Book Section:
Day, P.M. and Wilson, D.E. (2016) Dawn of the amphora: the emergence of maritime transport jars in the Early Bronze Age Aegean. In: Maritime Transport Containers in the Bronze–Iron Age Aegean and Eastern Mediterranean. Astroms forlag , Uppsala . ISBN 9789170812118

2
Dawn of the amphora: the emergence of maritime transport jars in the Early Bronze Age Aegean

Peter M. Day and David E. Wilson

Abstract

In the early part of the Early Bronze (EB) II period, the Aegean world sees the appearance of the collared jar, the first ceramic Maritime Transport Container (MTC) of the region. Based on a study and scientific analyses of hundreds of EB II transport jars, focusing on the harbour towns of Poros-Katsambas on Crete, Akrotiri on Thera and Ayia Irini on Kea, we identify some of the key production areas in both the Cyclades (Kea, Siphnos, Melos, Naxos, Thera) and on mainland Greece (Attica). In addition to surveying the spatial and temporal distribution of these EB II jar types at a number of key Aegean coastal sites, we consider the high value liquid commodity being transported and exchanged in these jars, and suggest wine as a likely candidate. We argue that the emergence of the transport jar in EB II should be viewed as part of the same phenomenon as the outburst of pouring and drinking vessels in contemporary Aegean contexts, all evidence for new social practices of drinking and feasting in the private and public spheres.

Introduction

In the early part of Early Bronze (EB) II, the Aegean saw the appearance of the collared jar, effectively the first ceramic maritime transport container of that region. At present best represented in the western Cycladic islands, these jars are mostly globular in shape with rounded or slightly flattened to indented bases, and occur in a variety of sizes, but are generally around 0.30–0.50cm high. They have two opposing handles on the belly, either of the vertical strap or horizontal types, the latter with incised or slashed decoration on the upper surface. The skeumorphism of the slashed handles may reference actual rope or cord tied around the handles to enhance grip, or to secure some form of organic stopper in the mouth of the jar collar. These two types appear to have chronological and/or geographical patterning: strap handles are generally an earlier feature in EB II, while those with incised/slashed horizontal handles are more common in developed and late EB II (the latter = the Kastri/Lefkandi I Group phase). Jars with the latter handle type are probably of Cycladic origin. The body walls of all the collared jars are relatively thin considering their size; this was probably deliberate, in order to minimise the weight of the vessels when full.

The collared jar might afford a variety of uses and this should be considered when looking at similar vessels from different contexts. The emphasis in this paper, however, falls on their clear function as very early Maritime Transport Containers

(MTCs); hence, here we use the terms collared jar and transport jar interchangeably. In the discussion, we consider the connections, mobility, new consumption practices and value-added goods that such transport jars imply.

The appearance of the collared jar on the Aegean stage seems quite abrupt, with only rare possible EB I predecessors (e.g. Kephala Petras, Crete: Papadatos & Tomkins 2013: 362–363, figs 7.e, 8.e). This is clearly evidenced by the successive deposits of late EB I and early EB II at both Akrotiri on Thera and Poros-Katsambas on Crete, where the transport jar does not occur before early EB II (**Fig. 1**). There was a considerable degree of cultural fluidity between and beyond late EB I northern Crete and the Cyclades, with the movement and adoption of foreign styles in diverse types of material culture, including metals, obsidian and pottery. This is epitomised by the late EB I Kampos Group phenomenon of Cycladicising pottery found at a number of coastal Cretan sites including Aghia Photia in the east of the island, and Poros-Katsambas, the Pyrgos Cave and Gournes in the north-central region (Wilson *et al*. 2008: 261; Davaras & Betancourt 2012). The strong contact between what are often considered different cultural areas extends beyond Crete and the Cyclades at this time. The appearance of related material culture from the southern Argolid at sites such as Delpriza, looking down on the Koilada Bay (Kossyva 2011), or indeed Ayios Kosmas on the western coast of Attica (Mylonas 1959), testifies to the mobility of goods, ideas and people.

Yet there is no evidence for any large ceramic transport containers found in EB I contexts at sites of this period, certainly not at Poros-Katsambas or Akrotiri. While it is likely that perishable commodities were being exchanged between Aegean regions, they were not being transported in ceramic containers before EB II. This picture is

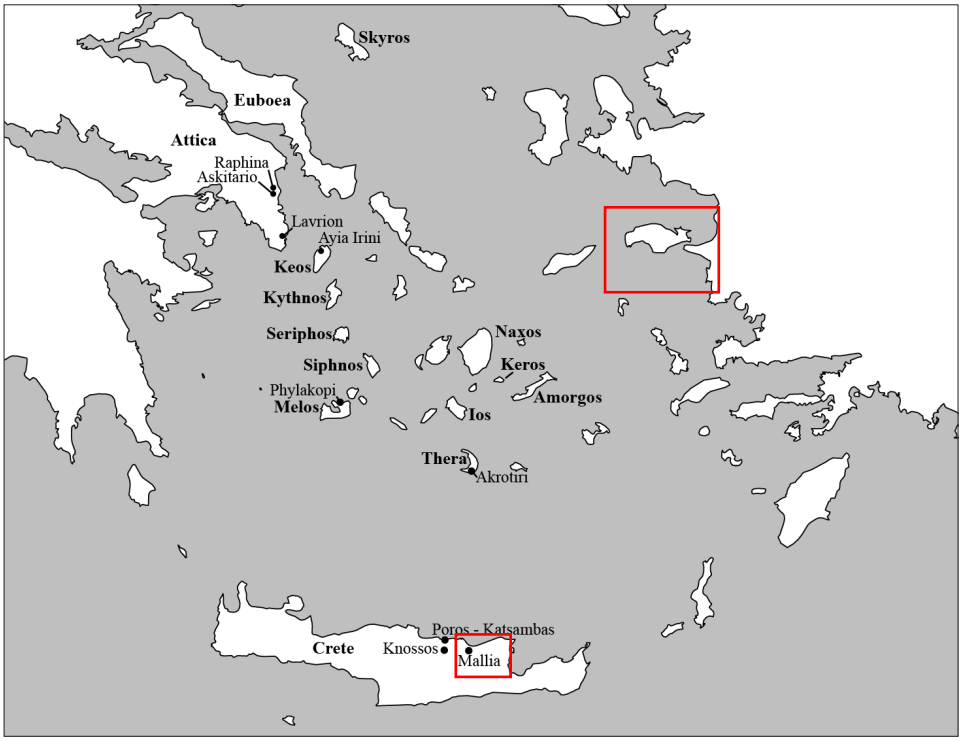

Figure 1. Distribution of principal find spots of EB II transport jars in the west Aegean

overturned, however, and dramatically, in the succeeding early phase of EB II with the emergence of the large collared jar at the start of the period described as the 'International Spirit' (Renfrew 1972: 34, 451).

This paper introduces the maritime ceramic transport containers of the EB II Aegean, building on our work in the western Aegean and focusing on the diversity and wide distribution of these vessels. We argue that the scale of this phenomenon continued to grow during the successive phases of EB II, from early to developed to late EB II (Kastri/Lefkandi I phase). We consider whether these developments are likely to have been promoted by changes in the nature of maritime transportation, or perhaps by changes in demand for the specific goods transported. To illustrate this, we refer to three case studies of settlement deposits that cover one or more of the three main sub-phases of the period in the west Aegean (Maran 1998; Wilson 2013): (a) early EB II at the harbour town of Poros-Katsambas on Crete; (b) early and late EB II at Akrotiri, Thera; and (c) Periods II and III at Ayia Irini on Kea, contemporary with developed and late EB II.

