

Pottery production and distribution in prehistoric Bronze Age Cyprus: the long road from measurement to meaning

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Introduction

This paper reviews our current understanding of ceramic production and distribution in Cyprus during the second half of the 3rd millennium and the early 2nd millennium BCE. It follows the recent publication (Webb & Frankel 2013a; Frankel & Webb 2014) of a Middle Bronze Age pottery workshop at Ambelikou *Aletri*, which has given new impetus to debates on the scale and context of pottery manufacture in Cyprus and attendant arguments about craft specialisation and trade. Given David Frankel's many contributions to this area of research, it is also, necessarily, a review of his own ideas on these issues. These have changed considerably in recent years, serving as an example of the evolving nature of archaeological explanation. David's work in this area illustrates, in particular, his interest in classification and measurement and in the manipulation of complex quantitative data to determine degrees of social relationship. He has also long been concerned with the extent to which the ways in which material is described and analysed structures the archaeological record and predetermines explanation.

In what follows, pottery production in Early and Middle Bronze Age Cyprus is examined under two major headings which reflect David Frankel's research concerns and, to the extent that space permits, trace the development of his ideas. It brings together much of our combined thinking on these matters and addresses the implications of recent developments, prompting a re-evaluation of earlier views on the complexity of inter-site relationships and the extent of social articulation within and between regions in prehistoric Bronze Age Cyprus.

The scale and context of ceramic production: an evolving story

Small-scale domestic versus workshop production

Opinion has long been divided on the nature of pottery manufacture in Bronze Age Cyprus. Stewart felt that the pottery 'industry' was 'too large to have been delegated to the women of the household' and

instead envisaged 'potters' shops' (ie workshops) (Stewart 1962: 291–292). Åström (1969: 74) refers to 'l'existence de marchands potiers itinérants, que se déplaçaient de village en village'; Herscher (1978: 736), relying primarily on ethnographic analogy, argued that the general uniformity of pottery styles indicated the work of 'professionals'; and Merrillees (1979) advocated a specialised industry, largely based on regional concentrations of various fabrics which were understood to be manufacturing centres. David Frankel adopted a different view in his doctoral dissertation, suggesting that 'There is no good reason ... to assume that [pottery] was not generally manufactured by women, operating ... in close conjunction with one another, but within a basic household tradition' (Frankel 1974a: 11). His analysis of White Painted (WP) ware showed a significant correlation between design motifs and regions, which he suggested resulted from regular contact leading to the transfer of ideas and people or/and that pottery-making women were exchanged for copper, establishing kinship ties that were used 'as a basis for trading systems' (Frankel 1974a: 48).

David continued to look for new ways of using the ceramic record to identify social relationships within and between sites, arguing a consistent case for domestic manufacture and testing this model in numerous papers using various approaches to identify and measure variability (of size, shape, slip colour) in order to understand the social context of pottery production, distribution and deposition (Frankel 1974b, 1975, 1981). In papers published in 1988 and 1993, he clearly articulated the implications of a small-scale domestic industry versus a commercial trade in pottery for understanding the overall structure of society. Domestic production 'suggests a much simpler society, with less formal relationships ... and a more egalitarian organization', one in which kinship links are of great importance; while the specialisation/trade model 'implies a more stratified society with attendant formal inter-relationships' (Frankel 1988: 32; 1993). His conclusion was that the general lack of standardisation in ceramic assemblages argues for unstructured household production by non-specialist

potters rather than a specialist craft, leading to ‘a basic model of an egalitarian society for most of Cyprus before about 1700 BCE’ (Frankel 1988: 51). This broad view of prehistoric Bronze Age Cypriot society, while not without its critics, was widely accepted (see e.g. Coleman & Barlow 1996: 327–331; Steel 2004: 135–135, 141, 161–162).

At issue here was not only how to account for ceramic variability—through organised workshops and trade or domestic production and informal kin-based exchange—but how to measure it. David’s concern with the extent to which the way material is recorded determines the patterns perceived led him to reject formal typological approaches and introduce attribute-based analyses, which do not predetermine the degrees of similarity or difference regarded as significant and provide greater flexibility in isolating patterns of co-occurrence (Frankel 1991). At the same time, however, the approaches used in analyses of WP were limited by the small samples available. It was our excavations at Marki (1991–2000) which first provided an opportunity to address issues with a far larger (and differently framed) data-set, using the dominant Red Polished (RP) ware (see **Figure 1** for the location of Marki and other sites discussed here). Ironically, perhaps, comprehensive attribute-based ceramic analysis, used from the outset to record assemblages at Marki, led ultimately to a significant refinement of the household production and consumption model (Frankel & Webb 2001, 2006: 149–153).

Following a decade of excavations at Marki, an attempt was made to quantify the scale of production, consumption and replacement of pottery vessels over some 500 years of occupation using fragmentation estimates based on an assemblage of over 300,000 sherds. Proportions of large and small diagnostic items were used to estimate the relative quantities of different-sized vessels. This provided an estimate of the number of sherds in four size classes of RP and of cooking pots. Fragmentation estimates, derived from the number of sherds in mended vessels, were used as the basis for calculating the minimum numbers of each broad vessel class. Despite the crudity of this measure, it was possible to argue that the sherds recovered from nine architectural phases came from approximately 11,500 vessels. Together with those from disturbed contexts, this provided a total of ca. 15,000 vessels. Based on the number of excavated households in each phase and an assumed length of each phase of two generations, an estimate of the number of vessels discarded per household suggested a low replacement rate of about three to four vessels a year.

