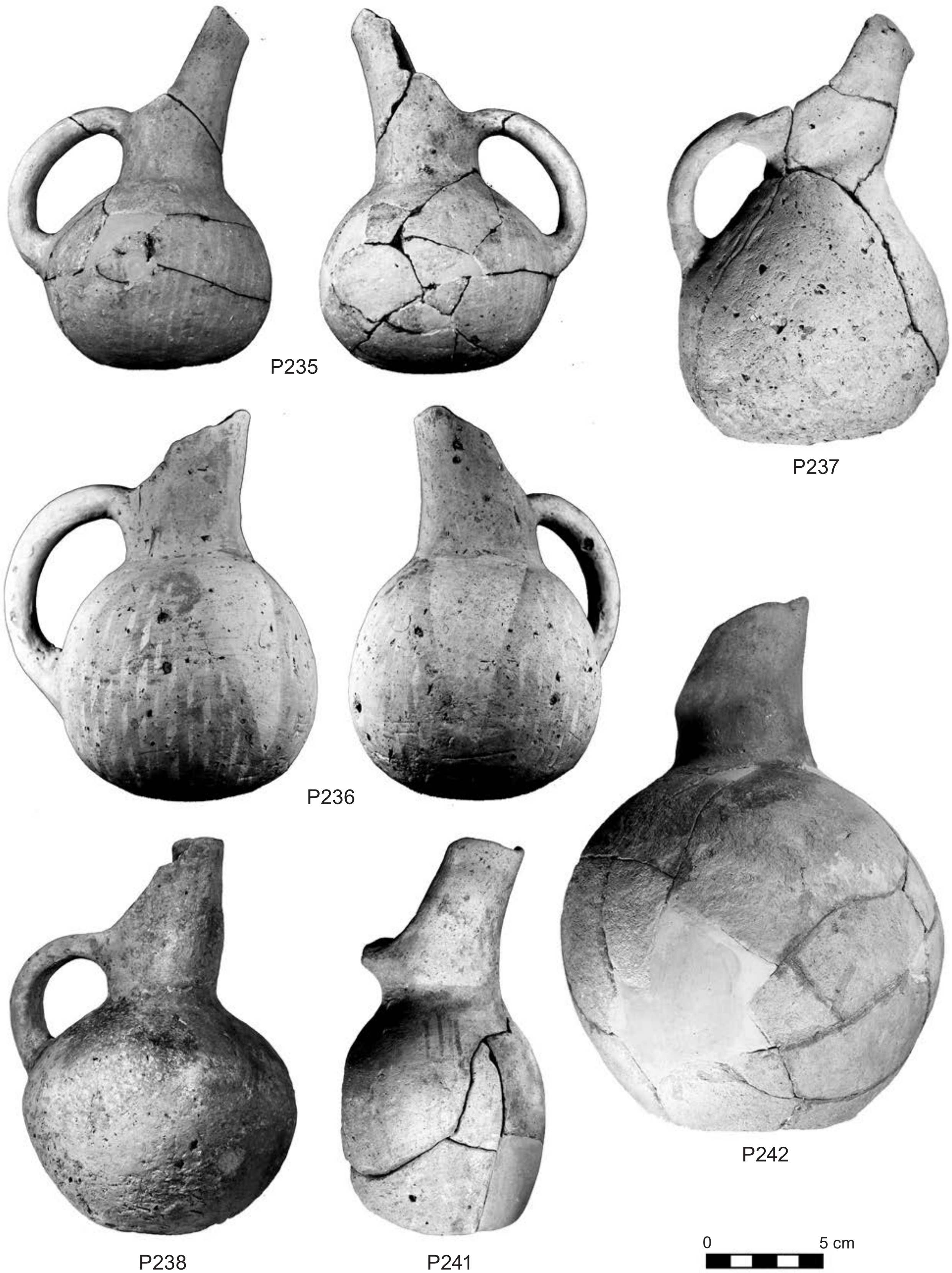


Plate 22. DOLW jugs (**P235**–**P238**, **P241**, **P242**).

P239

P244

P246

P247

0 5 cm

Plate 23. DOLW jugs (**P239**, **P244**, **P246**, **P247**).

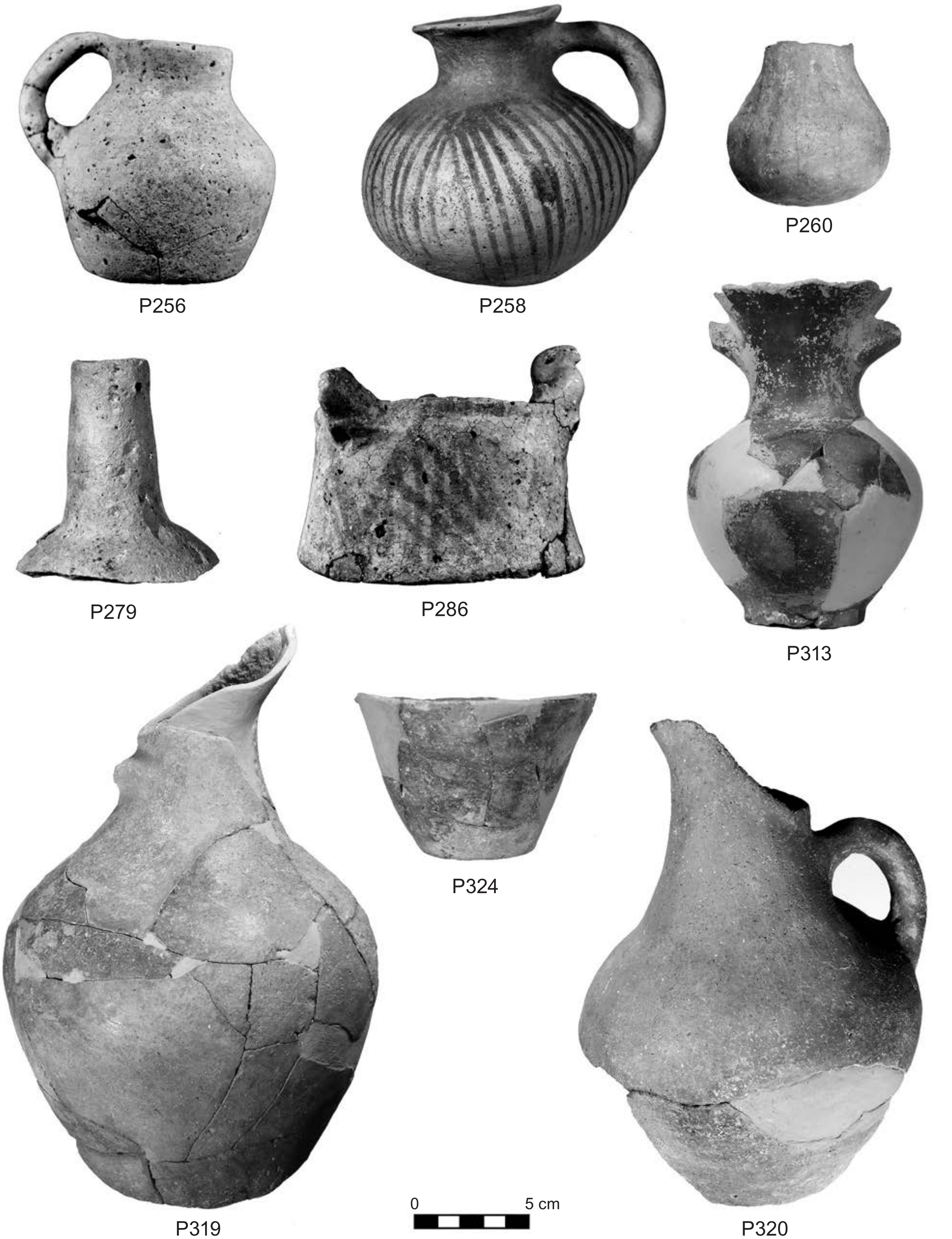


Plate 24. DOLW jugs (**P256**, **P258**), juglet (**P260**), pyxis (**P279**), pyxis lid (**P286**); VW amphora (**P313**); R/SBW jugs (**P319**, **P320**), spouted bowl (**P324**).

