

# MOCHLOS IIB

Period IV. The Mycenaean Settlement and Cemetery

The Pottery



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Pyxides **IIB.800** (P 1510) and **IIB.791** (SM 11140). Watercolor by D. Faulmann.

PREHISTORY MONOGRAPHS 27

# Mochlos IIB

## Period IV. The Mycenaean Settlement and Cemetery The Pottery

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24. Piriform jars (**IIB.766–IIB.768**); alabastra (**IIB.779–IIB.781**); basket-handled pyxides (**IIB.782, IIB.784**) and lids (**IIB.783, IIB.785**).
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The publication of the LM II and LM III pottery from the Mycenaean settlement and cemetery at Mochlos is the work of many different individuals who have been involved in the tasks of excavation, study, and conservation. The excavation of the settlement was directed by Jeffrey S. Soles and Costis Davaras, while the excavation of the cemetery was directed by Nikos Papadakis (Tombs 1–9 and Tomb 30), Soles and Davaras (Tombs 10–29), and Chrysa Sophianou (Tomb 30). Many other individuals acknowledged in *Mochlos* IIA participated on-site in the excavation of the LM III material. Thomas M. Brogan, a member of the Mochlos project from its beginning in 1989, R. Angus K. Smith, a member of the Mochlos team since 1991, and Soles examined all the LM III pottery deposits from the Soles, Davaras, and Sophianou excavations and selected the pottery that is cataloged in this volume. Eleni Banou, a senior archaeologist in the 23rd Ephorate of Prehistoric and Classical Antiquity, examined all the pottery from the tombs excavated by Papadakis, and she and Smith collaborated on the presentation of the pottery in Chapter 2.

Smith has done most of the work on the volume, however, and is listed as its primary author. He studied all the pottery from the settlement and the pottery from most of the tombs (Tombs 10–29, 31). He wrote the general descriptions of the different pottery shapes in Chapter 2 and helped with the cataloging of the pottery. He is also responsible for the conclusions in Chapter 3. Eleni Banou and Eleni Nodarou, petrographer at the Institute for Aegean Prehistory (INSTAP) Study Center for East Crete, also played major roles in writing the book. Banou wrote all catalog entries for the pottery excavated by Papadakis and helped with the dating and identification of the pottery cataloged

in Chapter 2. Nodarou designed the petrographic study and carried out the petrographic analyses of pottery that Smith, Brogan, and Soles selected during their examination of the different LM III deposits. Her results are published in Chapter 1 and Appendix A.

Smith examined the material originally as part of his dissertation at Bryn Mawr College (2002) and is indebted to his dissertation advisers, James Wright and Jeremy B. Rutter, professors at Bryn Mawr College and Dartmouth College. He would also like to thank numerous scholars who shared their knowledge of LM III pottery at the Mochlos pottery tables and issued kind invitations to visit and examine material from their excavations. Philip Betancourt, Tim Cunningham, Donald Haggis, Erik Hallager, Eleni Hatzaki, Colin Macdonald, Sandy MacGillivray, Peggy Mook, Jeremy Rutter, Joseph and Maria Shaw, Metaxia Tsipopoulou, Maria Vlasaki, and Vance Watrous were particularly helpful in this regard. Last but not least, he would also like to thank his wife, Lisa Smith, for her love, support, and patience during the entire process.

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The Mochlos excavation is carried out by permission of the Greek Ministry of Culture under the auspices of the American School of Classical Studies at Athens. It is conducted as a joint Greek-American project and is indebted to the support of the 24th Ephorate of Prehistoric and Classical Antiquities and its past and current directors, Costis Davaras, Nikos Papadakis, and Stavroula Apostolakou. During the last two years of excavation, 2004 and 2005, the project has also been lucky to have Evi Saliaka serve as one of the Mochlos excavators and representative on site from the 24th Ephorate. The project is also indebted to the American School of Classical Studies at Athens, especially two of its recent directors, James Muhly and Stephen Tracy, and its administrator, Maria Pilali, for arranging the necessary permits. Funding for the project has been supplied from many sources, foremost among which are the Institute for Aegean Prehistory and the National Endowment for the Humanities, as well as a number of private donors including Marion and Henri Lambert, Michael Ratner, Karen Westcott, and many other individuals who have offered their generous support. Smith also received grants from Brock University and the Brock University Humanities Research Institute that were specifically designated for the study of the LM III pottery.

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# Abbreviations

The following abbreviations are used in this volume:

a	angular	h.	height
ca.	circa	HM	Herakleion Museum
C	ceramic object	HNM	Hagios Nikolaos Museum
CF	Coarse Ware fabric	L.	length
c:f:v	coarse:fine:void ratio (Whitbread 1995)	LH	Late Helladic
d.	diameter	LM	Late Minoan
dim(s).	dimension(s)	m	meter
EM	Early Minoan	max.	maximum
EO	Early Orientalizing	ml	milliliters
est.	estimated	mm	millimeters
FF	Fine Buff fabric	MM	Middle Minoan
FM	Furumark Motif number	MOC	Mochlos petrographic sample
FS	Furumark Shape number	MPD	maximum preserved dimension
g	grams	MUM	Minoan Unexplored Mansion at Knossos
GS	ground stone		

N	total number measured	sa	subangular
NB	north balk	SM	Siteia Museum number
P	pottery	sr	subrounded
pers. comm.	personal communication	TCF	textural concentration feature
PET	Petras petrography sample	th.	thickness
PKB	Palaikastro Burnished Fabric	w.	width
PKU	Palaikastro Unburnished Fabric	WB	west balk
PPL	plane-polarized light	wr	well-rounded
pres.	preserved	XP	cross-polarized light
r	rounded		

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# Introduction

*R. Angus K. Smith and Jeffrey S. Soles*

This book presents the ceramic vessels from the Late Minoan (LM) II–III settlement at Mochlos and its cemetery at Limenaria, which lies opposite the settlement a short distance to the south. *Mochlos IIB* is the second of three volumes in the Mochlos Publication Series concerned with the LM II–III settlement and cemetery. Volume IIA (Soles 2008) describes the architecture and stratigraphy of the settlement and the tombs, as well as the details of the burials, and it contains the excavators' general conclusions about the LM III occupation. Volume IIC (Soles et al., forthcoming) presents a synthetic study of the burial population, an inventory and discussion of the different burial containers, and a description of the small finds, floral, and faunal material from the settlement and cemetery. It concludes with a discussion of LM III Mochlos in its regional setting. The current volume details the ceramic vessels in three main chapters, two appendices, two concordances, tables, figures, and plates. In contrast to the approach taken in *Mochlos IB* (Barnard and Brogan 2003), statistical analyses of LM III deposits in the settlement have not been included because of their generally poor state of preservation.