Between eight and twelve pots were also deposited on average in this period with adult burials (Davies 1997). Using population estimates through time at Marki, annual growth rate estimates based on equivalent prehistoric populations and corresponding estimates of the number of deaths per year (Frankel & Webb 2001, 2006: 308–311), the

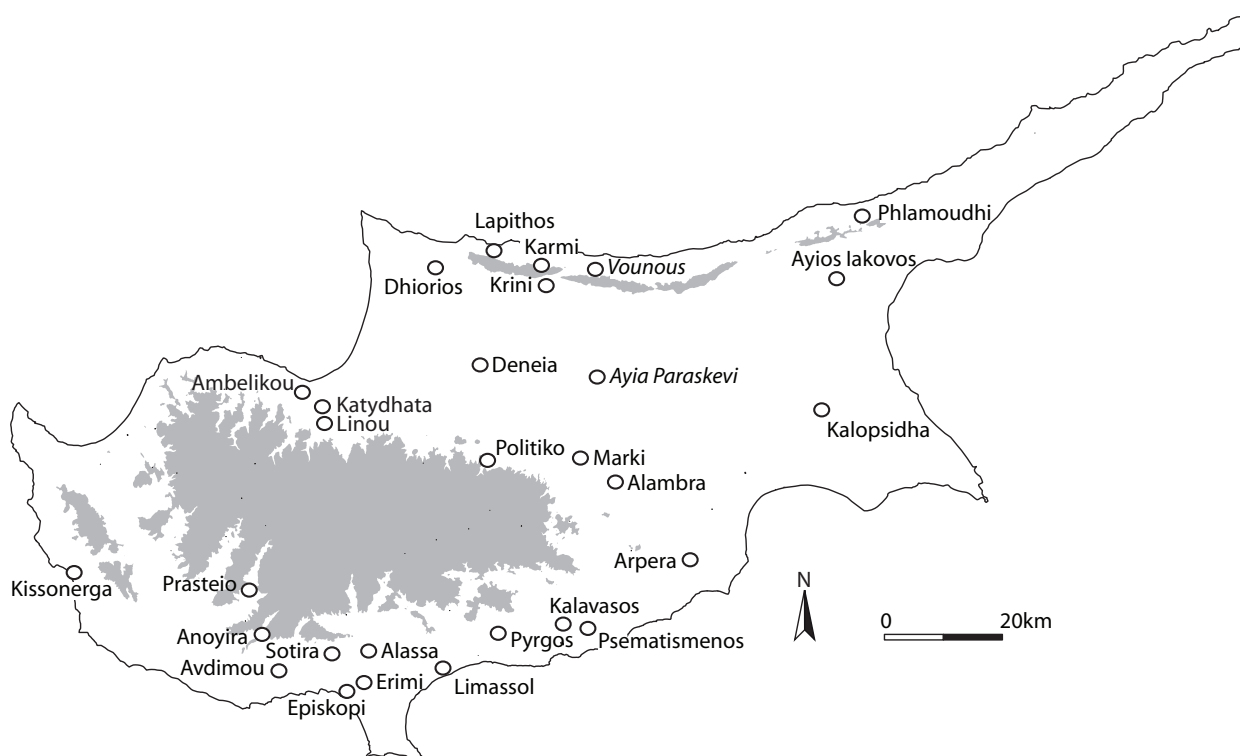


Figure 1. Map of Cyprus showing the location of Early and Middle Bronze Age sites mentioned in the text

number of pots deposited in tombs each year is likely to have increased from around a dozen in the early years of the settlement to over 100 at its peak. Thus we concluded that each household needed to replace up to half a dozen vessels per year as a result of normal attrition and growth with an occasional additional depletion caused by a death in the family.

This had significant implications for understanding the scale of pottery production at Marki and forced us to ask whether a household production model could be sustained in light of these figures. To what extent is it likely that the small runs of pottery required to replace the annual toll were produced by each household? This led us to propose a new model of limited part-time specialisation, which suggested that a few potters were producing pots each year for their own use and for consumption by their neighbours. While the transfer of skills from an adult potter to his/her offspring is unlikely to have been viable at the low scale of production required to maintain systemic inventories at the individual household level, a small number of households engaged in a greater number of pottery making events over longer periods each year presents a viable option, providing an environment conducive to the acquisition of motor skills and knowledge of clay sources, tempers and firing regimes.

The very large quantities of ceramic material excavated subsequently from looted tombs at Deneia further influenced our views, suggesting, through clay analysis, both local production and imports from other regions (Dikomitou 2007) and bringing us closer to Stewart's view of assemblages 'too large to have been delegated to the women of the household'. We used this opportunity also to discuss the possibility of identifying products of individual craftspeople (Frankel & Webb 2007: 100–103; on this issue see also Maguire 1991). While the shape and colour of the RP black-topped bowls so typical of Deneia differ in line with the mechanical variation expected of hand-built vessels, the degree of variation in their incised decoration is striking. Few bowls, if any, display the same selection, combination and placement of motifs. This range of variation is far beyond that which could be attributed to random effects and suggests that in this case potters deliberately sought to create unique vessels, raising a significant challenge to any simple correlation between diverse outputs and different producers. Conversely, our detailed study of 624 Red Polished Mottled (RPM) I–II vessels from 47 tombs at Psematismenos *Trelloukkas* showed a remarkably homogenous assemblage, undoubtedly produced locally and probably by a relatively small number of potters working within a conservative utilitarian tradition (Georgiou *et al.* 2011: 187–242, 280–288).

Finally, our publication of the excavations at Ambelikou *Aletri* allowed us for the first time to identify an actual pottery production context (Fig. 2). Area 2 at Ambelikou, which suffered catastrophic

abandonment during the C19th BC, was clearly a dedicated pottery workshop, with an open kiln in one corner, a probable pot forming and drying area, stone basins for preparing clay, cylinders of raw clay, vessels damaged during manufacture or firing and a series of 39 cutaway-mouthed jugs that appear to represent the last batch of vessels removed from the kiln (Webb & Frankel 2013a: 53–71, 213–219; Frankel & Webb 2014). It is located away from domestic structures and was producing vessels in batches by shape clearly intended for distribution beyond the household.

A new and more complex model

The Ambelikou workshop confirms that pottery was not, or not always, made at the household level in the Middle Cypriot (MC) period. While it could be argued that Ambelikou is a special case, given the degree of labour invested in mining, smelting and metalworking at this site, limited or part-time specialisation in ceramic production is also predicted by our modelling of replacement rates at Marki and there is now increasing evidence to suggest that part- or even seasonal full-time specialisation in ceramic production may have been the norm in Cyprus in both the EBA and MBA (and possibly earlier, see Bolger and Peltenburg this volume).

