

An age of transition: ceramic innovations and social changes in the Mirabello gulf during the Middle Minoan period

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ABSTRACT

This paper offers new insights into the social changes that took place in the Mirabello Gulf in eastern Crete during the Middle Minoan (MM) period (*ca.* 1900-1700 BC). The most significant change appears to have been the transformation of society from localised chiefdoms to decentralised states for the first time in Greek prehistory, and the archaeological finds from the Mirabello area demonstrate that change. Specifically, the newly examined ceramic material from the site of Mochlos furthers our understanding of this transformation, and is discussed here alongside two other factors that also contributed to the development of states: the population increase and the introduction of the potters' wheel. The production, distribution and consumption of ceramic material in the Mirabello Gulf demonstrates cultural, economic, and social bonds between sites within the region. The introduction of new standardised ceramic shapes, either local or imported, depicts the common production and consumption habits of a unified socio-cultural regional landscape. Considering the new evidence from the perspective of transitions, this paper discusses the transformation in production technology, as well as in decorative schemata in drinking and storage wares like cups and jars from Mochlos as they relate to other changes taking place in the Mirabello region during this period. It also gives a glimpse of how this transition affected the cultural and economic life of the settlement, such as the intensification of local pottery production, and its relation to the centre's trends, and offers insight about how a primary material can enrich the present model of a new state level society.

KEYWORDS

Potter's wheel, Bronze Age, Protopalatial, Mochlos, Crete, Middle Minoan, innovation, interregional migration

Introduction

The Protopalatial period, considered in ceramic terms Middle Minoan (MM) IB to Middle Minoan IIB (*ca.* 1900-1700 BC)¹ is regarded as an important period for the study of Minoan culture, as it was during this period that Minoan society transformed from independent chiefdoms to some manner of states. Earlier scholarship espoused the notion of peer polities, wherein the systems of power were top-down and actions were initiated in the upper echelons of society, flowing to lower levels in the hierarchy. In this model, a 'centre' controlled its periphery culturally, economically and socially (Cherry 1986). Recent studies have transformed this understanding, and the vocabulary associated with power structures now refers to 'secondary' (Parkinson, Galaty 2007) or 'decentralised' states (Knappett 1999a; 2012). These models generally allow for a more flexible understanding of relationships between major 'centres' and other local settlements. It should be noted that this paper employs the term 'centre' rather than 'Palace', because it focuses on socio-polit-

1 After Tomkins 2007; Manning 2010.

ical entities. The term Palace has no standard definition and is used variously to describe either architectural characteristics like central courts or functions such as ‘temples’, storage facilities, residential spaces, centres for manufacturing material culture or economic centres (McEnroe 2011, 54)

Studies have argued that top-down control of states as in the later Neopalatial period was an evolutionary process that began throughout Crete during the MM IB period (Schoep, Tomkins 2012, 5); however, the more flexible models of ‘decentralised states’ considers the transformation of society as resulting from complex local and regional processes evidenced in the varying material culture from different sites. Furthermore, the appearance of the predecessors of the Palaces is not synchronised and their relationships to nearby settlements varies. As Schoep and Tomkins summarise (Schoep, Tomkins 2012, 10), at Knossos a predecessor to the Palace appears in Early Minoan (EM) I, at Malia in EM II, at Phaistos in EM III and at Petras in MM IIA (Schoep, Tomkins 2012, 18-20).

Various cultural innovations have been identified and documented from excavations on Crete, including the introduction of the potters’ wheel, the appearance of administration, monumental architectural elements and the organization of social structures at the regional level featuring decentralised polities that include a centre (Schoep 1999; 2002; 2006). Explanations of the formation of decentralised polities have taken into account the diverse Minoan landscape, in which diachronic changes and variations in material culture are related to interaction between different regions (Haggis 2002, 122). According to Haggis (2002, 134-136), the emergence of state was founded upon the decentralised, heterarchical social structures that developed in the late Prepalatial Period owing to relative social stability, integration and connections with the natural landscape and resources. This same stability and dispersal of social structures in the landscape they controlled appears in MM II. It seems that at this time in Crete there were heterarchical structures, a notion that complements the diffusion of elites throughout the landscape. At Malia, for instance, there co-existed multiple elite social units exercising authority independently and in concert with one another (Poursat 2012; Poursat, Knappett 2005, 220; Schoep 2002; 2006). The ‘centre’ of Malia encompasses a decentralised heterarchical social structure wherein the entities compete for social authority (Poursat 2012, 182; Schoep 2002; 2006). The emergence of high culture at centres like Malia, the increase in the population and the dispersal throughout the landscape, all affected material culture, particularly ceramic wares.