Chapter 1 focuses on the fabric types found at Mochlos. It presents a petrographic examination of a selected sample of the pottery from both the settlement and the cemetery. The specific sample was chosen in order to analyze not only the different fabric types of LM II–III Mochlos, but also to include a wide range of shape types. The sample, therefore, was selected based on macroscopic observation of the fabrics correlated with the shape typology outlined in Chapter 2. This was done in order to elucidate the connections between fabric types and shape functions. In addition, small-scale geological sampling was carried out to develop a better understanding of local raw materials and their use in pottery manufacture.

This analysis resulted in the identification of 12 Cretan fabric groups that varied from coarse to very fine. Two separate coarse fabrics and 10 fine fabrics were identified. Of these, the coarse fabrics were further subdivided into six separate subfabric types. Of this total of 16 fabric types, at least three were determined to be local products. In addition to these local fabrics, the study also characterized several imported fabric types, including both

coarse and fine fabric types from the region of Palaikastro, two coarse fabric types from the region of Gournia and Kalo Chorio, and at least three separate fine fabric types with a possible central Cretan origin. Appendix A provides the technical petrographic descriptions for the various fabrics discussed in this chapter.

Chapter 2 contains a typological examination and catalog of the ceramic vessels arranged by shape. It begins with a discussion of typologies of shape, surface treatment, decoration, and fabric. This is followed by an examination of each shape type and the presentation of catalog entries for selected examples of these shapes. The descriptions of each shape type offer an assessment of shape morphology, surface and decorative treatments, and fabric types. In addition, chronology is discussed and comparanda are given.

Chapter 3 provides an analysis of the character and relative chronology of the pottery assemblage as a whole. It begins with an examination of the local and imported ware types found in LM II–III Mochlos. This discussion draws upon fabric, shape, and decoration in defining the various wares found at Mochlos, and it includes a consideration of the relative chronology of each. The chapter ends with a comparison of Early Reoccupation and Late Reoccupation assemblages, in order to delineate the changes in ware type, decoration, and shape from a diachronic perspective. In this final section the patterns of local production and the consumption of imported wares are also considered.

As mentioned above, Appendix A presents the technical petrographic descriptions for the fabrics described in Chapter 1. Appendix B is a catalog and discussion of the earlier Minoan and later, Orientalizing pottery found in LM II–III contexts. The publication of Hellenistic material, architecture, as well as pottery, is reserved for a future volume. Concordance A provides a cross-reference between the Mochlos field numbers or Siteia and Hagios Nikolaos Museum numbers and the catalog numbers (i.e., P 1144 = **IIB.22**). This will allow objects identified by their field or museum numbers to be matched to their corresponding catalog entries. Concordance B correlates the catalog numbers with

the archaeological context of the object (i.e., the conical cup **IIB.34** = A.4, E4 5819.2). This will allow users of this volume to see at a glance all the cataloged objects that were found in each particular context.

The reoccupation of the island settlement appears to have begun as early as LM II, and the community survived into the LM IIIB period, at which time it seems to have been abandoned. These periods of settlement have been divided into two broad phases: the Early and Late Reoccupations, which comprise the LM II–IIIA:2 early and LM IIIA:2–IIIB periods, respectively (see Soles 2008). The cemetery received its first burials in LM IIIA:1 and, like the settlement, it continued in use until LM IIIB. The majority of its burials date to the LM IIIA:2 period, and by LM IIIB both the settlement and the cemetery appear to have been in decline. As evidenced by the continued use of the nearby cemetery at Aspropilia, however, the larger region around Mochlos remained occupied even after the settlement at Mochlos itself was abandoned. Many of the ceramic traditions observed at Mochlos continued into the LM IIIC period (see Soles et al., forthcoming, ch. 6; also Kanta 1980; Smith 2002).

This study of the pottery from the settlement and cemetery assemblages at Mochlos allows a diachronic view of pottery production and consumption during the LM II–III periods. It aims to provide a better understanding both of local patterns of pottery production in the Mochlos region during these periods and of wider patterns in the importation of non-local pottery products. We hope this analysis will help to situate the region of Mochlos within the larger world of LM II–III Crete, the Late Bronze Age Aegean, and the eastern Mediterranean.

In the end, it is important to remember that each piece of pottery described in this volume had a practical, a social, and often a symbolic function within Late Minoan II–III society. The pottery was made by people, used by people, and deposited in the tombs or disposed of in the settlement by people. It is a better understanding of these people and their way of life that is ultimately the goal of this volume.

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# Petrographic Analysis of the Late Minoan III Ceramics

*Eleni Nodarou*

Petrographic analysis is widely applied in the study of prehistoric ceramics, as the characterization of petrographic fabric groups provides valuable information on the provenance and technology of the ceramic material under study. In many instances petrography has proved to be the best complement to macroscopic analysis, and, in the case of Crete, it has become a “routine part of pottery study” (Day, Joyner, and Relaki 2003, 13). This has led to a significant refinement of the questions asked about pottery, the methodology of analysis, and the discussion of the results. Accordingly, the design of the analytical project, the sampling, and the way the results are treated and presented is different when dealing with a pottery assemblage from a single period site, a multi-period site, or survey material.

In the case of the LM III ceramic assemblage from Mochlos, the petrographic analysis was aimed at examining specific aspects of the pottery within a project that combined microscopic examination with typological study and the questions raised by the latter. The main issues are concerned with:

a) grouping and characterization of the material according to mineralogical and textural criteria, b) potential correlations between shape/function and fabric, c) discussion of aspects of provenance and technology in combination with typological and stylistic information, and d) comparison with the analytical data from the Neopalatial pottery of the Artisans’ Quarter on the coast opposite Mochlos (Day, Joyner, and Relaki 2003; Nodarou 2003) and other LM III sites in East Crete (Nodarou 2007). Additionally, small-scale geological sampling was carried out in the area in order to examine the mineralogical components of the local raw materials and to consider their potential connection with the archaeological material.

The ceramic samples were selected from diagnostic shapes in an attempt to provide quantitative and qualitative representation of the assemblage. The main issue concerning the coarse wares was straightforward: the macroscopic study demonstrated that most of them were manufactured in a phyllite fabric, but there was variability in the

color and texture of the clay and in the quantity and nature of the inclusions. The sampling was designed to clarify whether there was any internal grouping within the coarse wares that might relate to the function of the vessels (i.e., storage vs. cooking) and/or to the source of the raw material.

