

Consuming Local and Imported Pots at Kakovatos: Regional and Interregional Connections

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Abstract: The building complex at the acropolis plateau and the three adjacent, richly furnished tholos tombs attest to the existence of an elite group at the site of Kakovatos during early Mycenaean times. The tombs that contained, among other precious finds, palatial jars and oval-mouthed amphorae verify the presence of a powerful social group operating there during this transformative period, when major social changes took place throughout the Peloponnese with the emergence of political and social hierarchies.

An integrated project combining archaeological and scientific data is being carried out concerning both the finer and coarser pottery from Kakovatos in order to shed light on issues of pottery production and supply. Petrographic data combined with refiring tests and Neutron Activation Analysis (NAA) are closely associated with the typological and stylistic analysis of the pottery. The assemblage under study comprises plain and decorated ceramics found at the settlement and the tholos tombs, including the palatial jars and the oval-mouthed amphorae, typical transport containers often associated with elite groups.

The current study constitutes a first attempt at exploring the local, intraregional and interregional dynamics affecting social transformations in this part of the Peloponnese and neighbouring and more distant areas. The preliminary results suggest a rather intricate pattern of supply and consumption and a cosmopolitan lifestyle with local and imported pots combined in different activities, such as drinking but also cooking. Based on the variety of imported pots, it seems that there are wide connections and access to regional and long-distance networks and intensive circulation between northern Triphylia and other parts of the Peloponnese, as well as between the site and distant regions. Two main lines of connections could be distinguished that link Kakovatos with Crete on the one hand and with other regions of the Peloponnese, especially the northeast (i.e. the Argolid), on the other.

Keywords: Kakovatos, Triphylia, palatial jars, oval-mouthed amphorae, Crete, Kythera, NAA, petrography

Introduction

“May you live in interesting times.” This expression, which is said to originate from a Chinese curse, can be applied equally well to the early Mycenaean period. This dynamic period witnessed the transformation of the MH societies into the hierarchical systems of the Mycenaean period with new social elites and the development of intensive interregional networks. It is an opportunity to study these processes in an exemplary way within the micro-region of Triphylia in the western Peloponnese. Thanks to the cooperation with our colleagues Kostas Nikolentzos and Panagiotis Moutzouridis, the study of materials from neighbouring sites will eventually allow us to situate the rise and fall of the early Mycenaean site of Kakovatos in the regional context of Triphylia. The available material from the sites of Kakovatos, Kleidi-Samikon, Epitalion and Ayios Dimitrios (Fig. 1) provides the basis for studying the regional patterns of production, circulation and consumption of pottery in a diachronic perspective. The typological and stylistic study of the pottery is supplemented by a thorough and systematic programme of petrographic and chemical analyses. This paper will focus mainly on the pottery from the tholos tombs of Kakovatos, whose

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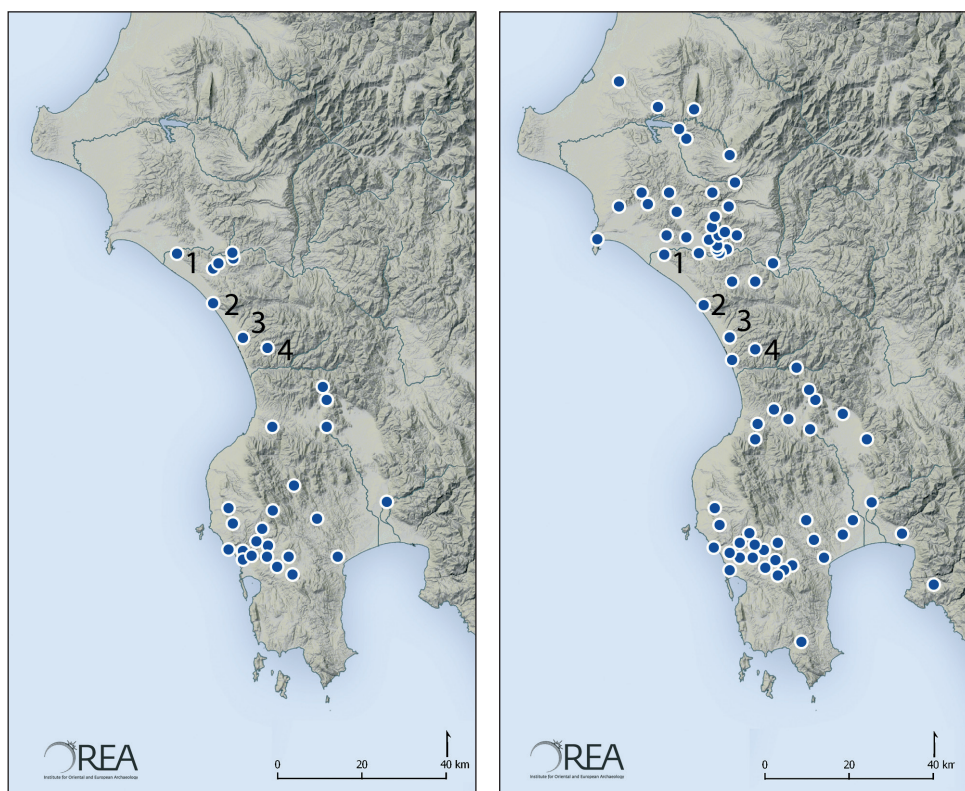


Fig. 1: Distribution of wheelmade Mycenaean lustrous painted pottery: left: LH I–IIA, right: LH IIB–III. Based on RMDP; Nikolentzos 2011; Zavadil 2013. 1. Epitalion (Ayioritika); 2. Kleidi-Samikon; 3. Kakovatos; 4. Ayios Dimitrios (Lepreon)

owners appear to have been the most prominent group within the region and part of the network of high-ranking social groups within early Mycenaean Greece.⁵ It focuses on the first results of the petrographic analysis of the pottery samples and will provide only a preliminary discussion of the pottery.

The two excavated rooms on the acropolis seem to be associated with storage and craft activities. The pottery assemblage is characterised by coarser fabrics consisting of storage pots, household vessels and cooking pots and finer fabrics for smaller shapes such as drinking vessels. Although the statistical evaluation of the pottery is still in progress, the pottery assemblage indicates the domestic character of the building.⁶

The two major deposits identified at the site belong to LH IIA and LH IIB. The context of the LH IIB destruction layer illustrates that handmade MH-type vessels and Mycenaean pottery were contemporaneously in use. Closed and rather large shapes like amphorae are usually handmade and occasionally matt-painted. At the same time, smaller, mainly wheelmade drinking vessels of Mycenaean-type pottery, decorated with lustrous paint, were in use, a phenomenon that is well known from other early Mycenaean and even later contexts.⁷ The goblet appears as the most

⁵ See the papers of Eder – Hadzi-Spiliopoulou and de Vreé, this volume.

⁶ Eder 2010; Eder 2011a; Eder 2012; Eder – Hadzi-Spiliopoulou, this volume. Birgitta Eder is preparing the final publication of the pottery, while Jasmin Huber is comparing the evidence from Kakovatos with other Triphylian Late Bronze Age sites (Kleidi-Samikon, Epitalion and Ayios Dimitrios) in order to study the production, circulation and consumption of pottery within this micro-region for her PhD. In addition, Georgia Kordatzaki and Evangelia Kiriati (together with Hans Mommsen) are currently preparing the publication of the analytical data of the pottery from the four sites.

⁷ Korakou, East Alley Pit, level VI (LH II): Dickinson 1972, 106; Athens, wells from the south slope of the Acropolis (LH IIB–IIIA1): Mountjoy 1981, 74–79; Keos, Aya Irini, period VII (LH II): Cummer – Schofield 1984, 60,

prominent drinking vessel, and it is possible to follow its local transformation from MH shapes and fabrics into its Mycenaean version.