The area surrounding the Gulf of Mirabello, as well as southeast Crete (e.g. Myrtos Pyrgos), is considered to belong to a single cultural entity with Malia as its centre. But at what point does this social and cultural relationship appear? Is it related to the emergence of a Malian state? At what period? Knappett (1999a, 2012) connects the emergence of this entity with MM IIB, basing this on the striking similarity in drinking vessels between Malia and Myrtos Pyrgos, despite the distance between them. The assumption is that these similarities represent cultural connections between the social structures of the two sites. Malia’s relationship with Ayios Charalambos on the Lasithi Plateau developed slightly earlier, during MM IB and MM IIA (Schoep, Tomkins 2012, 24).

One of the broader concerns in this paper is how Mochlos – and the Mirabello area more generally – fits into the present understanding that sees Malia as ‘centre’ of a developing, decentralised state during this transitional period. It seeks to understand the nature of this connection, and how the pottery material can be incorporated into this discussion. This paper operates on the understanding that Malia was a ‘centre’, since it is the most likely candidate to serve this role, given that there is at present no other site that has yielded the

same quality or quantity of Palatial characteristics in the nearby environs. Hence, we tend to support the idea that in eastern Crete the newcomers who arrived through interregional migration in the Protopalatial period were incorporated into the existing social structure. Even in highly nucleated settlements such as Mochlos and the area of Gournia, the newcomers participated in the local practices of production and consumption of material culture as part of the hierarchies that were connected with elite social structures located at the centres.

Interregional Migrations: Surveys in the Mirabello Region

Five surveys have been conducted in the Mirabello region at the sites of Gournia (Watrous et al. 2012), Kavousi (Haggis 2005), Vrokastro (Hayden 2005), Pseira (Betancourt et al. 2005) and Chrysokammino (Betancourt, 2006). These have dramatically enriched our knowledge of the cultural, social and economic changes in the landscape during the Protopalatial period, and the results of these surveys can be used in a diachronic discussion of changes and transformations taking place in every period.

From these five surveys we can observe that, at the end of the EM IIB period, most of the coastal sites in the Gulf of Mirabello suffered violent destructions and abandonments, and that in the subsequent EM III period, most of the sites move to the hinterland to defensible locations, while remaining near water resources. Subsequently, during MM IA, most of the major settlements that suffered destructions at the end of EM IIB, like Mochlos, Vassiliki, Gournia, Myrtos Pyrgos and Priniatikos Pyrgos, experienced growth in population, which from MM IB to MM IIB becomes more prominent and corresponds to similar growth of sites in the hinterland, resulting in more intensive use of resources. The maritime trade networks are re-established during MM IB-IIB, mostly evidenced at Mochlos and Gournia, both of which show connections with Egypt and the Levant (Watrous 2012). The population growth and the increase in the density of sites is likely associated with the emergence of Malia as a centre and its expansion into the Gulf of Mirabello, which now becomes part of the territory of Malia. Thus, the new populations that we see in the surveys may have emigrated from the area around Malia, altering the social and cultural structures in the Gulf of Mirabello.

This change is observed in the MM IB funerary architecture of different sites of the area, as well as the ceramic material from the Mochlos settlement. In the house-tomb cemeteries of Mochlos (Soles 1992), Gournia (Soles 1992) and Myrtos Pyrgos (Cadogan 1977-1978, 72-73), we observe that individuals claimed their status by assimilating themselves with the customs of their ancestors. In Myrtos Pyrgos there is the construction of a house tomb that has a continued use throughout the Protopalatial period, following the same architectural fashion of the preceding EM period (Watrous 2012). At Gournia, from the end of the Prepalatial and during the subsequent Protopalatial, we find additional structures such as altars, used for feasting practices, and offerings outside the tombs (Soles 1992). In Mochlos there is also a new construction of a large rectangular house tomb, Tomb Λ, on top of the remains of an EM house tomb (Soles, Davaras 1992, 420). In a newly competitive environment such as that of the Protopalatial period, where states were emerging and people were competing for the control of natural resources and land, this evidence may indicate that local, established elites maintained their status through the connection with their past by carrying on old practices and paying homage to their ancestors.

