

BRONZE AGE BOUNDARIES AND SOCIAL EXCHANGE IN NORTH-WEST CYPRUS

Summary. During the Late Bronze Age a number of towns engaged in copper production and overseas trade arose throughout the coastal regions of Cyprus. While some of these towns were located within a few kilometres of major ore deposits in the Troodos Mountains, others were situated much farther away, and presumably acquired their copper supplies through extensive networks of exchange. This paper addresses the question of how such networks may have been structured in north-western and north central Cyprus, within and adjacent to the research area of the Sydney Cyprus Survey Project. Based on our analyses of site locational factors, we propose the co-existence of at least two distinct networks of copper procurement and transport. Consideration of the finds from settlement and mortuary sites in the northern Troodos and Mesaoria plain suggests a pattern of hierarchical exchange relations between coastal and inland regions.

INTRODUCTION

During the Protohistoric (ProBA) or Late Bronze Age a number of towns engaged in copper production and overseas trade arose throughout the coastal regions of Cyprus (Knapp 1986). Whilst some of these towns were located within a few kilometres of major ore deposits in the Troodos Mountains, others were situated much farther away, and presumably acquired their copper supplies through extensive networks of exchange (Keswani 1993; Webb and Frankel 1994; Knapp 1997). This study addresses the question of how such networks may have been structured in north-western and north central Cyprus, within and adjacent to the research area of the Sydney Cyprus Survey Project (SCSP – Given *et al.* 1999; Given and Knapp 2003). Based on the preliminary analyses of site locational factors and artefact assemblages, we suggest that there would have been multiple networks of copper procurement and transport linking rural settlements to coastal centres in the Morphou Bay area and in eastern Cyprus, especially at Enkomi, Kition and Hala Sultan Tekke. Whilst we cannot yet say whether these networks were ‘officially’ administered or based on diverse relationships of alliance and social exchange, it does appear that the general character of the interactions and exchanges between coastal and inland communities became increasingly hierarchical over the course of the Late Bronze Age.

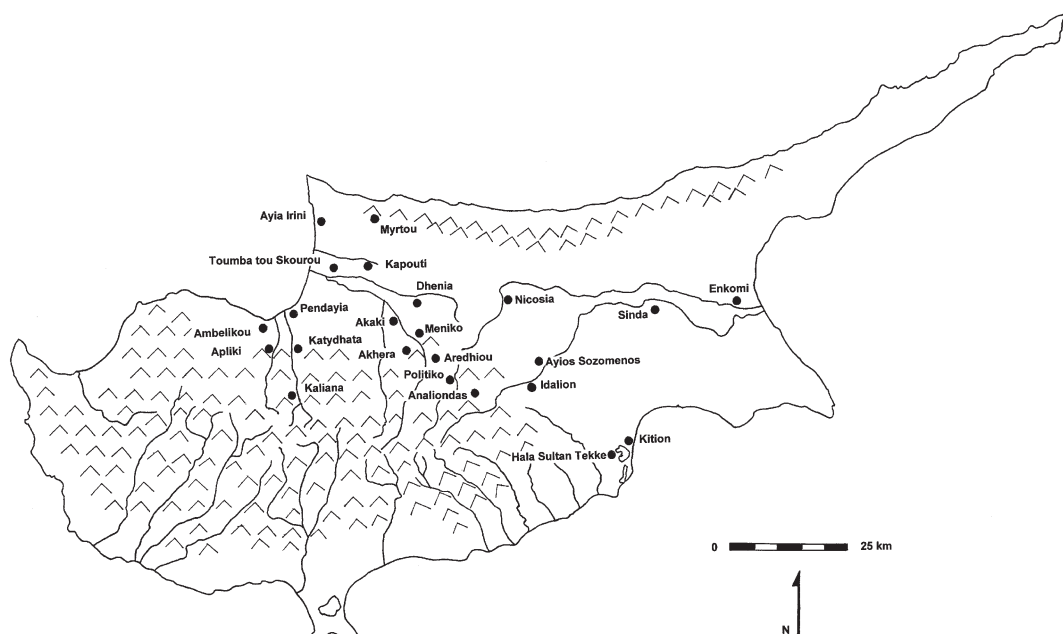


Figure 1

Map of Cyprus showing all major sites indicated in the text (prepared by P. Schuster Keswani).