EB II transport jars at Poros-Katsambas, Akrotiri and Ayia Irini

Poros-Katsambas (Crete)

The evidence from the harbour settlement of Poros-Katsambas is key to our understanding of the emergence of the transport jar in the early EB II west Aegean (Wilson *et al*. 2004, 2008). Located on the north coast of Crete, just downstream from the important site of Knossos, this port settlement has stratified deposits dating to both late EB I (= late Early Minoan [EM] I) and early EB II (= early EM IIA). Poros-Katsambas was established early on not just as a gateway port for the flow of raw materials and other goods from abroad, but also as a production and redistribution centre supplying a large area of central Crete, including nearby Knossos (Dimopoulou-Rethemiotaki *et al*. 2007; Tomkins & Day in press). Beginning in late EB I, there is significant evidence for the large-scale importation and working of obsidian and copper, both of which were sourced in the Cycladic islands to the north, from Melos and Kythnos respectively. This abundant evidence for early contact and exchange between north-coastal Crete and the islands is underscored by the fact that approximately 40% of the ceramic assemblage of late EB I Poros-Katsambas is of Cycladic style (Kampos Group) vessels made locally on Crete (Day *et al*. 2012). Yet, in spite of the evidence for such strong contact between Crete and the Cyclades at this early date, there are no certain transport jars, Cretan or off–island, found at Poros-Katsambas in late EM I; this is mirrored by the absence of any apparent transport jars in contemporary late Early Cycladic (EC) I contexts in the islands (see Akrotiri below). The only goods that provide archaeological evidence of being exchanged at this early date between Crete, the Cyclades and surrounding areas seem to be non-perishable raw materials, principally obsidian and metals ores.

In the following, early EB II period at Poros-Katsambas this picture becomes transformed (Wilson *et al*. 2004, 2008). Pottery imports from both the Cyclades and Greek mainland begin, but very selectively in terms of shape, represented largely by only two vessel types: the collared transport jar in very large numbers and the much less common pouring vessel, the sauceboat. While Knossos in this same period has examples of both imported shapes and in the same wares, their numbers, especially

for the transport jar, are dwarfed in comparison with the hundreds of jars found at Poros-Katsambas only 5km away. From a very limited excavated area the estimated minimum number of transport jars from the early EM IIA deposits is close to 400, which gives some indication of the scale of commodity imports from the islands to this one port on Crete at such an early date. By way of contrast, only about 40 imported transport jars have been identified so far from nearby Knossos covering all of the EM IIA period (= early and developed EB II) and from a much larger sample of excavated deposits broadly distributed across the site. This Knossian group of imported jars is not only limited in number, but is also more restricted in terms of wares, largely represented by broad-streak painted and white/yellow slipped strap-handled jars. Whatever the commodity/ies being transported in these jars from abroad, they may have been consumed and/or re-packaged into local containers at Poros-Katsambas for further distribution to inland Crete.

Among the imports at both Poros-Katsambas and Knossos, we have evidence of transport jars from a large number of sources in both the western and central Cyclades including Melos, Ios, Naxos, Thera and ~~perhaps~~ Siphnos. Melian decorated jars with grooved handles and broad-streak painted decoration (see below: EB II west Aegean transport jars) are visually the most striking and on Crete first appear in early EM IIA, predating the contexts of those examples currently known from elsewhere on Kea, Thera and Ios from developed and/or late EB II deposits (see Akrotiri and Ayia Irini below). Also of western Cycladic origin are jars with talc schist inclusions, characterised by a highly distinctive fabric with a smooth soapy feel to the touch. The common talc ware may be of Siphnian origin (Vaughan & Wilson 1993; Renfrew 2005), and is found in the largest quantities as exports in the developed and especially late phases of EB II in the west Aegean islands. Kea in the Early Bronze Age has a second fabric, which includes talc schist, but this is different from the canonical talc ware we have analysed from a range of other sites, which forms a homogeneous group from one source (see further below).

Poros-Katsambas has an unparalleled range of jars fabrics and finishes, reflecting the numerous sources of these imported jars to Crete. While we can identify the source for many of these jars, and suggest sources for others, some still evade the ascription of provenance. Those jars without provenance, nevertheless, have distinctive fabrics, which will be matched at some point as the number of analysed assemblages increases. In the first category, we might list two fabrics that originate from the island of Naxos, one based on granite and the other with metamorphic rocks and green amphibole (Hilditch 2007: 255, 248). In this case, therefore, we have two jar sources from one island. Characteristic fabrics with volcanic glass testify to a large number of jars from Melos, while the garnet-bearing schists from another source can be compared with a mica-schist fabric from Ios (Hilditch 2007: 247). Well characterised fabrics featuring volcanic rocks with a dark matrix may originate in Thera, while we have already suggested that talc ware comes from the western Cyclades, probably Siphnos.

Besides these, however, there is an array of other fabrics. One particularly common jar at Poros-Katsambas, also present in late EB II Akrotiri, is characterised by a blistered surface and a fabric with calc-silicate inclusions, while others feature blue schist, chert and garnet/pyroxene, respectively. These cannot yet be ascribed to a geographical source, though their identity as products of separate production centres is clear. The large range of mica-schist fabrics is likely to encompass sources within the west and central Cyclades. In addition, distinctive white slipped jars are common, have parallels in almost all sites analysed, and can now be ascribed to a source in Attica (see below). In short, Poros-Katsambas seems to have transport jars from throughout the Aegean.

While the bulk of the early EM IIA transport jars found at Poros originate from off the island, a small group are of Cretan manufacture in the common coarse, reddish brown, metamorphic fabric, often used in cooking pots in the Heraklion Basin (Wilson & Day 1999: Fabric 4), and clearly imitating the shapes of imported examples. These are characterised by a high collar with incised banding and broad vertical strap handles at the belly. The use of the strap handle is not a Minoan feature, but is common in a number of different Cycladic and Attic jar fabrics, as well as in Early Helladic (EH) II collared jars known from the Argolid (e.g. Asine: Frödin & Persson 1938: fig. 159.4). Identical jars with incised banding on the collar were found in the contemporary West Court House deposits at Knossos (unpublished), as well as strap handles presumably belonging to them (Wilson 1985: P342–344).

Overall, the impression given by the evidence from early EB II Poros-Katsambas is of an emergent bulk movement of perishable goods in ceramic containers, which are produced in a wide variety of locations. The variation in certain stylistic features among these jars may be a visual marker not only of their specific island origin (Melos, Naxos etc), but even their contents. This point is explored in the concluding section of this paper.

Akrotiri (Thera)

The ceramic evidence for the Final Neolithic and EB periods of occupation at Akrotiri on Thera has been greatly enriched from finds made during excavations between 1999 and 2001, in preparation for the construction of a new roof over the archaeological site. Important single period fill deposits were discovered in a number of rock-cut chambers stratified beneath the later Middle and Late Cycladic town (Doumas 2008). Of relevance here are the large quantities of transport jars found in closed EB II deposits within these chambers and dating to two separate periods within the EB II sequence at Akrotiri: an early phase of the 'Keros Syros' culture (early EC II) and the late EB II Kastri Group.

The first collared transport jars appear in early EB II fill deposits at Akrotiri. Most have vertical strap handles and the majority appears to be imports, including fabrics from known sources in both the western and central Cyclades, in addition to jars with a dark painted or thick white to yellow slipped exterior. A number of jar fabrics and surface finishes from contemporary early EB II deposits at Poros-Katsambas are comparable, arguing for a common origin for several of the jars found at these two sites.

There are no closed deposits yet found at Akrotiri that appear to belong to the developed EB II Keros–Syros ceramic phase contemporary with, for example, Ayia Irini Period II or Skarkos on Ios (Wilson 2013: 422, table 10). The final phase of EB II, however, is well documented in the archaeological record at Akrotiri. Two of the richest closed deposits of late EB II (Kastri Group phase) at Akrotiri (Wilson 2013: 422–423) come from the rock-cut chambers in Pillar Pit 7N (Doumas 1999a: figs 73–76; 1999b: 181–186, pls 118.α–γ, 119.α–β) and Pillar Pit 35N (chamber 2) (Kariotis 2003: 420–422, pls 1–4, 6). The deposit from Pillar Pit 35N is especially large and shows a marked increase in both the number of imported transport jars and a greater diversity of fabrics compared to the early EB II phase of the settlement.