With regard to the fine wares, it has been a common theme in analytical studies that petrography is not the best method for the study of these fabrics since the lack of non-plastic inclusions limits the evidence for the mineralogical composition of the samples. However, it was considered necessary to include fine fabrics in our analytical project because they occasionally contain rare and small-sized (but still identifiable) rock and mineral fragments. Moreover, apart from the non-plastics, the fine fabrics have textural features that might provide evidence on provenance and information about technology. The main fine fabrics encountered at Mochlos were first grouped and characterized, and, when possible, they were compared with fine fabrics from other sites and with published data. An attempt was then made to identify potential

imports. The analysis resulted in the establishment of 13 petrographic groups. The criteria used for the grouping comprise primarily the mineralogical content (non-plastic inclusions) and the texture of the fabric (plastic inclusions, color, and optical activity of the clay matrix).

In the presentation of the analytical results a broad range of fabrics, even those represented by only one or two samples, is included. In some cases small groups or subgroups are established in order to demonstrate the variability within larger fabric groups. Samples that appear to be loners represent fabrics whose provenance is assumed to be non-local, although the evidence is not secure.

In the following discussion, a comment on the geology of the area is presented, along with a short account on the geological sampling. The fabrics are then divided into coarse and fine varieties and presented in detail. When possible, inferences on provenance and technology are made. Complete petrographic descriptions of the major fabric groups are provided in Appendix A.

## *Geology and Geological Sampling*

It has recently been argued that pottery represents the result of human choices regarding raw material selection and manipulation rather than the geology of the area from which the raw materials derived (Day et al. 1999). This should be considered when grouping samples on the basis of their elemental and/or mineralogical composition and when discussing provenance. However, knowledge of the geological background of the area under study is always useful in order to get an idea of what is to be expected in locally made pottery and in defining how broad the concept of “local” can be. Although the geology of the Mochlos area has been discussed in detail elsewhere (Soles 2003, 1, 7–8, 103–104), it is worth stressing a few points regarding rock and sediment types in the area of Mochlos that will be of use when referring to local fabrics.

The island of Mochlos was once connected to the opposite coast of northern Crete by a now submerged narrow isthmus of land (Soles 2003, 1). Its geology matches that of the coast and is dominated

by the presence of crystalline limestone of Permian age. The absence of sediments suitable for pottery manufacture is one reason why there is no evidence of pottery production on the island. The closest source of raw materials might have been the plain on the opposite coast.

The plain and modern village of Mochlos lie in a tectonic valley flanked on the eastern and western side by the Ornos mountain range (Soles 2004, 155, fig. 11.1), which consists of crystalline limestone. The southern side is dominated by the Phyllite-Quartzite series of Permian-Triassic age. This series appears in outcrops across northeastern Crete and is characterized by dark gray, greenish, or maroon phyllites with intercalations of sandstone, quartzite, limestone, and dolomite (Papastamatiou 1959). The plain comprises a multitude of materials, mainly Pleistocene fluvial deposits containing gravels, pebbles, and red sands, along with Miocene marine formations (marls and sandstones). The products of erosion of the plain of Mochlos, as well as the marl

deposits that exist in the vicinity, would have provided all the necessary raw materials for pottery manufacture.

As part of an analytical project on Bronze Age earthen construction materials (Nodarou, Hein, and Frederick 2008), small-scale clay sampling took place in the area of Mochlos. The results were quite informative with regard to the mineralogy of the local materials. Four natural deposits were sampled on the coast opposite the island: a Pleistocene colluvium in the vicinity of the Artisans' Quarter (Soles 2003), a Pleistocene alluvium and a terrace fill near the Minoan quarry (Soles 1983), and a Miocene marl near the coast below the quarry. Experimental briquettes were manufactured and fired at 650°C for examination under the petrographic microscope and comparison with the archaeological samples. The analysis of the geological samples demonstrated the findings discussed below (all reference to rock, mineral, and matrix color concerns examination under cross-polarized [XP] light).

The Pleistocene colluvium contains primarily phyllite fragments in a variety of colors. The

purple, fine-grained phyllite is predominant; golden brown and gray phyllite occur in smaller amounts. All of these are seen in archaeological samples. Muscovite mica-schist, quartzite, monocrySTALLINE quartz, and plagioclase feldspar also occur in very small quantities.

The Pleistocene alluvium is similarly dominated by the presence of metamorphic rocks, principally the golden brown phyllite, along with some fragments of the gray, fine-grained variety. However, the alluvium is differentiated from the colluvium by the presence of more fragments of quartzite and rare fragments of altered igneous rocks, and the fine fraction is dominated by the presence of biotite mica laths.

The terrace fill is composed of the components mentioned above, i.e., the golden brown phyllite and, in smaller amounts, the purple phyllite, monocrySTALLINE quartz, quartzite, and biotite mica laths. An additional component is micritic limestone.

The Miocene marl consists of fine-grained micritic limestone, monocrySTALLINE quartz, fossils, and rare fragments of calcite, phyllite, and schist.

## *Coarse Fabrics*

### Fabric 1a. Coarse Phyllite Fabric (Pl. 1A)

MOC 03/103 (**IIB.970**; P 4951), 03/104 (**IIB.969**; P 4950): cooking trays

#### SAMPLES

MOC 03/70 (**IIB.579**; P 3564), 03/72 (**IIB.583**; P 4031), 03/73 (**IIB.578**; P 3176): basins

MOC 03/81 (**IIB.773**; P 3599), 03/82 (**IIB.776**; P 4012): jars

MOC 03/54 (**IIB.838**; P 7022), 03/84 (**IIB.25**; P 1147), 03/85 (**IIC.22**; P 1623A), 03/87 (**IIC.24**; P 1618A), 03/89 (**IIC.15**; P 1104), 03/90 (**IIC.28**; P 1625), 03/91 (**IIB.835**; P 4030), 03/92 (**IIB.883**; P 3885), 03/93 (**IIB.829**; P 3860), 03/94 (**IIB.831**; P 3881), 03/117 (**IIC.21**; P 1621), 03/118 (**IIC.27**; P 1626), 03/119 (**IIC.17**; P 1506), 03/120 (**IIC.16**; P 1197): pithoi

MOC 03/67 (**IIB.877**; P 6602): storage/transport stirrup jar

MOC 03/95 (**IIB.870**; P 4004), 03/96 (**IIB.874**; P 5300), 03/97 (**IIB.862**; P 3420), 03/98 (**IIB.863**; P 3566), 03/99 (**IIB.858**; P 3372): cooking pots

MOC 03/100 (**IIB.899**; P 3339), 03/101 (**IIB.901**; P 3341), 03/102 (**IIB.933**; P 5277): cooking dishes