The Potter's Wheel: Technological Innovations and Implications

The aforementioned shift from chieftains to a state model society is partly supported by ceramic material, which features new wares made possible by the introduction of the potter's wheel. Interestingly enough, the technology of the potter's wheel is sometimes related to migrations even in geographies outside of Crete. It has been suggested that the wheel technology in Kythera (Kyriatzi 2010, 692-693), Aegina (Gauss, Smetana 2007, 63; Gauss, Kyriatzi 2011, 251), Agia Eirini in Kea (Gorogianni et al. 2016, 200), and Phylakopi (Knappett, Nikolakopoulou 2005) was introduced throughout the Middle Bronze Age by Cretan migrants, some of whom were specialised artisans, including potters. This observation supports the proposal put forward at the beginning of this paper – that the adoption of wheel technology was introduced to eastern Crete by a population – including potters – that moved from the East-Central part of the island, possibly from Malia. This transformed the stylistic tendencies of local artisans.

Studies of the introduction of wheel-made pottery have connected such vessels to complex social structures, the appearance of craft specialization and other factors such as population growth, intensification of production, and the maximisation of natural resources – all controlled by elites (Knappett 1999b). These observations relate the introduction of this new technology to the interregional migration discussed above, especially if we take into account that the wheel-made technique was first developed at Knossos, and even its use there was limited (Knappett 1999b). There is a consensus that the first extensive use of this technology started in MM IB and continued into MM IIA and MM IIB. Various studies (Knappett 1999b; 2004; Jeffra 2013) have been focused on the understanding of the technological traces – axial symmetry, rilling marks, and striations on the underside of the base – that appear on the vessels as a result of the use of the wheel technique. The only way to recognise the introduction of the wheel is through these traces, as most sites have either not yet yielded wheel devices or these wheels have simply not been identified in the field. Like rare finds, the appearance of wheels, bats and pivots in some of the sites in Crete has been studied intensively by Evely (1988).

Most studies are otherwise concerned with evidence for the introduction of the wheel as part of the changes in the *chaîne opératoire* in the manufacture of the vessels. The basic goal of Knappett and Jeffra's studies of the material from different sites in Crete was to examine whether the material was wheel-thrown or wheel-shaped in combination with the coil technique, also called 'wheel-coiling' or 'wheel-shaping' (Knappett 1999b; 2004; Jeffra 2013). Developing a distinction between wheel-coiling and wheel-shaping has been the focus of different studies from other sites, such as in the Levant (Roux 2013), where the diffusion of the wheel-coiling technique proved to be related to cultural processes, including population movements and changes in society (Roux 2013, 314, 317). Roux sought to identify whether or not the introduction of the wheel was a continual development. According to Roux (Roux 2013), continuities are connected with imitations coming from endogenous (internal) or exogenous (external) mimicry, while discontinuities arise from the natural selection of technology that alters the societal status quo; In other words discontinuities reflect the favouring of one technology over another, with the result that a formerly ubiquitous mode becomes less favourable or obsolete (Roux 2013; O'Brien, Bentley 2011, 316; Shennan 2009). In the Levant, the introduction and the diffusion of wheel technology came as a result of major social changes resulting from discontinuities. However, every region is different, and continuities or discontinuities are dependent on many different factors.

Knappett estimated that the introduction of the wheel in Crete was a result of connections with Egypt and the Levant, where the wheel was introduced earlier (Knappett 1999b; 2004). In this sense the introduction of the wheel is an imitation of a new, foreign technique, introduced in MM IB, or what Roux would consider as exogenous copy. The changing of the cultural and social environment on Crete, after the transitional MM IB, indicates that the introduction of wheel technology was part of general socio-economic changes that appeared in different parts of Crete as well as in the Mirabello region, as discussed above. The studies of Knappett (1999b; 2004) and Jeffra (2013; Roux, Jeffra 2015), which focus on the technological characteristics of ceramic material from Knossos, Malia, Palaikastro and Myrtos Pyrgos, show generally that the construction of the vessels was similar throughout all the sites, where potters were using the wheel's rotating kinetic energy together with coiling, a technique known as 'wheel-shaping'. This means that in the case of Crete – and thus specifically at Mochlos and in the wider Mirabello region – this technological innovation appeared virtually simultaneously. This synchronicity has been noted by Berg (Berg 2015, 17) as well as Roux and Jeffra (Jeffra 2015, 171), and was a result of the community of potters' sharing of knowledge and technology. One such way of sharing knowledge is through apprenticeship, which is a time-consuming process that requires a tutor and students, either working independently or within workshops (Roux 2017).