THE REGIONAL BACKGROUND

The region under consideration encompasses the northern Troodos foothills and the Mesaoria plain, from Politiko in the east to Morphou Bay in the west (see map, Figure 1). A number of Protohistoric (Late) Bronze Age (ProBA) settlement and cemetery sites are known from excavation or survey in this region, including the important town at Morphou *Toumba tou Skourou*, the mining village at Apliki *Karamallos*, the cemeteries of Kalydhat (Boutin *et al.* 2003) and Pendayia *Mandres*, the cemetery and probable settlement sites at Akhera *Chiflik Paradisi*, Akaki *Trounalli*, Dhenia *Mali* and Dhenia *Kafkalla*, a possible agricultural village and rural collection centre at Aredhiou *Vouppes* discovered by SCSP in 1993, the smelting site at Politiko *Phorades* (excavated 1996–2000 – Knapp *et al.* 2002a, 2002b), and a number of cemetery sites in the Politiko area.

Among all of the sites just mentioned, at present only *Toumba tou Skourou* can be viewed as an obvious candidate for the centre of a regional polity. *Toumba tou Skourou* was excavated by Harvard University and the Boston Museum of Fine Arts under the direction of Emily Vermeule between 1971–3 (Vermeule 1974; Vermeule and Wolsky 1977, 1978, 1990). Unfortunately, much of this site, reportedly comprised of several mounds, had been destroyed by bulldozing prior to the excavations, which were terminated in 1974 as a result of the Turkish invasion of Cyprus (Vermeule and Wolsky 1990, 14–15). Vermeule's excavations were concentrated within a potter's quarter, where the remains of houses, pottery workshops, pottery stores, and tombs dating from Middle Cypriot (MC) III/Late Cypriot (LC) I to LCII (ProBA 1 and 2) were uncovered. The tombs contained numerous imported goods, including

objects of gold, silver, worked bone and ivory, glass, faience, carnelian, ostrich eggs, Tell el-Yahudiyyeh ware, Minoan and Mycenaean pottery, and a haematite cylinder seal of Syrian style – finds that attest to long-distance contact with the Aegean, Egypt and the Near East. The tombs also yielded an impressive array of copper/bronze artefacts, predominantly ornaments such as pins, rings, bracelets, spiral beads and hair rings. Evidence for metallurgical activity was scanty in the area investigated by Vermeule, but the presence of at least a small quantity of copper slag and metal droplets indicates that copper refining activities may have been conducted in the vicinity of the so-called Basin Building during the thirteenth century BC (Stech 1982, 108; Vermeule 1974; Vermeule and Wolsky 1990, 44). Finds of several huge ashlar blocks with ornamental bosses, a priest's mask cut from an oversize bull skull, and a possible fragment of a horned altar suggest the presence of monumental architecture and a religious or ceremonial complex similar to that observed at other major Cypriot towns in LCIIC and LCIII (ProBA 2 and 3) (Vermeule 1974).

Presumably any copper supplies that *Toumba tou Skourou* may have needed were acquired through one or more chains of sites extending through the western Mesaoria plain to the Troodos foothills (Stos-Gale *et al.* 1998). To the south-west of *Toumba tou Skourou* lie the rich ore bodies of the Ambelikou and Skouriotissa mining districts, which were unquestionably exploited during the EC–MC periods or Prehistoric Bronze Age (PreBA) by the inhabitants of Ambelikou *Aletri* (Merrillees 1984) and presumably also by the communities which buried their dead in the cemetery of Katydhata throughout the Bronze Age (Åström 1989; Boutin *et al.* 2003) and at Kaliana *Manjapierides* in LCI (ProBA 1) (Catling 1963, 164, no. 97). Whether *Toumba tou Skourou* exerted any official control over these communities is unclear, but we would suggest that some sort of alliance-based exchange network was in operation, perhaps mediated through a community such as Pendaria *Mandres*, strategically positioned along the main route between the Skouriotissa and Morphou areas. Interestingly, the one intact and two looted MCIII/LCIA (ProBA 1) tombs investigated by Karageorghis (1965a) at Pendaria were rich in copper/bronze artefacts, with a far greater number of heavy objects such as knives and hook-tang weapons than were found in the six tombs (12 chambers in total) excavated at *Toumba tou Skourou*. If the residents of Pendaria were intermediaries in the copper trade, they may not have been subordinate to *Toumba tou Skourou* in this early period.