While a small portion of the transport jars found at late EB II Akrotiri are in the local fabric, most are imported from a number of west Aegean sources, at least some of which can now be identified. The Melian broad-streak painted jars stand out both for their fabric and decorative finish. Also of western Cycladic origin are jars in the

distinctive talc ware. This ware is common in the late EB II deposits at Akrotiri (ca 10% by weight of PP35N, Chamber 2 deposit), as it is at Ayia Irini, and occurs in a number of other imported shapes including cooking pots and storage jars. Also present are jars in a red, schist fabric of Keian origin; jars of both the granitic and schist fabrics from Naxos; a fabric with purple metamorphic rocks from Amorgos (Vaughan 2006: 99–101); and still other fabrics of yet unknown provenance.

Ayia Irini (Kea)

Ayia Irini on Kea has one of the richest excavated sequences of settlement deposits in the EB west Aegean, covering the developed (Period II) and late (Period III) phases of EB II (Wilson 1999, 2013). Its geographical position at the northern end of the 'western string' of Cycladic islands accounts for its pivotal role in linking the Cyclades to the Attic coast and southern Euboea. Kea's close proximity to and strong links with the material culture of the nearby mainland are clearly reflected in its ceramic assemblage which, although with some Cycladic features, is most closely aligned with EH II Attica (Wilson 1987).

The transport jar is the most common coarse ware shape found at EB II Ayia Irini in both Periods II and III, making up close to 10% of the estimated vessel numbers from all excavated deposits (9% in Period II, 8% in Period III; Wilson 1999: 91, table 3.2). Unlike earlier Poros-Katsambas or Akrotiri in late EB II, most of the transport jars found at Ayia Irini appear to be in the local red-brown ware (**Table 1**). About two-thirds of this large group of local jars has a distinctive two-stage neck profile, often with an impressed rope-band at the base (Wilson 1999: II–197–II–203), and a pair of plain or grooved horizontal handles at the belly of the ovoid-shaped pot (Wilson 1999: II–215–II–228) (**Figs 2–3**). The two-stage neck profile may be a largely western Cycladic feature and is also found at Ayia Irini as rare talc ware imports; the only published mainland examples of this collar type come from Askitario in Attica (Theocharis 1953–1954: figs 20, 22). Horizontal handles on transport jars with a grooved/slashed upper surface are a characteristic Cycladic feature, and are found widely throughout the western and south-central Cyclades in a number of regional EB II wares (e.g. Wilson 1999: 38–39). What appears unique, however, to many of the Keian transport jars is the addition of a rope band at the base of the two-stage neck,

Ayia Irini EB II Transport Jars			
	Wares	Period II (developed EB II)	Period III (late EB II)
Local (II: 73% / III: 86%)	red-brown	285	293
	yellow slipped red-brown	14	
Imported (II: 27% / III: 14%)	talc	7	9
	orange-buff coarse (painted or white slipped)	104	40
Totals		410	342

Table 1. Estimated minimum numbers of transport jars and their relative ware frequencies in Periods II and III

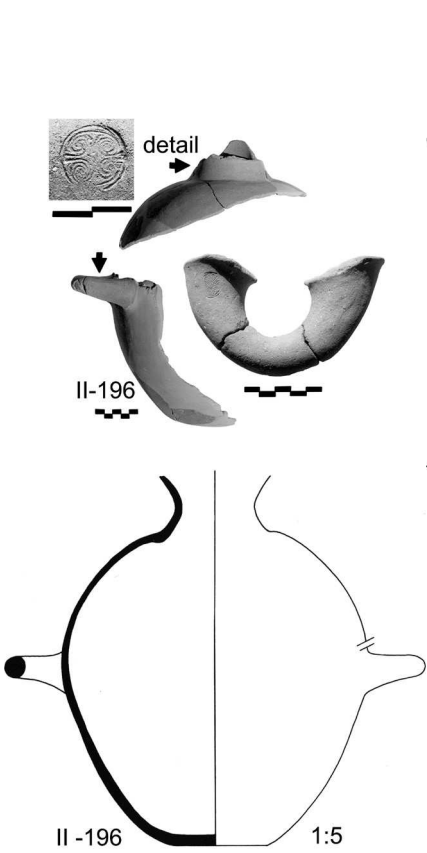

Figure 2. Keian EB II red-brown ware transport jar (Ayia Irini II–196) with seal stamped handle and neck (courtesy of the Department of Classics, University of Cincinnati)

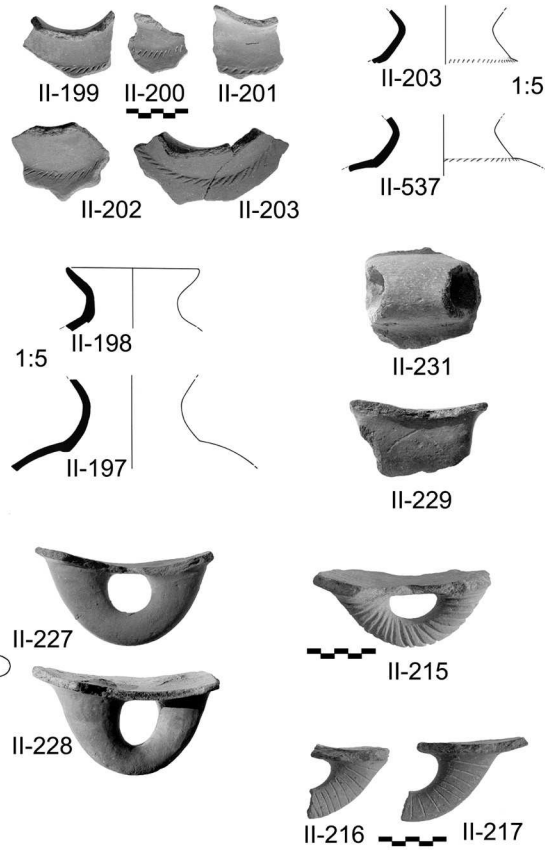

Figure 3. Keian EB II red-brown ware transport jars with two-stage neck and strap or arched (plain or grooved) handles (Ayia Irini Period II) (courtesy of the Department of Classics, University of Cincinnati)

perhaps serving as a visual marker of their Keian origin of production (**Fig. 3**). While rare examples of Keian red-brown ware transport jars have been identified through petrographic (PE) and chemical (NAA) analyses at a number of other EB II island and east Attic harbour sites (see further below), with many more still unrecognised until this source of macroscopically distinctive fabrics becomes better known, these Keian jars appear to have been made largely for local use within the island.

A very small number of the local transport jars in Period II have a yellow slip over the red-brown clay ground, occasionally with added reddish brown painted decoration (Wilson 1999: 42–44) (**Fig. 4**, II–294, II–296). Included among these jars are examples with high flaring collars and broad strap handles, and a yellow to pinkish yellow monochrome slipped finish; both the shape and handle type as well as the light slipped finish may be the local Keian version of imported Attic white/yellow slipped collared jars discussed below.