An earlier deposit dates to LH IIA and illustrates that vessels of clearly MH tradition, e.g. bowls with horizontal grooves and burnished surfaces as well as incised pottery of the so-called Adriatic type, coexisted with a few early Mycenaean fine ware vessels such as Vapheio cups (FS 224).

In many ways, the development of pottery styles in Kakovatos followed trends attested in the southwestern Peloponnese. The distribution of LH I–IIA Mycenaean wheelmade lustrous decorated pottery in the southwestern Peloponnese illustrates how seamlessly the sites of ancient Triphylia connected to those of the same period in Messenia. This is in marked contrast to the region north of the Alpheios River, where Mycenaean pottery does not seem to spread before LH IIB (Fig. 1).⁸

Several stylistic and typological features find their best parallels in Messenia. Two fragments of cups come from the LH IIA layer in Ka 1 on the acropolis (stratigraphic unit, hereafter SU, 218) as well as from the dromos of Tholos A. The profile and decoration identify them as typical LH IIA shallow cups (FS 218), which can be found frequently in early Mycenaean sites (Fig. 2).⁹ However, the interior is – in contrast to the much more conventional shallow cup with inner lip band – painted monochrome, a phenomenon that appears most commonly in Messenia.¹⁰ Monochrome interiors are popular on Cretan drinking vessels, and this mode of decoration could therefore be interpreted as a manifestation of Minoan influence on the mainland.¹¹ The presence of several so-called spinning bowls in the acropolis material also indicates strong connections with Messenia, because they appear restricted to this region.¹² All this leads to the impression that Messenia and Triphylia shared common aspects of their material culture in the early Late Bronze Age.¹³

In the nearby tholos tombs, closed decorated vessels characterise the pottery assemblage, mainly including the well-known lustrous painted palatial jars and the oval-mouthed amphorae.¹⁴ In addition, the very few drinking vessels include shallow cups, Vapheio cups and an Ephyraean goblet. Pottery in the MH tradition is entirely lacking.

The current integrated project aims to characterise the local/broadly local potting tradition. Due to the lack of background knowledge concerning fabric typologies and potting technologies in the western Peloponnese, the new data will shed light on previously unknown aspects of con-

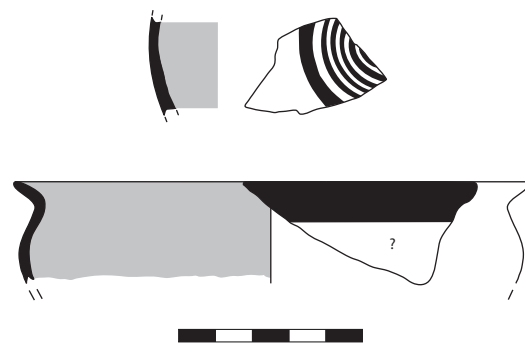


Fig. 2: Shallow cups (FS 218) with framed spiral (FM 46) and monochrome interior (LH IIA) from Kakovatos: from the acropolis (at the top) and the tholos tombs (below) (drawings: Ch. de Vreé, B. Eder, N. Math)

no. 245; Nichoria (LH II): Dickinson 1992, 485; Pefkakia Magoula (LH II): Maran 1992b, 174–176; Tsoungiza, trench EU 10 (LH IIA): Rutter 1993, 83, 87–88. The presence of LH II–IIIA1 matt-painted material at the Mene-laion seems likely: Catling 2009, 346–347.

⁸ Eder 2011b, 106–107. The distribution map is based on RMDP; Nikolentzos 2011; Zavadil 2013.

⁹ The discovery of a great number of shallow cup fragments with spiral decoration among the wasters of the Berbati kiln could be taken as evidence for mass-production: Åkerström 1968; Dickinson 1972, 105; RMDP, 23.

¹⁰ Volimidia-Kephalovryson (Chamber Tomb B): Karagiorga 1976, pl. 194γ; Lolos 1987, 207, fig. 384; RMDP, 323 n. 187. Pylos: Blegen et al. 1973, fig. 249.27; RMDP, 323, fig. 108 no. 22.

¹¹ Mountjoy 1990, 249–251; RMDP, 323; Rutter 2003, 200. For Cretan examples see e.g. Chania: Andreadaki-Vlazaki 2011, 61, fig. 11g–i. Mainland: Nichoria: Dickinson 1992, 481; Volimidia-Kephalovryson and Pylos: RMDP, 323. See also Kythera: Coldstream – Huxley 1972, 293; Tournavitou 2011, 125, fig. 7a–f.

¹² Eder – Hadzi-Spilopoulou, this volume.

¹³ Apart from pottery traditions, the distribution of early Mycenaean tholoi in Messenia and Triphylia as well as comparable grave inventories underline that Messenia and Triphylia were part of a *koiné* concerning their material culture: Eder 2011b.

¹⁴ Müller 1909.

sumption and production of pottery in this region. The combined scientific analysis aims to understand choices made by the potters throughout the manufacturing process and their perception of materials and techniques, and, based on the emerging patterns of pottery production, supply and consumption, to shed light on local and regional networks. This paper comprises a preliminary discussion of the rich set of data produced so far.

Methodology and Selection of the Pottery Samples

In order to assign provenance and characterise the local potting tradition(s), petrographic analysis complemented by Neutron Activation Analysis (NAA) was closely combined with the macroscopic examination of the pottery and refiring tests. The next stage of research will include extensive geological prospection and sampling to investigate in a comparable way the raw material sources in the wider region.

For the selection of the pottery samples, the shape, decoration and size of the vessels as well as the macroscopically defined fabrics were taken into consideration. The wide variability of the macro-fabrics, as well as the high fragmentation of the sherds and their abrasion posed a challenge for the final selection. In total, 170 sherds were chosen for petrographic analysis from both the acropolis and the tholos tombs. NAA was applied on 33 of these samples, including finer and coarser pots from the acropolis as well as several palatial jars, oval-mouthed amphorae and an Ephyraean goblet from the tholos tombs.

Brief Description of the Geological Setting of the Wider Area under Study

The western part of the Peloponnese and more particularly the wider area under study between the Alpheios River further north and the Neda River south of Kakovatos, is covered by extensive Holocene, Pleistocene and Pliocene loose sediments, as well as hard sedimentary rocks of the Gavrovon-Tripolis and the Olonos-Pindos Zones.¹⁵

More particularly, the wider coastal zone is characterised by sands, sand dunes, alluvial deposits and lagoonal sediments of the Holocene. The Pleistocene and Pliocene sediments, which cover the inland areas, are composed of terra rossa-type sediments, sands and conglomerates, as well as sandstones, marls and clays of marine, lacustrine and fluvial origin. Furthermore, rock formations of the Olonos-Pindos Zone occur consisting of limestone, chert, flysch and, in places, of flysch and limestone of the Gavrovon-Pylos Zone.

Discussion of the Analytical Data

The Local/Broadly Local Pottery

Based on petrographic analysis, the majority of the samples from the acropolis have been clustered in one broad group, including medium, medium-coarse and coarse fabrics. The fabric coarseness is usually associated with the vessel size: the larger the vessel, the coarser its fabric. The inclusions of these fabrics indicate a common association with sedimentary lithologies (mainly chert and mudstone) including very few metamorphic rock fragments. Such mineralogy is compatible with the local and broadly local geology, making the majority of the medium to coarse pottery from Kakovatos probable products of broadly local manufacture.