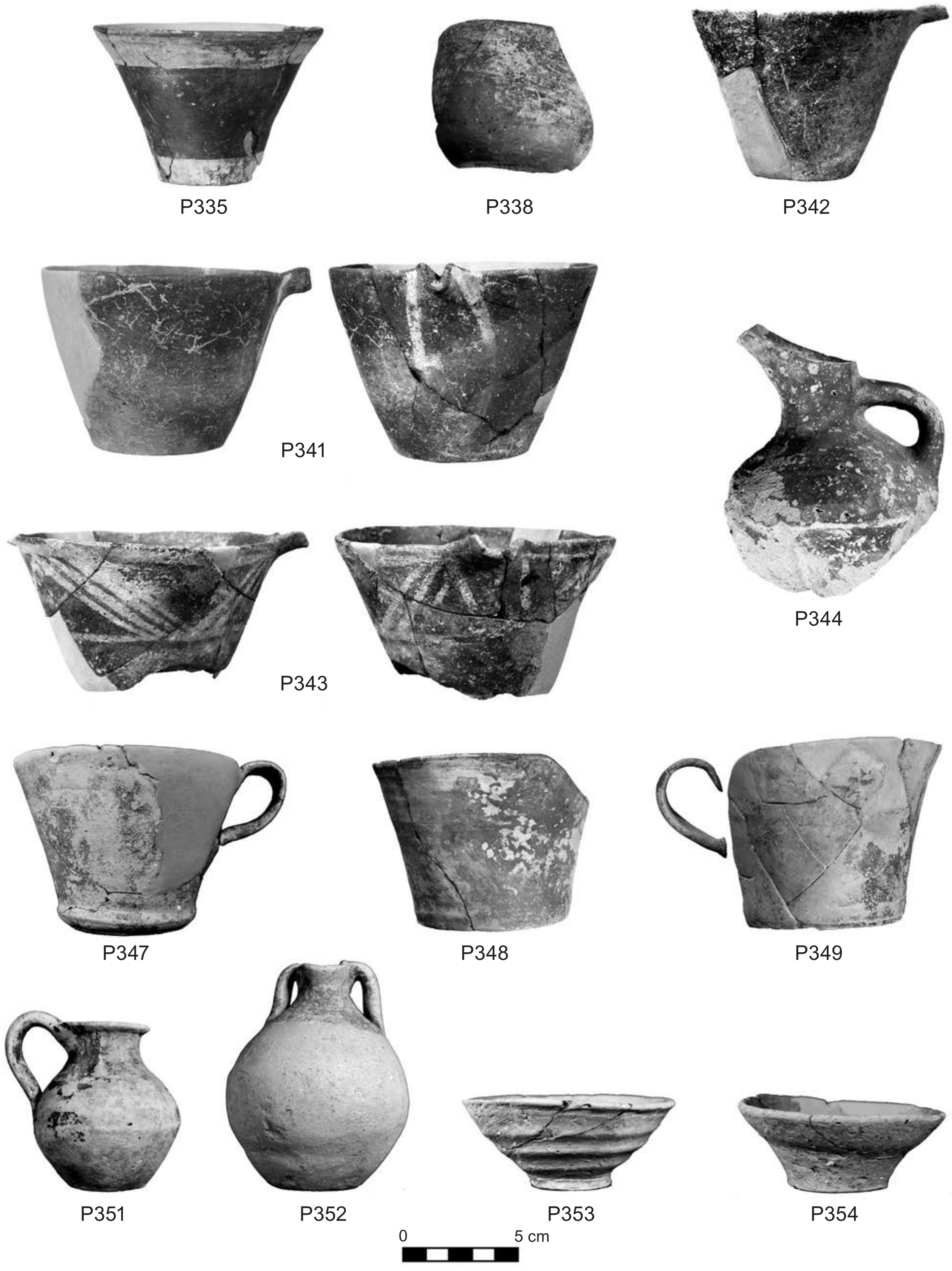


Plate 25. WODW cups (**P335**, **P338**), spouted bowls (**P341**–**P343**), jug (**P344**); Neopalatial cups (**P347**–**P349**), juglet (**P351**), amphora (**P352**), conical cups (**P353**, **P354**).

PLATE 26

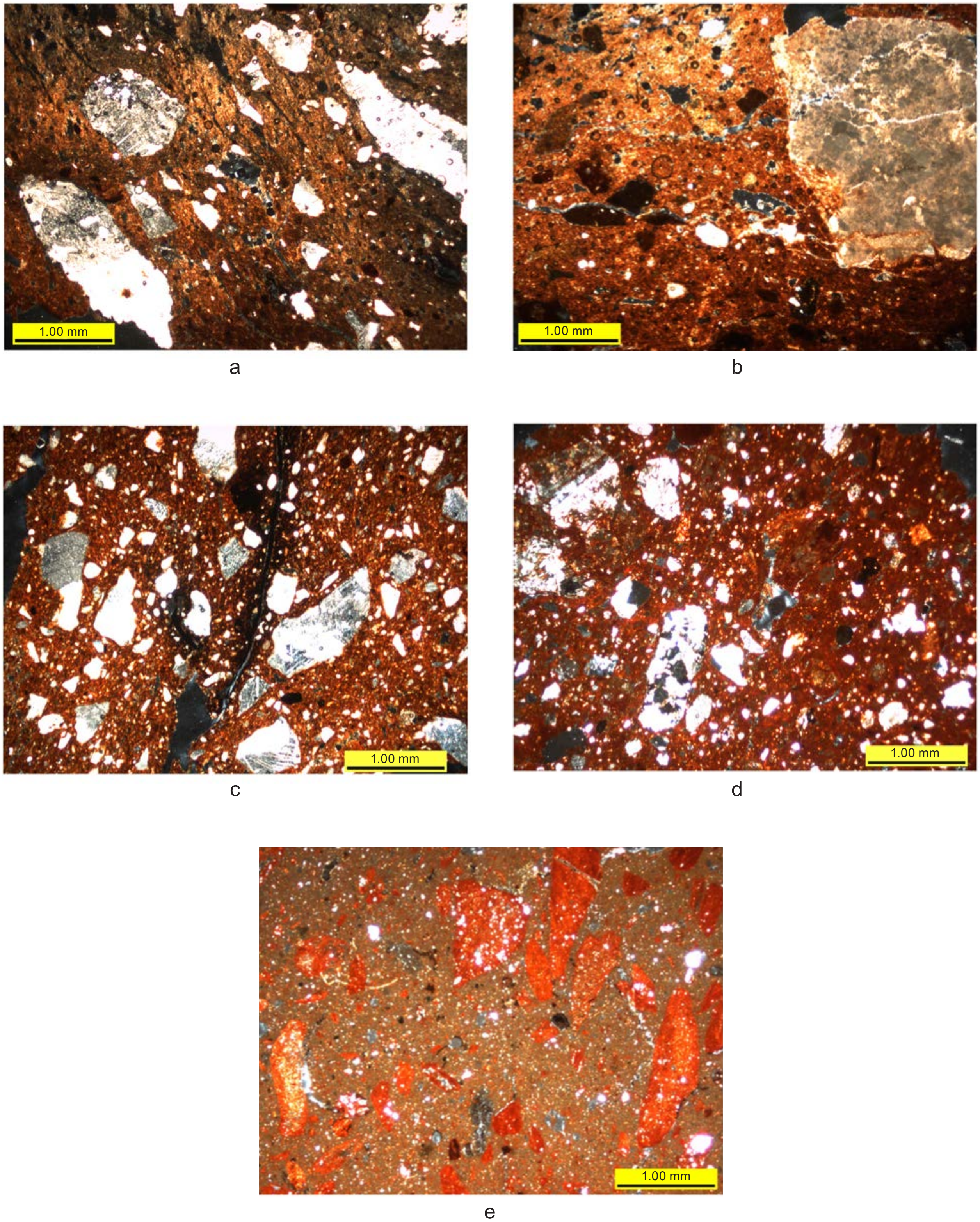
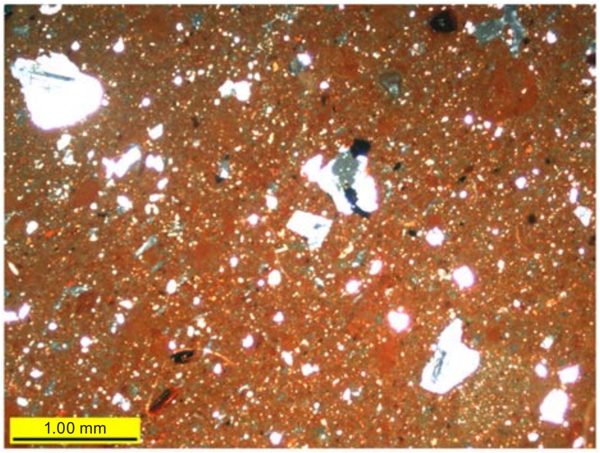
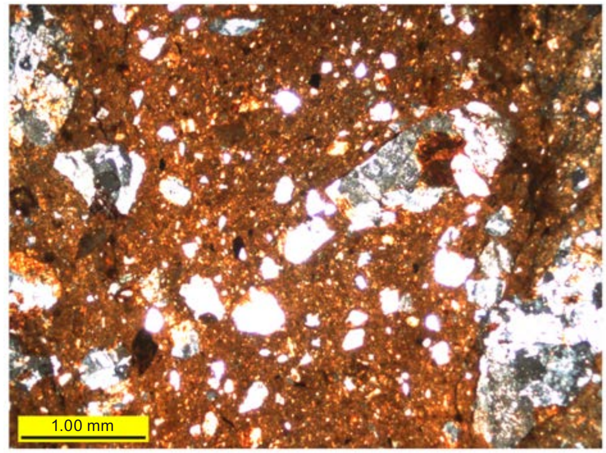


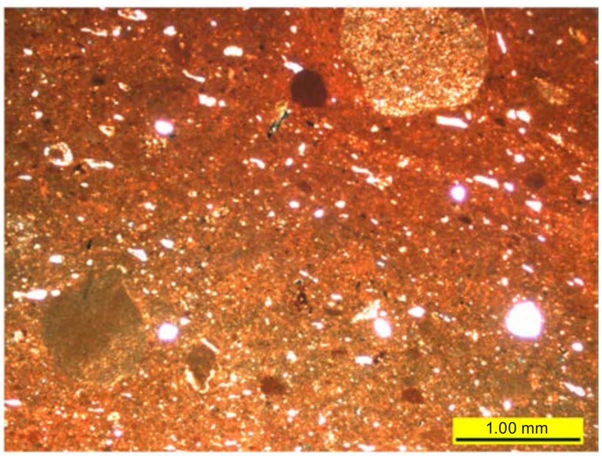
Plate 26. Petrography sections: (a) Fabric Group 1a, calcite tempered (**P177**; LIV62); (b) Fabric Group 1b, calcite tempered (**P204**; LIV47); (c) Fabric Group 1c, calcite tempered (**P183**; LIV50); (d) Fabric Group 2a, semicoarse with metamorphics (**P320**; LIV01); (e) Fabric Group 2b, semicoarse with metamorphics (**P298**; LIV36).



a



b



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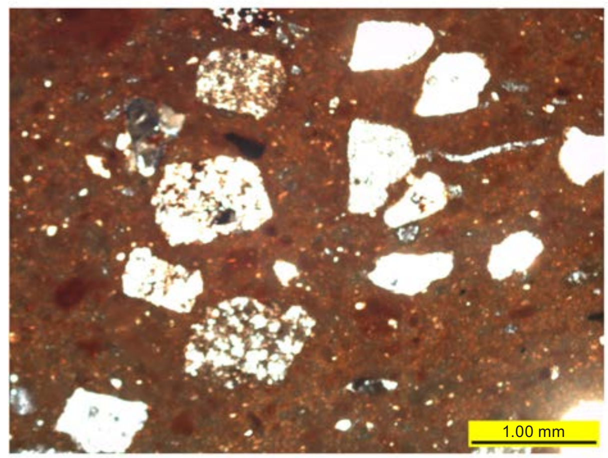