The homogeneity of fabric, shape and decoration within Red Polished Philia (RPP) pottery in the Philia EC period (2450–2200 BCE) has been noted by many and has led several scholars to suggest that it was produced by specialists (Swiny 1989: 18; Manning 1993: 48). This now appears to be confirmed by petrographic and chemical analyses which have identified a compositionally uniform RPP fabric in use across the island (Dikomitou-Eliadou 2013 and this volume). This calcareous fabric, which comprised 75% of the analysed assemblage, is characterised by a very restricted presence of igneous inclusions, indicating production in the north of the island. Philia EC cooking pot sherds from Marki similarly show the exclusive use of specific fabrics for two vessel types, one also imported from the north (Dikomitou-Eliadou this volume). While the presence in smaller numbers of other, igneous RPP fabrics suggests the existence of local or regional production locales in which potters used similar techniques to produce macroscopically similar pots, there was clearly a significant trade across the island of pottery made in one or more production centres in the Ovgos Valley or on the north coast.

The quality and quantity of RPP manufactured in this northern centre or centres clearly suggests specialised production. These production locales must also have played an active role in the distribution of their products. While more localised manufacture is also indicated, the relatively small amount of RPP pottery produced outside of the northern centre(s) and the expertise required to make vessels stylistically and typologically identical to those imported from the north argue against a domestic level of production



Figure 2. Proposed layout of the Middle Bronze Age pottery workshop at Ambelikou Aletri (Webb & Frankel 2013: fig. 11.7)

and in favour of regional workshops. This implies, as Dikomitou-Eliadou has argued (2013: 29), that both regional and supra-regional networks were active in the distribution of pottery in the Philia period. The RPP assemblage shows a deliberate attempt by potters across the island to produce vessels of similar form and surface treatment, effectively masking varied contexts, locales and scales of production.

Other indications of specialised ceramic production are not hard to find. We have argued elsewhere that at *Vounous* in EC I and II the demands of mortuary ceremonial gave rise to the specialised production of elaborate, skilfully-made, individualised drinking cups and ritual vessels with a diverse and esoteric

visual symbolism that follow complex design rules and reflect particular performative practices (Webb & Frankel 2010; Webb in press). Such items may have been produced in what Spielmann (2002) has called a 'ritual mode of production' (see also Webb 2014). They imply a level of sponsored production and control of highly crafted vessels and reflect a different relationship between producers and consumers to that suggested by the recycling of domestic pottery at cemeteries elsewhere. This specialisation of craft activity took place alongside the growth of ritual specialisation more generally at *Vounous* and the elaboration of particular tombs both here and at *Karmi*, some of which may have operated as mortuary

shrines (Webb *et al.* 2009; Webb & Frankel 2010). While expressed in a different array of vessel types, this expertise in ceramic production at *Vounous* in EC I–II may have been inherited from the earlier northern production centre(s) of RPP.

Elsewhere in EC I–II, Red Polished I South Coast (RPSC) ware is also likely to have been manufactured at a limited number of production locales, in this case in the southwest of the island. Given the size, elaborate form and fragility of much RPSC, a ceremonial and perhaps exclusively funerary function has been suggested (Swiny 1979: 223; Herscher 1981: 80; Karageorghis 1991: 156–157). The presence of base-wear on many vessels, however, indicates use prior to deposition (Lubsen-Admiraal 1999: 43, 50). Some vessel types, notably multi-necked jugs with modelled zoomorphic decoration, are clearly the work of skilled potters and have been attributed to specific workshops and even to a single potter-croplast (Karageorghis 1991: 157, 162). As at *Vounous*, skilled potters appear to have been essential to the creation of specific vessel forms apparently used in funerary ritual and linked with the emergence of particular categories of individuals and social relationships.

In other cases specialised production is likely to have been associated with more overtly ‘commercial’ enterprises. The most obvious candidates are small decorated flasks (or bottles) which first appeared in RPP and continued to be made in various fabrics throughout the EC and MC periods (Fig. 3). These fragile, soft-fired vessels with narrow necks, flaring rims and perforations for the attachment of a stopper are often found in tombs and are likely to have contained substances used in small quantities in mortuary ritual (Georgiou *et al.* 2011: 347–350; see also Herscher 1991: 47–48). Residue analyses suggest unguents or medicinal compounds (Chovanec 2013). In several cases, they are exclusively associated with a specific fabric. Brown Polished (BrP) ware, for example, was used almost entirely for the production of flasks (Fig. 3.3 and 3.7). Long recognised as a regional fabric produced on the south coast (Herscher 1991: 47; 2003: 152), the recovery of 42 BrP flasks at Psematismenos *Trelloukkas* confirms an EC I date for the beginning of production (Georgiou *et al.* 2011: 249–254, 292–293). Their chemical composition differs from that of the local RPm assemblage, suggesting that these vessels reached Psematismenos from elsewhere (Eccleston *et al.* 2011). A second set of 23 black-topped RP flasks from Psematismenos (Georgiou *et al.* 2011: 246–249) (Fig. 3.4), several of which show the use of a stamp-like tool otherwise found only on RPSC, suggests that more than one production/distribution network was involved in flask production on the south coast.

Similar networks are evident in the north and centre of the island, involving flasks of RP, WP and Black Polished (BP) wares (Fig. 3.2, 3.5, 3.6), and in the Karpas where Red-and-Black Polished ware provides another example of a fabric used only for the

production of flasks (Herscher 1973; Morris 1985: 341–352) (Fig. 3.8). Red-and-Black Polished ware flasks were produced in substantial quantities (over 150 examples are known) but are rarely found beyond the Karpas (Frankel & Webb 2006: 120). Together these assemblages suggest multiple production centres of substances largely or exclusively used in burial rites and an associated production of special purpose and perhaps single-use containers.

Cooking pots are also likely to have been produced at a limited number of locales. At least one cooking vessel type at Marki, as already noted, was imported to the site in the Philia EC period. Cooking pots are technologically complex with specific characteristics required for direct fire-boiling vessels (see Frankel & Webb 2006: 133–137). They required a specialised approach to production and may have been manufactured at regional or extra-regional centres throughout the prehistoric Bronze Age. Other vessels requiring particular types of clay or/and expertise, including pithoi, may also have been produced in a limited number of workshops.