Fabric 1a is the most frequently occurring coarse fabric of the LM III assemblage from Mochlos. The predominant non-plastic components are the coarse, elongated, low-grade metamorphic rocks set in a fine groundmass containing small, angular monocrySTALLINE quartz fragments. The phyllites display an impressive range of colors, the most common being the very fine-grained orangish brown to golden brown, but there are also varieties that are purple, very dark brown, silvery, or greenish gray. The other constituents comprise rounded to subrounded fragments of chert, rounded sandstone, and occasionally plagioclase feldspar, micrite, and altered igneous rock fragments. The presence of characteristic voids in the matrix of certain samples is indicative of tempering with organic matter that burned out during firing, whereas the presence of fossils in a few others indicates mixing of a non-calcareous phyllitic clay and a calcareous marl. There are a few textural

concentration features that are quite homogeneous in appearance, their color ranging from translucent red to dark brown. Although petrography cannot provide extensive information on firing technology, the optical activity of the groundmass, i.e., the alteration of the clay particles due to firing (Whitbread 1995, 382), is indicative of the kiln temperature. In this fabric the groundmass ranges from moderately active to optically inactive, attesting to medium to high firing temperatures (ca. 750°C).

The shapes included in this fabric group are mainly storage and cooking vessels, including basins, jars, a stirrup jar, pithoi, cooking dishes, and cooking trays. Four of the pithoi derive from the cemetery and were used as burial containers.

The presence of the purple phyllite is indicative of the strictly local provenance of this fabric. In most cases, when referring to local fabrics, a broad area around the site of consumption of the pottery is implied, mainly due to the lack of information on pottery production centers and to the homogeneity of the geological deposits. Local pottery production at Mochlos has been documented in the LM IB potter's workshop excavated in the Artisans' Quarter (Barnard and Brogan 2003; Soles 2003). The purple phyllite seen in this fabric is dominant not only in the pottery, but also in the mortar of the walls, the mudbricks, the fill within the rooms on the site, and in several geological samples (Nodarou 2003; Nodarou, Hein, and Frederick 2008).

## Small Groups

Along with the main phyllite fabric (Fabric 1a), three smaller phyllitic groups were identified. They comprise fabrics which, for reasons that are explained for each subgroup individually, could not be incorporated into the main fabric group. The presence of these groups indicates the broad range of the phyllite fabrics existing at Mochlos.

### Fabric 1b. Semi-coarse Phyllite Fabric (Pl. 1B)

#### SAMPLES

MOC 03/28 (**IIB.508**; P 3334), 03/32 (**IIB.511**; P 3425), 03/33 (**IIB.528**; P 3999), 03/35 (**IIB.512**; P 3526): kraters

MOC 03/42 (**IIB.471**; P 3417): bowl

MOC 03/58 (**IIB.557**; P 4116): dipper

MOC 03/60 (**IIB.979**; P 3212): brazier

MOC 03/69 (**IIB.800**; P 1510): pyxis

MOC 03/112 (**IIC.6**; C 288): sarcophagus

Fabric 1b is finer than Fabric 1a and is characterized by a dark orangish-brown matrix. The fine texture and the color of the groundmass make this fabric stand out as different, even though the non-plastic inclusions are practically the same: low-grade metamorphic rock fragments, monocrystalline quartz, some plagioclase feldspar, chert, and micrite. Moreover, within this small group the

color of the phyllite (orangish brown to golden brown) is quite homogeneous (unlike the variability seen in Fabric 1a). Most samples contain fossils, and there are clay striations in the matrix, the latter being indicative of clay mixing.

In contrast to Fabric 1a, the vessels included in Fabric 1b are not storage and cooking wares: four kraters, a bowl, a dipper, a brazier, a pyxis, and a sarcophagus. They are all smaller vessels, mainly associated with serving and drinking liquids, except for the sarcophagus (vessels used for burials or deriving from burial contexts constitute a particular case, however, and are discussed separately).

### Fabric 1c. Coarse Fabric with Muscovite Mica-schist (Pl. 1C)

#### SAMPLES

MOC 03/86 (**IIC.22**; P 1623B), 03/88 (**IIC.24**; P 1618B): pithoi

Fabric 1c is a coarse fabric characterized by the presence of muscovite mica-schist. The color of the matrix ranges from reddish brown to dark brown, and it is optically inactive. The main non-plastics comprise large fragments of muscovite mica-schist, quartzite, and mica laths. There are a few phyllite fragments, and MOC 03/88 has fossils. As seen from the geological prospection in the area and the examination of the clay samples, there are not

any micaceous deposits in the immediate vicinity of Mochlos. However, such deposits have been reported in the area around the modern village of Lastros, which is located in the mountains south-east of Mochlos (Day, Joyner, and Relaki 2003, 23).

The shapes represented are pithoi. A similar fabric with muscovite mica-schist and phyllite as predominant components, also dating to LM III and represented in storage vessels, has been found at Chrysokamino and Petras (pers. obs.), but the rock and mineral suite is incompatible with the Mochlos samples. In contrast, the Neopalatial fabric described by Day, Joyner, and Relaki (2003, 30) is directly related to the fabric presented here. Regarding its provenance, muscovite mica-schist deposits seem to exist across East Crete and in the various outcrops of the Phyllite-Quartzite series. The one at Lastros is probably the closest to Mochlos.

#### Fabric 1d. Coarse Gray Phyllite Fabric (Pl. 1D)

##### SAMPLES

MOC 03/106 (**IIB.509**; P 3379): amphoroid krater

MOC 03/114 (**IIB.871**; P 4009): cooking pot

MOC 03/116 (**IIB.500**; P 6082): kalathos

Fabric 1d is a coarse (MOC 03/114, 03/116) to semi-coarse (MOC 03/106) fabric with a fine matrix, with non-plastic inclusions frequently occurring in the coarser samples but rarely in the semi-coarse. The inclusions consist almost exclusively of silvery gray phyllite, but there are also a few fragments of brown phyllite, mudstone, quartzite, sandstone, and rare micrite. The fine fraction consists almost entirely of well-distributed small fragments of quartz, giving the appearance of a silvery matrix incorporating the coarse inclusions.

This fabric differs from the other phyllite fabrics because of the color of the phyllite and the homogeneity in composition and texture. The vessels represented are an amphoroid krater, a cooking pot, and a kalathos. They might have been imported from the far east of Crete, as this fabric has been recognized as commonly occurring at Palaikastro (J.A. MacGillivray, pers. comm.). The provenance ascription is not secure, however, since no petrographic data is available for the coarse wares of that site.

### Comment on the Phyllite Fabrics

The range of the phyllite fabrics encountered at Mochlos seems to reflect the natural variation of the clay deposits. There is nothing to suggest that the fabrics described above are not local, except for Fabric 1d, which might be imported from Palaikastro. The restricted clay sampling carried out in the vicinity of Mochlos has demonstrated the variability of the natural deposits as well as the close relationship between the natural clays and the archaeological fabrics.