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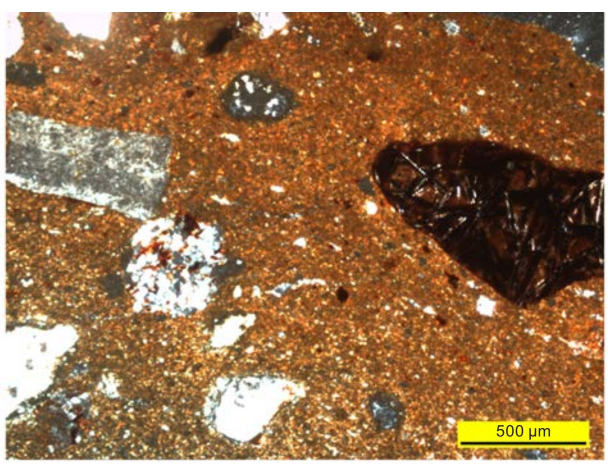
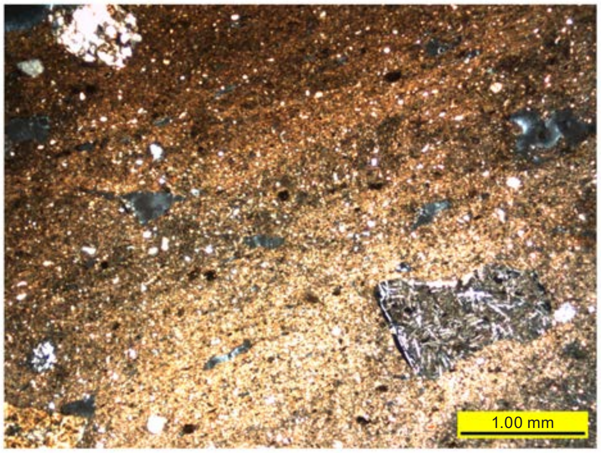


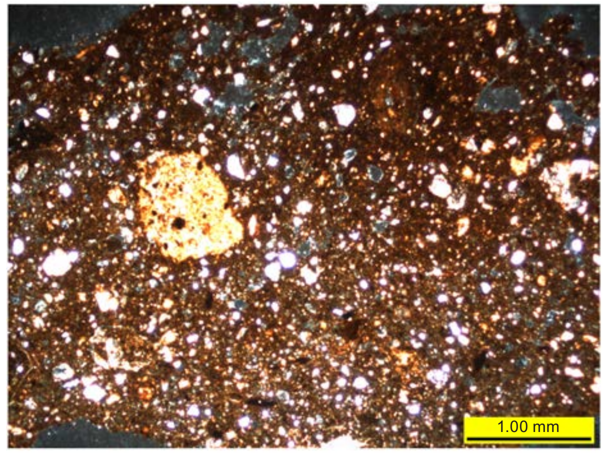
e

Plate 27. Petrography sections: (a) Fabric Group 3a, semicoarse with granodiorite (**P305**; LIV24); (b) Fabric Group 3b, semi-coarse with granodiorite (LIV41); (c) Fabric Group 4a, with sedimentary, metamorphic, and igneous rocks (**P313**; LIV07); (d) Fabric Group 4b, with sedimentary, metamorphic, and igneous rocks (**P251**; LIV69); (e) Fabric Group 4c, with sedimentary, metamorphic, and igneous rocks (LIV45).

PLATE 28



a



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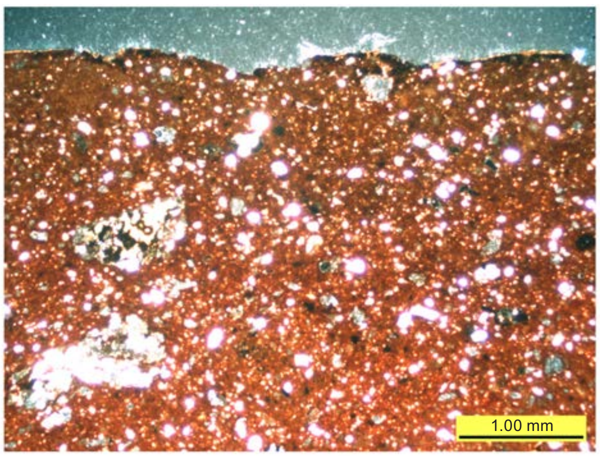

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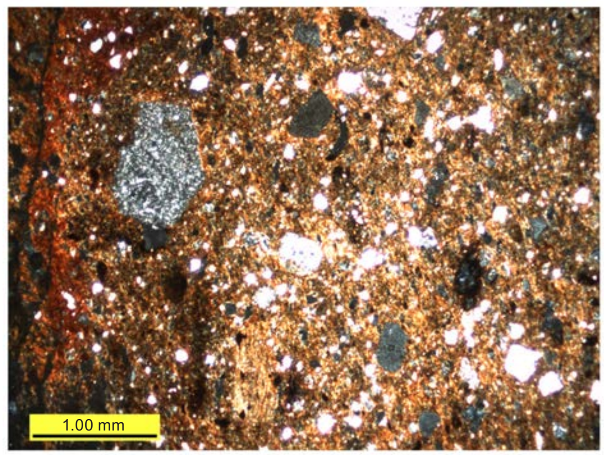

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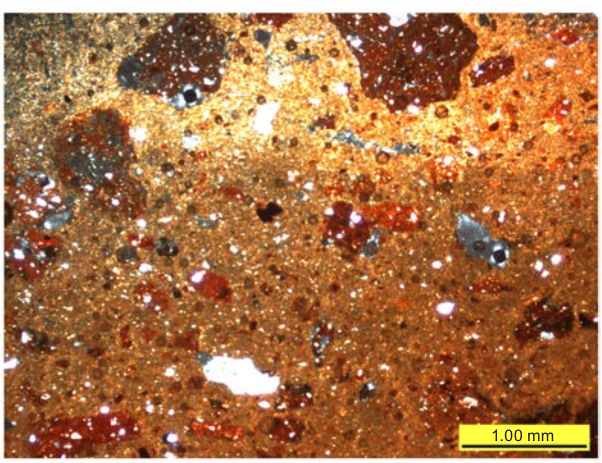

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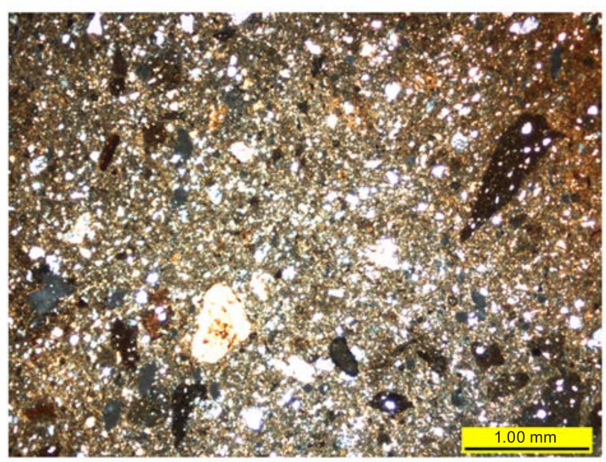


f

Plate 28. Petrography sections: (a) Fabric Group 5, fine calcareous (**P82**; LIV05); (b) Fabric Group 6, fine with quartz and micrite (**P237**; LIV09); (c) Fabric Group 7, red with quartz (**P302**; LIV64); (d) Fabric Group 8, red with chert (**P227**; LIV29); (e) Fabric Group 9, grog tempered (LIV34); (f) Loner (**P276**; LIV66).