Shifting patterns and scales of variability

Several recent papers have focused on site-specific and historically contingent as well as geographical, environmental and other factors, in order to identify and explain shifting networks of interaction and association across the island during the EBA and MBA (Frankel 2009; Driessen & Frankel 2012; Webb & Frankel 2013b). Here the spatially contiguous distribution of distinctive artefacts and other features are explicitly equated with socio-cultural groups and archaeological regions are defined through the spatial clustering of material culture. Recent and on-going excavations have significantly improved our ability to observe site-specific and regional variation and we can now work with assemblages from widely dispersed sites and relatively well-defined chronological horizons. Chemical and mineralogical studies have also allowed the characterisation of assemblages and the identification of likely imports from other sites or regions (most recently Eccleston *et al.* 2011; Frankel & Webb 2012; Dikomitou-Eliadou 2013). In what follows, shifting patterns of ceramic association are briefly outlined with particular attention to the distribution of wares and vessel types.

Philia EC homogeneity

The Philia phase of the EC period, as noted above, is marked by considerable uniformity in the form, decoration and technology of RPP pottery across much of the island. This is matched by similarities in metal and other artefact types, suggesting the widespread establishment of a group identity with strong cultural associations and a well-integrated communication system (Webb & Frankel 1999, 2007, 2008, 2013b).

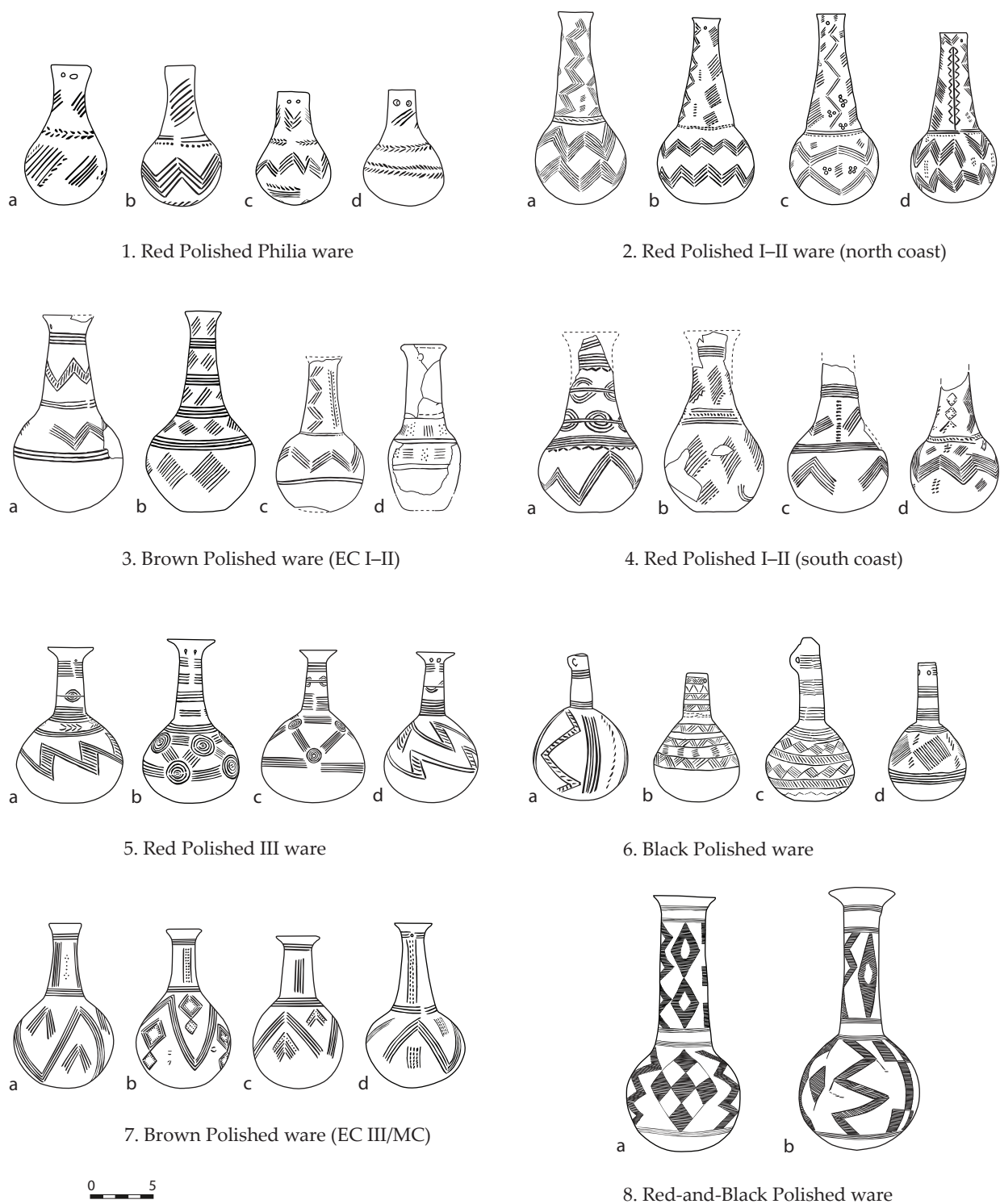


Figure 3. Early and Middle Bronze Age flasks. 1a. Philia Vasiliko Tomb 2.3 (MacLaurin 1980: fig. 5.12), 1b–c. Ayia Paraskevi Tombs 9.14, 4.40 (Hennessy et al. 1988: figs 15, 12), 1d. Deneia (Webb 1997: pl. 23, no. 345); 2a–d. Vounous Tombs 83A.26, 82A.25, 113.23, 103.11 (Stewart & Stewart 1950: pls V, XII, XVII); 3a. Psematismenos Trelloukkas Tomb 124.70 (Georgiou et al. 2011: fig. 3.75), 3b. Zintilis Collection Z.753.B (Lubsen-Admiraal 1999: fig. 28), 3c–d. Psematismenos Trelloukkas Tombs 91.11, 80.26 (Georgiou et al. 2011: figs 3.75–3.76); 4a–d. Psematismenos Trelloukkas Tombs 124.44, 124.57, 92.8, 124.66 (Georgiou et al. 2011: fig. 3.71); 5a–d. Vounous Tombs 72.91, 7.5, 122.7, 137.9 (Dunn-Vaturi 2003: pl. XCII; Stewart & Stewart 1950: pls XXX, LXVII.h); 6a. Lapithos Vrysi tou Barba Tomb 6A.32, 6b–c. Vounous Tombs 13.8, 17.9, 6d. Deneia (Brewster 2004: nos 272, 249, 276, 253); 7a–d. Kalavassos Tombs 9.7, 10.1, 10.18, 46.17 (Karageorghis 1958: figs 12, 14; Cullen et al. 1986: fig. 36.9); 8a. CM A371 (Leonarissos) (MacLaurin 1980: fig. 66.2), 8b. unknown provenance, Morris 1985: pl. 314a. Drawings prepared by Cathy Carigiet

The distribution of much if not most RPP from the north of the island may have involved a reciprocal exchange with copper producing areas, though how and why it moved into other areas (e.g. the southwest) remains unclear. Commensality and in particular communal drinking is indicated by the predominance of cutaway-mouthed jugs, decorated amphorae and small bowls in mortuary contexts (Webb & Frankel 2008: 289–290). Common sets of vessel types suggest a common cuisine and traditions, which are likely to have been among a range of integrative strategies which served as mechanisms of alliance and solidarity within and between communities.