¹⁵ Hageman 1979; Streif 1980; Streif 1982; Metropoulos et al. 1982; Higgins – Higgins 1996; Tsafou – Chatzicharistou 2007; Kontopoulos – Bouzos 2011; Vassilakis – Verykiou-Papaspyridakou 2011; Fountoulis et al. 2014.

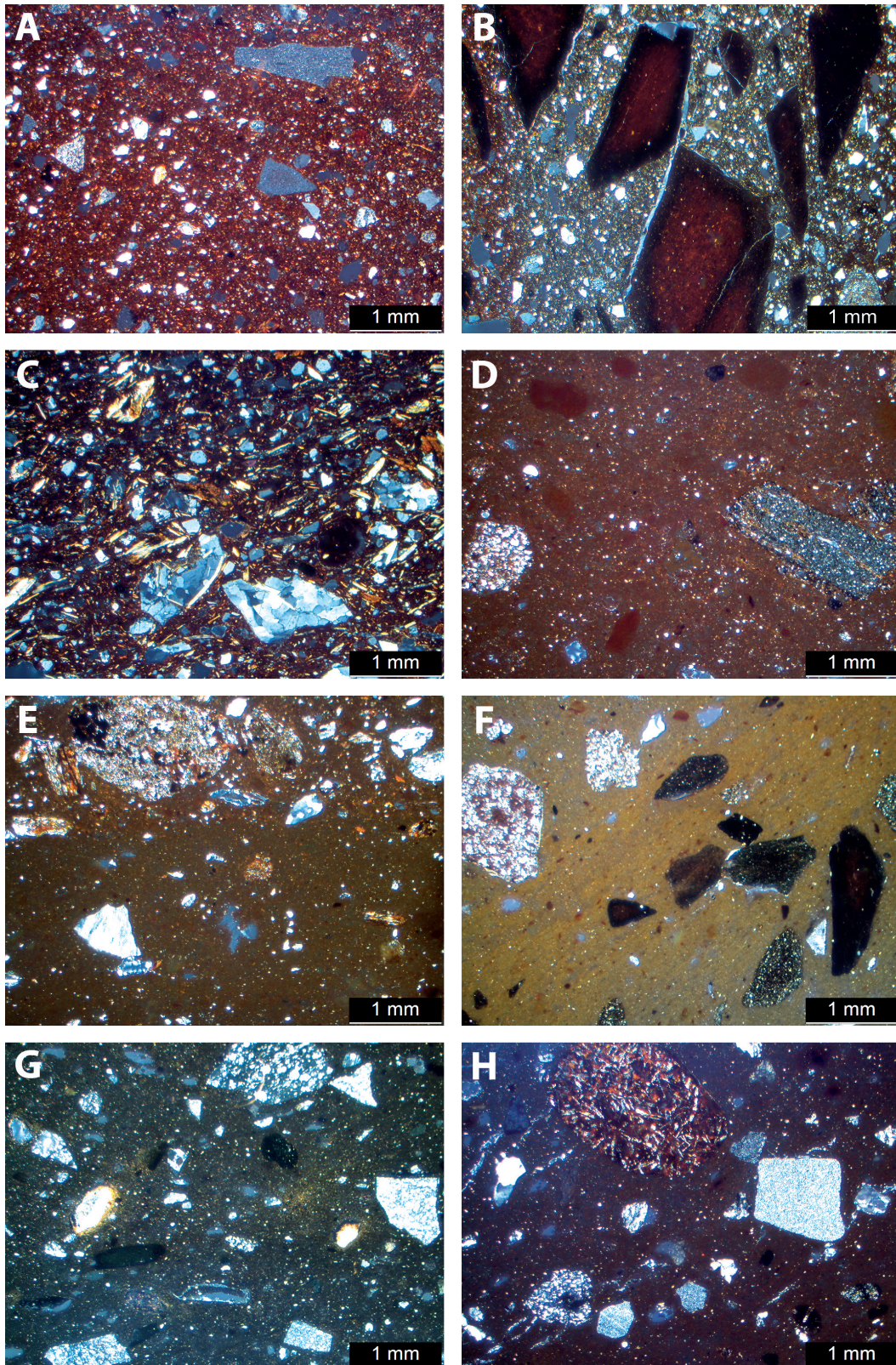


Fig. 3: Photomicrographs of thin sections in XP: 3A. Medium-coarse fabric with abundant chert inclusions associated with goblets and bowls with grooves as well as medium-sized open and closed pots; 3B. Mudstone-tempered fabrics associated with the larger and coarser pots; 3C. Red Micaceous fabric; 3D. Sand-tempered fabric with siltstone and sandstone; 3E. Sand-tempered fabric with metamorphic inclusions; 3F. Mudstone- and chert-tempered fabric; 3G. Mudstone- and chert-tempered fabric; 3H. Sand-tempered fabric with chert, serpentine and igneous rock inclusions (photos: G. Kordatzaki)

At this stage of research the term ‘local’ bears a quite broad meaning, given the lack of comparable work in the wider area and the invariable geology of the western Peloponnese. The medium fabric group includes both red-firing and buff-firing pastes and is characterised by coarse chert inclusions (Fig. 3A). The coarse fabric group is predominantly red-firing and contains coarse mudstone inclusions considered as temper added by the potters (Fig. 3B). A wide spectrum of shapes belongs to the local/broadly local production and includes goblets, Minoan-style conical cups, bowls with grooves and spinning bowls. Moreover, it comprises medium and medium- to large-sized closed vessels, occasionally matt-painted; pithoi and jars; other household vessels, a few of which belong to the ‘Adriatic’ type, as well as cooking vessels including tripod cooking pots.

Both red-firing and buff-firing medium fabrics, reflecting the use of lower and higher calcareous clays, were used in the production of the smaller pots, such as goblets and bowls with grooves of the MH tradition. Mudstone-tempering comprises the predominant clay paste preparation practice for the coarser fabrics used in larger vessels. There is no clear evidence so far for the use of the potter’s wheel in the manufacture of this medium-to-coarse local pottery.

Internal variability was observed within the broadly local fabrics, which might be indicative of more than one production place in the wider region and/or of natural variation within the raw material deposits. Comparative analysis of the pottery from the three sites of Kleidi-Samikon, Epitalion and Ayios Dimitrios, already in progress, will provide substantial grounds for evaluating this preliminary picture and investigating potential networks of exchange in wider Triphylia.

The finer ‘Mycenaean-style’ wheelmade pottery, which includes the Ephyraean goblets, the Vapheio cups and a few medium-sized closed pots, occasionally lustrous-painted, is associated with fine fabric groups as well as a few compositional loners. These fabrics contain carbonates in various frequencies and fine inclusions, usually of quartz and mica, features that do not provide much evidence on the original provenance.

These less diagnostic fabrics are not incompatible with being local but might also have been associated with many other areas, and this assumption needs further investigation and confirmation through chemical analysis. Initial NAA suggests variable origins for these fine fabrics and associations with known compositions linked with the south- and northwestern, as well as the western Peloponnese, while the Ephyraean goblet from one of the tholos tombs could not be assigned to any known reference group.

Imports

Beyond the assumed local products, a significant number of imports from a wide range of places have been identified. In the context of this paper, emphasis will be given to the main categories of imports from the tholos tombs. Apart from these, an unexpectedly high number of pots from the acropolis seem to represent definite or potential imports, too. They comprise vessels of various functions, from drinking cups to pouring vessels as well as transport jars, cooking pots and storage containers. Some of these imports consist of fabrics that, although compatible with the local geology and potting tradition, are associated with various clay matrices and types of mudstone similar to those identified within fabrics of the eastern, central and southwestern Peloponnese, and could originate in these regions.¹⁶ Others show similarities with known off-mainland fabrics and are assumed to originate in Kythera, and potentially in Aigina.¹⁷ One such vessel type associated with the Kytheran Red Micaceous fabric (Fig. 3C) is assignable to a flat-based tripod cook-

¹⁶ Galaty 1999, 49–74; Kiriati 2010a; Whitbread 2011; Kordatzaki et al. 2016.