The appearance of similar techniques at several sites appears complementary to the evidence for interregional migration, and the movement of potters – along with their ideas and ways of doing – would have transformed the chaîne opératoire of local workshops and potters. Berg (2015, 29) has suggested that, aside from migrations, potters either moved temporarily or through marriage. We might imagine that the migrant potters, once established, remained for long periods of time; stylistic and technical changes in pottery were slow and incremental, as evidenced in pottery deposits at Mochlos. Thus, it is proposed that this broader migration included the movement of migrant potters from central to eastern Crete and is one explanation for the changes in the ceramic repertoire.

At Mochlos this revolutionary new technology was responsible for shifting stylistic and technological inclinations, especially from MM IB-MM IIB. This change affected elite expression and the local and regional tendencies in production and consumption.

The Ceramic Evidence from Mochlos

An examination of the pottery material from Mochlos yields some basic observations about the ceramic wares and also allows us to extrapolate some social implications. During the EM III-MM IA period, Mochlos imported most of its vessels from the area of Gournia, whose wares are made from local granodiorite fabric and limited in decoration to geometric motifs in light-on-dark on the exterior of the vessel and only a band at the rim interior, a tradition that is particularly well represented in Gournia's North Trench (Watrous et al. 2015).

During the MM IB and especially during MM IIA and MM IIB, when the wheel came into use and dominated production in different parts of the island, it sparked a change in the ceramic shapes in the Mirabello Gulf and also in the decorative schemata. As mentioned above, the new technology and the new wares may be a consequence of the influx of people, including potters who brought their knowledge and new techniques to the Gulf of Mirabello. This transformation of technology and introduction of new ceramic shapes starts slowly in MM IB Mochlos and becomes prominent in MM IIA and MM IIB where the use of the wheel is clearly preferred, especially in the production of drinking and serving vessels.



Fig. 1. a. Cup with light-on-dark decoration and rilling marks on interior of base;
b. underside of base (photo by C. Papanikolopoulos)

Обр. 1. а. Чаша със 'светло върху тъмно' тип украса и релефни надписи върху вътрешността на дъното; б. външната страна на дъното (снимка С. Papanikolopoulos)

During the MM IB period at Mochlos, the light-on-dark decorative tradition from Gournia continues as a strong part of the broader east Cretan pottery tradition (Fig. 1) (Betancourt 1984; Betancourt, Silverman 1991), but unlike the former tradition, at Mochlos the interior of the open drinking vessels is painted with dark or bluish dark slip, showing a divergence from the earlier ornamental techniques. The dark slip on the interior of Mochlos vessels has no counterpart in Gournia's North Trench examples, which contain simple horizontal bands on the rim interior as well as the exterior, and other geometric decorative motifs on the exterior with a light-on-dark-bluish exterior surface. New shapes, including tumblers and semi-globular cups, are decorated in dark-on-white, on buff burnished surfaces, at Mochlos.

A second innovation in surface treatment of Mochlos wares is the introduction of polychrome decoration rendered with linear motifs, operating as an imitation of the Kamares palatial wares (Walberg 1983), in the emerging centres of Knossos, Phaistos and Malia. In MM IB Mochlos, polychromy appears on a semi-globular (Fig. 2) and a straight-sided cup. Most of the vessels in Mochlos at this time continued to be made by hand, respecting the old traditions, but wheel-made examples do appear in these globular and straight-sided cups of light-on-dark, dark-on-white, or polychrome decoration. These examples of open



Fig. 2. Semi-globular cup with polychrome decoration (photo by C. Papanikolopoulos)

Обр. 2. Полусферична чаша с полихромна украса (снимка С. Papanikolopoulos)

vessels with light-on-dark on the low wall exterior, which present rotational marks or the base interior, is consistent with the suggestion (Knappett 1999b; 2004; Jeffra 2013) that vessels made on the wheel appear in MM IB. However, Mochlos seems to follow the strong local tradition of eastern Crete particularly the Gournia/Mirabello tradition with the light-on-dark that dominates the earlier North Trench group.