In regard to the technology of manufacture, the raw material selected for the manufacture of coarse and semi-coarse domestic vessels was a red, non-calcareous clay that was used for both storage and cooking vessels. It is worth noting that the phyllite fabric was used for functionally different vessels since the LM I period (Barnard 2003, 5). This practice is contrary to what has been observed at other production centers such as those within the Gournia/Kalo Chorio area, where there was a clear

differentiation in the clay recipe intended for vessels with different functional requirements; two versions of the same granodioritic raw material were used there, one for jars and one for cooking wares (Day, Joyner, and Relaki 2003). As demonstrated by the ethnographic record, raw material sources and clay recipes are not always related to functional requirements, but also to traditions of manufacture (Day 2004). Therefore, the phyllite fabric of LM III Mochlos might be indicative of two things: (1) that the clay recipes and the pyrotechnology used conformed to the requirements of both storage and cooking vessels, and/or (2) that the choice and manipulation of the specific raw materials constituted a long-lasting practice.

In Fabrics 1a and 1b there is evidence for tempering with organic material, while the occasional presence of micrite and fossils constitutes evidence for mixing of the red clay with a calcareous marl. Both practices are aimed at enhancing the properties of

the clay during manufacture, as well as those of the finished product (Bronitsky and Hamer 1986).

The predominance of the phyllite fabrics in the LM III Mochlos ceramic assemblage is rather obvious. The range of these fabrics as reflected in the main and smaller groups does not seem to represent a different technology of manufacture but rather a different recipe (still based on metamorphic raw materials) used for drinking/serving and cooking/storage vessels.

The phyllite fabric samples also included six examples of burial pithoi. Pithoi (the only class of ceramic material from the cemetery included in the analysis) were studied in order to compare the material used for burial vessels with that of their counterparts from the settlement, which were intended for domestic purposes, and to discover whether the two were manufactured with different raw materials and/or clay recipes. The analysis demonstrated that the majority of the burial pithoi were made with the main phyllite fabric (Fabric 1a), while two samples belonged to the coarse micaceous fabric (Fabric 1c). Therefore, it seems that specific recipes were not used for the burial pithoi. The presence of a sarcophagus sample in Fabric 1a is an additional indication that the use of a coarse phyllitic clay was preferred for coarse vessels of both domestic and burial function.

A comparison of the LM III samples discussed above with the LM I fabrics from the Artisans'

Quarter (Day, Joyner, and Relaki 2003, 15, 20) shows that the main phyllite fabric is closely associated with Petrographic Groups 1 and 4 in mineralogical composition. However, the shapes in the earlier assemblage comprise mainly closed vessels rather than cooking wares. Therefore, there seems to have been continuity in the use of the local phyllitic sources of raw material (raising problems in defining the chronology of survey ceramics when the shape is not diagnostic). Moreover, as will be discussed later, the phyllite (as opposed to other coarse) fabrics were used almost exclusively in LM III pottery production (Haggis 2000, 540; 2005, 53).

In northeastern Crete phyllitic deposits occur along the coast. Phyllite fabrics dating to the LM III period are known from Chrysokamino, Petras, and Zakros (pers. obs.), as well as from Mochlos. Although mineralogical and textural differences between the phyllite fabrics from Mochlos and Petras were anticipated because of the distance between the two sites, it is rather surprising that there are significant differences also between Mochlos and Chrysokamino, given the proximity of the two sites (Nodarou, 2007). A possible explanation might be that production was local *sensu stricto*, with deposits close to each production center having been exploited, as demonstrated by the compatibility between the fabrics of the archaeological material and the clay samples from the Mochlos area.

## Coarse Granite/Diorite Fabrics

### Fabric 2a. Coarse Granite/Diorite Fabric (Pl. 1E)

#### SAMPLE

MOC 03/113 (IIC.8; C 314): sarcophagus lid

Fabric 2a is a coarse, non-calcareous fabric characterized by the presence of acid to intermediate rock fragments, such as alkali and plagioclase feldspars, biotite, and amphibole, in a reddish-brown, fine-grained matrix. Such a rock and mineral suite is indicative of a granite/diorite source for the non-plastic inclusions. This fabric is well known from many sites dating to the Early

Minoan (EM), Middle Minoan (MM), Neopalatial, (i.e., Gournia, Pseira, Mochlos, Chrysokamino, and Kavousi), and Postpalatial (Chrysokamino and Petras) periods. It is considered to be the product of one or more centers operating in the northern part of the isthmus of Ierapetra. The source of the non-plastic inclusions is suggested to be located either between Kalo Chorio and Pacheia Ammos or in the area of Kapistri on the isthmus of Ierapetra (Myer, McIntosh, and Betancourt 1995, 145; Day, Joyner, and Relaki 2003, 18).

The occurrence of this fabric in the LM III assemblage is very restricted in comparison to the Protopalatial period (Haggis 2000, 537–538), and

it is represented only by this sarcophagus lid. It was not used for cooking pots, as was normally the case at Mochlos until the LM I period. The base clay reflects a red, possibly terra rossa soil, while the presence of clay pellets and striations might indicate incomplete clay mixing.

### Fabric 2b. Coarse Granite/Diorite Fabric (Pl. 1F)

#### SAMPLE

MOC 03/83 (**IIB.488**; P 3729): bowl

The composition of Fabric 2b, primarily alkali and plagioclase feldspar, is similar to that of Fabric 2a. However, it lacks the amphibole and biotite seen in Fabric 2a, which thus has a more granitic appearance. Moreover, the texture of the groundmass is different due to the presence of sparse quartz fragments in the fine fraction, the dark brown color of the matrix, and the absence of the rounded reddish-brown clay concentrations seen in Fabric 2a. These differences might reflect either a different source of the raw material or a different technology of manufacture for burial and domestic vessels.