While the numbers of local red-brown transport jars are about the same in Periods II and III at Ayia Irini, the imports drop by more than half by late EB II, going from 27%

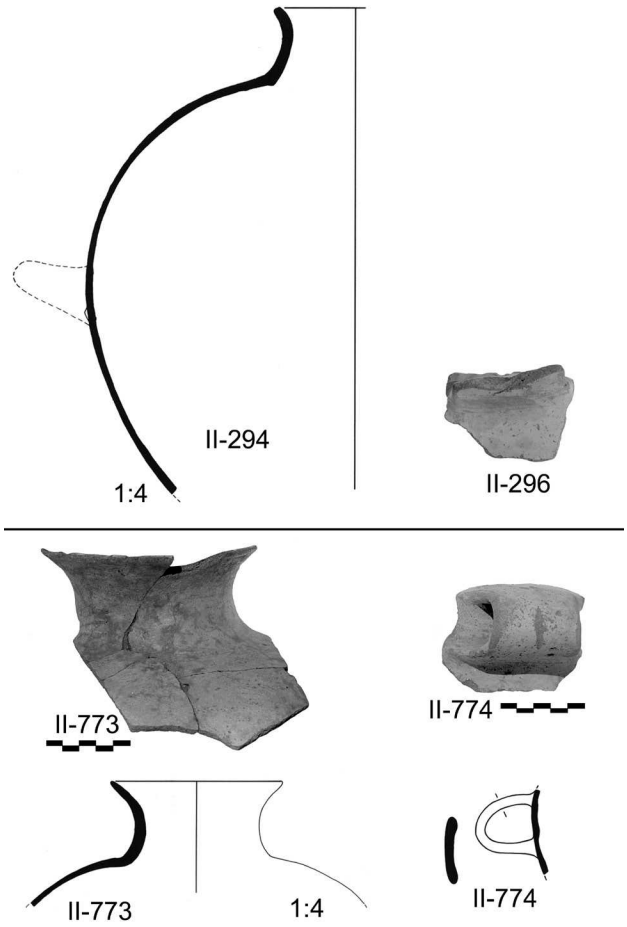

Figure 4. Keian (?) EB II yellow slipped red-brown ware transport jar (Ayia Irini II–294, II–296). Attic EB II white to yellow slipped strap-handled transport jars (Ayia Irini II–773–774) (courtesy of the Department of Classics, University of Cincinnati)

of the jar totals in Period II to only 14% in Period III (see **Table 1**). The number of wares in which these imported jars occur is relatively few in both periods, most in either some form of dark painted or white/yellow slipped coarse wares. The former group has a variety of painted finishes (Wilson 1999: 85–87): either dark-on-light 'broad-streak' painted (**Fig. 5**) or with an overall red to dark brown to black monochrome painted surface; the handles are of the horizontal arched type, some of which have a grooved upper surface. Most of the painted transport jars appear to be of Melian origin based on PE results; the most visually characteristic are the broad-streak painted examples.

The second largest group of imported transport jars at Ayia Irini has a monochrome white to yellow, sometimes mottled, overall slip, a high flaring collar or two-stage neck profile, and broad tightly arched strap handles (see **Fig. 4**, II–773–774; see also 'white painted jars', Wilson 1999: 87). These jars have a characteristic pink-to-grey-to-blueish fabric with inclusions rich in silver mica. They are outnumbered about 2:1 in Period II by the painted ware examples discussed above, while in Period III they are

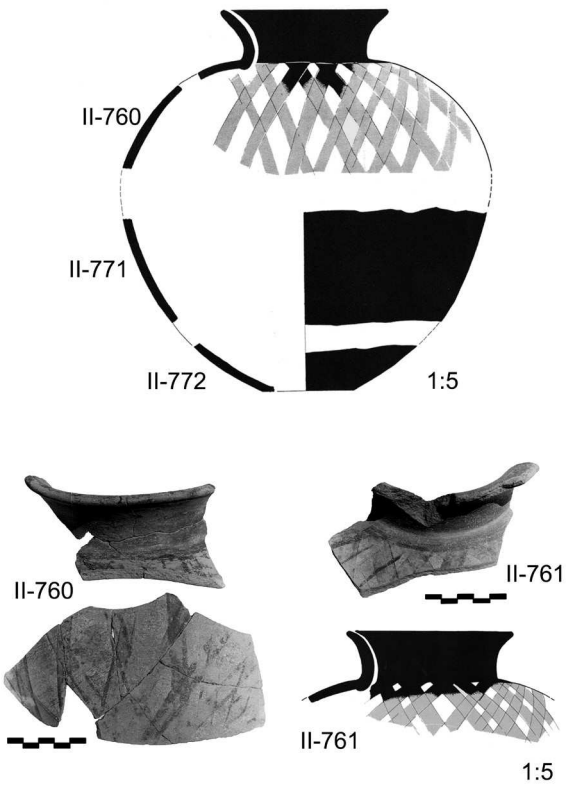

Figure 5. Melian EB II broad-streak painted transport jars (Ayia Irini Period II) (courtesy of the Department of Classics, University of Cincinnati)

even less frequent, outnumbered by a ratio of about 3:1. Strap-handled transport jars with high collars are common on the EH II mainland in Boiotia, Attica and the Argolid (Wilson 1999: 87); the Attic examples in particular often have a white to yellowish buff overall slip like the jars of this group.

There are a number of orange-buff painted jars, which have a distinctive sedimentary sand fabric, whose provenance is not yet identified with confidence. Rare among the jar imports are examples in talc ware. These are very fragmentary; some can have a relatively low collar, one of which has stamped circles on the interior of the neck rim (Wilson 1999: II–597). At least one of the talc ware jars has a two-stage neck, already noted with the local Keian examples, and an incised chevron band on the shoulder (Wilson 1999: II–598). These talc ware jars are in an identical fabric to ones from Akrotiri and Poros-Katsambas, and, therefore, share their origin.

EB II west Aegean transport jars: wares and production centres

Extensive field study by the authors since 1992 of EB pottery from excavated deposits at several Aegean settlements has made possible the identification of numerous ware groups and their possible/probable provenance of production based on a combined program of macroscopic, microscopic and chemical analyses. Over 400 samples have

now been taken from a representative and diachronic range of EB II fabrics and shapes including examples of almost 200 transport jars. The sites that have been sampled by us are listed below, including the sample contexts, date/s within EB II and any published references to the samples and/or their contexts. The authors have also drawn here on jars included in an ongoing analytical program by Menelaou and Day at the Heraion on Samos, in addition to comparative sampled fabrics already published from EB II levels at Markiani (Vaughan 2006), Phylakopi (Williams & Vaughan 2007), Kavos on Keros (Hilditch 2007) and the islet of Dhaskalio adjacent to Keros (Hilditch 2013).

- Ayia Irini (Kea): 41 transport jars sampled from Period II and III deposits (developed to late EB II); initial sampling by Vaughan and Wilson (Wilson 1999 for sample list and brief comment), supplemented by further sampling by Day and Wilson
- Phylakopi (Melos): 34 transport jars sampled by Day and Wilson from early to developed EB II levels (Phase A2) in Trench ΠI–C (Renfrew & Evans 2007 for contexts; Williams & Vaughan 2007 for Phylakopi EB fabric groups)
- Akrotiri (Thera): 40 transport jars sampled by Day and Wilson from a diachronic range of EB I–II deposits found in the 1999–2001 pillar pit excavations (for contexts see Doumas 2008)
- Panormos (Naxos): 22 transport jars sampled (of a total of 78 at the site) by Day and Kilikoglou from the late EB II 'Kastri Group' fortified storage area (Angelopoulou 2008, 2014 for contexts).
- Poros-Katsambas (Crete): 50 transport jars sampled by Day and Wilson from early EM IIA levels of the harbour settlement (Wilson *et al*. 2004: 71–72) for contexts and summary of imports)
- Knossos (Crete): eight transport jars sampled by Day and Wilson from EM IIA deposits beneath and in the vicinity of the later palace (Wilson *et al*. 2004: 71–72, for preliminary discussion).

Much of this material has also been analysed by NAA (Kilikoglou and co-workers at Demokritos) and it is now possible to identify a number of characteristic transport jar groups based on the analyses of their fabrics and ware characteristics, and to make suggestions about their provenance and distribution. There follows an account of our main recognised jar groups in this continuing investigation.

Keian red-brown ware (see Figs 2–4)

Almost three-quarters of the pottery found at EB II Ayia Irini in both Periods II and III occurs in the local fine to coarse red-brown micaceous metamorphic fabric (Wilson 1999: 24), including a large number of collared transport jars (summarised in previous sections). Exports of Keian transport jars have now been identified by analysis at no less than four island centres:

- Phylakopi (Melos): jar base fragment (= PHY 97/68); Phase A2 context in Trench ΠI–C (developed EB II)
- Akrotiri (Thera): two groove-handled transport jars (=AKR 03/125, 131); late EC II 'Kastri Group' context (Pillar Pit 35N–Chamber 2)
- Poros-Katsambas (Crete): jar body (POR 97/35) and jar with two-stage neck (POR 97/29); early EM IIA contexts
- Heraion (Samos): two collared jars in late EB II contexts.