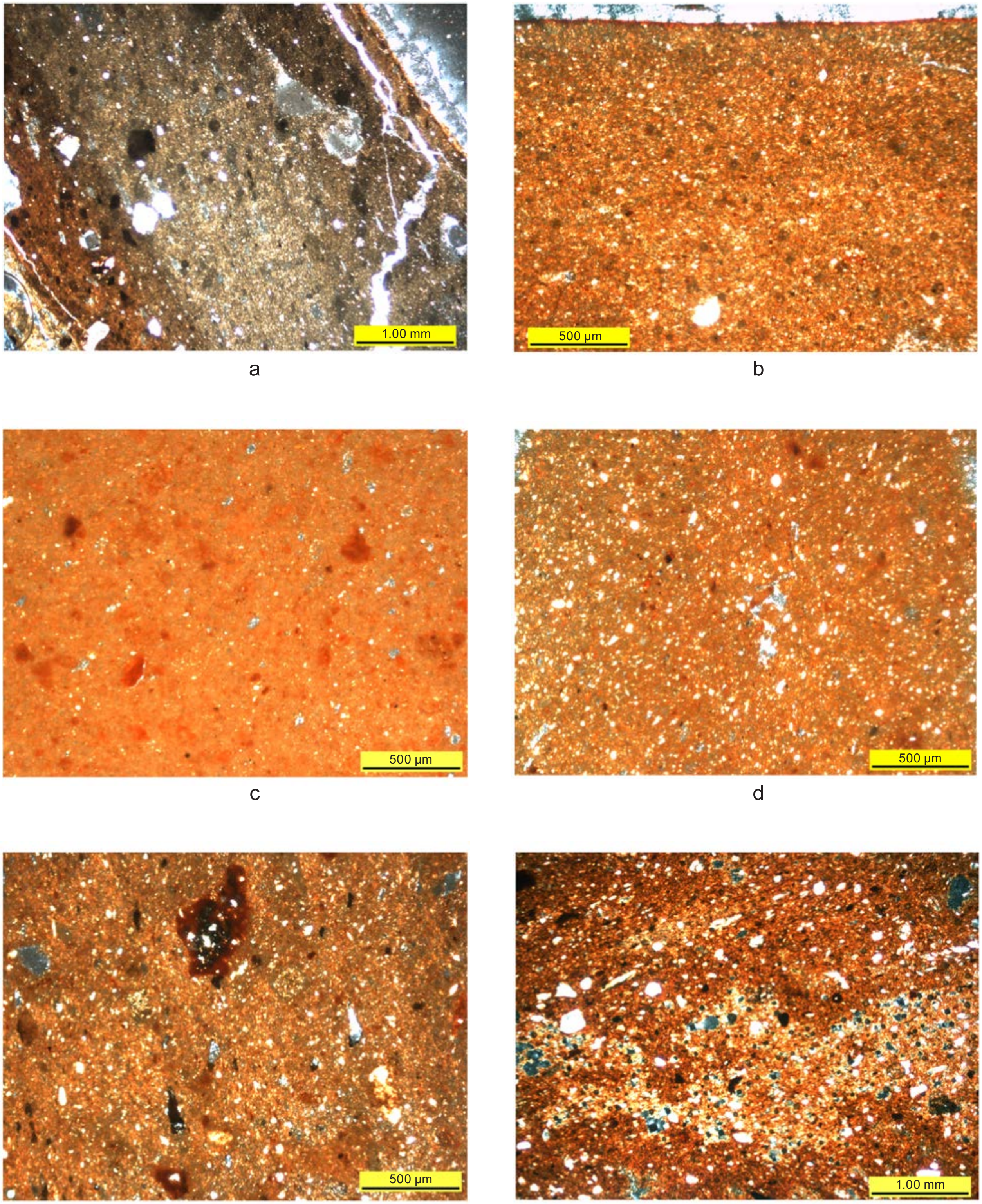


Plate 29. Petrography sections: (a) Loner (**P229**; LIV17); (b) Loner (**P309**; LIV39); (c) Loner (LIV40); (d) Loner (**P289**; LIV74); (e) Loner (**P209**; LIV19); (f) Loner (**P214**; LIV54).

PLATE 30

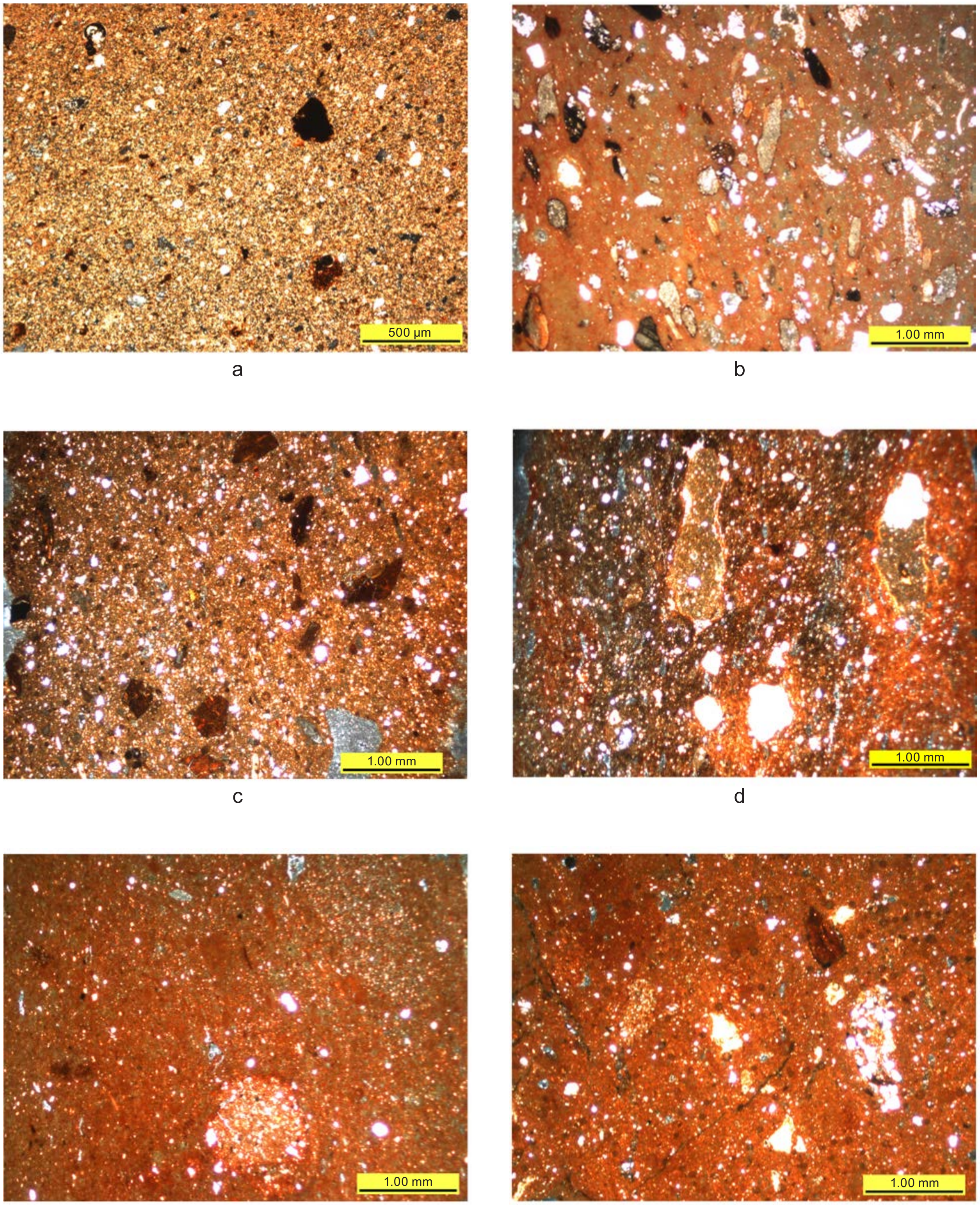
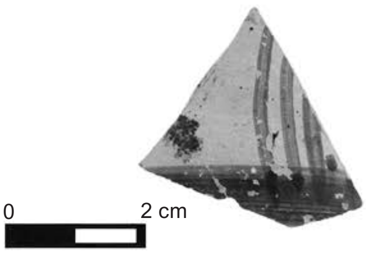


Plate 30. Petrography sections: (a) Loner (**P230**; LIV55); (b) Loner (**P205**; LIV25); (c) Loner (**P206**; LIV76); (d) Loner (**P296**; LIV33); (e) Loner (**P307**; LIV27); (f) Loner (**P288**; LIV68).


P355


P356

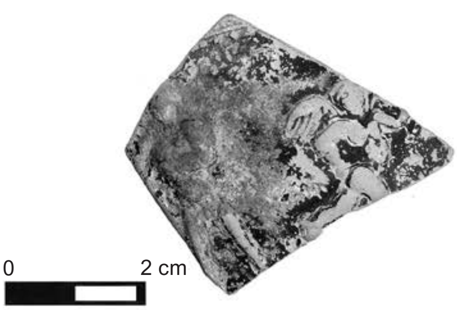

P357



P358


P361


P364



P366


P367

Plate 31. Neopalatial LOD juglets (**P355**, **P356**), DOL hemispherical cups (**P357**, **P358**), PW jar (**P361**); Late Hellenistic/Early Roman kantharos (**P364**), body fragment from a Pergamene appliqué(?) vase (**P366**), lamp (**P367**).

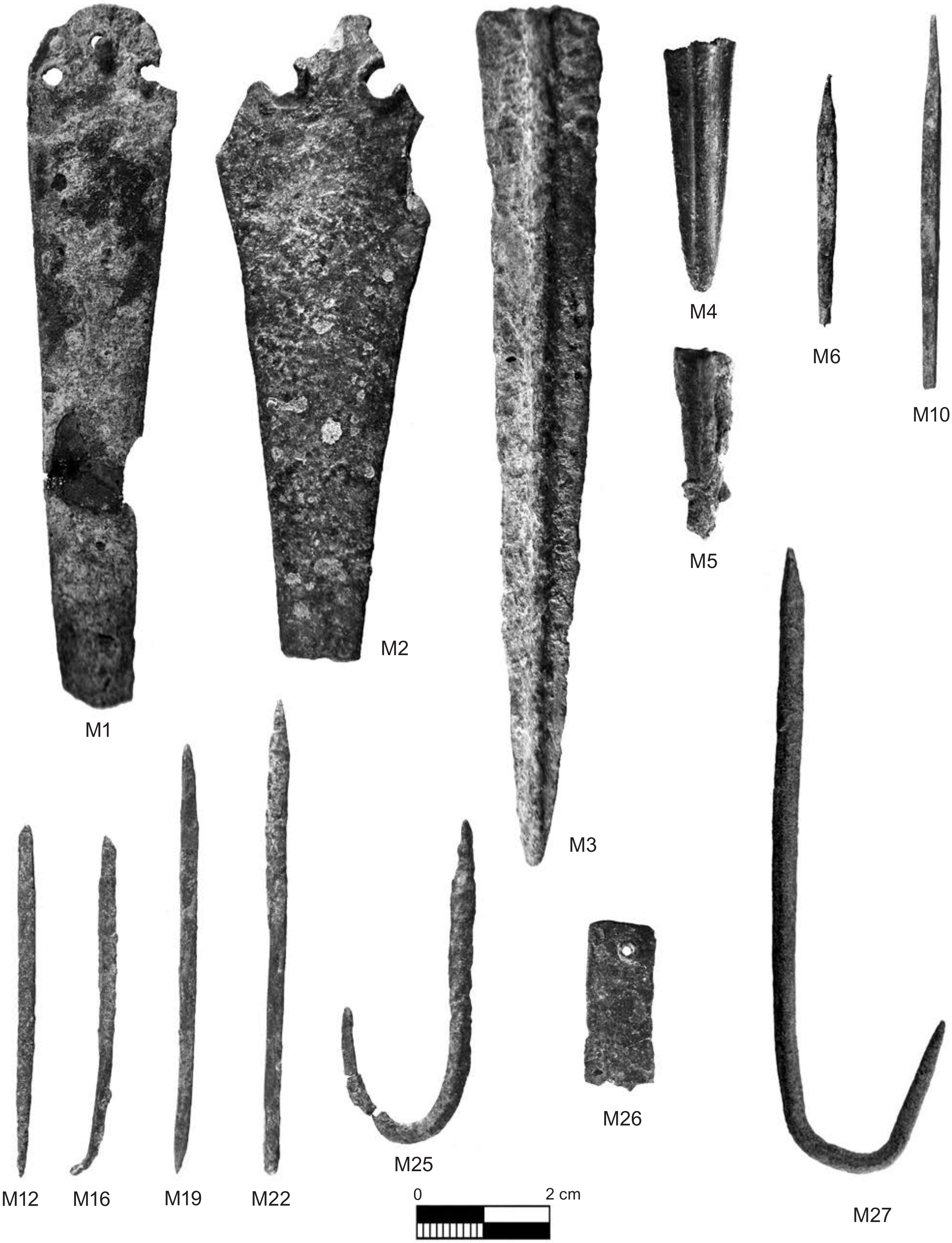


Plate 32. Metalwork: daggers (**M1**–**M5**); awls (**M6**, **M10**, **M12**, **M16**, **M19**, **M22**); fishook (**M25**); scraper (**M26**); pin (**M27**).