¹⁷ A few tripod cooking pots found in Kakovatos are associated with the Red Micaceous Kytheran fabric. For the association of this fabric with the Minoanising pottery see Kiriati 2003, 125–126, 127; Kiriati 2010b. A cooking pot associated with an andesitic fabric from Kakovatos shows similarities to well-known Aiginetan fabrics (Kiriati et al. 2011).

ing vessel and reflects the use of a genuine Minoan cooking vessel shape in Kakovatos.¹⁸ These imports from the acropolis as well as the whole fabric typology of the Kakovatos assemblage will be presented thoroughly in future publications and constitute work which is still in preparation.

Oval-mouthed Amphorae (OMA)

One of the most popular Cretan medium- to large-sized jars is the oval-mouthed amphora, whose most distinctive feature is two opposed handles which narrow the rim to an oval form. On Crete, the production of this shape starts with the beginning of the Protopalatial period and this amphora persists until LM I as one of the most common vessel types for the transport and storage of goods.¹⁹ Typically found in settlement contexts, the distribution of different OMA fabrics throughout Crete indicates on the one hand various production locations, and on the other hand the existence of distinct interregional networks.²⁰

The presence of OMA outside Crete points to noticeable relations between this island and other parts of the Aegean. The earliest imported examples of this shape on the mainland were found in Lerna and are supposed to be MM IA imports from western Crete,²¹ but the main corpus of these amphorae was found in early Mycenaean grave contexts, most of them in Messenia,²² the Argolid²³ and in Arkadia.²⁴ By contrast, OMA seem to be quite rare in settlement contexts on the mainland.²⁵

Fragments of at least nine OMA could be distinguished after the examination of the material from the tholos tombs of Kakovatos,²⁶ at the current stage of research the largest number of this vessel type on the mainland. The vast majority of the amphorae are decorated with spirals and bands and the restored profiles indicate piriform to elongated body shapes in most cases.²⁷

Six out of the eight analysed OMA from the Kakovatos tholoi were assigned to sand-tempered fabrics, reflecting a well-known tradition of clay paste preparation associated with Crete and Kythera.²⁸ The clay base of these fabrics is associated with fine calcareous Neogene clays.

¹⁸ For the introduction of the tripod cooking pot on the mainland, see Philippa-Touchais 2000.

¹⁹ Betancourt 1990, 31, nos. 178–179, 215–216; Pratt 2016, 29–31. Finds of plugged OMA underline their function as storage containers: Keos, Ayia Irini, period V: Davis 1986, 60, pl. 37AA; Akrotiri: Marinatos 1974, 32, pl. 72c.

²⁰ Day 1995; Day 1997; Pratt 2016, 30.

²¹ Zerner 1978, 175–176.

²² E. g. Peristeria, Tholos 3 (two amphorae): Marinatos 1967, 117; Myrsinochori-Routsi, Tholos 2 (five amphorae): Korres 1978, 281–282, pls. 182ε, 183α–β; Lolos 1987, 210, figs. 408–409; Koukounara-Gouvalari, Tholos 2 (one amphora): Lolos 1987, 170; Koryphasion, tholos (one amphora): Blegen 1954, 161, pl. 38a. See also: Antoniou 2009, 200–205.

²³ Mycenae: Grave Circle A, Shaft Grave VI: Karo 1930/1933, 166, pl. 175.956; Kalkani, South Bank, Chamber Tomb 518: Wace 1932, 79, 158, pl. 42.5; Epano Phournos, tholos: Wace et al. 1953, 72, 77, no. 12, pl. 28a; Kazarma, tholos: Protonotariou-Deilaki 1970, 105, pl. 83γ.

²⁴ Analipsis, tholos: Rhomaïos 1957, 278–279, fig. 7α–β; Kalogeropoulos 1998, 35, pls. 11, 18b–c.

²⁵ The lack of OMA in settlement contexts could be the result of the high degree of fragmentation of the material, which impedes the identification of the characteristic oval mouth. Furthermore, the state of publication of early Mycenaean settlement material has to be taken into consideration. One rim fragment from Ayios Stephanos could probably belong to this shape: Zerner 2008, 257, no. 1678, fig. 5.30. One fully preserved example was found in Nauplion in a potential settlement context, but probably dates to LH IIIA1: Kritzas 1979, 248, pl. 169ε (left). Furthermore, one body sherd with spiral decoration from LH IIB–IIIA1 layers of the Mycenaean building at 8, Polychroniadou Street in Aigion was identified as part of an OMA by Papazoglou-Manioudaki 2015, 317.

²⁶ Müller 1909, 323, pl. 24. The two restored amphorae come from Tholos B and Müller mentions that in Tholos A a high number of sherds of the same vessel type was found.

²⁷ Compare Knossos, ‘House of the Frescoes’ (MM IIIB): Evans 1928, 436, fig. 253a; Archanes (LM I) Sakellarakis – Sapouna-Sakellarakis 1997, 433, fig. 407; Pitsidia (LM IB): Chatzi-Vallianou 2011, 370, no. PIT. XVII-IX.A2; Keos, Ayia Irini (LM I): Cummer – Schofield 1984, 124, no. 1533; Mycenae, Epano Phournos, tholos (SH I–IIA): Wace et al. 1953, pl. 28.

²⁸ Moody 1985, 56; Wilson – Day 1994, 52–53; Whitelaw et al. 1997, 268; Day – Kilikoglou 2001, 118; Kiriati 2003; Day et al. 2006, 41, 44; Broodbank – Kiriati 2007, 253–254; Kiriati 2010b, 690–691; Pentedeka et al. 2010, 7–23; Kordatzaki 2016, 277–279.



Fig. 4: Oval-mouthed amphora, Kakovatos, Tholos B, NMA 5689 (photo: I. Geske)



Fig. 5: Oval-mouthed amphora, Kakovatos, Tholos A, NMA 19333 (photo: J. Huber)

These sand-tempered fabrics include two distinct groups on the basis of the mineralogy of the sand grains. The first one, to which, amongst others, National Archaeological Museum (NMA) 5689²⁹ (Fig. 4) and NMA 19333 (Fig. 5) can be assigned, is characterised by rounded sand grains, mainly consisting of siltstone and sandstone (Fig. 3D). It resembles fabrics that originate in central Crete.³⁰ Based on the comparative analysis undertaken so far, pottery in such a fabric was also identified as imported at Mikri Vigla on the island of Naxos, at Kastri on Kythera and in Ayios Stephanos in Lakonia.³¹

The second mineralogical group, which is represented by NMA 19331 (Fig. 6), is characterised mainly by metamorphic sand grain inclusions, comprising fine-grained quartz-biotite schist, but also sedimentary and occasionally igneous rock grains (Fig. 3E). The inclusions of this fabric are indicative of various sources associated with the ophiolite series outcropping at a number of locations in central and eastern Crete.³² This fabric shows similarities to fabrics most probably originating in south-central Crete.³³ NMA 19331 was also analysed by NAA, but could not be assigned to any known group (Tab. 1). A few of these amphorae show differently

²⁹ Müller 1909, pl. 24.9.

³⁰ Day 1988, 505–506; Boileau – Whitley 2010, 234–235.

³¹ For Minoan imports at Mikri Vigla, Kastri and Ayios Stephanos see Vaughan 1989, 156; Kiriati 2003; Broodbank – Kiriati 2007; Whitbread – Jones 2008; Kiriati 2010b.