Attic white slipped ware (see Fig. 4)

This is a distinctive type of collared jar, examples of which we have been identifying over the past 20 years of research. Although it was clear that these vessels found at a variety of locations in the Cyclades and Crete shared a common source, it was not possible to suggest their location of production until recently.

The jars of this group have an orange-buff, semi-coarse fabric, with mica schist and limestone inclusions, and some evidence of metamorphism of the carbonate fragments. They normally have a monochrome white to yellow, sometimes mottled, slipped surface finish, and compare closely with numerous Attic examples at both the macroscopic and microscopic level. In contrast to the Melian dark painted jars, they have a high flaring collar or two-stage neck profile, and broad, tightly-arched strap handles. PE analysis of EB II examples from Koropi, Attica shows a close resemblance between the local coarse fabric of this site and the white slipped transport jar fabric. In terms of shape, strap-handled transport jars with high collars have a wide distribution in EH II contexts in Attica, Boiotia and the Argolid (Wilson 1999: 87). At Lerna III, for example, this jar type occurs in early to developed but not late EH II contexts (phases A–C) (Wiencke 2000: 564, fig. II.86, table 16a for jar type 5); the generally earlier EB II contexts of this jar type in the west Aegean are supported by the evidence from Ayia Irini (see above).

In addition to petrographic analysis linking the Koropi coarse fabrics to at least some of the jar imports listed below, macroscopic study of white slipped jars from a number of EB II Attic sites in the American (ASCS) and British School (BSA) sherd reference collections suggests a close resemblance in fabric, surface finish and shape: 1) Spata (Hope Simpson & Dickinson 1979: 215–216, F42): ASCS Antiquities Collection (A–041): surface sherds from transport jars; 2) Raphina (Hope Simpson & Dickinson 1979: 217, F45): ASCS Antiquities Collection (A–042): surface sherds from jars; excavated settlement finds belong to the developed and late phases of EH II (Theochares 1952); 3) Askitario (Hope Simpson & Dickinson 1979: 217, F46): BSA Museum sherd collection (for the developed EH II settlement see Theocharis 1952); and 4) Nea Makri (Hope Simpson & Dickinson 1979: 218, F48): ASCS Antiquities Collection (A–049).

Below are those EB II sites in the Cyclades and Crete where transport jars in white slipped ware with a possible Attic provenance have been identified by the authors through petrography or macroscopic examination:

- Ayia Irini (Kea) (Wilson 1999: 84–88, 138–140): samples of jar collars and body sherds (= AI 88/24-26; 97/49-50, 68 = Wilson 1999, jars II–776, 773, III–500); Period II–III contexts
- Phylakopi (Melos): three jar body sherds (= PHY 97/6, 53, 55); Phase A2, developed EC II context
- Akrotiri (Thera): jar collar and strap handle (= AKR 03/59, 69) from late EC II context
- Poros-Katsambas (Crete): collar, strap handle and body samples (= POR 96/15, 20, 25; 97/9–10, 25, 54); early EM IIA contexts
- Knossos (Crete): jar body (= KN 94/178); late EM IIA context
- Aghia Triadha Cave in southern Euboea (Mavridis & Tankosić 2009: 54, fig. 5, no. 4; 2016). A complete unpublished example of such a jar is definitely of the fabric that we discuss here.

Talc ware

This highly characteristic ware is easily identifiable, due to its soapy, talc-like surface finish; it appears to be most common in the late EB II Kastri Group phase as evidenced for example at Ayia Irini (Period III) and late EB II Akrotiri; its appearance by early EB II, however, is shown by the jar imports in this ware found at Poros-Katsambas.

Talc ware has a very broad distribution in the EB II Aegean, and has been identified as far north as Attica, southern Euboea and Skyros, and south and east through the Cyclades to the north coast of central Crete. Large quantities of talc ware have been found in EB II settlement contexts at Palamari on Skyros (Parlama 1984: 92, 321, n. 26). The only mainland site to date with reported finds of talc ware, and these in very small numbers, is that of Thorikos-Laurion on the southeast Attic coast (Vaughan & Wilson 1993: 174, n. 42; Spitaels 1984: 166–171; Nazou 2014: 214, 223–224, 228, 230, 240–241, 245–246, 252). In southern Euboea, a single possible sherd has been published from surface finds at Ayia Paraskevi East on the Paximadhi peninsula (Cullen *et al*. 2013: 49, 64, 74, 105). In the western Cyclades talc ware has been found in quantity at Ayia Irini on Kea and at numerous sites on both Siphnos and Melos. On Siphnos the ware has been identified at Ayios Sostis in the mine deposits, and as surface finds from Akrotiraki, Ayios Andreas and Plati Yalos (Vaughan & Wilson 1993: 172–173, pl. 19.a–b; Renfrew 2005; Papadopoulou 2011: 150), on Melos in stratified EC II contexts at Phylakopi and at a minimum of ten other sites on the island in surface survey (Vaughan & Wilson 1993: 173).

In the central Cyclades, very rare imports of talc ware were found on Naxos in the Zas Cave and at the late EC II settlement of Panormos (Vaughan & Wilson 1993: 174; Angelopoulou 2008: 151). At Dhaskaleio Kavos on Keros, there are only rare examples among the large number of imports in EC II (Broodbank 2007: 126–127; Hilditch 2007: 241, 247; 2013: 474); talc ware is even scarcer at Markiani on Amorgos (Whitelaw 2006: 22). In the southeast Cyclades, large quantities of talc ware were found at Akrotiri on Thera, most of it in late EC II Kastri Group contexts. Most of the Akrotiri talc ware is comprised of deep bowls/open jars, baking plates and other cooking vessels, as well as transport jars; there is not the variety in either shapes or decoration seen in contemporary western Cycladic contexts.

Below are those sites in the Cyclades and Crete from which EB II talc ware transport jars have been sampled by the authors:

- Ayia Irini (Kea): jar with two-stage neck and impressed chevron band on the shoulder; early Period II context (AI 88/12 = Wilson 1999: II–601, 71, pl. 66)
- Phylakopi (Melos): jar handle (= PHY 97/23); Phase A2, developed EC II context
- Akrotiri (Thera): jar with two-stage neck (= AKR 03/7); late EC II Kastri Group context
- Panormos (Naxos): jar PAN 03/28; late EC II Kastri Group context
- Poros-Katsambas (Crete): over a dozen fragments of transport jars in this ware from the early EM IIA levels, including sampled jars POR 96/17–19
- Knossos (Crete): two jars were found in early and late EM IIA deposits, including sample P87/A.

Melian dark painted (including 'broad-streak painted') (see Fig. 5)

Melian dark painted jars have an orange-buff coarse fabric with reduced core and dark monochrome and/or broad-streak painted exterior, grooved arched handles

at the belly and a relatively low flaring collar. The broad-streak painted examples, in particular, stand out with their distinctive decoration, while at the microscopic level their volcanic glass inclusions indicate a Melian origin. They are found widely distributed throughout the Cyclades: on Melos itself including Phylakopi (Renfrew & Evans 2007: 146, pl.17.d), at Ayia Irini on Kea, Akrotiri on Thera and Skarkos on Ios (Marthari 2008: 75, 79, fig. 9.11); additional exports have been identified on the north coast of Crete at Poros-Katsambas (Wilson *et al*. 2004: 71, fig. 4.2, k), Knossos (Wilson 1985: P469, pl. 58) and Malia.