Later, during the LCIIC period (ProBA 3), it may be speculated that *Toumba tou Skourou* acquired copper through a more formally administered supply system encompassing mining villages such as the one excavated by Taylor (1952) at Apliki *Karamallos*. Some sort of elite and/or official presence at Apliki may be attested in the architectural complex known as House A, an unusually large and well-constructed building (relative to others found at the site) which yielded considerable evidence of metallurgical activity, substantial storage facilities and elite prestige goods such as a gold earring, a Mycenaean granary style crater, an ivory cylinder and a steatite cylinder seal. Keswani (1993, 77) has suggested that House A might represent an official residence and workplace from which the local mining and processing of copper were controlled and from which subsistence commodities were redistributed to other residents.

Regional alliances?

Another of *Toumba tou Skourou*'s supply chains might have comprised the Late Cypriot (LC) settlement and cemetery at Akhera, only 30 minutes' walk from the mines of Agrokippia and Mitsero, and intermediate or intermediary sites such as Meniko *Mana tou Pedhon* and Akaki

Trounalli, located along the plain between Akhera and *Toumba tou Skourou* (Karageorghis 1965b, 72; Wallace 1982, 238–9). Akhera is situated in a lush basin at the northern foot of the Troodos Mountains. The presence of a Late Bronze Age settlement in the vicinity of Akhera is suggested by finds of groundstone, *pithos* sherds and possible Late Bronze Age walls noted by Karageorghis (1965b, 72). The surface finds collected by Wallace's 1979–80 survey of the area (examined by Keswani in 1996) included typical LC fine and utilitarian wares and numerous LC *pithos* fragments. In addition, three intact tombs were excavated at the locality Akhera *Chiflik Paradisi* by the Department of Antiquities in 1960–1 (Karageorghis 1965b). Tomb 1, with two burials dating to LCIA, was notably rich in bronzes including, as at Pendayia, several knives and hook-tang weapons, as well as pins, spiral rings, awls, tweezers and a razor. The presence of faience beads, a silver spiral and an Egyptian scarab attests to long-distance exchange. Tombs 2 and 3, of LCIIIC date, contained far fewer bronzes, predominantly earrings and other small items, although each tomb contained multiple burials (14 and 6 respectively). Other finds from Tombs 2 and 3 included a few small ornaments of faience, silver, and gold, an ivory funnel-shaped button and three cylinder seals, one of Mitannian style. These types are among those which Keswani (1989a, 1989b, 2003) classifies as 'lower order' valuables, i.e. items commonly found not only in rich tombs but also in those of middling wealth at major coastal centres such as Enkomi. 'Higher order valuables' such as heavy and/or elaborately wrought pieces of gold jewellery, Mycenaean pictorial craters, and objects of faience and ivory with pictorial decoration are notably absent. Admittedly, Tombs 2 and 3 alone constitute much too small a sample on which to base any definitive conclusions, but the composition of their assemblages nevertheless suggests that if the residents of Akhera were supplying copper to a coastal centre in LCIIIC, they were giving up more than they got in terms of prestige goods.

Grave goods from the unpublished, partially looted tombs at Akaki *Trounalli* rescued by the Cyprus Museum in 1942, 1959 and 1969 (Karageorghis 1960, 1970; Catling 1963, 160, nos. 1 and 2) were examined by Keswani in 1996 with the kind permission of Drs Demos Christou and Paulos Flourentzos of the Cypriot Department of Antiquities. The material recovered from these tombs clearly attests to some form of exchange between Akaki, the Troodos mining district and sites along the north-west coast of the island. Among the more unexpected finds encountered in trays of sherd material (simply labelled 'sherds' with no specific tomb provenience) was a 9 cm long piece of roasting conglomerate containing bits of copper and charcoal, and three smaller fragments of conglomerate. All this evidence suggests that some form of metallurgical activity was carried on in the Akaki area, possibly involving production for local use or for purposes of exchange. We hasten to add that roasting conglomerate is unlikely to have been deposited in a tomb as a grave good, but may have been incorporated in the filling material or recovered from the surface surrounding the tombs. We revisited the site in 1996, but no further indicators of Bronze Age use were apparent, almost certainly because the area is now under intensive agricultural exploitation.