## *Fine Fabrics*

### Fabric 3. Fine Fabric with Fossils (Pl. 2A)

#### SAMPLES

MOC 03/4 (**IIB.933**; P 5227A): pulled-rim bowl

MOC 03/10 (**IIB.192**; P 3424), 03/11 (**IIB.194**; P 3473): kylikes

MOC 03/36 (**IIB.421**; P 913), 03/37 (**IIB.459**; P 5271): shallow bowls

MOC 03/45 (**IIB.111**; P 3345), 03/47 (**IIB.140**; P 5270): cups

MOC 03/59 (**IIB.554**; P 3551): dipper

MOC 03/74 (**IIB.615**; P 5296), 03/75 (**IIB.657**; P 3524): jugs

Fabric 3 is a fine fabric with a calcareous matrix ranging in color from orange and golden brown to brown. It is characterized by the presence of micrite, fossils, and a few shell fragments. There are also a few metamorphic rock fragments and common to few clay concentrations, occasionally associated with clay striations and porphyroclasts. This evidence suggests that Fabric 3 is the product of mixing a red (phyllitic) clay and a fossiliferous marl. It seems to be local, taking into account the color and texture of the phyllite and the characteristics of the marl deposit that has been sampled. The occurrence of altered igneous fragments in the phyllite links the red clay used to the coarse phyllite fabric (Fabric 1a) described previously. It seems, therefore, that it is a local fabric.

A variety of vessels is represented. They all belong to shapes associated with serving and drinking liquids.

### Fabric 4. Very Fine, Red, Non-calcareous Fabric (Pl. 2B)

#### SAMPLES

MOC 03/13 (**IIB.206**; P 3569): kylix

MOC 03/29 (**IIB.514**; P 4452): krater

MOC 03/49 (**IIB.117**; P 3522): deep cup

MOC 03/53 (**IIB.852**; P 4120): rhyton

Fabric 4 is a very fine, red, non-calcareous fabric. It is characterized by the presence of clay pellets, with very few monocrystalline quartz fragments, rare sandstone, chert, and very rare metamorphic rock fragments among the non-plastic constituents. It might derive from a red alluvial deposit, but the absence of non-plastic inclusions and the compacted texture of the fabric seem to reflect levigation of the raw material. The color of the matrix and the absence of optical activity indicate a high firing temperature. Although the mineralogy is undiagnostic of origin, the color and texture of the matrix do not seem compatible with a local provenance. According to the typological study, a north central Cretan origin could be suggested.

The shapes represented include vessels connected with serving, drinking, and pouring liquids.

### Fabric 5. Very Fine, Calcareous Fabric (Pl. 2C)

#### SAMPLES

MOC 03/18 (**IIB.196**; P 3513), 03/21 (**IIB.220**; P 3708), 03/51 (**IIB.246**; P 4509): kylikes

MOC 03/46 (**IIB.108**; P 3107): deep cup

MOC 03/62 (**IIB.753**; P 3302): stirrup jar

Fabric 5 is characterized by its very fine texture and the golden brown to greenish color of the matrix. The non-plastic components are rare and comprise small fragments of monocrystalline quartz, chert, and quartzite. It seems that a calcareous clay was used, but the mineralogy of the fabric is not compatible with the calcareous clay of the local Fabric 3. Although secure conclusions about the origin of the fabric cannot be drawn, according to typological criteria a central Cretan provenance may be suggested.

The shapes represented are connected with drinking and transporting liquids.

## *Other Red, Non-calcareous Fabrics*

### Fabric 6 (Pl. 2D)

#### SAMPLE

MOC 03/25 (**IIB.212**; P 3592): kylix

Fabric 6 is a fine, red, non-calcareous fabric. The main non-plastic constituents are small fragments of monocrystalline quartz that are evenly distributed in the matrix, along with coarser fragments of quartzite and quartzite-schist, chert, biotite and white mica laths, and rare fragments of epidote. There are a few textural concentration features (TCFs); their color is brown to dark brown, and they contain inclusions of quartz as well as biotite and white mica laths.

The mineralogy and non-calcareous character of this fabric are not indicative of provenance, although the color and texture of the matrix are quite different from all the other fabrics encountered in the Mochlos assemblage. There is nothing to suggest that the fabric is not local, but no secure provenance assignment can be made. The vessel represented is a kylix, and while kylikes at Mochlos are commonly imported, they were also locally produced.

### Fabric 7 (Pl. 2E)

#### SAMPLE

MOC 03/38 (**IIB.456**; P 4585): shallow bowl

Fabric 7 is a semi-fine, red, non-calcareous fabric. The main non-plastic inclusions are angular monocrystalline quartz fragments, quartzite, white mica-schist, chert, a few fragments of micrite, white mica laths, rare fragments of epidote and pyroxene, and fossils. There are also a few rounded, dark reddish-brown TCFs, composed mainly of quartz and mica-schist. The micrite and the fossils indicate clay mixing of a non-calcareous clay and a calcareous marl. The amount of the white mica and the presence of epidote and pyroxene make this fabric incompatible with the other red fabrics at Mochlos. The mineralogical composition, however, does not provide secure evidence about local or non-local provenance.

### Fabric 8 (Pl. 2F)

#### SAMPLE

MOC 03/64 (**IIB.751**; P 1771): stirrup jar

Fabric 8 is a fine, red, non-calcareous fabric. The main non-plastic inclusions are small fragments of angular quartz, rare biotite and white mica laths, and very rare fragments of carbonate rocks. Also rare are the TCFs, which are dark reddish brown in color, in most cases without any inclusions. The non-plastics are not diagnostic of origin; therefore, no secure provenance assignment can be made.

### Fabric 9. Green, Fine Fabric with Siltstones (Pl. 3A)

#### SAMPLES

MOC 03/9 (**IIB.328**; P 3111): pulled-rim bowl

MOC 03/30 (**IIB.516**; P 4714): krater

MOC 03/80 (**IIB.676**; P 1758): amphora

Fabric 9 is characterized by the fineness and the green color of the matrix. The inclusions consist primarily of common to rare dark gray siltstones, frequent quartz, and rare altered igneous rock fragments, along with very few fragments of metamorphic rocks. The presence of fossils as well as the green color of the matrix indicates the use of a calcareous clay. The compacted appearance of the matrix is indicative of high firing temperatures. The presence of clay pellets suggests the addition of a red clay into the calcareous base clay. The color and texture of the pellets in this fabric are fairly similar to that of the pellets encountered in Fabric 11, which is considered to have been imported from central Crete.

This fabric has been discussed by Day (1995, 161; 1997, 224); it has been recorded in many sites in eastern Crete, often occurring in oval-mouthed amphorae. It also occurs at Knossos and other sites in north central Crete beginning in the EM III period. It has never been widely observed at Knossos, and the center of production has not been identified with certainty. However, the area of the Mesara has been suggested as a possible place of origin (Day 1995, 161).

The vessels represented are connected with the transport and consumption of liquids.