- Ayia Irini (Kea): six jar samples (= AI 97/34–36, 69–70, 76 = Wilson 1999: II–768, 763, 761, 501, 751, 502); Period II (developed EB II) contexts
- Phylakopi (Melos): 12 jar samples (= PHY 97/41–47, 49–51, 54, 58); developed EC II contexts
- Akrotiri (Thera): three jar samples (= AKR 03/110–111, 140); late EC II Kastri Group contexts
- Poros-Katsambas (Crete): five jar samples (= POR 96/28, 30; 97/1 – 3); early EM IIA contexts
- Knossos (Crete): four jar samples (= KN 92/304, 94/179–181), early to late EM IIA contexts
- Malia (Crete): two jar samples (= MAL 93/31, 93/33)

Naxos

Fabrics originating on the island of Naxos often have a deep red colour and large quantities of distinctive aplastic inclusions. At least two Naxian jar fabrics have been identified, characterised by granitic or metamorphic rocks with green amphibole (see above). Both of these fabrics have been identified petrographically in collared jars from Panormos. While imported cooking vessels from neigbouring Naxos are present in quantity in most phases of Akrotiri (Thera) of the EB and later (Roumpou *et al*. 2013: 41–42), the collared jars from Naxos are restricted to EB II contexts.

The importation of EB II transport jars from Naxos has been recorded at Ayia Irini on Kea, Akrotiri on Thera and Poros-Katsambas, Knossos and Malia on Crete.

Thera

In recent years, with the petrographic analysis of a wide range of pottery of the Early and Middle Bronze Age from Akrotiri on Thera (e.g. Hilditch 2008), a more confident distinction between the products of Thera and Melos has been possible. Although the two islands share many geological characteristics, the raw material choices made by the potters on the two islands and their manipulation of those materials differed. This has been detailed recently in the comparison of pottery of Phase A of the Middle Bronze Age with those of the earlier EC II late phase at Akrotiri on Thera (Day & Müller 2016). On the basis of this, Theran transport jars have been identified at both Akrotiri on Thera and Poros-Katsambas on Crete.

Amorgos

A characteristic fabric with purple/blue inclusions has been described from Markiani (Vaughan 2006: 99–101) and further discussed by Hilditch (2007: 238–242, 247; 2013: 471–72; ~~2015: 220–221, 228~~). Amorgian jars dated to EB II have been recorded from:

Akrotiri on Thera, Panormos on Naxos and the Heraion on Samos.

Ios/Seriphos

A jar with garnet-bearing schist and pyroxene found at Poros-Katsambas (POR 96/3) is similar to that demonstrated by Hilditch to most likely be from Ios or Seriphos (Hilditch 2007: 239, 251).

As mentioned above, this list of production locations for the transport jars is by no means exhaustive. In part it indicates the state of the art as analyses continue. However, the common nature and geographical reach of some sources, such as Melian and Attic jars, have something to teach us, while the chronological patterns within the EB period also seem meaningful in the case of, for example, talc ware. It should be noted that, as stated above, there are also a number of commonly found fabrics for whom we cannot yet suggest a home.

Transport jars in the EB II Aegean: chronology, function and social practice

Transport jars appear to be largely or wholly restricted to EB II, a period generally recognised as one of 'internationalism' in the Aegean world (Broodbank 2000: 279–287). There are, however, significant diachronic differences in the distribution of various transport jar types within this period. Their broadest geographical extent occurs in the early and mature phases of EB II, covering an area from the north coast of Crete at the southernmost limit and then north through the Cyclades to the mainland and the Gulf of Euboea. By late EB II (Lefkandi I/Kastri Group phase), however, Crete appears to fall out of this network, at least in terms of the import of off-island jars (Wilson *et al*. 2008: 269–270), while other areas such as the east Aegean continue to receive transport jars from Attica and the Cyclades. In the following EB III, a time of relative isolationism and breakdown in interregional contacts within the Aegean, the movement of transport jars appears largely to cease until renewed contacts between Crete, the west Aegean islands and mainland in the early Middle Bronze Age (MBA). The renewal of movement of transport jars beginning in the MBA may well have been initiated by the emergence of Protopalatial centres on Crete contemporary with the re-establishment of island exchange centres such as Akrotiri, Phylakopi and Ayia Irini (Broodbank 2000: 350¬361; Knappett & Nikolakopoulou 2014: 30).

Certainly our picture of the geographical and chronological patterns of EB II transport jars will change as specific jar fabrics across the Aegean become more widely recognised and published. For example, ongoing analyses of transport jars in the EB II phase at the Heraion on Samos now show vessels being imported from as far afield as Amorgos, Kea and Attica. What the current evidence already clearly shows, however, is the beginning of the transport jar in EB II; its ability to reveal geographical and chronological variability in that time of change; and then its demise until the MBA. The emergence of maritime transport jars in EB II is a distinct phenomenon, which has the rich potential to inform us not just about the movement of goods in general, but also about the commodities being conveyed in them; it is the jar contents that were the object of demand, prestige and value, rather than the ceramic vessels themselves.

There are three possible reasons that might account for the appearance and immediate widespread distribution of these jars, which seem happily to cross the neat

cultural boundaries into which we have conventionally divided the EB Aegean. Their exchange might reflect:

1. The start of longer-distance voyaging within the Aegean archipelago and concomitant movement of a range of products exchanged from different production centres;
2. a change in the capacity of seagoing vessels, which allowed larger cargoes to be transported;
3. the emergence of a shared, new demand for an organic commodity or product.

Evaluating the relative merits of these three points, our contention here is that the phenomenon of the EB II transport jar is not necessarily the product of any advancement in naval technology, or indeed of a sudden opening up of communities in and around the Aegean Sea to each other. Although contact between Akrotiri on Thera and Poros-Katsambas seems to be direct rather than following a circuitous route via other islands, suggesting at least the possibility of improvements in long-distance seafaring technology, this seems to be a poor and rather deterministic explanation for the widespread jar phenomenon. The more we look, the further back we can trace the regular movement of goods and people in the EB Aegean. This is certainly the case in late EB I, evidenced by the movement of raw materials, finished products and people of the Kampos Group and other Cycladic phenomena on Crete. Mobility between the Greek mainland, Cyclades, Crete and, presumably, the Anatolian coast in EB I is unquestioned, but it did not include the quantity of maritime transport jars that only burst onto the scene in EB II. These jars and their associated ceramic vessels, we would argue, deserve a closer look to tease out the meaning and implications of the movement of some commodity or commodities from a variety of centres in a wide pattern of distribution during EB II.

Our review of the evidence for the emergence of the maritime transport jar in EB II has highlighted both the relatively restricted distribution of these jars to key port centres, as well as the production of regionally-specific jar types. Also striking are the sheer quantities of these jars, suggesting their large-scale production from the beginning of EB II at a number of potting centres throughout the Aegean. It is clearly not the jars themselves, but the commodity or commodities they contained that were in demand and of sufficient social value to warrant the investment of human capital in the potentially risky venture of their transport by sea. Indeed, there is compelling ceramic evidence to support the argument that these jars were primarily used for the transport of high value liquid commodities in the form of some type of alcoholic drink.

An explosion in the types and quantities of fine drinking and serving vessels during EB II has been well documented and described at a number of high level sites in the west Aegean (e.g. Lerna: Wiencke 2000; Ayia Irini: Wilson 1999; Knossos: Wilson 2007: 57–76). This heralded both marked changes in practices of commensality and the scale of drinking events hosted in both private and public contexts. Most significant among the new EB II pottery shapes were individual drinking cups ('saucers', goblets, etc) and the pouring vessels used with them, primarily the sauceboat (southern mainland and Cyclades) and beaked jug (Crete). These pouring and drinking vessels often comprised the finest made and finished shapes found in domestic assemblages, suggesting the high social value of the liquids being poured and drunk from them (Day & Wilson 2002: 148–152). The value of the drink being transported and consumed may be directly referenced by three EC II silver pins with transport jar finials found in tombs on Naxos and a gold pendant of the same jar shape from EM IIA tholos gamma at Archanes on Crete (Broodbank 2000: 305–306; Papadatos 2005: A20: 36–37). Wine

is perhaps the best candidate to suggest as the principal liquid being carried in EB II transport jars (Morris 2008: 116–120; Broodbank 2000: 305–306).