Pottery from Akaki included a wide range of typical LC wares along with whole and fragmentary vessels of Bichrome Wheelmade Ware, Tell el-Yahudiyeh ware, Mycenaean wares and non-local wheelmade plain wares. Also present were fragments of Painted Red Slip Wheelmade Ware, an unusual fabric also encountered in small quantities in LCI tombs at Ayia Irini *Palaeokastro*, Myrtou *Stephania* and in Level III of the sanctuary at Myrtou *Pigadhes* (Pecorella 1976, 63, 1977, 245, fig. 572; Hennessy 1964, 46; Taylor 1957, 30). Hennessy notes that good parallels for the Myrtou examples can be found in Middle Bronze Age levels at Tarsus in Cilicia; there are other examples from Kapouti *Demadonna* and Nicosia *Ayia Paraskevi* in

Cyprus as well. It is impossible to say whether the residents of Akaki acquired this pottery through direct exchange links with Ayia Irini and Myrtou, or whether all three sites obtained the pottery from a common port of entry, that is, a major centre such as *Toumba tou Skourou*. Further study and comparison of the diverse pottery types from Akaki and sites in the Morphou Bay area are needed to define the complex linkages that may have existed between these sites. Moreover, the question of whether Akaki was an officially administered way-station or an independent intermediary in the copper trade remains unresolved. The existence of ashlar masonry at the site of Akaki *Chalopetra* suggests that an important LC centre may have been established there (Hadjisavvas 1986, 67, n. 13; Karageorghis 1992, 79).

THE SYDNEY CYPRUS SURVEY PROJECT AND NORTH-WEST CYPRUS

To the east of Akaki and Akhera, the Sydney Cyprus Survey Project (SCSP) identified two Late Bronze Age sites that may also have been involved in the copper trade. The first, Aredhiou *Vouppes*, was discovered during SCSP's 1993 season. The collected material consists primarily of *pithos* sherds and groundstone implements. This site extends over about 2 ha, and is situated on the banks of the Aloupis river drainage, where the agricultural plain interfaces with the igneous Troodos foothills. The *pithos* fragments from Aredhiou *Vouppes* derived from storage vessels of diverse sizes, including some very large examples from Keswani's (1989c) Groups II and III, raising the possibility that *Vouppes* may have been an officially managed agricultural support village involved in provisioning one or more mining encampments in the Troodos foothills. The recovery of a Mycenaean sherd from the surface of the site in 1995 offers some evidence of exchange contacts with other sites that had access to imported goods. Webb and Frankel (1994) have proposed that a similar agricultural village and collection centre was located at Analiondas *Palioklichia*, some 10 km south-east of *Vouppes*; such settlements may have been common elements of the prevailing system of settlement and exchange in the LCIIIC (ProBA 3) period.

Aredhiou *Vouppes* is an ideal candidate for an agricultural support village that also may have served mining sites in the Politiko–Mitsero region, and functioned as one element in a micro-regional production system, linked into a broader, hierarchical settlement system. In such villages, surplus agricultural produce (grains, olive oil) would have been collected, processed and redistributed, whether to the mining sites or up the line to secondary or primary centres. But just where are the nearest mining sites, and are they contemporary with *Vouppes*?

During the 1996 season, SCSP discovered the second of two key Bronze Age sites, this one the remnants of a slag heap and what appeared to be a copper-smelting workshop, at Politiko *Phorades* in the south-eastern corner of the survey area. The presence of a workshop was indicated by a large quantity of slag and refractories eroding out of the 4 m high stream bank of a tributary creek of the Kouphos river. We need to consider briefly the site's situation, because such locational information has ramifications not just for the present study, but for determining the location of and rationale for other early smelting sites on Cyprus. The critical factors in deciding where to establish a smelting workshop in antiquity would have included the location of ores and fluxes, and the availability of fuel, water and clay. Political, ideological or religious factors will also have influenced the location of the site, and these have already been discussed elsewhere (Knapp 1999a; Knapp *et al.* 2002a, 2002b).

Because the ore, the fluxes and the fuel would have been available near the mines, the workshop location was most likely chosen because of the creek, which would have provided

essential raw materials for constructing furnaces. Geomorphological study (conducted by Jay Noller, Oregon State University) indicates that the fine silt of the creek bed is comprised of about 15 per cent clay, which would have provided an ideal raw material for manufacturing the furnaces. Moreover, a freshwater spring in the immediate vicinity would have provided drinking water for the workers, even in the summer months. Because the site itself is so small, it is likely that *Phorades* was but one of several similar workshops spread around this mining area.