### Fabric 10. Red, Non-calcareous Fabric with Small Quartz Fragments (Pl. 3B)

#### SAMPLES

MOC 03/6 (**IIB.330**; P 3221), 03/8 (**IIB.332**; P 3297): pulled-rim bowls

MOC 03/22 (**IIB.214**; P 3602), 03/23 (**IIB.228**; P 3864), 03/24 (**IIB.223**; P 3715): kylikes

MOC 03/31 (**IIB.749**; P 3894): krater

MOC 03/39 (**IIB.435**; P 3408), 03/43 (**IIB.487**; P 3718): bowls

MOC 03/48 (**IIB.131**; P 4445): deep cup

MOC 03/55 (**IIB.553**; P 3525): dipper

MOC 03/63 (**IIB.754**; P 3344), 03/68 (**IIB.759**; P 5265): stirrup jars

MOC 03/105 (**IIB.669**; P 3437): thelastron

When encountered in East Cretan ceramic assemblages, Fabric 10 is rather distinctive macroscopically; the clay is pinkish, and occasionally there is a dark core. It is high fired, and it makes a characteristic sound when hit against a hard surface. Under the polarized microscope, it is characterized by a semi-fine, red, non-calcareous matrix. The non-plastic inclusions consist primarily of small quartz and metamorphic rock fragments. This fabric has already been described and identified as deriving from Palaikastro (Day 1995). Parallels for this fabric exist at Petras, House I (Pl. 3C) and the farmhouse at Chrysokamino (Nodarou 2007).

Although it has been suggested that the main shapes in the Palaikastro fabric are cups and jugs (Day 1995, 162), the variability in shapes at Mochlos is surprising (for parallels, see Day 1995, fig. 113:c). The small quartz fragments of the fine fraction are quite numerous and evenly distributed in the matrix, perhaps indicating a connection with the gray phyllite fabric (Fabric 1d), but this is only an indication and does not provide secure evidence for provenance.

It seems also that there is a certain range of variation in the Palaikastro fabric(s). Not all samples are alike; some contain more mica, others more clay pellets (MOC 03/48) or fossils, and in some there is no dark core. However, the non-plastic components, the texture, and the firing of the fabric are very similar. The variability of the Palaikastro fabrics might reflect either different technologies within Palaikastro, or it might be related to vessel shape and/or surface treatment. These alternatives cannot be evaluated until compositional data from Palaikastro become available.

The shapes represented are connected with the transport and consumption of liquids.

### Fabric 11. Very Fine Fabric with Clay Pellets (Pl. 3D)

#### SAMPLES

MOC 03/16 (**IIB.169**; P 373), 03/19 (**IIB.244**; P 4457A): kylikes

MOC 03/40 (**IIB.491**; P 4046), 03/41 (**IIB.466**; P 515): bowls

Fabric 11 is a very fine fabric with rare non-plastic inclusions consisting primarily of quartz and a few sedimentary rock fragments. Although the inclusions are not diagnostic of origin, the samples in this group display homogeneity in composition and texture. In some cases there is a fine layer of red slip visible on the vessel surface. The presence of numerous clay pellets is indicative of the mixing of a calcareous marl and a non-calcareous clay. The rounded shapes of the plastic and non-plastic inclusions, as well as the overall texture of this fabric, point toward a non-local origin, possibly from north central Crete.

Parallels for this fabric exist in the assemblage from Petras, House I (Pl. 3E) and the farmhouse at Chrysokamino (Nodarou 2007), where they are also considered to be imports from central Crete.

The vessels represented include shapes connected with drinking liquids.

### Fabric 12. Very Fine, Red Fabric with Clay Pellets (Pl. 3F)

#### SAMPLES

A. MOC 03/50 (**IIB.143**; P 5622): deep cup

MOC 03/52 (**IIB.259**; P 5628): kylix

B. MOC 03/3 (**IIB.78**; P 1480): rounded handleless cup

MOC 03/61 (**IIB.761**; P 5636): stirrup jar

Fabric 12 is divided into two subgroups because, although the four samples represented share a similar fabric in terms of mineralogical composition and texture, fossils and micrite are present in Subgroup A only. This fabric is fine and is characterized by a greenish-brown to brown and optically inactive matrix. The non-plastic inclusions are small-sized

and evenly distributed in the matrix. In Subgroup A they consist primarily of monocrystalline quartz, micrite, and rare fragments of phyllite. The presence of microfossils, along with clay pellets and clay striations, is indicative of mixing of a calcareous marl and a non-calcareous clay. Subgroup B has monocrystalline quartz, a few fragments of phyllite, and biotite mica laths. The presence of similar clay pellets as those in Subgroup A leads to the assumption that a similar (or the same?) raw material has been used without the addition of the calcareous component. As in other cases, the mineralogy of this fabric is not distinctive of origin; it could be local or imported.

The shapes represented in both subgroups are connected with the transport and consumption of liquids.

### Fabric 13. Semi-coarse Foreign(?) Fabric with Quartz And Micritic Limestone (Pl. 4A, 4B)

#### SAMPLES

MOC 03/110 (**IIB.687**; P 2139), 03/111 (**IIB.689**; P 2142), 03/122 (**IIB.686**; P 2138): amphorae (Canaanite?)

Fabric 13 is an unusual fabric for the Mochlos assemblage. It is characterized by the presence of large amounts of biotite and white mica in the clay matrix, with non-plastic inclusions consisting of rounded fragments of micrite, subangular quartz, and rare fragments of metamorphic and igneous rocks, as well as rare fragments of volcanic glass. This rock and mineral suite is not compatible with any of the fabrics encountered at Mochlos or elsewhere in East Crete.

The sherds are too small to make secure identifications of shape, but it has been suggested by the archaeological study that they belong to medium-sized closed vessels, possibly to amphorae of the Canaanite type. Due to the lack of comparative data, the petrographic analysis cannot confirm the provenance of these vessels. It seems, though, that they are incompatible with a local provenance, and future research needs to be focused on pottery fabrics of the eastern Mediterranean.

## Conclusions

The petrographic analysis of selected samples from the LM III assemblage of Mochlos provides new evidence concerning the ceramic material from the site and patterns of pottery distribution during the Postpalatial period. As stated in the beginning, the issues that may be addressed through petrography are concerned with the mineralogical composition of the fabrics, their provenance and technology, and the investigation of potential clay recipes and their use through time.

The analysis has resulted in the establishment of 13 fabric groups. In some cases the degree of variability in mineralogy and/or texture has led to the establishment of smaller groups or subgroups, whereas in others the fabric groups contain only a few or even single samples. In regard to coarse wares, the predominance of the phyllite-based fabrics is indisputable. As to the provenance of the vessels belonging to the main coarse fabric (Fabric 1a), it may be considered local not only because its rock and mineral suite reflects the geology of Mochlos (as demonstrated by limited, local clay sampling), but also because it is visible in earthen construction materials and structures. In some cases (like the micaceous Fabric 1c), the concept of local becomes broader and extends across the northeast coast up to the modern village of Lastros. The differences observed in the clay recipe used for cooking and storage vessels as compared with the recipe used for the medium-sized, semi-coarse vessels used for serving, drinking, and transporting liquids indicate the presence of different manufacturing traditions for domestic vessels and for table wares or transport vessels intended for display and common view.