During the following MM IIA period the majority of the cups are made using rotational, kinetic energy. The same can be recognised for some medium to small vessels like jugs as well as lids. However, the most common category in which the potter's wheel is used is that of cups. The most common types that appear in this MM IIA stratum are carinated cups (Fig. 3), one-handed conical cups (Fig. 4), tumblers, tall handleless conical cups (or truncated cups) and a small number of straight and semi-globular cups. A primary observation, at least as far as the carinated cups are concerned, is that there is a large variety of types, all bearing a strap handle. They appear in local coarse and fine fabrics.

The most prominent difference from the earlier MM IB carinated cups, is the appearance of the grooves. This new type of carinated cup was made with the use of rotational, kinetic energy from base to rim. The grooves are thick and irregular, showing tentative experimentation in their production. By the end of this period, potters seem to have mastered the shape, and we see the grooves becoming thinner and more regular, with some examples painted with dark metallic slip. This type of carinated cup appears to dominate the MM IIB deposits at Mochlos. One-handed conical cups and tumblers are larger and are decorated with dark or reddish-brown monochrome slip on the interior and exterior. The handled examples retain a strap handle. Apart from the monochrome slip, very few examples of white-on-dark and a single semi-globular



Fig. 3. Carinated cups (photo by C. Papanikolopoulos, drawing by D. Faulmann)
Обр. 3. Чаши с прелом (снимка С. Papanikolopoulos, рисунка D. Faulmann)

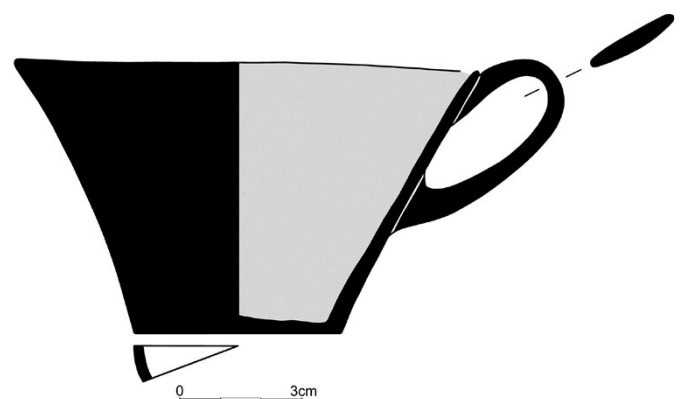


Fig. 4. One-handed conical cup (drawing by D. Faulmann)
Обр. 4. Конична чаша с една дръжка (рисунка D. Faulmann)

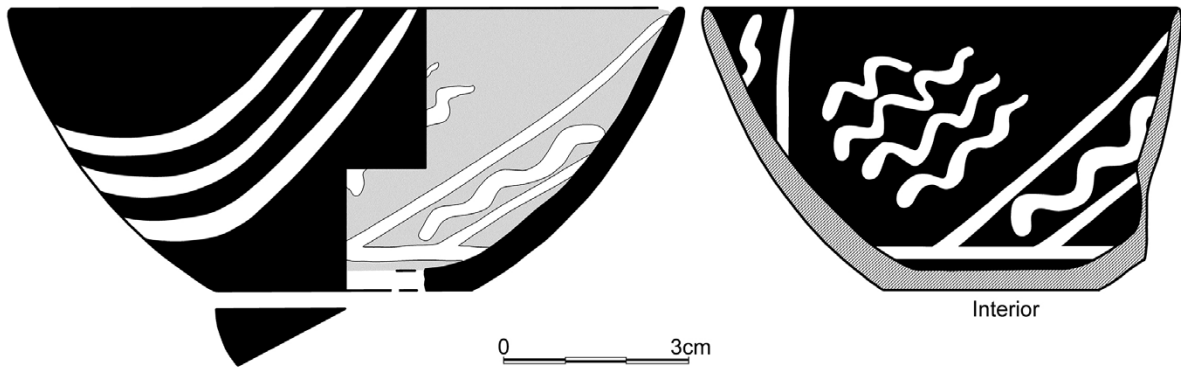


Fig. 5. Semi-globular cup with polychrome decoration (drawing by D. Faulmann)

Обр. 5. Полусферична чаша с полихромна украса (рисунок Д. Faulmann)



Fig. 6. One-handed conical cup (photo by C. Papanikolopoulos)

Обр. 6. Конична чаша с една дръжка (снимка С. Papanikolopoulos)



Fig. 7. Conical tumbler with flaring rim (photo by C. Papanikolopoulos)

Обр. 7. Конична чаша с широко отворено устие (снимка С. Papanikolopoulos)

cup with polychrome have been identified (Fig. 5).