Plate 33. Metal fragment (**M33**) and fishooks (**M36–M38**); stone vases (**V1**, **V4**); pendants (**J1–J3**).

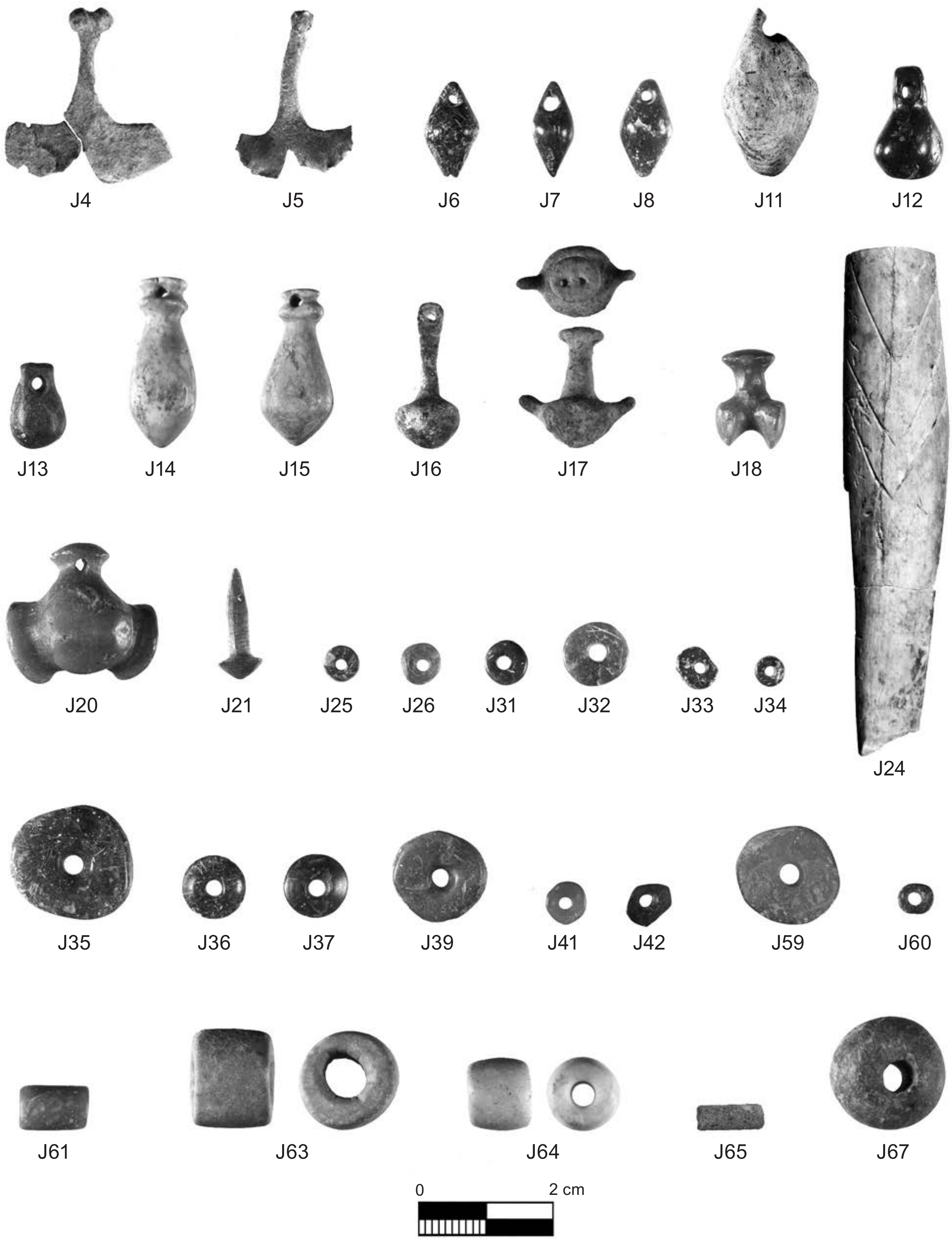


Plate 34. Jewelry: anchor-shaped (**J4**, **J5**), rhomboid (**J6**–**J8**), spherical (**J12**, **J13**), drop-shaped (**J14**, **J15**), and miscellaneous (**J16**–**J18**, **J20**, **J21**, **J24**) pendants; discoid (**J25**, **J26**, **J31**–**J37**, **J39**, **J41**, **J42**, **J59**), cylindrical (**J60**, **J61**, **J63**–**J65**), and cylindrical-elliptical (**J67**) beads.

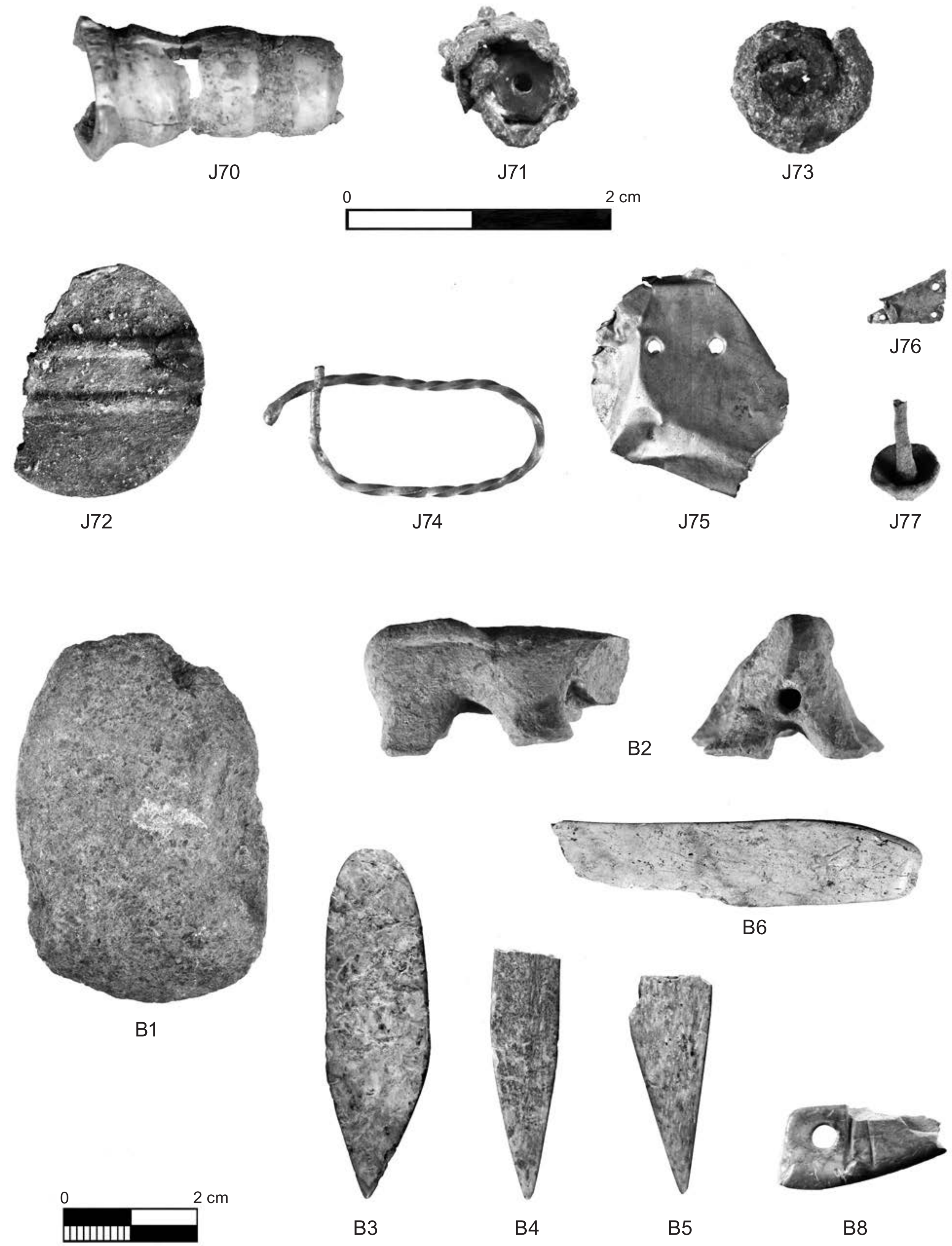


Plate 35. Miscellaneous beads (**J70**–**J73**) and jewelry (**J74**–**J77**); stone axe (**B1**); clay animal figurine (**B2**); bone objects (**B3**–**B6**, **B8**).