Around 2200 BCE this system devolved into culturally discontinuous regional provinces. These are readily visible in the appearance in EC I–II of distinctive ceramic style-zones, as well as in other aspects of material culture and practice. We have suggested that this may have been a result of both internal factors, including an increase in population, which allowed multiple, small-scale alliances to be replaced by regional centres, and external factors, including the collapse of the eastern Mediterranean maritime trading system and a severe drought which appears to have caused environmental degradation across the eastern Mediterranean at this time (Webb & Frankel 2013b: 62; see also Manning 2013). These are likely to have had a significant effect on the lines of communication and material correlates of the earlier system, leading, among other things, to the development or re-emergence of different pottery styles, techniques and production locales in the areas into which finer Philia pottery had previously been imported (also Bolger & Peltenburg this volume).

Regional diversity in EC I–II

In EC I–II, in the central lowlands and on the south coast RPP was replaced by RPm I–II (Georgiou *et al.* 2011: 280–288). RPm I–II vessels are medium-textured and hard-fired. Slips are only lightly burnished and surfaces typically have patches of dark mottling. Vessels have wide flat bases and a distinctive array of handle and lug types. The morphological range is restricted, with little internal variety and few complex vessels. Incised decoration is not present and relief ornament occurs only rarely in the form of low knobs and loops. Notably, a local or regional variety of RPm, with a more lustrous slip and visible burnishing strokes, has now been identified in the northwest at Phlasou (Georgiou this volume).

On the north coast, EC I settlements developed a ceramic tradition which was much richer in form and decoration than either the earlier Philia or the contemporary south/central repertoire. Here, RP fabrics, classified as RP I–II, are made from fine, calcium-rich sedimentary clays with good quality lustrous slips. Small bowls are fired black on the interior and below the rim on the exterior and flasks and ear-lug pots fired black on the upper body

and neck. Incised decoration and vessel forms are diverse and often complex, particularly at *Vounous*. This north coast RP I–II, as already noted, may be viewed as the direct descendant of fine quality RPP, much of which was probably produced by specialist potters. There are significant continuities in clay type, manufacturing techniques and surface treatment, including differential firing.

Excavations in the west and southwest suggest further regional differences in ceramic forms and fabrics in this part of the island with Drab Polished (DP) and western varieties of RP now evident from EC I–II (Graham 2013; Crewe this volume). Other areas, most notably the Karpas peninsula, remain almost entirely unknown.

Several ‘minor’ fabrics, as noted above, were also circulating within these regions. RPSC was primarily in use in an area stretching from the Dhiarizos Valley to the Kouris Valley. Vessels from Kissonerga, Psematismenos and Arpera and possible examples from Yialia, Deneia and Marki indicate some movement beyond this core area or perhaps other production locales (Georgiou *et al.* 2011: 288–291). RPSC was not, however, the dominant fabric on any of the sites where it has so far been recovered. At Kissonerga *Ammoudhia* it is represented by a small number of vessels within an otherwise predominantly DP assemblage. At Episkopi, Sotira, Psematismenos and Arpera it occurs within RPm I–II assemblages. A similar scenario is suggested for Avdimou *Kilades*, where a RPSC bowl was found with quantities of RPm (Karageorghis 1976: 850–851) and for Prasteio *Mesorotsos*, where this period of occupation is represented among surface material primarily by DP, RP and RPm (McCarthy *et al.* 2010).

BrP, similarly, appears at EC and MC sites on the central south coast but nowhere as the dominant fabric and, as noted above, almost exclusively in the form of small flasks. Several BrP sherds from Phases C–D at Marki and Alambra Tomb 105 suggest limited movement beyond the south coast in EC I–II (Frankel & Webb 2006: 138, fig. 4.32; Barlow 1996: 321–322, fig. 72, F643). BrP flasks of MC date have relatively standardised decoration, comprised of a multi-line zigzag with filler motifs and vertical or dotted lines on the neck, and are particularly common at Kalavasos (Karageorghis 1958: 130, 132, figs 12, 14; Cullen *et al.* 1986: 113–114, 116–120, fig. 36.8–10; MacLaurin 2007: 209–210, fig. 28.1–4) (Fig. 3.7). The only other MC BrP vessel type is a small hemispherical bowl with similar decoration, currently recorded only at Kalavasos (Karageorghis 1958: 131–132, no. 27, fig. 18; Cullen *et al.* 1986: 126, no. 24, fig. 36.7). Both suggest that this site was a production centre from EC III. For the earlier period only Psematismenos has yet produced a significant quantity of BrP vessels. Their chemical composition, however, is different to that of the domestic assemblage and local production is unlikely.

EC III/MC I–III

RP continued in use across the island in EC III, evolving into RP III in the north and RPm III in the south. Production of RP III, however, now extended well beyond the north coast to become the dominant fabric across the central lowlands. In the south local traditions persisted. At Episkopi, Kalavassos and elsewhere, RPm remained in use well into the MC period, alongside other local variants of RP and imported or locally produced DP (Herscher 1976; Swiny 1979: 228; Cullen & Wheeler 1986: 131; Swiny in Todd 1993: 89–91). RP IV Punctured ware, decorated with puncture-filled triangles, lozenges and rectangles, appears in MC III at Episkopi, Pyrgos, Alassa, Anoyira, Avdimou, Limassol, Erimi and elsewhere (e.g. Carpenter 1981; Belgiorno 1997: figs 4–6, 9–10; Flourentzos 1991: pls XVI–XVII, XLVII; Bombardieri 2012: 144–145, fig. 9). Vessels of this type are only occasionally found further afield, with a few examples recorded from Kalavassos (Cullen *et al.* 1986: 67–68, fig. 32, K-PC 137), Deneia (Åström & Wright 1962: 266–367, no. 103, fig. 11, pl. VIII.5; Frankel & Webb 2007: 64), Lapithos (Herscher 1976: pl. II.8) and Katydata (Georgiou this volume).