³² Bonneau 1985; Knithakis et al. 1987.

³³ Day 1988, 157–158; Wilson – Day 1994; Day – Wilson 1998, 355; Day – Kilikoglou 2001, 118–119; Joyner – Day 2001; Day et al. 2006, 41; Belfiore et al. 2007, 635–637; Day 2011.

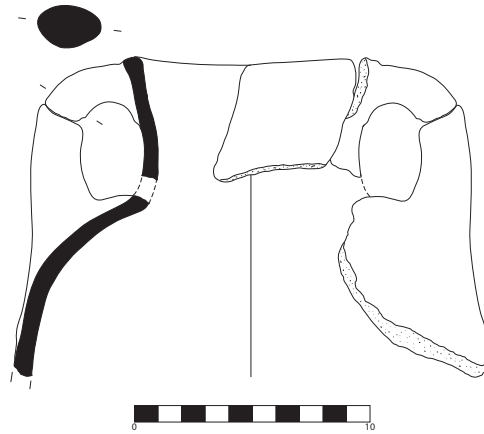


Fig. 6: Oval-mouthed amphora, Kakovatos, Tholos A, NMA 19331 (drawing: Ch. de Vreé)



Fig. 7: Fragments of an oval-mouthed amphora, Kakovatos, Tholos A, NMA 21532 (photo: J. Huber)

tempered parts of the same pot, a well-known tradition from Crete, but also from Kythera,³⁴ and the majority seem to be manufactured in the wheel-coiling technique, another feature of Cretan potting traditions.³⁵

Furthermore, one OMA is of possibly non-Cretan and potential mainland origin. More particularly, NMA 21532 (Fig. 7) is associated with a mudstone- and/or chert-tempered fabric group (see below, fabric group that is mainly associated with the palatial jars) and might originate in the mainland. The two-halves building technique of this amphora is a unique feature, which distinguishes it from the other OMA in this assemblage. This vessel indicates the production of this shape on the mainland, as some scholars have already suggested,³⁶ and could be understood, similarly to the use of tripod cooking pots, in the framework of the local adoption of Minoan practices.

³⁴ Day – Wilson 1998, 355; Day – Kilikoglou 2001, 119; Van de Moortel 2001, 104; Moody et al. 2003, 92–93; Day et al. 2006, 40–41, 48; Broodbank – Kiriati 2007, 254, 255; Kiriati 2010b, 691; Lindblom et al. 2015, 226; Kordatzaki 2016, 265.

³⁵ Jeffra 2013.

³⁶ Lolos 1987, 316–317; RMDP, 372; Antoniou 2009, 203–204.



Fig. 8: Fragment of a Koan oval-mouthed amphora, Kakovatos, Tholos A, NMA 20878 (photo: J. Huber)

The last OMA is definitely of non-Cretan origin. It is mainly characterised by plagioclase and biotite as well as pumice, volcanic glass and rhyolitic lavas, and less sedimentary and low grade metamorphic grains. These types of volcanic fragments are associated with the central and eastern part of the south Aegean volcanic arc.³⁷ Based on NAA data associations, this fabric is assigned to Kos.³⁸ The composition of this fabric is compatible with the geology of parts of the south-east Aegean and its chemical analysis narrows down even more the potential sources of the raw materials. The handle of NMA 20878 (Fig. 8, Tab. 1) exhibits a sharply incised vertical line, which can be found on Koan OMA and large-sized vessels as well.³⁹ The rim still shows dark-on-light decoration, a feature that is characteristic of the local production at Serraglio on Kos in LM I.⁴⁰ The vast majority of exported Koan vessels were jugs and amphorae, which implies that they were traded for their content.⁴¹ A nearly complete Koan OMA from Tholos 2 at Myrsinochori-Routsis gives the impression that early Mycenaean Messenia benefited from the same interregional networks as the people from Kakovatos.⁴² This, and the amphora from Kakovatos, are the only known examples from the southwestern Peloponnese to date and it seems very likely, as Jack Davis already suggested, that pottery from the Dodecanese reached the Peloponnese via Crete.⁴³

Palatial Jars (PJ)

One of the most representative shapes of early Mycenaean pottery is the palatial jar.⁴⁴ A special feature of this type is the elaborate decoration, which reflects the whole range of early Mycenaean motifs that were taken over from LM IA Crete. Large closed vessels with lustrous painted decoration seem to be still very rare in LH I,⁴⁵ but an early example from Shaft Grave V in Grave Circle A of Mycenae can be dated to this period.⁴⁶ In LH IIA the peak of production of this shape is reached. Most of them were found in tombs, but sporadic finds in settlement contexts lead to the conclusion that their function was not limited to funeral use, as one handle fragment from the Kakovatos acropolis (SU 218/107), probably part of a small PJ, and other examples seem to indicate.⁴⁷

³⁷ For the south Aegean volcanic arc see Higgins – Higgins 1996, 172.

³⁸ For the group Kos A, see Marketou et al. 2006, 25; recently Villing – Mommsen 2017, 13. It seems that Kos constituted an important pottery production place already from the Early Bronze Age onwards and participated in the Aegean pottery exchange network (Marketou 1990; Marthari et al. 1990; Knappett – Nikolakopoulou 2005, 179; Marketou 2009, 89–90; Vitale – Hancock-Vitale 2013, 50; for Koan fabrics associated with the historical period and an overview of the geology of the southeast Aegean, see Whitbread 1995, 53–106).

³⁹ Morricone 1972/1973, 300, fig. 374; 302, fig. 277; 303, fig. 274; Vitale – Morrison 2017, 76, 79.

⁴⁰ Marthari et al. 1990; Momigliano 2007; Vitale 2007, 76–193.

⁴¹ Marthari et al. 1990, 177.

⁴² Davis 2015, 56–57, figs. 1–4. See also Antoniou 2009, 728–729, no. 145; 1010, fig. 264; 1011, fig. 265.

⁴³ Davis 2015.

⁴⁴ As already suggested by Oliver Dickinson and other scholars, we use the term ‘palatial jar’ for the large pattern-painted mainland jars (FS 14–18, 24), as ‘palace style jar’ refers exclusively to Cretan vessels of the later Minoan Palace Style (late LM IB/LM II–IIIA): Dickinson 1972, 108; Niemeier 1985, 3–4; Kalogeropoulos 1998, 88. For the date of the Cretan Palace Style see Niemeier 1985, 170–171.

⁴⁵ Dickinson 1974, 113.

⁴⁶ Karo 1930/1933, pl. 172; Dickinson 1977, 48 n. 22; Dietz 1991, 248–249.

⁴⁷ Eder – Hadzi-Spiliopoulou, this volume, fig. 14e. For palatial jars in settlements, see: Menelaion: Catling 2009, 337–338; Nichoria: Dickinson 1992, 482, 484, 526, nos. P3214, P3215, P3240; 534, no. P3541, pls. 9.16, 9.45;

Apparently there is a correlation between the number of jars deposited and the amount of other precious grave goods.⁴⁸ With a minimum of 17 large individuals, including 16 PJ and at least one of Cretan 'Standard Tradition', Tholos A from Kakovatos belongs to the same category of high-ranking tombs as the Aegisthus tholos and the Epano Phournos tholos at Mycenae.⁴⁹ The majority of the jars from Kakovatos belong to the larger FS 15 type, as defined by Arne Furumark, but at least one jar is assignable to the FS 14 type.⁵⁰

In general, PJ are a well-studied group in terms of style and typology, but little is known about their places of production. During the last decades, just a few sherds of PJ were chemically analysed, and the results suggest different areas of production: the Argolid,⁵¹ Attica/Athens⁵² and probably the southwestern Peloponnese.⁵³ In order to get an idea about production and consumption of PJ, the current petrographic and chemical analysis of the PJ of Kakovatos is the first systematic provenance study of this vessel type. Eighteen PJ from the site were examined through petrographic analysis while six of them were also analysed through NAA.