S1

S2

S3

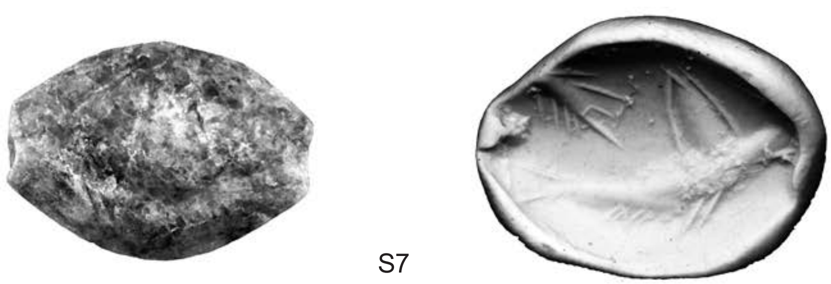
0 2 cm

Plate 36. Prepalatial seals (**S1**–**S3**).

S4

S5

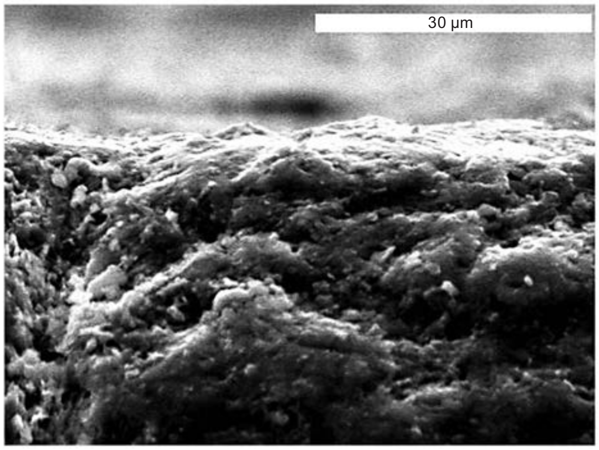
S6



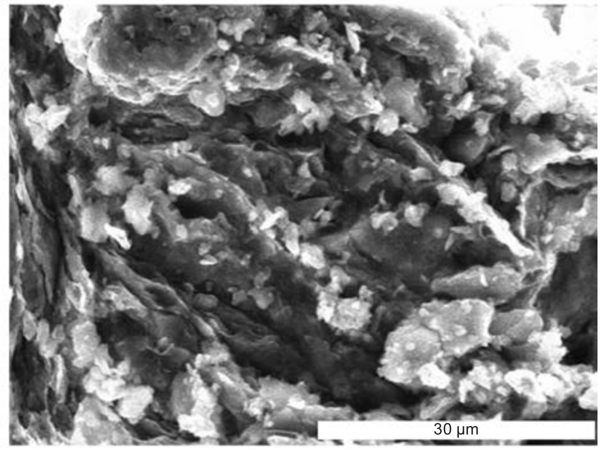
S7

0 2 cm

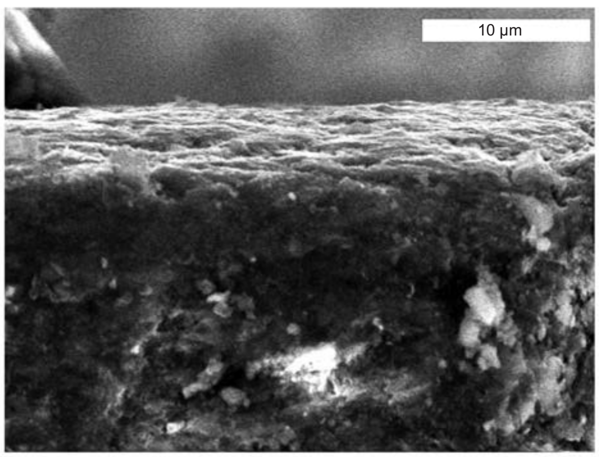
Plate 37. Seals: Prepalatial (**S4**–**S6**); Neopalatial (**S7**)



a



b



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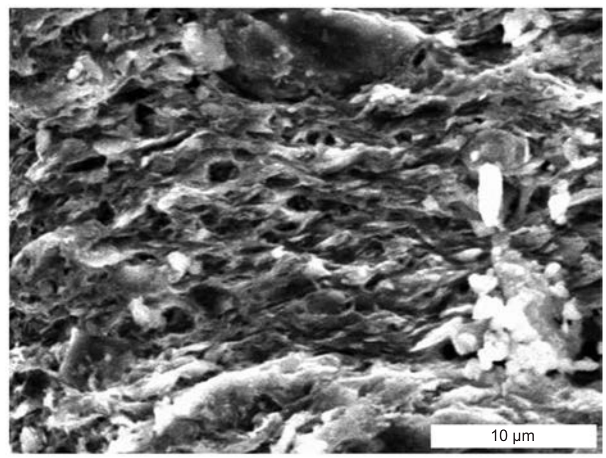
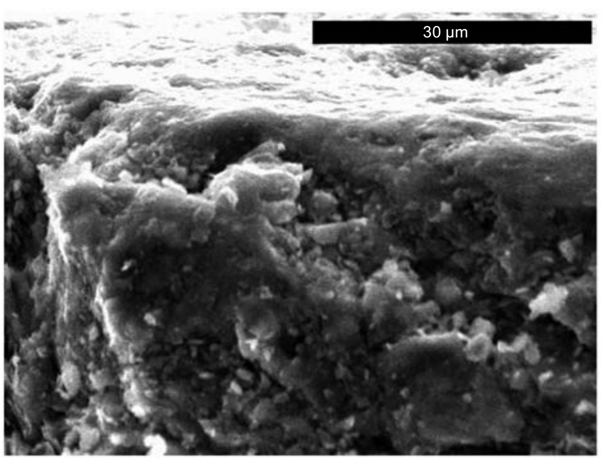
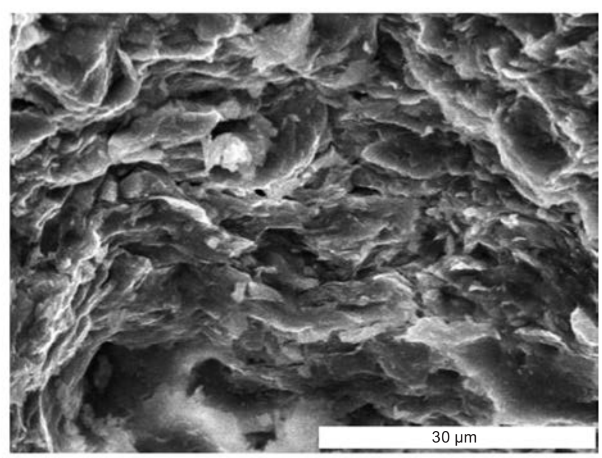


d



e



f

Plate 38. SEM analysis of DGBW vases: (a) SEM1 (**P17**; surface); (b) SEM1 (**P17**; body); (c) SEM2 (surface); (d) SEM2 (body); (e) SEM3 (**P107**; surface); (f) SEM3 (**P107**; body).

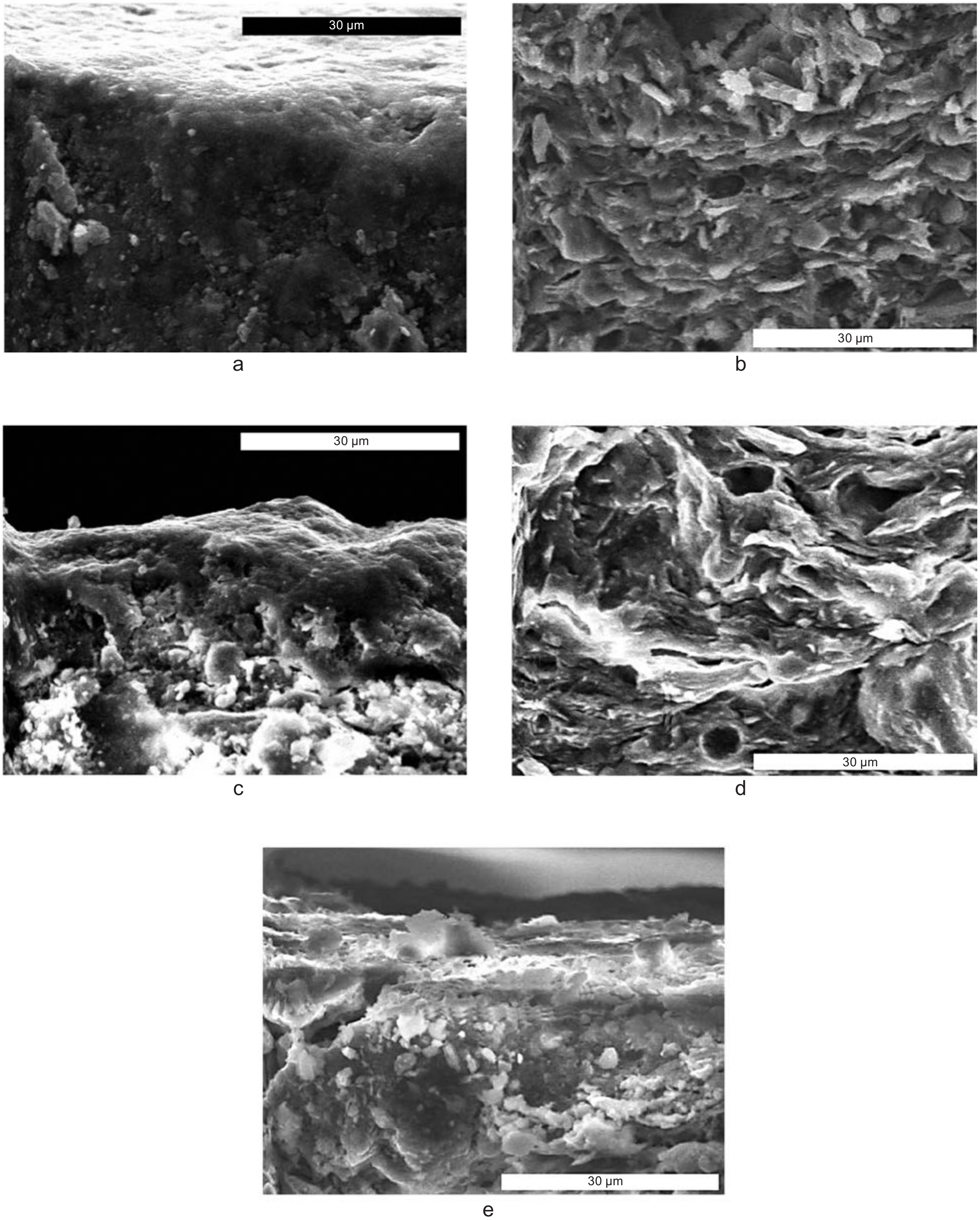
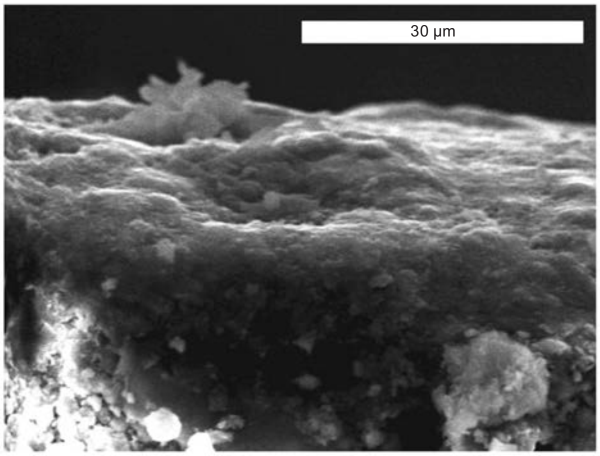
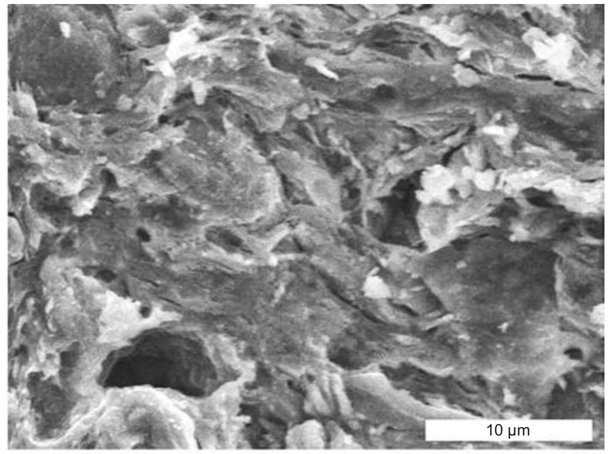