While production of RP III may have been limited to the centre and north of the island, high quality RP III vessels were moving in some numbers to the south and perhaps also to the west. This is most evident in the case of decorated juglets, flasks and small amphorae, with examples from numerous sites including Episkopi (Herscher 1991: 46–47), Pyrgos (Belgiorno 2002: 17, fig. 7; 2007: 152–153, nos 2–3, 184, no. 34), Kalavassos (Cullen *et al.* 1986: fig. 31.2–13) and Alassa (Flourentzos 1991: 10, nos 14, 21). The recovery in Tomb 240 at Erimi *Laonin tou Porakou* of two juglets and a flask almost certainly made by the same potter (Fig. 4) and in Tomb 248 of two near identical RP III amphorae (Fig. 5) suggests that these vessels were acquired through relatively structured channels and

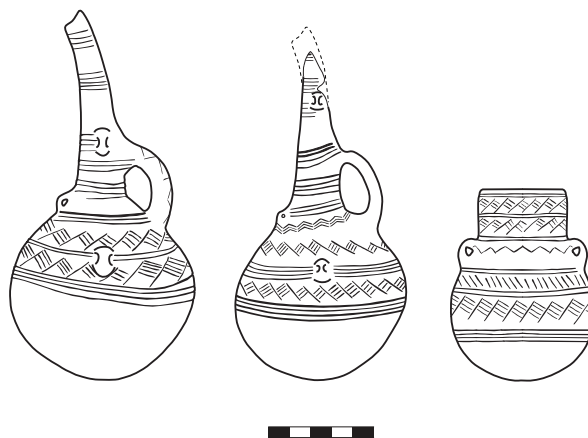


Figure 4. Three small decorated RP III vessels likely to have been produced in the same workshop, from Tomb 240 at Erimi *Laonin tou Porakou* (reproduced with the permission of Luca Bombardieri)

possibly directly from the workshops in which they were produced.

In the west production of DP continued alongside local RP variants. It was now, however, moving increasingly beyond this region. DP is present at Sotira in small quantities from EC II or EC III (Herscher 2003: 152–153) and found in substantial numbers at south coast sites in the MC period, mostly in the form of closed vessels, including storage jars. Further afield it occurs at Marki from EC II, reaching a peak in MC I (Frankel & Webb 2006: 140). The number of vessels moving into the central lowlands, however, was never high. At Marki, DP occurs as 0.09% of the EC I to MC II sherd count, almost exclusively as small to medium closed vessels, suggesting a limited interregional trade in the vessels' contents. DP is somewhat more common at Ambelikou *Aletti*, as 1.6% of the MC assemblage, exclusively in the form of closed vessels,

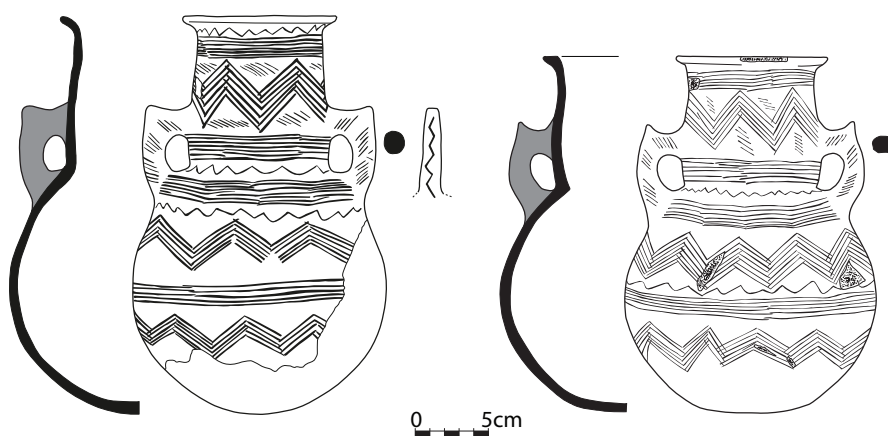


Figure 5. Two small RP III amphorae probably made in the same workshop, from Tomb 248 at Erimi *Laonin tou Porakou* (reproduced with the permission of Luca Bombardieri)

although these include cutaway-mouthed jugs and a miniature flask (Webb & Frankel 2013: 95–98). Small bowls of western RP were also found at Ambelikou (Webb & Frankel 2013: 78), suggesting a limited but regular movement of vessels from the west, largely but not exclusively as containers, perhaps by boat from Chrysokhou Bay. DP is, notably, not yet evident on the north coast in either the EC or MC period.

Other fabrics, produced in smaller numbers, also circulated within bounded regions. Black Polished (BP) was almost exclusively in use in the Mesaoria and on the north coast. Less than 2.5% of provenanced BP was found elsewhere (Brewster 2007: 64–67). The earliest production centre(s) appear to have been at *Vounous* or *Lapithos*, where BP was used for the manufacture of ear-lug pots and flasks deposited with some frequency in EC I–II tombs. By MC I, however, high percentages of BP are a distinctive feature of the *Deneia* assemblage and this site was undoubtedly now a major production centre (Frankel & Webb 2007: 138–139). The high quality of these vessels suggests that they are the work of experienced potters, who were probably also responsible for the incised black-topped RP bowls noted above. Elsewhere distribution appears to have been limited. BP is relatively rare at *Ayia Paraskevi*, *Katydhata*, *Linou* and *Ambelikou* and present as a very minor component of the ceramic assemblages at *Marki* and *Alambra* (Frankel & Webb 2006: 138–139; Barlow 1996: 254). This suggests restricted movement beyond *Lapithos/Deneia* and, apart from the occasional import (e.g. at *Kalavassos*, Cullen *et al.* 1986: 68, K-PC 140; Swiny in Todd 1993: 89–91, Table 1), none at all to the south and west.