Two main types of fabrics were identified through petrographic analysis. The first, including sixteen samples, concerns a cluster of five semi-coarse mudstone- and/or chert-tempered fabric groups (Fig. 3F–G) and several loners. Occasionally, differently tempered parts as well as evidence of wheel-coiling were observed in the same pot. The composition is compatible with sedimentary lithologies consistently including mudstone, chert, occasionally carbonates, and a variety of other minor components commonly occurring in the western and eastern Peloponnese, as well as in parts of the island of Kythera and western Crete.⁵⁴ This fabric group finds parallels in the local Kytheran pottery, but it shows a much wider variability than that internally observed in the Kytheran products of this fabric.⁵⁵ However, certain individuals of the Kakovatos PJ seem to compare well with particular samples of the mudstone- and chert-tempered fabric from Kastri currently under study by Evangelia Kiriati. The possibility that Kythera was the place of origin of at least some of the PJ is a plausible scenario and further research will shed more light on the connections between the island and mainland Greece in early Mycenaean times. Kastri and other Kytheran sites have so far provided inconclusive evidence for PJ, but the local production of this shape cannot be excluded.⁵⁶

A few of the jars have some similarities to fabrics from sites across the Peloponnese and might originate in the mainland and more particularly in different locations of the northeastern Peloponnese.⁵⁷ However, the variation of this fabric group in the Kakovatos assemblage is wider than that observed in the mudstone- and/or chert-tempered fabrics in any of the abovementioned regions.

Pylos: Mountjoy 1984, 217; Lolos 1987, fig. 137 (centre); Kalogeropoulos 1998, 140, no. 4; Zygouries: Blegen 1928, 136–139, fig. 129.3–5; Kalogeropoulos 1998, 128, nos. 1–3; Kiapha Thiti, Acropolis 'Oberburg': Maran 1992a, 48, pl. 11. For assumed functions of PJ e.g. as burial jars see Kalogeropoulos 1998, 174–179; Kalogeropoulos 2011; Zavadi 2019.

⁴⁸ De Vreé, this volume.

⁴⁹ Aegisthus tholos: 22 PJ: Wace – Holland 1921/1923, 302. Kalogeropoulos 1998, 101–105; Epano Phournos tholos: ten PJ: Wace – Holland 1921/1923, 295; Wace et al. 1953, 69; Kalogeropoulos 1998, 101–105.

⁵⁰ Furumark 1941, 27.

⁵¹ One sampled fragment from Mycenae: Mountjoy – Ponting 2000, 156, no. 137; 164.

⁵² Two sampled fragments from Phylakopi: Mountjoy – Ponting 2000, 148, no. 2–3; 162; 168.

⁵³ Three sampled fragments from the Menelaion: Jones – Tomlinson 2009, 148, 154, 160.

⁵⁴ Martini 1956; Petrocheilos 1966; Karageorgiou 1970; Kraft 1972; Theodoropoulos 1973; Fytrolakis 1980; Perrier 1980; Streif 1980; Streif 1982; Metropoulos et al. 1982; Higgins – Higgins 1996; Kiriati 2003, 125–127; Ladas et al. 2004; Pavlopoulos et al. 2010; Fountoulis et al. 2014; Melentis 2015.

⁵⁵ Kiriati 2003, 125, 127; Pentedeka et al. 2010, 34–41.

⁵⁶ Tournavitou 2011, 126–127: fragments of large painted jars were found in the sanctuary of Ayios Georgios sto Vouno, but the illustrated examples belong rather to the 'Special Palatial Tradition' than to the mainland palatial class. Indications for this assignment are the use of the 'Alternating Style' and the unusual plastic decoration on the rim.

⁵⁷ For mudstone- and/or chert-tempered fabrics elsewhere in the Peloponnese see Galaty 1999, 49–74; Philippa-Touchais 2003; Kilikoglou et al. 2003, 134–135; Whitbread – Jones 2008, CD-101–104, CD-113; Kiriati 2010b; Pentedeka et al. 2010, 34–41; Whitbread 2011. For relevant discussion, see Kiriati – Broodbank, this volume.



Fig. 9: Palatial jars, Kakovatos, Tholos A, NMA 19130 (left) and NMA 14165 (right) (photos: I. Geske)



Fig. 10: Palatial jars, Kakovatos, Tholos A, NMA 19139 (left) and NMA 19140 (right) (photos: I. Geske)

Moreover, the scenario that some of the PJ associated with this fabric group were produced within Triphylia cannot be excluded. The jars NMA 19130, NMA 14165 and NMA 19139⁵⁸ (Figs. 9, 10 left) are assignable to this fabric. They share ivy leaves as the main motif, albeit executed in different variants.⁵⁹ One more vessel, NMA 19140, decorated with a stone pattern, is also assignable to this group (Fig. 10 right).

⁵⁸ NMA 19130: Müller 1909, 308–309, no. 8; pl. 18; Kalogeropoulos 1998, 130, no. 9. NMA 14165: Müller 1909, 314–315, no. 20; pl. 23; Kalogeropoulos 1998, 129, no. 4. NMA 19139: Müller 1909, 312–313, no. 16; pl. 24.7; Kalogeropoulos 1998, 131, no. 18.

⁵⁹ NMA 19130: skeletal ivy in horizontal tendrils (FM 12:t). NMA 14165: tendrils of filled ivy leaves in vertical zones (FM 12:7). NMA 19139: vertical tendrils of filled ivy leaves (FM 11:3) in combination with papyrus ‘waz’.



Fig. 11: Palatial jars, Kakovatos, Tholos A, NMA 19133 (left) and NMA 19132 (right) (photos: I. Geske)

NMA 19133⁶⁰ (Fig. 11 left), also assigned to this group, was for a long time considered to be a Cretan product. Running spirals (FM 46:1) in horizontal order and the arcade motif below cover almost the entire surface. Wolf-Dietrich Niemeier and Konstantinos Kalogeropoulos⁶¹ already proposed classifying NMA 19133 with Philip Betancourt's 'Spirals and Arcading Group' that belongs to the LM IB 'Special Palatial Tradition'.⁶² NMA 19132⁶³ (Fig. 11 right) represents a similar case. The surface of the body is divided into five horizontal zones of ogival canopy (FM 13:2) and, due to this structure, Kalogeropoulos argued for a Cretan provenance of this jar.⁶⁴ The hypothesis for a western Cretan provenance for some of the PJ associated with this fabric group cannot be ruled out since mudstone-tempered fabrics were attested in earlier periods in this part of Crete.⁶⁵ However, based on the low distribution of this type of jars in western Crete documented so far, this assumption cannot be securely supported.

It is worth mentioning that, based on NAA evidence, the potential PJ from the acropolis (SU 218/107) which belongs to the mudstone- and/or chert-tempered fabric group and was identified as a loner due to the occurrence of coarse carbonates was assigned to the western Peloponnese. Three other jars – NMA 19133, NMA 19132 and NMA 19135⁶⁶ (Figs. 11–12) – belonging to this petrographic group were assigned chemically to the northeastern Peloponnese, and more particularly, to two groups of the so-called Mycenae-Berbati cluster (Tab. 1).⁶⁷

⁶⁰ Müller 1909, 306–307, no. 4; Kalogeropoulos 1998, 130, no. 7.

⁶¹ Niemeier 1984, 118 n. 56; Kalogeropoulos 1998, 133.