Excavation of the Bronze Age smelting site at *Phorades* has revealed slag, furnaces and tuyères (50 complete or nearly complete examples) that are technologically unprecedented on an island that has been producing copper for 4000 years. We believe that sites like *Phorades* were once widespread throughout the pillow lavas that encircle the Troodos Mountains, but most have now been destroyed or obscured by twentieth-century mining activity. Fieldwork by SCSP at Agrokippia *Kriadis*, for example, reveals that evidence of ancient beneficiation and ore preparation activity is buried within modern spoil heaps (Kassianidou and Wright, in Knapp and Given 1996, 316–21; Given and Knapp 2003). Moreover, modern-day mining in the Skouriotissa region has entirely obliterated the Bronze Age site of Apliki and its surroundings.

As a result of our ongoing excavations at *Phorades*, and as a counterpoint to the model proposed by Stos-Gale *et al.* (1997), we suggest that the industrial landscape within the Politiko–Mitsero region formed one small component of the alliance and exchange network proposed in this study (see also Knapp 1999b). The ores smelted at *Phorades* almost certainly came from mines on the gossan ridge north-west of and above the smelting site, whilst the ore preparation and roasting took place at an intermediate point, farther down the hill and south-west of the gossan. Smelting took place at *Phorades* itself, some 500–800 m distant, along the banks of the Kouphos river. Geobotanical and geomorphological work (respectively by Neil Urwin and Jay Noller/Lisa Wells of SCSP) indicates a markedly different landscape around the smelting site, and helps to substantiate the notion of small-scale, specialized production units represented by the various ‘sites’ and installations in this micro-region of the Troodos pillow lavas. In micro-regional terms, what we see is a localized settlement pattern (including Aredhiou *Vouppes*) within a broader settlement hierarchy, a self-contained metallurgical area with all the essential raw materials, a distinct social organization and a viable communication network. These diverse but interconnected units helped to fuel the technological revolution clearly revealed by the archaeometallurgical and pyrotechnological material from *Phorades* and already known on other grounds to have emerged during the Late Bronze Age (Knapp 1986, 1994, 282–90).

SOCIAL ALLIANCES AND SOCIAL EXCHANGE IN NORTH-WEST CYPRUS

An important, unresolved question is whether the sites at Politiko and Aredhiou fell within the domain of a coastal centre such as *Toumba tou Skourou* to the west, within the domain of some as yet unidentified local inland polity, or even within the domain of an eastern coastal centre such as Enkomi. From a topographic perspective, it may seem unlikely that either Politiko *Phorades* or Aredhiou *Vouppes* formed the tail end of a chain of sites leading towards Morphou Bay. A number of ridges and streams separate the environs of *Vouppes* and *Phorades* from Akhera and Akaki, and would have necessitated a lengthy and circuitous transport route if trade were oriented to the west. Both sites, however, are accessible from Politiko and the modern transportation route leading north-east to Nicosia. Were they part of a local polity centred on

the Politiko area itself, perhaps a precursor of the Iron Age kingdom of Tamassos (Buchholz and Untiedt 1996)? While we cannot dismiss this possibility altogether, it should be noted that neither SCSP nor any previous archaeological investigations of this region have encountered evidence for a Late Bronze Age town centre in the Politiko area. Moreover, although notably rich tombs of Middle Cypriot date are known at Politiko *Lambertis* and Politiko *Chomazoudhia*, the Late Cypriot IIB finds from Politiko Tomb 6 (Karageorghis 1965c), the only well-documented LC tomb in this region, are qualitatively similar to those from the LCIIC Akhera Tombs 2 and 3. That is to say, they include numerous local pottery types, a few Mycenaean vessels (nearly all containers), a few small finds of ivory and faience, two locally made cylinders, and a number of bronzes, including a few weapons as well as ornaments and other small objects. Once again, a single tomb does not constitute a representative sample of local variability, and the recovery of a gold Hittite seal from *Lambertis* hill (Buchholz and Untiedt 1996, 71, fig. 14a) as well as a fragment of a large Mycenaean IIB crater from Pera *Kryptides* (Åström 1972, 317), not far from Politiko, suggests that some richer tombs may have existed in the area. However, the overall scarcity of higher order Late Cypriot valuables which might at least have turned up as stray finds in this intensively investigated region is noteworthy. Future discoveries may change this picture, but for now it appears that most of the prestige goods flowing into this part of the island were not equivalent to those used by the highest status groups in the coastal centres, and may not have been on a par collectively with the value of the copper which the region is likely to have exported. In other words, the Politiko–Aredhiou area may have participated in unequal or hierarchical exchange relationships with one or more centres – like Enkomi or even Hala Sultan Tekke – located many kilometres away.