The earliest painted vessels, attributed by Samuelson (1993: 88–105) to the EC III/MC I transition, are likely to have been produced at *Lapithos*. A small number of early WP sherds from MC I deposits at *Marki* and *Deneia* suggest that these probably largely experimental vessels occasionally moved beyond the north coast (Frankel & Webb 2006: 142; 2007: 139). WP II is also rare beyond *Lapithos* and *Vounous*, which were probably the only sites producing painted fabrics in MC I. A handful of WP II sherds indicate a limited presence at *Marki* (Frankel & Webb 2006: 142–143). WP II is also found in small quantities at *Alambra*, *Ayia Paraskevi*, *Dhiorios*, *Krini*, *Kalopsidha* and *Arpera*, and somewhat more common at *Deneia* (see Frankel & Webb 2007: 139). In all cases it lacks recognisably local characteristics and is likely to have been imported from the north.

WP III and WP IV are found more widely in the north, centre and east of the island and have a significant presence at *Deneia* in MC II and III (Frankel & Webb 2007: 71–75, 139–140). While inter-regional links which perhaps involved the movement of potters as well as pots are visible, design elements are recognisably intra-regional; notably a tectonic style of simple geometric motifs with a common arrangement of crosshatched panels and vertical wavy lines in the

north, neat geometric motifs generally arranged in horizontal structures in the centre of the island, and simpler decoration, including Cross Line and Wavy Line Styles, in the east. Elsewhere WP is rare or entirely absent. WP II, WP III, WP III–IV and WP IV occurred as 1%, 0.3%, 0.3% and 0.5%, respectively, of the assemblage from the *Kalavassos Village* tombs, in similar quantities at *Kalavassos Laroumena* and not at all in more recently published MC tombs at *Kalavassos* (Cullen & Wheeler 1986: 130; Swiny in Todd 1993: 89–91, Table 1; Todd 2007). Less than a handful of WP vessels are reported from *Pyrgos* (Belgiorno 1999: 78), a few fragments of WP IV and V at *Episkopi Phaneromeni* (Herscher 1976: 12; Carpenter 1981: 64) and little or no WP of any kind from sites further to the west.

Black Slip (BS) and Red Slip (RS) have a long history in the northern half of the island from MC I to Late Cypriot (LC) IIA. At *Deneia* virtually all BS II vessels have parallels in local RP IV, with which they are clearly contemporary. These include *Deneia* vessel types suggesting that some if not all *Deneia* BS was produced in local workshops (Frankel & Webb 2007: 140). Like WP, BS and RS vessels are rare in the south. A single BS II amphora is reported from *Kalavassos* (Cullen & Wheeler 1986: 130, 155). BS is also rare at *Alassa* (Flourentzos 1991: 11, Tomb 1, no. 39) and *Episkopi* (Carpenter 1981) and uncommon in the central Mesaoria, comprising only 0.04% of the assemblage at *Marki* (Frankel & Webb 2006: 141, Table 4.1.b) and not reported at all at *Alambra*. Distinctions in form and decoration between BS II from north/northwestern and eastern sites, such as *Kalopsidha*, suggest several broad areas of production in MC II and III (Frankel & Webb 2007: 140). Given the rarity of BS elsewhere, it appears not to have been moving far beyond these production centres.

Similarly, Red-on-Black and Red-on-Red wares occur mainly in the Karpas ‘cultural zone’, defined by Merrillees (1979) as extending from *Phlamoudhi* in the north to *Enkomi* at its southwest limit, with sporadic finds elsewhere (Frankel & Webb 2007: 84, 140–141). Both were current in MC III, with a likely production centre at *Phlamoudhi* (Smith 2008). Another eastern fabric, identified as Early Red Slip ware, was reaching *Marki* in small quantities in EC III and MC I (Frankel & Webb 2006: 140–141). Perhaps to be associated with *Ayios Iakovos*, it serves as a reminder of how little we know about ceramic production in the east (for a recent discussion of ceramic changes in this region during the MC III/LC IA transition see Crewe 2009).

Across much of the island MC III was a period of active ceramic ‘borrowing’ or hybridisation, ahead of the introduction of new wares, including wheelmade fabrics, in LC I (see Crewe 2007; Steel 2010). In the centre and north aspects of form, fabric and decoration common to RP IV, RS and BS make classification difficult. This is equally true of the south and southwest where local RP IV and imported (or local?)

varieties of DP occur in similar forms with varied surfaces and fabrics. The introduction of the multiple incising tool also resulted in a loss of complexity and diversity in decoration and a reduction in the number and variety of motifs. At Deneia and elsewhere this led to a relatively homogeneous range of fabrics with a more limited array of shapes and simpler, more standardised and less carefully executed decoration (see Frankel & Webb 2007: 103–106). The timing may have been similar on the south coast, although here the replacement of single-pointed with multiple tools had a different outcome. While many vessels have simple two-, three- or four-line zigzag, wavy and straight lines typical of incised decoration elsewhere, on other vessels multiple-pointed tools were used to create punctured areas and complex groups of lines. While the loss of creativity and complexity in the north and centre of the island may be related to the increasing dominance of WP, the absence or rarity of painted wares in the south perhaps provided the impetus for an increased elaboration of some late monochrome wares in that region.

Discussion

With the pottery workshop at Ambelikou now visible and chemical and petrographic analyses of RPP and other fabrics available, it is possible to suggest a more complex set of ceramic production and distribution contexts for prehistoric Bronze Age Cyprus than previously envisaged. While production of RPP appears to have been largely ‘controlled’ by one or more sites in the north in the Philia period, similar pottery was also manufactured elsewhere and distributed within more localised networks. For the remainder of the EC and MC most utilitarian pottery was probably produced in village-based workshops, alongside a more limited production of high value, iconographically complex vessels for ritual/mortuary purposes at some sites, and special-purpose flasks and perhaps other vessels (cooking pots, pithoi?) in a limited number of locales for off-site distribution. These multiple levels of production—utilitarian, ritual and ‘commercial’—were not necessarily mutually exclusive, although clearly not all pottery-making locales were engaged in the production of special-purpose vessels, and flasks are likely to have been manufactured in workshops closely associated with the production of their contents.