⁶² Betancourt 1985, 147; Betancourt 2004, 296. See also Egan 2012 for the relation between textile images and the 'Spirals and Arcading Group'.

⁶³ Müller 1909, 305–306, no. 2; pl. 18; Kalogeropoulos 1998, 130, no. 8.

⁶⁴ Kalogeropoulos 1998, 132. More recently he implied that both jars belong to a "LM IB inspired group": Kalogeropoulos 2011, 216.

⁶⁵ For the mudstone-tempered tradition in western Crete, see Moody 1985, 56; Moody et al. 2000; Nodarou 2011; Kiriati 2010b.

⁶⁶ Müller 1909, 307–308, pl. 19.2; Lolos 1987, fig. 484; Kalogeropoulos 1998, 135, no. 19.

⁶⁷ For the Mycenae-Berbati reference group see Mommsen et al. 1988; Mommsen et al. 2002. Three unpublished samples in the Bonn databank of PJ excavated at Kandia also show the pattern MBCn.

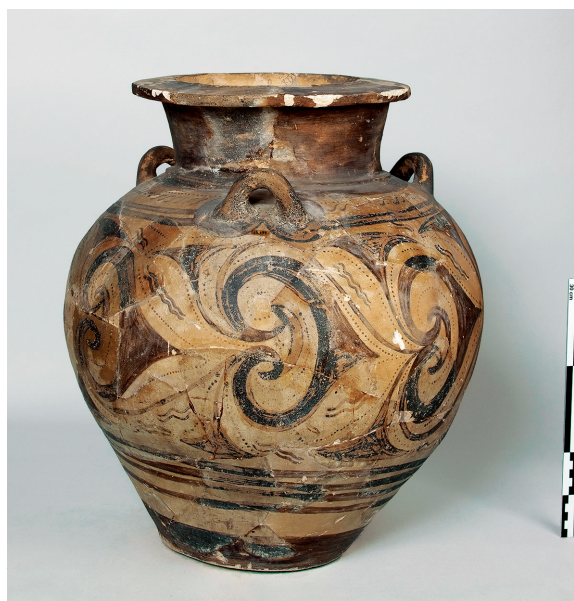


Fig. 12: Palatial jar, Kakovatos, Tholos B, NMA 19135
(photo: I. Geske)

The second type of fabric linked with the Cretan ‘Standard Tradition’ concerns sand-tempered clay pastes with inclusions of chert, altered lavas and serpentine and fewer sandstone/arenite and acid igneous rock fragments, occasionally metamorphosed (Fig. 3H). NMA 20875, which is associated with this pottery fabric, shows different tempering between the body and the attached ridge of the neck. Such fabrics and practices find parallels in the south coast of Crete (south-central and southeast Crete) and this jar most possibly originates from there.⁶⁸ The decoration of NMA 20875⁶⁹ shows typical features of Cretan ‘Standard Tradition’,⁷⁰ which, in contrast to the ‘Special Palatial Tradition’, was considered an east Cretan phenomenon for a long time.⁷¹ This heterogeneous style continues LM IA traditions such as modified LM IA motifs or the use of

additional white paint.⁷² Recent research pointed out that vessels decorated in this manner formed the majority of the painted pottery during the entire LM IB period on Crete.⁷³ In contrast, vessels with ‘Standard Tradition’ decoration are rare outside Crete and all other known examples, with the exception of the Kakovatos vase, were found at sites with a strong Minoan influence such as Miletus⁷⁴ or Ialysos/Trianda on Rhodes.⁷⁵ NAA suggested Boiotia as the potential origin of this fabric. The chemical overlapping of some of the Boiotian and central Cretan fabrics is known, although petrographically these are clearly discriminated.⁷⁶ In consequence, NMA 20875 is considered a Cretan product.

Concluding Remarks

The pottery from the tholos tombs of Kakovatos as well as from the nearby acropolis represents a wide range of regional and interregional connections of this early Mycenaean site. The inhabitants had access to goods of local/broadly local production, but also to a range of others from neighbouring areas and several distant regions of the Aegean, i.e. Crete, Aigina, Kythera and the Dodecanese. This ‘cosmopolitan’ character applies to the acropolis material to some degree, but is well represented by the vessels from the tholos tombs. These consist mainly of imported transport containers from Crete, the southeast Aegean, regions in the western and eastern Peloponnese and

⁶⁸ Wilson – Day 1994; Whitelaw et al. 1997, 268–270; Day – Wilson 1998, 355; Day 2011. Similar fabrics were identified at Kythera and were considered as imports from central Crete already from the EM II period onwards (Broodbank – Kiriati 2007, 254).

⁶⁹ Müller 1909, 315–316, fig. 16.

⁷⁰ Niemeier 1984, 118; Kalogeropoulos 1998, 131–132; Kalogeropoulos 2005, 225.

⁷¹ Kalogeropoulos 2005, 216.

⁷² For characteristic features of ‘Standard Tradition’ (= sub LM IA in earlier publications) see Furumark 1950, 151–154; Silverman 1978; Niemeier 1980; Betancourt 1985, 137–140.

⁷³ E.g. Niemeier 2011, 628; Vokotopoulos 2011, 558; Andreadaki-Vlazaki 2011, 71; Traunmüller 2011, 105.

⁷⁴ Niemeier – Niemeier 1997, 232; Niemeier 1998, 33.

⁷⁵ Furumark 1950, 151–154: “sub LM IA”.

⁷⁶ For the elemental overlapping of particular groups of pottery between Boiotia and Crete, see Jones – Day 2011; for a possible separation see Gilboa et al. 2017.

potentially Kythera. Two main lines of connections could be distinguished that link Kakovatos with Crete on the one hand and with other regions of the Peloponnese, especially the northeast, i.e. the Argolid, on the other.

In particular, the high number of OMA testifies to strong connections with Crete. They were imported mainly from distant centres, since they originate in central Crete, and one amphora from the southeast Aegean may also have arrived via Crete on the mainland. One of the sampled OMA, however, was possibly produced on the mainland. In addition, the adoption of several Minoan features in the production of pottery underlines the strong connections between Crete and Triphylia. This concerns the use and the local production of Minoan domestic shapes like the tripod cooking pots from the acropolis as well as the adoption of Minoan pottery features like monochrome painted interiors on open vessels. The frequent appearance of OMA in Messenia and other parallels between early Mycenaean Triphylia and the southwestern Peloponnese suggest that these two regions shared many elements in their material culture and were obviously part of the same Cretan networks.

In addition, Kakovatos developed special mainland connections. The majority of the PJ might originate in neighbouring centres of the western and eastern Peloponnese or even Kythera. The assumption of a wider regional production (within Triphylia) for some of them is possible. Although a western Cretan origin cannot be precluded for a few of the PJ, the available data cannot convincingly support this possibility. The wide variability observed in the mudstone- and/or chert-tempered elaborated PJ might be indicative of different production areas and potters, who worked within the same tradition and exploited similar but not identical sediments. Assuming that this shape with its extended surface, providing enough space for different combinations of motifs, also served as a 'screen' for a common early Mycenaean semantic system, different regions of production or even local production would indicate an already well-established system of symbols. These specially decorated jars could have been exchanged on different occasions – as potential gifts or trade acquisitions – and they can be understood as indicative for specific affiliations.

This picture is far from being complete and other aspects of technology beyond the clay paste preparation and the mineralogy of the fabrics need to be considered. Technological aspects have to be taken into account in order to investigate not only the provenance and the circulation of these vessels, but also the origin and transfer of technology and mobility of potters.⁷⁷ Local products and imports, the latter coming to the site either directly or via other hubs, seem to co-exist on the acropolis for fulfilling similar functions, such as cooking, storage, drinking and transportation.