Imported coarse wares are rather limited, with a few pottery imports from Palaikastro and very few vessels in granodiorite fabric (Fabrics 2a and 2b) imported from the area of Gournia or Kalo Chorio.

The picture for the fine wares is more complicated. There is a multitude of medium-sized and small-sized vessels used for serving (bowls, cups, goblets, kylikes, and kraters) and pouring (dippers and jugs) liquids, as well as less common shapes such as pyxides, rhyta, and thelastra. There are also numerous fabrics, some manufactured with calcareous

and others with non-calcareous raw materials. The most common fine fabric at Mochlos is the fine fabric with fossils (Fabric 3), which seems to be related to the local marl deposits.

However, there are several fine fabrics that cannot be assigned a definitive origin, due to the absence of non-plastic inclusions. In some cases there are features which, in combination with archaeological information, suggest a non-local provenance ascription. Fabric 9 (green with siltstones) finds good parallels at Petras and Knossos, and it has been proposed that the center of production was located in the Mesara (Day 1995, 162). Fabric 10 (red, non-calcareous with small quartz fragments) is quite diagnostic; it originates from Palaikastro and displays a wide range of shapes, mainly cups, bowls, and jugs but also less common shapes such as kylikes and kraters. It seems that in the LM III period Palaikastro was an important center of production, distributing pottery to many sites in East Crete, including Petras and Mochlos (Nodarou 2007). Fabric 11 (very fine with clay pellets) is thought to originate from north central Crete. The range of shapes represented in fabrics considered to be imported is no different from the local repertoire, comprising stirrup jars, amphorae, kraters, kylikes, cups, and various kinds of bowls. A possible explanation might rely either on the content (for containers), or on the symbolic and prestigious aspect that foreign vessels embody. Finally, Fabric 13 (semi-coarse with quartz and micritic limestone) is associated with transport vessels, and its composition is incompatible with a local origin. Although no secure provenance assignment can be made on petrographic grounds, a possible connection should be sought in the eastern Mediterranean.

As stated earlier, another issue to be tackled through analysis is the continuity and change in ceramic fabrics between the LM I and the LM III assemblages, especially with regard to coarse wares for which data are available from the Artisans' Quarter (Day, Joyner, and Relaki 2003). The phyllite-based fabrics dominated the ceramic assemblages of Mochlos since the Neopalatial period, at the expense of other fabrics like the

granodiorite. It seems that during the Neopalatial period there was a generalized tendency for replacement of the granodiorite- in favor of the phyllite-based fabrics, as reflected in the distribution of this fabric in the area of the isthmus of Ierapetra (Haggis 2000, 540; 2005, 53). This is also reflected in the Neopalatial material from the Artisans' Quarter at Mochlos, where the presence of the granodiorite fabric is minimal and is regarded as a remnant of earlier periods (Barnard 2003, 7–8).

The decrease in the amount of the granodiorite material seems to represent a shift of interest from the Gournia–Kalo Chorio area, where the granodiorite fabric originated, to the center(s) of the north coast of east Crete (probably in the area of Kavousi-Mochlos), where the phyllite outcrops occur (Haggis 2000, 538). This shift became even more pronounced in the LM III period, as indicated by the Mochlos assemblage. The phyllite fabric was used for all classes of coarse vessels, cooking and storage, and semi-coarse versions were also used for drinking and serving vessels. The only exception is a sarcophagus lid in the granodiorite fabric; this has already been explained as a probable remnant of an old tradition. The second sarcophagus examined was made in the phyllite fabric. Future studies may investigate how extensive this decrease in granodiorite products was, and also whether, despite the decrease, their use persisted in selected classes of material (such as the sarcophagi).

As was the case for the granodiorite fabric, the calcite-tempered fabric, which appears to have been a remnant of earlier Neopalatial times (Barnard 2003, 10), is totally absent from the LM

III assemblage. It seems that in the LM I period the quantity of calcite-tempered pottery was already drastically lower, and in the Postpalatial period it was totally absent.

Finally, the main techniques of manufacture, already discussed individually, have been identified as clay mixing and tempering. Both techniques were commonly practiced from the EM period until modern times (Blitzer 1990). They are aimed at enhancing the natural properties of the clays. Clay mixing involves using two different raw materials, a calcareous and a non-calcareous clay, while tempering is the intentional addition of non-plastics or organic matter in the clay paste. With regard to firing, it appears that the majority of the vessels were high fired, as indicated by the optically inactive clay matrix, and that the potters had a substantial knowledge of firing technology and good control of firing conditions.

The analysis shows that in the LM III period the settlement of Mochlos received pottery from its immediate vicinity as well as from areas farther afield, such as Palaikastro, north central Crete, and possibly the eastern Mediterranean. The variability of raw materials seen in the local pottery reflects the presence of pottery workshops exploiting a range of sources and manufacturing many types of coarse and fine vessels. Occasionally their products imitated shapes not typical of East Cretan manufacture, such as stirrup jars and kylikes. Moreover, the presence of non-local wares reflects the participation of the settlement in an active network of pottery trade, in which pottery was imported not only for its content but also for its prestigious and symbolic forms.

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# Late Minoan II–III Pottery

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## *Shape Typology*

The LM II–III ceramic typology is organized into five broad categories of shape: open, closed, specialized, cooking, and miscellaneous. Within these categories the typology subdivides the vessels into more specific categories. Open vessels may be designated as those whose mouths are wide and unrestricted in comparison to their general shape. In general, these are drinking and eating vessels, although some most likely served other, more specialized functions (basins and vats, for example). Closed vessels, on the other hand, were intended primarily for storage and/or transport, and therefore they have relatively narrow and restricted mouths. These include liquid storage vessel such as jugs, flasks, and stirrup jars, as well as dry storage vessels such as pyxides and pithoi. Specialized objects are those that do not fit neatly into either the open or closed vessels categories, for example, rhyta and thymiateria. These objects served some specialized, possibly ritual, function. Cooking vessels are those

made of coarse cooking fabrics, such as tripod cooking pots and cooking dishes. Finally, the miscellaneous category includes unidentified decorated LM II–III sherds. The typology of shapes and this chapter are organized as follows:

### I. OPEN VESSELS

#### A. Cups

1. Conical
2. Rounded handleless
3. Champagne
4. Deep
5. Miscellaneous

#### B. Kylikes

#### C. Bowls

1. Pulled-rim
2. Shallow