The networks responsible for the transmission of potting traditions and, in some cases, for the movement of pots, appear to have operated very well within regions but, beyond the Philia EC, there is relatively little evidence for a significant movement of vessels between regions and ‘minor’ fabrics, in particular, are rarely found beyond their core production areas. RP III (as fine decorated vessels) and DP (mostly in the form of robust storage/transport vessels), however, moved more often and more widely from EC III than

other fabrics; while contemporary WP, BP and BrP appear not to have moved beyond certain boundaries at all. Even in the case of the flasks, where the contents presumably provided the impetus for movement, distribution of particular fabrics remained essentially intra-regional, suggesting that each region had its own production centres of both flasks and their contents.

The stylistic boundaries visible between the RP tradition on the north coast and other parts of the island in EC I–II suggest the emergence of relatively circumscribed networks of communication, with the Kyrenia range perhaps limiting the movement of people and goods. The uniqueness of the north coast may, as suggested elsewhere, have been a deliberate expression of exclusivity related to the emergence of new, or the survival of older, corporate identities, the latter evident in the embellishment and long-term use of tombs and the elaboration of ceramics. Some north coast pottery was moving south to the central lowlands (Frankel & Webb 2006: 110–112, 119). RPPm I–II vessels also occasionally found their way north to *Vounous* and *Karmi* (Webb *et al.* 2009: 215–219, fig. 4.18; Eccleston *et al.* 2011: 267–268). These cross-regional imports suggest some interaction between communities on the north coast and in the centre of the island, but little direct contact between the more distant north and south coasts. The centre and south constituted a largely independent ceramic style zone in EC I–II, from *Kalopsidha* in the east to *Anoyira* in the west. This suggests relatively easy movement of people, goods and ideas along the south coast corridor and north to the central lowlands and a period of relative stability during which new concepts of regional identity emerged or re-emerged. The west developed its own ceramic traditions and may have remained largely independent until toward the end of EC II (but see Crewe this volume).

The greater ceramic homogeneity in EC III and MC I reflects a return to broader and more uniform behaviours within an expanded central and northern interaction zone, with a continuing or even increasingly distinct south and southwest sphere. The key site of *Ayia Paraskevi* in the centre of the island is likely to have played an important role at this time (Georgiou 2013; Pilides this volume). There is no suggestion, however, of inter-regional isolation. Incised RP III was moving south and west in this period, probably for its own sake rather than for its contents, and DP containers and their contents made their way along the south coast and to the northwest and central plain, although apparently not to the north coast. The fact that ‘minor’ fabrics, on the contrary, rarely crossed these boundaries, suggests that they were distributed within different, possibly mutually competing networks. This period also saw the development of localised ceramic traditions, most obviously at *Deneia*, where it can be seen as one outcome of rapid population aggregation and growth

(Webb 2010). This was followed in MC III by ceramic hybridisation, again within broad regional traditions and with different outcomes in the centre and east to those in the south and west.

These patterns of association may be linked with broader exchange systems, and in particular with that of copper, as suggested by Frankel (1974a) for WP ware. Copper production and trade were particularly important during the Philia, late EC and MC periods (Webb 2013), at which time supply networks linking ore bodies with manufacturing and export centres may explain many of the long-distance contacts between regions. Metallurgical technologies introduced in the mid-third millennium led to the establishment of networks which ensured a supply of metal from Troodos ore bodies to north coast outlets. This may be linked with the production of RPP at one or more centres in the north and its distribution, perhaps in return for copper, along these networks. Following the development of restricted territories in EC I–II, the north coast acquired copper from the northeast Troodos, as suggested by the presence of north coast imports at Marki, but Marki itself belonged to a south/central interaction sphere. In late EC III renewed foreign demand for Cypriot copper led to the founding of new mining villages in the northern Troodos and the re-establishment of supply networks to the north coast, probably under the aegis of Lapithos. These had little impact in the south and west, where sites were located relatively close to copper sources in the southern Troodos and interaction networks are likely to have taken a different form (see Crewe this volume). While this is no doubt far from a full picture, the changing nature and extent of ceramic production and distribution do appear to reflect the intensity with which ore bodies and communication and transport networks were exploited, particularly in the north and centre of the island.

Conclusion

The domestic production model appears to have been firmly overturned in favour of a more specialised manufacture and limited trade model for much if not all ceramic production in prehistoric Bronze Age Cyprus. In the Philia EC, we may envisage a formal interregional trade in RPP with attendant specialisation and related structures of management and distribution. For the remainder of the EC and MC most vessels were probably made by semi-specialised or part-time potters within villages. Some fabrics and vessel types, however, are likely to have been made in dedicated workshops and either used locally or distributed through largely intra-regional networks.

This fits well with increasing evidence for craft specialisation with regard to other resources. At Sotira worked picrolite from the Kouris riverbed was

recovered throughout the excavated area, indicating widespread production of ornaments at this site in EC III and perhaps earlier (Swiny 2003: 237–238). Some specialisation in relation to local copper resources may be proposed for Marki in the Philia, EC and MC periods and for Pyrgos and Kalavassos from at least the MBA. Swiny and Mavromatis (2000: 435–438) have argued for a special-purpose industrial site at Paramali and workshop production, probably of textiles, is suggested by current excavations at MC Erimi (Bombardieri this volume). Mining, smelting and casting were carried out at Ambelikou in MC I and some production of metal artefacts at Politiko Troullia in MC III (Fall *et al.* 2008: 195; Falconer & Fall this volume), in both cases in workshops separate from domestic areas. While the management and distribution of these resources remain poorly understood, workshop production and a degree of organised trade in regional commodities, probably along well-defined routes and in accordance with site-to-site exchange relationships, certainly appear to be indicated.

This is not an argument for highly stratified communities with formal relationships and marked boundaries, but systems are likely to have been significantly more complex than once envisaged, both at the village and regional level (for recent more detailed discussions see Knapp 2013a: 263–347; 2013b: 21–28; Webb & Frankel 2013). While most villages may have been fairly small, not all their occupants appear to have been full-time ‘village agriculturists’ (Frankel 1993: 69) and production and exchange relationships may have extended beyond kin-based ties.

Much has changed since David Frankel’s initial studies on ceramic production in prehistoric Bronze Age Cyprus and key elements of his original model have been abandoned. It is a fitting acknowledgement of his contribution to the field that our current understanding of the complexity of social articulation on the island has come about largely as a result of his own meticulously conducted excavations; and a tribute to his academic integrity that it has been in large part his own research which has led, progressively, to a refinement of his arguments for a ‘much simpler society’ in Cyprus before 1700 BCE.

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