In the case of Kakovatos, 'living in interesting times' became manifest in the display of wealth as well as in the links with far reaching networks through a wide range of imported pottery. The precious grave goods and valuable materials from the tholos tombs such as the large number and variety of amber beads, jewellery of lapis lazuli and gold, ivory furniture and bronze weaponry illustrate the complementary side of the same story. This suggests a highly competitive society that can be paralleled in many parts of the early Mycenaean mainland and seems to be a recurrent phenomenon throughout history. The pottery and the other valuable finds from the Kakovatos tombs represent more than the pure value of the goods, they serve as a powerful demonstration of social capital, namely the creation and maintenance of local, regional and interregional networks. Indeed, the intention to compete with other high-ranking social groups required a common habitus, like a shared semantic system that pertained to iconographic motifs as well as symbols of status, notwithstanding some regional variations.

⁷⁷ For a discussion of this phenomenon see Kiriati – Broodbank, this volume.

Inv. No.	NMA 20875	NMA 19132	NMA 19133	NMA 19135	NMA 19331	NMA 20878	SU 218/107	KTH7
Sample	Kakov 1-143	Kakov 2-148	Kakov 4-150	Kakov 5-157	Kakov 6-165	Kakov 7-169	Kakov 22-71	Kakov 16-100
As	14.4	15.2	14.5	8.43	12.2	12.	7.35	6.41
Ba	369.	588.	298.	377.	300.	797.	594.	537.
Br	14.1	6.77	30.6	5.90	14.9	24.6	5.20	6.70
Ca%	6.01	4.84	5.97	6.52	6.06	1.76	10.2	1.91
Ce	43.5	70.8	61.8	64.1	42.8	69.4	67.7	72.3
Co	25.0	28.2	29.1	26.6	29.8	11.4	31.1	32.2
Cr	349.	225.	242.	249.	369.	88.8	223.	354.
Cs	3.52	9.29	15.4	13.4	4.06	6.95	5.66	3.59
Eu	0.92	1.12	1.09	1.10	0.90	1.05	1.20	1.26
Fe%	4.31	4.93	4.77	4.88	5.71	3.56	4.67	6.14
Ga	22.9	23.5	18.7	20.3	11.0	36.0	18.2	21.6
Hf	3.21	3.39	3.17	3.77	3.46	5.11	3.39	4.54
K %	1.17	2.38	2.55	2.82	1.76	2.47	1.78	2.11
La	19.4	30.5	29.8	30.6	19.7	34.8	33.5	34.5
Lu	0.32	0.43	0.44	0.45	0.39	0.40	0.41	0.49
Na%	0.88	0.34	0.43	0.44	0.90	1.42	0.22	0.30
Nd	18.5	27.9	29.7	26.0	16.0	24.0	27.1	28.8
Ni	248.	201.	251.	252.	315.	35.8	343.	356.
Rb	49.0	123.	144.	143.	80.3	112.	87.1	107.
Sb	1.15	1.12	1.43	0.99	1.34	1.78	0.69	0.69
Sc	15.6	20.3	20.4	20.2	19.0	12.4	20.1	18.0
Sm	3.82	4.81	4.74	4.87	3.65	4.72	5.29	5.97
Ta	0.65	0.87	0.70	0.84	0.76	1.10	0.80	1.01
Tb	0.57	0.66	0.70	0.58	0.50	0.64	0.67	0.77
Th	6.81	10.6	9.72	9.72	8.13	13.8	11.4	14.5
U	1.42	2.25	2.16	2.16	1.89	2.18	2.09	3.26
W	2.54	3.21	3.28	2.86	2.66	2.44	2.13	2.47
Yb	2.14	2.77	2.57	2.60	2.24	2.67	2.76	3.43
Zn	86.7	103.	83.2	140.	110.	74.8	89.3	123.
Zr	82.1	111.	201.	165.	150.	177.	166.	187.
Group	TanA ^a	MBKR ^b	MBCn ^c	MBCn	single	KosA ^d	ACb5 ^e	single
Origin	Tanagra	NE Pelo- ponnese	NE Pelo- ponnese	NE Pelo- ponnese	–	Kos	Westpelo- ponnese	–
Fit-Fac.	1.07	1.01	1.04	1.02	–	1.29	1.07	–

Tab. 1: Raw concentrations of elements measured by NAA, University Bonn, in mcg/g (ppm), if not indicated otherwise. The factor Fit-Fac. is the best relative fit factor with respect to the average grouping values, respectively.

^a Mühlenbruch – Mommsen 2011, 286.

^b Mountjoy – Mommsen 2001, 128; Mountjoy – Mommsen 2006, 101.

^c Demakopoulou et al. 2017, 13.

^d Villing – Mommsen 2017, 22.

^e Mommsen et al. 2016, 377.

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Illustrations

Fig. 1: Distribution of wheelmade Mycenaean lustrous painted pottery: left: LH I–IIA, right: LH IIB–III. Based on RMDP; Nikolentzos 2011; Zavadil 2013. 1. Epitalion (Ayioritika); 2. Kleidi-Samikon; 3. Kakovatos; 4. Ayios Dimitrios (Lepreon)

Fig. 2: Shallow cups (FS 218) with framed spiral (FM 46) and monochrome interior (LH IIA) from Kakovatos: from the acropolis (at the top) and the tholos tombs (below) (drawings: Ch. de Vreé, B. Eder, N. Math)

Fig. 3: Photomicrographs of thin sections in XP: 3A. Medium-coarse fabric with abundant chert inclusions associated with goblets and bowls with grooves as well as medium-sized open and closed pots; 3B. Mudstone-tempered fabrics associated with the larger and coarser pots; 3C. Red Micaceous fabric; 3D. Sand-tempered fabric with siltstone and sandstone; 3E. Sand-tempered fabric with metamorphic inclusions; 3F. Mudstone- and chert-tempered fabric; 3G. Mudstone- and chert-tempered fabric; 3H. Sand-tempered fabric with chert, serpentinite and igneous rock inclusions (photos: G. Kordatzaki)

Fig. 4: Oval-mouthed amphora, Kakovatos, Tholos B, NMA 5689 (photo: I. Geske, D-DAI-ATH-2014-0756)

Fig. 5: Oval-mouthed amphora, Kakovatos, Tholos A, NMA 19333 (photo: J. Huber)

Fig. 6: Oval-mouthed amphora, Kakovatos, Tholos A, NMA 19331 (drawing: Ch. de Vreé)

Fig. 7: Fragments of an oval-mouthed amphora, Kakovatos, Tholos A, NMA 21532 (photo: J. Huber)

Fig. 8: Fragment of a Koan oval-mouthed amphora, Kakovatos, Tholos A, NMA 20878 (photo: J. Huber)

Fig. 9: Palatial jars, Kakovatos, Tholos A, NMA 19130 (left) and NMA 14165 (right) (photos: I. Geske, D-DAI-ATH-2014-0745 and D-DAI-ATH-2014-0751)

Fig. 10: Palatial jars, Kakovatos, Tholos A, NMA 19139 (left) and NMA 19140 (right) (photos: I. Geske, D-DAI-ATH-2014-0754 and D-DAI-ATH-2014-0758)

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Fig. 12: Palatial jar, Kakovatos, Tholos B, NMA 19135 (photo: I. Geske, D-DAI-ATH-2014-0761)

Table

Tab. 1: Raw concentrations of elements measured by NAA, University Bonn, in mcg/g (ppm), if not indicated otherwise. The factor Fit-Fac. is the best relative fit factor with respect to the average grouping values, respectively.