During the MM IIB period the vessels become more standardised. Again, the most common drinking vessels are the one-handed conical cups (Fig. 6), conical tumblers with flaring rim (Fig. 7), and carinated cups (Fig. 8). A very small amount of semi-globular and rounded cups have been preserved in the seven MM IIB deposits known to date. Most of the pottery is made with local clays, and when it is imported, most of the vessels – mainly jars and amphoras – come from the Mirabello area, possibly from Gournia or Kalo Horio. All cups at this time were made with the use of the wheel, but some large jars and jugs seem to have been constructed with a combination of wheel and coil technique. This is observable at the interior of the base and the wall, which preserve rilling marks and striations as well as coiling finished with rotational technique. Most of the cups preserve parallel or concentric striations on the underside the base, and thus seem to be wheel-thrown from the base to the rim.

One obvious difference from the previous period is the size of the cups, with MM IIB examples mostly smaller than those from MM IIA. The carinated cups have very thin, parallel, regular grooves and in many cases thick, dark metallic slip. The one-handed conical cups adopt a rounded instead of a strap handle. One strap-handled semi-

globular example from the MM IIB house at the western end of the island, shows thick dark metallic slip and a thick white band below the rim exterior (Fig. 9). Not all cups are decorated, but those that are, are mostly red or dark monochrome. Also appearing are white-on-dark or white slip on reddish buff clay, although these are mostly restricted to one-handed conical cups with white pendant arcs on the interior. Polychrome ware appears in two closed vessels – a pithos and on a small jar that is decorated with an alternating floral style (Fig. 10) (Soles 1996, 182).

Interpreting the Data

Summarizing the stratified pottery material from Mochlos, we can identify the changes in pottery production from the introduction of the wheel there in MM IB and can offer a valuable parallel for the rest of the Mirabello region. The introduction of the wheel in MM IB is readily apparent in established cup shapes together with the introduction of new shapes, like short tumblers and carinated cups. However, most of the vessels seem to be handmade during this period. Most of the coarse ware pottery comes from the Mirabello region, while during MM IIA and IIB most of the vessels are made with local clays. During MM IIA, the wheel seems to become a more common technique resulting in new variations of cups from local clays. The decoration is more complicated than in the preceding MM IB, at least in some of the vessels, such as the semi-globular cup with the polychrome that includes panels of wavy bands. The basic innovations of MM IIA are the large conical cups with strap handles and the first carinated cups with deep irregular grooves. In MM IIB, the wheel becomes a mainstay, and standardisation and the homogeneity throughout each category of wares, like cups, is prominent. The cups are wheel-thrown, and there is a strong localised pattern in their production. The decoration is

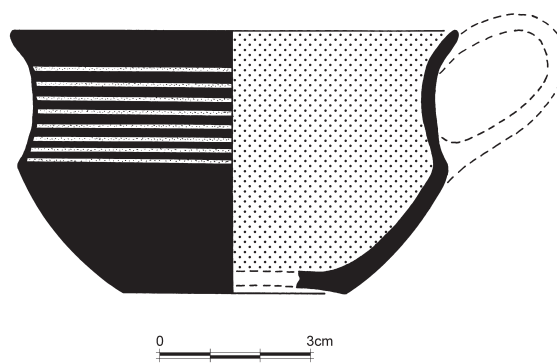


Fig. 8. Carinated cup
(drawing by D. Faulmann)
Обр. 8. Чаша с прелом
(рисунок Д. Faulmann)



Fig. 9. Strap-handled semi-globular cup
(photograph by C. Papanikolopoulos)
Обр. 9. Полусферична чаша с лентеста
дръжка (снимка С. Papanikolopoulos)



Fig. 10. Small jar with alternating floral style
in white and red (photo by C. Papanikolopoulos)
Обр. 10. Малък съд с редуващи се флорални
мотиви в бяло и червено (снимка С.
Papanikolopoulos)

more complicated for the closed vessels than for the cups, which are mainly decorated in bands and arcs.

The expansion of decorative motifs and the introduction and standardisation of shapes that are discussed above is contemporaneous with the introduction of the wheel. At Mochlos this new technology is most apparent in open vessels, particularly in cups. The main question is: how can the introduction and use of the wheel, along with the changing repertoire of cup shapes reveal social relationships and the transformation of the society to decentralised states? That cups participate in the process of social stratification through their conspicuous consumption has already been suggested and discussed in relation to the EM I material from Knossos, where individualised vessels like cups were used as markers of varying social status (Day, Wilson 2004, 55). The same has been also discussed vis-à-vis the Lakkos material from Petras (Haggis 2007; 2012).