Wine consumption throughout the Bronze Age was arguably a largely ritualised and often high status social practice, be it in the domestic, funerary or public ceremonial spheres (various studies in Hitchcock *et al*. 2008). The first specialised production, distribution and consumption of wine may have begun as early as EB II, which would account for the wide range of new transport, storage, serving and drinking vessels that were introduced and proliferated in this period. The demand for variously sourced wines in EB II may have been only part of a much larger exchange in high status commodities within the Aegean at this time, the most notable among them being copper and silver metal ores. Wine-bearing transport jars probably travelled along the same routes and often in the same ships that were also laden with more valuable metal ores. Indeed, when considering commodities whose acquisition may have bolstered the position of an emerging élite, we would do well to look to value-added organic products, which might have been used in acts of hosting and commensality that afforded opportunities to perform, consolidate and contest social position. The emergence of the transport jar in the EB II Aegean should be viewed within this broader context of the exchange of this new, powerful commodity, wine; the adoption of new practices of commensality; and the social competition that such drinking events facilitated.

Similarities in the decorative pattern and paint colour of EB II broad-streak painted jars and fine pedestalled cups have already been noted as a stylistic argument for a common origin of production on Melos (Wilson 1999: 82). The dark-on-light (DOL) net pattern is also used in Melian tankard imports of late EB II at Akrotiri, while a rougher version of the same DOL motif is found on both sauceboats and collared jars produced on Thera. Looking to the mainland, the surface finish of Attic white to yellow slipped transport jars and yellow mottled ware sauceboats can at times be virtually identical, again suggesting a shared origin (borne out by both chemistry and petrography). But these similarities in surface finish not only point to a common provenance of production for these specific vessel types, but also may be indicators of a functional connection between the transport jars and the associated pouring and drinking vessels. These decoratively linked groups of jars, jugs and cups are, in effect, advertising themselves as drinking sets. Such an argument has been made forcefully recently by Burke (2016) in her consideration of jar, sauceboat and ladle production at ancient Corinth in EB II. She compares the EB II distribution of this usually black slipped set with the distribution of pedestalled bowls or 'fruit stands' in the EB I northeastern Peloponnese. EH II Koropi in Attica also has black slipped sauceboats and ladles imported from Corinth.

Ceramic features such as handle type and surface decoration/finish not only characterise the output of individual jar potting centres, but also may have been meant to signify the source of the vessel's contents. The regional origin of a specific wine variety could be easily recognised by the characteristic jar type in which it was being transported and stored. In a phenomenon familiar to amphorae in other, later contexts (Bevan 2010; Haskell *et al*. 2011; Haskell, this volume), while EB II Aegean transport jars all have the same general shape, they do vary in details of surface finish, neck profile and/or handle type in order to mark both their origin of production and contents.

Conclusions

It has often been observed that one of the most frequented routes in the Aegean maritime exchange network during EB II was the north–south corridor from the Gulf of Euboea and Attica south through the western string of Cycladic islands (Kea, Kythnos, Seriphos, Siphnos, Melos) to Crete. The principal metal ore sources for the EB II west Aegean were found on this same corridor from Laurion (copper, silver; Spitaels 1984; Gale *et al*. 2008: 89) on the Attic coast south to Kythnos (copper; Gale & Stos-Gale 2008: 394–396), Seriphos (copper; Georgakopoulou *et al*. 2011), and finally Siphnos (copper, silver; Gale & Stos-Gale 2008: 396–399). The ingot of Kythnian copper from Poros-Katsambas on Crete is a testament to the far reach of metals and the willingness to travel long distances to exchange such inorganic high value raw materials. We have always found the allure of metal a convenient motivation for contacts and exchange in the past, viewing it as an inorganic prime mover (Renfrew 1972; Nakou 1995; Doonan & Day 2007). Might it not be tempting to consider wine as merely piggy-backing upon the movement of such commodities? We think not.

While this is perhaps a false choice, an encouragement to separate the inseparable, it is suggested here that the broad range of transport jars found widely distributed throughout the EB II Aegean testifies to something more immediate, something more specific to this time than just the long-distance movement of inorganic goods. The emergence of the first maritime transport jars in EB II bears witness to an important development in the way people socialised, the ways in which hosts and hosted are defined, perhaps the way in which altered states of consciousness were exploited. These transport jars join the emergence of specialised drinking vessels and the new social practices of commensality associated with them (Day & Wilson 2004), to testify to the importance of the production, exchange and consumption of alcoholic drink, probably wine, in EB II Aegean society. The production, branding and shipping of wine in transport jars and the accompanying drinking sets of jugs and cups seem to have involved a number of key Aegean centres. In a modern world where reputation, regional loyalty, fashion, inclusion and exclusion are often defined by the consumption of drink, the dramatic possibilities of social transformation indicated by this sudden emergence in EB II should not be unfamiliar.

Acknowledgements

For permissions to sample for PE analysis and study EB II transport jars from our three case studies we gratefully acknowledge the following colleagues and institutions: Nota Dimopoulou-Rethemiotaki and the KG Ephoreia (Poros-Katsambas); Christos Doumas (Akrotiri); and the Acropolis Ephoreia, American School of Classical Studies in Athens and the Department of Classics of the University of Cincinnati (Ayia Irini). For permission to sample EC II wares from the 1974–1977 British School excavations at Phylakopi on Melos, our thanks to the Cycladic Ephoreia, Colin Renfrew and the Council of the British School at Athens. Additional thanks to the Department of Classics of the University of Cincinnati for permission to illustrate pottery from EB II Ayia Irini first published in Wilson 1999, and to Carol Hershenson, department archivist at Cincinnati, who provided scans of the Ayia Irini photos reproduced here. Robert

Woodcock (Department of Classical Studies, University of Western Ontario) prepared the figures for this paper. The principal funding for field study and sampling carried out by the authors was provided by grants from the Institute for Aegean Prehistory and the Social Sciences and Humanities Research Council of Canada; the preparation of figures was funded by a grant from the Faculty of Arts and Humanities of the ~~Department~~ of Western Ontario.

For their collaboration and advice we would like to thank: Clare Burke, Kerasia Douni, Jill Hilditch, Stephanos Kariotis, Ourania Kouka, Joseph Maran, Marisa Marthari, Fanis Mavrides, Sergios Menelaou, Eirini Nikolakopoulou, Daniel Pullen, Maria Relaki, Colin Renfrew and Žarko Tankosić. We are especially grateful to Sergios Menelaou and Ourania Kouka for permission to refer to joint research with Peter Day regarding the source of some of the collared jars from Heraion–Samos.

Bibliography

Angelopoulou, A. 2008: The 'Kastri Group': evidence from Korfari ton Amygdalion (Panormos) Naxos, Dhaskalio Keros and Akrotiri Thera, in N. Brodie, J. Doole, G. Gavalas & C. Renfrew (eds), *Horizon. A Colloquium on the Prehistory of the Cyclades*, 149–164, Cambridge

Angelopoulou, A. 2014: *Κορφάρι των Αμυγδαλιών (Πάνορμος Νάξου). Μια οχυρωμένη Πρωτοκυκλαδική Ακρόπολη*, Athens

Bevan, A. 2010: Making and marking relationships: Bronze Age brandings and Mediterranean commodities, in A. Bevan & D. Wengrow (eds), *Cultures of Commodity Branding*, 35–86, Walnut Creek

Broodbank, C. 2000: *An Island Archaeology of the Early Cyclades*, Cambridge

Broodbank, C. 2007: The pottery, in C. Renfrew, C. Doumas, L. Marangou & G. Gavalas (eds), *Keros, Dhaskalio Kavos: The Investigations of 1987–88* (*Keros* 1), 115–237, Cambridge

Burke, C. 2016: Crafting Continuity and Change: Ceramic Technology of the Early Helladic Peloponnese, Greece. Unpublished PhD dissertation, University of Sheffield

Cullen, T., L.E. Talalay, D.R. Keller, L. Karimali & W.R. Farrand 2013: *The Prehistory of the Paximadhi Peninsula, Euboea*, Philadelphia

Davaras, C. & P.P. Betancourt 2012: *The Haghia Photia Cemetery* II. *The Pottery*, Philadelphia