Plate 39. SEM analysis of DBW vases: (a) SEM4 (**P169**; surface); (b) SEM4 (**P169**; body); (c) SEM5 (**P174**; surface); (d) SEM5 (**P174**; body); (e) SEM6 (**P173**; surface).

PLATE 40



a



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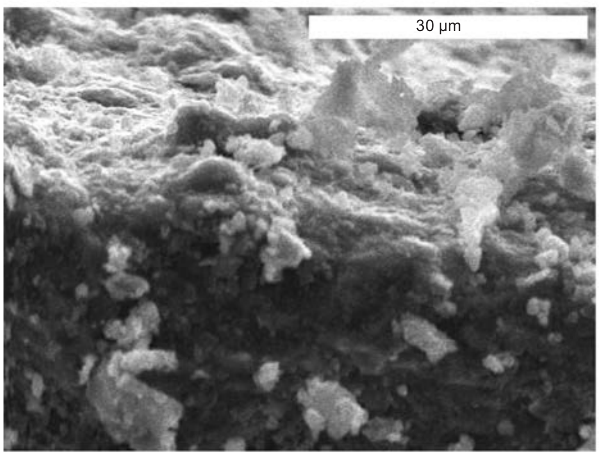

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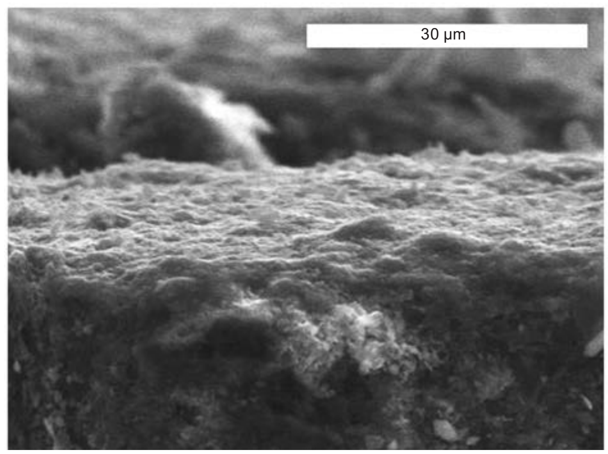

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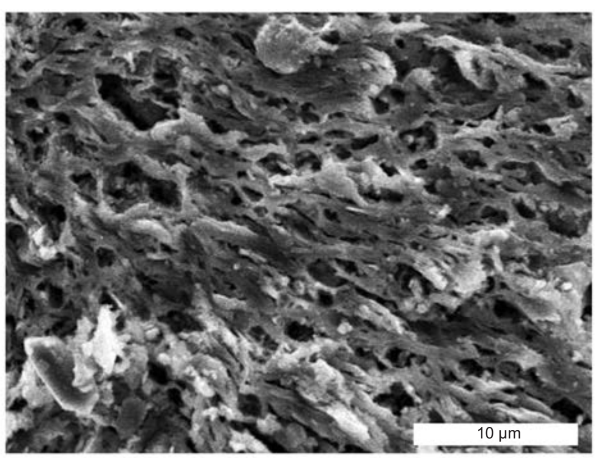
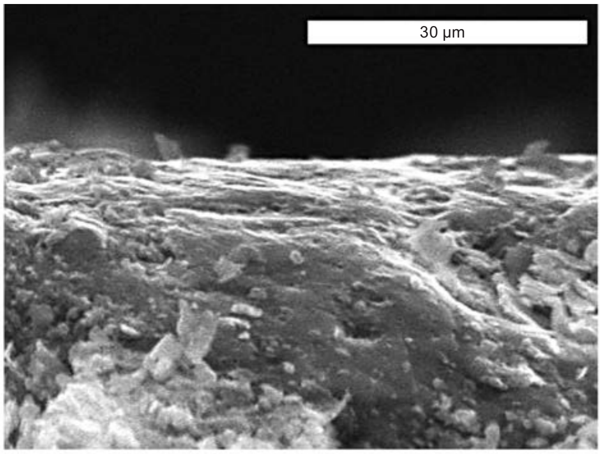
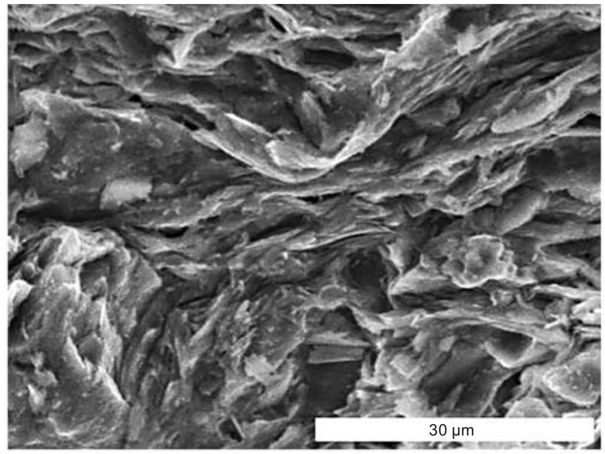


e

Plate 40. SEM analysis of DBW vases: (a) SEM7 (surface); (b) SEM7 (body). SEM analysis of DOLW vases: (c, d) SEM8 (**P300**; surface); (e) SEM8 (**P300**; body).



a



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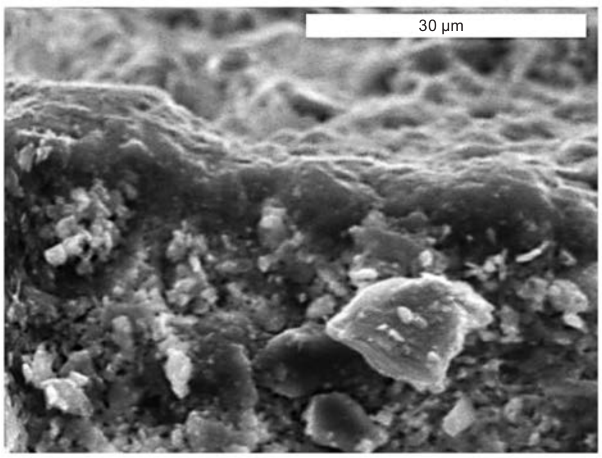

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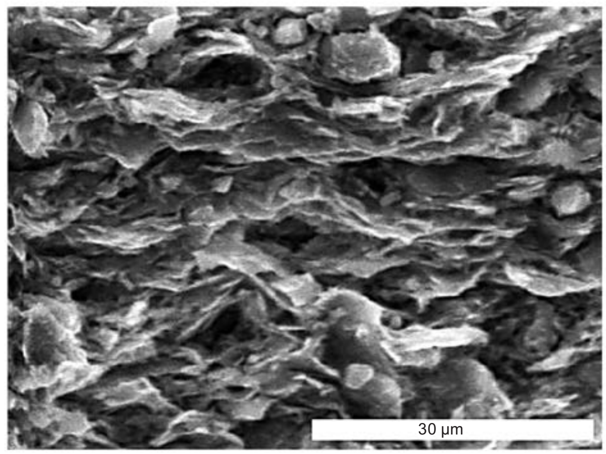