Haggis's discussion of the MM IB Lakkos deposit from the Palatial centre of Petras in eastern Crete offers a precedent for interpreting these innovations through the duration of the Protopalatial period. Haggis identified the possibility of social stratification among the participants in drinking ceremonies through the distinctions and elaboration of the drinking wares in the deposit, which are diverse in terms of shapes and decoration. This possibility has also been explored in deposits from Knossos, Myrtos Pyrgos and Malia, spanning various periods of the Cretan Bronze Age (MacGillivray 1987; Day, Wilson 1998, 354-355; Knappett 2005, 150-151). The suggested logic is that the most elaborate vessels were used by elites, while members of lower status used those that were less elaborate.

The introduction of the wheel, which led to standardised shapes and some degree of mass production, thus posed a problem for individuals seeking social differentiation. If we expand Haggis's conclusions about wares demonstrating social stratification to the state level in the Mirabello Gulf (Haggis 2007), then the similarity of the repertoire of cup shapes from peripheral sites with the centre may also demonstrate social differentiations. I suggest that the expansion of the decorative repertoire satisfied this need. The introduction of new shapes and decorations in the Gulf of Mirabello during MM IB seems to imitate trends and behaviours that had already caught on in the centres, and they became dominant at Mochlos during MM IIA and MM IIB.

Apart from the decorative schemata, the distinct shift in pottery production is observed in some of the technological and morphological characteristics of the pottery. One innovation that benefited from the introduction of the wheel is the skeuomorph. Skeuomorphism, the imitation in clay of morphological characteristics that appear in metal objects, has been explored in the research on Protopalatial deposits across the island, especially for Quartier Mu at Malia (Knappett 2005; Schoep 2006). The carinated cup and the one-handled conical cup with strap handle portray this tendency well. They are exclusively wheel-made, first appearing in MM IB and then becoming one of the main drinking vessel types of the MM IIA and MM IIB periods. Carinated cups certainly belong to the category of skeuomorphs. Knappett (2005) has explored skeuomorphs as markers of social stratification based on their imitation of metal prototypes, and Schoep has done the same with reference to wares at Malia (Schoep 2006). In her discussion of the pottery at Quartier Mu in Malia, Schoep also describes the skeuomorphs as indicators of social stratification and proposes that the consumers of skeuomorphic vessels were negotiating their high status with those who were consuming metal vessels and were considered elites.

The settlement of Mochlos offers the first known stratigraphic sequence of the evolution of the carinated cup anywhere in Crete. The C.12 deposit and the examples that appear

in the stratigraphic sequences of the MM IIB house reveal information about the evolution of this type. The few MM IB examples we identified at Mochlos have a straight wall and rim profile and sharp, low carination. They are decorated either with monochrome slip or polychromy. In MM IIA when the use of the wheel became more prominent, the rim became everted, the slip became metallic or buff on the interior as well as the exterior, and the vessels feature a strap handle. The first attempts at applying grooves to the exterior resulted in irregular grooving above the low carination, and the same happened at Malia contemporaneously. Then, in MM IIB, this type takes its final form with middle to high carination, metallic slip on the interior and exterior, strap handle, and everted rim following the exact style as the Malian ribbed carinated cup with grooves of this period. It seems that the two sites adopted the advantages of the potter's wheel at the same time. The mutual adoption of this particular type of skeuomorph illustrates common concerns regarding the expression of social status. Thus, the carinated cup demonstrates, among other things, the social transformations taking place in the area around the Gulf of Mirabello during the Protopalatial period.