The identity of such a ‘hegemon’ remains problematic. Wallace (1982) suggested astutely that the Politiko region may have been oriented to the south-east, i.e. toward sites such as Idalion, Kition or Hala Sultan Tekke. This too would have entailed the negotiation of some rugged terrain, although the general trend of the landscape and of the Yialias and Alykos river valleys lies toward the south-east, at least from the eastern end of the SCSP area. Alternatively or in addition, it is possible that the Politiko area was linked to Enkomi Nicosia *Ayia Paraskevi* and Sinda, a long and perhaps problematic journey over the Mesaoria plain. Peltenburg (1996) has suggested that Enkomi exerted considerable influence throughout north-western and north central Cyprus at least as early as LCI (ProBA 1), establishing a security system of fortresses or fortified sites along the north-eastern flanks of the Troodos to procure copper, and along the southern flanks of the Kyrenia Mountains to prevent north coast sites from obtaining copper. Whereas the architectural similarities between the LCI fortresses at Enkomi and Ayios Sozomenos *Glyka Vrysis Nikolidhes* offer some support for this model, none of the fortresses along the southern Kyrenia range has ever been excavated, and there is as yet no real evidence to link them with Enkomi. From the perspective of distance, it seems equally plausible to postulate a link between the Kyrenia fortresses and *Toumba tou Skourou*.

At least one piece of archaeological evidence, however, suggests that Enkomi might have had exchange contacts with the western Mesaoria at a slightly later date. At the cemetery site of Dhenia *Mali*, located a few kilometres north-east of Akaki and very near the main highway that today runs between Nicosia and Morphou Bay, the Department of Antiquities in 1976 excavated a half-looted tomb of LCIIB date (Hadjisavvas 1985). The finds from this tomb included local Late Cypriot wares, a Mycenaean IIB pilgrim flask, a fragmentary Mycenaean vessel depicting a quadruped, an ivory disc, a bronze knife and a gold diadem decorated with repoussé figure-of-eight type shields. Diadems with similar motifs were found in Enkomi

Cypriot Tomb 10 (Dikaios 1969, no. 149) and Enkomi Swedish Tomb 3 (Gjerstad *et al.* 1934, no. 81), and a necklace with figure-of-eight shaped beads was recovered from Enkomi Swedish Tomb 18 (Gjerstad *et al.* 1934, no. 20). Perhaps this ornament was the property of a Dhenia resident who had exchange contacts, direct or indirect, with Enkomi, or the property of an official sent from Enkomi to oversee economic activities in this region. Then again, another diadem with figure-of-eight shield motifs was found at Hala Sultan Tekke (Walters' Tomb 8, no. 5/185 – see Bailey 1972). The presence of such an item at Dhenia raises the possibility that the entire region under discussion may have fallen within two or more overlapping and perhaps competing spheres of political influence and exchange, one focused on *Toumba tou Skourou* or some other centre of the north-west, and another focused on Enkomi to the east or on Kition or Hala Sultan Tekke in the south-east.

CONCLUSION

In this paper we have undoubtedly raised more questions than we have answered, and offered more speculation than conclusive evidence for relationships between sites. We would argue, however, that it is only by drawing together the currently available evidence, unsatisfactory as it may be, and by posing questions based on that evidence, that we can begin to address the problems of Late Bronze Age socio-political organization and exchange. Although our methodology and approach in this particular enterprise differ from the work of Manning and DeMita (Manning 1998; Manning and DeMita 1997), our goal is much the same. We have attempted to call attention to a number of issues to be considered during the course of future excavations and pedestrian surveys, or in formal and compositional analyses of artefacts that were entangled in the complex exchange of goods, raw materials, information and ideology that typified much of Cyprus during the Protohistoric Bronze Age. Moreover, an awareness of the industrial landscape of prehistoric Cyprus, as gained from the kind of interdisciplinary survey, excavation, exploration and spatial analyses undertaken by the Sydney Cyprus Survey Project and its successor (Troodos Archaeological and Environmental Survey Project/TÆSP – Given and Knapp 2001; Given *et al.* 2002), is essential if we hope ever to unravel the factors which have influenced social and historical processes on the island of Cyprus over the past 5000 years.

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