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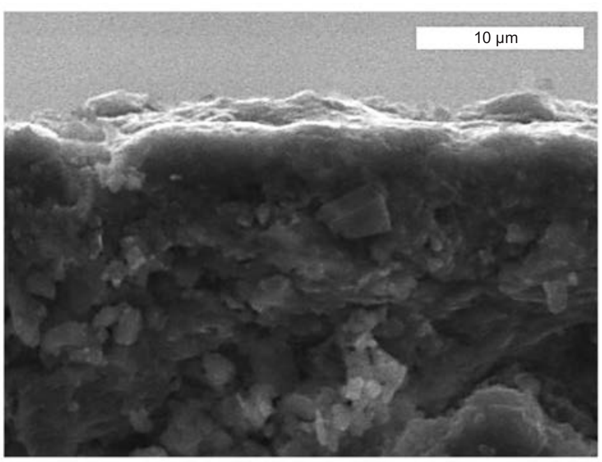

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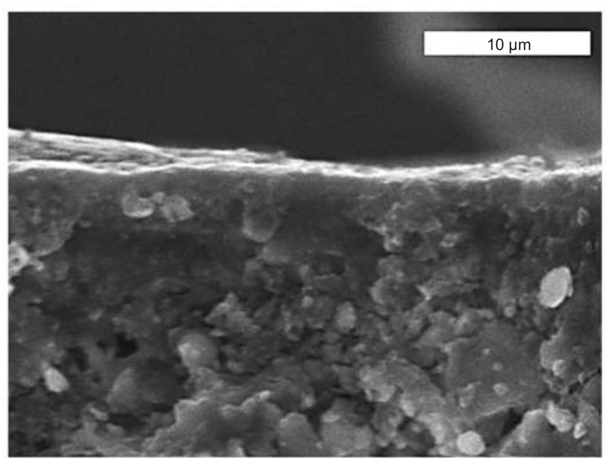

f

Plate 41. SEM analysis of RSBW vases: (a) SEM9 (**P214**; surface); (b) SEM9 (**P214**; body); (c) SEM10 (surface); (d) SEM10 (body). SEM analysis of VW vases: (e, f) SEM11 (**P309**; surface).

PLATE 42

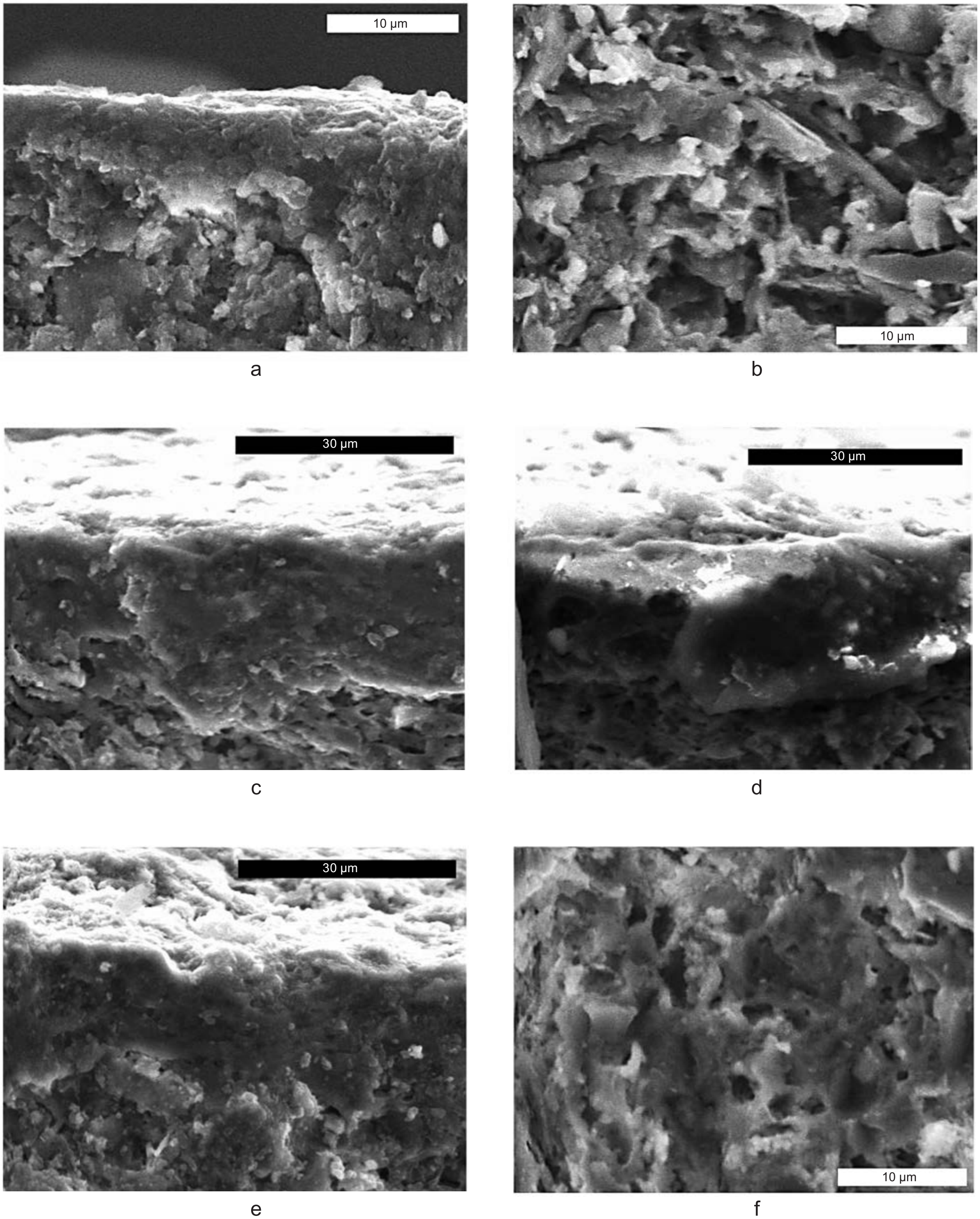

Plate 42. SEM analysis of VW vases: (a) SEM11 (**P309**; surface); (b) SEM11 (**P309**; body). SEM analysis of WODW vases: (c–e) SEM12 (surface); (f) SEM12 (body).

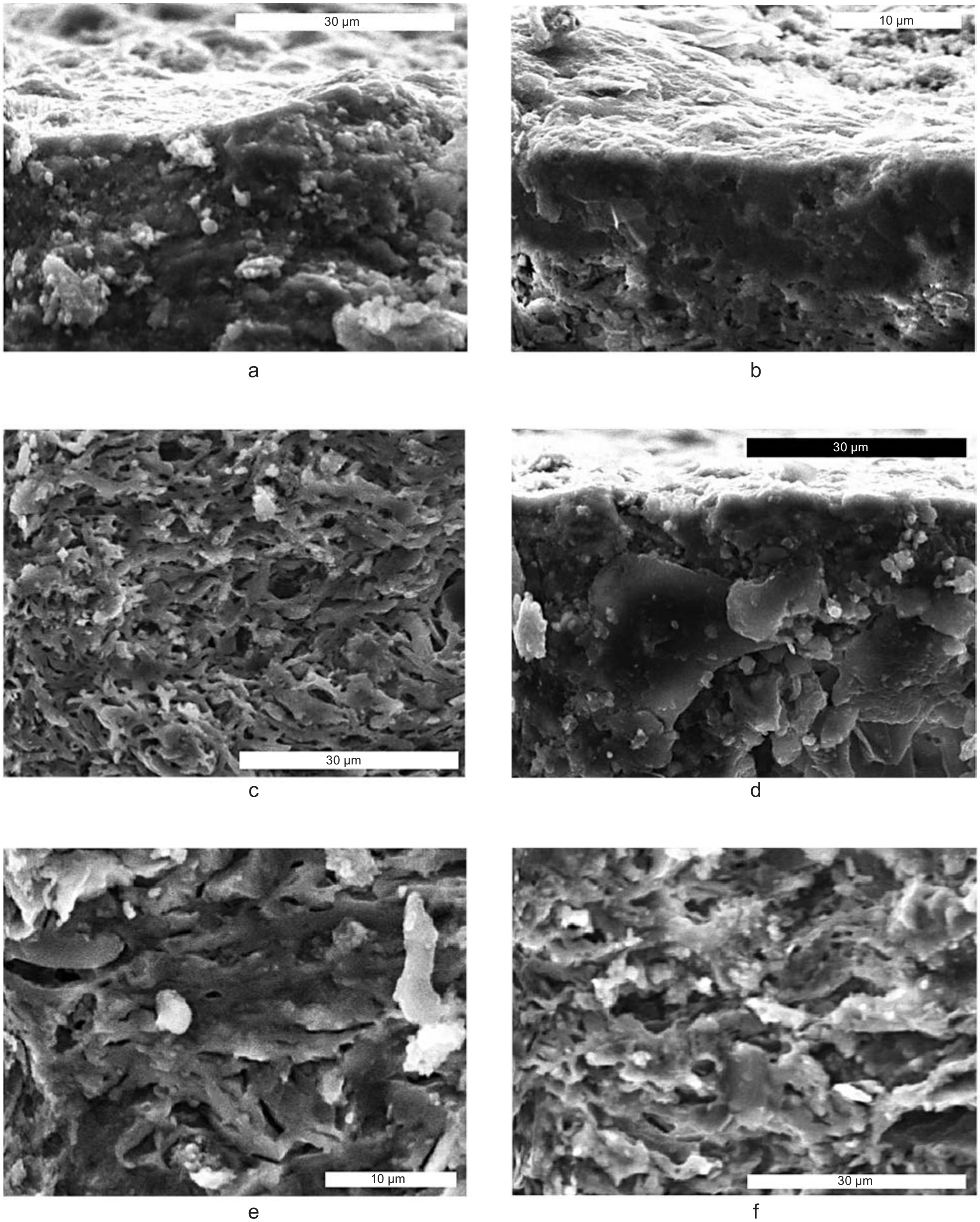

Plate 43. SEM analysis of WODW vases: (a, b) SEM13 (surface); (c) SEM13 (body). SEM analysis of R/BSW vases: (d) SEM14 (surface); (e) SEM14 (body); (f) SEM15 (body).