Apart from the introduction of new shapes and decorative schemata, interregional migration and the use of the wheel are evident in changes in production and consumption of pottery and its role in the transformation of local and regional markets. At the end of the Prepalatial period and the beginning of the Protopalatial period, most of the vessels identified at Mochlos were imports from the area of Gournia, signifying the settlement's dependence on imported pottery from this area. However, the increase of population changed the demands in pottery production. These needs became connected with the emerging centre at Malia and the expression of social structures at a local level. The shift of power from local chiefdoms to the centre at Malia created local hierarchies that were at the same time also participating in a heterarchical regional system that deferred to the Palatial centre, which set the trends regarding the material culture. The introduction of the wheel and its primary use during the MM IIA-B period suggests a turning point in local pottery production and the flourishing of local pottery workshops that acted in a stabilised but competitive market system, controlled by the local hierarchies. Most of the new shapes in MM IIA and B are wheel-made, belonging to the drinking and pouring vessel categories. They include bowls, tumblers, semi-globular, straight-sided and handled cups with flaring rim profiles, together with carinated, bridge- and beak-spouted jugs. Most were made locally and tempered with local phyllite and phyllite mica. Some of the categories of local closed and open vessels contain potters' marks, which signals territoriality in local pottery production and the necessity for branding products from the local pottery workshops in a standardised pottery market where other workshops also participated.

Conclusions

Interregional migration and the introduction of the wheel were two of the elements that acted in the transformation of society from local chiefdoms to statehood in the Mirabello Gulf. The migrational influx into the Gulf of Mirabello created the necessity for local social distinctions, as well as the need for strengthening ties with the centre at Malia. Local social differentiations are expressed through elite behaviour, in which traditional local elites tried to express their social status through connections with their ancestors, as has already been mentioned in the mortuary practices at Gournia, Mochlos and Myrtyos Pyrgos. The interregional migrations resulted in population increase and innovations in material

culture. The introduction of the wheel and the possibilities it offered in the production of vessels led to the creation of new shapes and decorative schemata that were valued as indicators of social stratification. The following of the Malian trend and the standardisation of pottery shapes, together with the full adoption of the wheel in MM IIA and MM IIB, led to more local pottery production with shapes similar to those found in the centre, assisting the expression of the cultural connection between the centre and the peripheral settlements, portraying a state level society that came to fruition in the subsequent Neopalatial period, when Knossos would become the political, economic and cultural centre of the island.

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Епоха на преход: керамични нововъведения и социални промени в залива Мирабело през средноминойския период

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(резюме)

Статията предлага нов поглед към социалните и културни промени, произтичащи в залива Мирабело в източен Крит през прото-дворцовия (средноминойски IB – средноминойски IIB) периоди (ок. 1900–1700 пр. Хр.). Най-важната промяна е организационната трансформация от местни вожества в децентрализирани държави. Последните представляват регионални хетерархии, разпръснати из цялата територия, които узаконяват статута си като имитират производството и потребителските модели на центъра. Този процес е постепенен, започва в края на пред-дворцовия период (ок. 2100–1900 пр. Хр.) и продължава през прото-дворцовия период, достигайки своя апогей през финалния средноминойски IIB период (ок. 1875–1750 пр. Хр.). В протичането на тази трансформация са отчетени два фактора: демографски прираст в резултат на регионално преселение и въвеждането на гърнчарско производство на колело. Във връзка с последното в статията е поставен акцент върху нови изследвания на прото-дворцов керамичен материал от Мохлос.

Демографският прираст е документиран в пет проучвания на района на Мирабело. Резултатите показват увеличение на броя на обектите и интензивно използване на естествените ресурси по време на целия прото-дворцов период. Това би могло да предизвика регионално преселение и евентуално промяна на социалното поведение. Така например, на обекти като Мохлос, Гурния и Митрос Пиргос се появяват допълнителни структури като олтари или изграждане на нови гробници върху такива от ранноминойския период. Това показва усилията на местния установен елит да демонстрира статута си и да отстоява връзките с предците пред заплахата от новопристигналите.

Както показват материалите от редица егейски обекти, въвеждането на гърнчарското колело в керамичното производство се свързва археологически с преселения. В Крит неговото въвеждане е свързано със сложни социални структури, занаятчийска специализация, нарастване на населението и интензификация на производството, контролирани от елита. В статията е изказано предположението, че възприемането на гърнчарското колело е свързано с приток на население, включващо занаятчии, владеещи тази техника и способни да предават своя опита.

Настоящото изследване третира прото-дворцовия материал от Мохлос като израз на технологическо нововъведение, предизвикано от преселение на хора и начална употреба на гърнчарско колело. Последното и придружаващите го производствени практики са възприети постепенно и са привнесени върху производствените и потребителските навици на установените обекти в Мирабело. Керамиката на Мохлос демонстрира увеличаваща се стандартизация и сходство с регионалния център в Малия през целия изследван период. Тези съображения хвърлят светлина върху механизмите на прехода, през който минойското общество преминава към държавност.