Day, P.M., A. Hein, L. Joyner, V. Kilikoglou, E. Kiriatzi, A. Tsolakidou & D.E. Wilson 2012: Petrographic and chemical analysis of pottery from the cemetery at Haghia Photia, Siteia, in C. Davaras & P.P. Betancourt, *The Haghia Photia Cemetery* II. *The Pottery*, 115–138, Philadelphia

Day, P.M. & N. Müller 2016: The Middle Bronze Age pottery: Phase A, in I. Nikolakopoulou (ed), *Akrotiri Thera: Middle Bronze Age: Pottery and Stratigraphy*, Athens

Day, P.M. & D.E. Wilson 2002: Landscapes of memory, craft and power in Pre-Palatial and Proto-Palatial Knossos, in Y. Hamilakis (ed), *Labyrinth Revisited. Rethinking 'Minoan' Archaeology*, 143–166, Oxford

Day, P.M. & D.E. Wilson 2004: Ceramic change and the practice of eating and drinking

in Early Bronze Age Crete, in P. Halstead & J.C. Barrett (eds), *Food, Cuisine and Society in Prehistoric Greece* (*Sheffield Studies in Aegean Archaeology* 5), 45–62, Oxford

Dimopoulou-Rethemiotaki, N., D.E. Wilson & P.M. Day 2007: The earlier Prepalatial settlement of Poros-Katsambas: craft production and exchange at the harbour town of Knossos, in P.M. Day & R.C.P. Doonan (eds), *Metallurgy in the Early Bronze Age Aegean* (*Sheffield Studies in Aegean Archaeology* 7), 84–97, Oxford

Doonan, R.C.P. & P.M. Day 2007: Mixed origins and the origins of mixing: alloys and provenance in the Early Bronze Age Aegean, in P.M. Day & R.C.P. Doonan (eds), *Metallurgy in the Early Bronze Age Aegean* (*Sheffield Studies in Aegean Archaeology* 7), 1–18, Oxford

Doumas, C. 1999a: Ακρωτήρι Θήρας, *Ergon*, 75–77

Doumas, C. 1999b: Ανασκαφή Ακρωτηρίου Θήρας, *Praktika*, 155–202

Doumas, C. 2008: Chambers of mystery, in N. Brodie, J. Doole, G. Gavalas & C. Renfrew (eds), *Horizon. A Colloquium on the Prehistory of the Cyclades*, 165–175, Cambridge

Frödin, O. & A.W. Persson 1938: *Asine: Results of the Swedish Excavations 1922–1930*, Stockholm

Gale, N.H. & Z.A. Stos-Gale 2008: Changing patterns in prehistoric Cycladic metallurgy, in N. Brodie, J. Doole, G. Gavalas & C. Renfrew (eds), *Horizon. A Colloquium on the Prehistory of the Cyclades*, 387–408, Cambridge

Gale, N.H., M. Kayafa & Z.A. Stos-Gale 2008: Early Helladic metallurgy at Raphina, Attica, and the role of Lavrion, in I. Tzachili (ed), *Aegean Metallurgy in the Bronze Age*, 87–104, Athens

Georgakopoulou, M., Y. Bassiakos & O. Philaniotou 2011: Seriphos surfaces: a study of copper slag heaps and copper sources in the context of Early Bronze Age metal production, *Archaeometry* 53, 123–145

Haskell, H.W., R.E. Jones, P.M. Day & J.T. Killen 2011: *Transport Stirrup Jars of the Bronze Age Aegean and East Mediterranean*, Philadelphia

Hilditch, J. 2007: Petrographic analysis of the fabrics from Kavos, Keros, in C. Renfrew, C. Doumas, L. Marangou & G. Gavalas (eds), *Keros, Dhaskalio Kavos, the Investigations of 1987–88* (*Keros* 1), 238–263, Cambridge

Hilditch, J. 2008: Reconstructing Technical Choice, Social Practice and Networks of Exchange in the Middle Bronze Age of the Cyclades: The Ceramic Perspective. Unpublished PhD dissertation, University of Exeter

Hilditch, J. 2013: The fabrics of the ceramics at Dhaskalio, in C. Renfrew, O. Philaniotou, N. Brodie, G. Gavalas & M.J. Boyd (eds), *The Settlement at Dhaskalio* I, 465–482, Cambridge

Hitchcock, L., R. Laffineur & J. Crowley (eds) 2008: *DAIS. The Aegean Feast* (*Aegaeum* 29), Liège and Austin

Hope Simpson, R. & O.T.P.K. Dickinson 1979: *A Gazetteer of Aegean Civilisation in the Bronze Age* I: *The Mainland and Islands* (*SIMA* 52), Göteborg

Kariotis, S. 2003: Ακρωτήρι Θήρας. Μία πρώτη ανάγνωση της στρωματογραφικής ακολουθίας στην Πλατεία Διπλών Κεράτων, in A. Vlachopoulos & K. Birtacha (eds), *Αργοναύτης. Τιμητικός τόμος για τον καθηγητή Χρίστο Γ. Ντούμα από τους μαθητές του στο Πανεπιστήμιο Αθηνών (1980–2000)*, 419–444, Athens

Knappett, C. & I. Nikolakopoulou 2014: Inside out? Materiality and connectivity in

the Aegean archipelago, in A.B. Knapp & P. van Dommelen (eds), *The Cambridge Prehistory of the Bronze and Iron Age Mediterranean*, 25–39, Cambridge

Kossyva, A. 2011: The invisible dead of Delpriza, Kranidi, in E. Cavanagh, W. Cavanagh & J. Roy (eds), *Honouring the Dead in the Peloponnese. Proceedings of the Conference held in Sparta, 23–25 April 2009* (www.nottingham.ac.uk/csps/documents/honoringthedead/kossyva.pdf)

Maran, J. 1998: *Kulturwandel auf dem Griechischen Festland und den Kykladen im Späten 3. Jahrtausend V. Chr.: Studien zu den Kulturellen Verhältnissen in Südosteuropa und dem Zentralen sowie Östlichen Mittelmeerraum in der Späten Kupfer- und Frühen Bronzezeit* (*Universitätsforschungen zur Prähistorischen Archäologie* 53), 2 volumes, Bonn

Marthari, M. 2008: Aspects of pottery circulation in the Cyclades during the Early EB II period. Fine and semi-fine imported ceramic wares at Skarkos, Ios, in N. Brodie, J. Doole, G. Gavalas & C. Renfrew (eds), *Horizon. A Colloquium on the Prehistory of the Cyclades*, 71–84, Cambridge

Mavridis, F. & Ž. Tankosić 2009: The Ayia Triadha Cave, southern Euboea: finds and implications of the earliest habitation in the area (a preliminary report), *Mediterranean Archaeology and Archaeometry* 9.2, 47–59

Mavridis, F. & Ž. Tankosić 2016: Early Bronze Age burial deposits at the Ayia Triada cave at Karystos, Euboia: tentative interpretations, *Hesperia* 85, 207–242

Morris, S. 2008: Wine and water in the Bronze Age: fermenting, mixing and serving vessels, in L.A. Hitchcock, R. Laffineur & J. Crowley (eds), *DAIS. The Aegean Feast* (*Aegaeum* 29), 113–123, Liège and Austin

Mylonas, G. 1959: *Aghios Kosmas. An Early Bronze Age Settlement and Cemetery in Attica*, Princeton

Nakou, G. 1995: The cutting edge: a new look at early Aegean metallurgy, *Journal of Mediterranean Archaeology* 8.2, 1–32

Nazou, M. 2014: Defining the Regional Characteristics of Final Neolithic and Early Bronze Age Pottery in Attica. Unpublished PhD dissertation, University College London

Papadatos, Y. 2005: *Tholos Tomb Gamma. A Prepalatial Tholos Tomb at Phourni, Archanes*, Philadelphia

Papadatos, Y. & P. Tomkins 2013: Trading, the longboat, and cultural interaction in the Aegean during the late fourth millennium B.C.E.: the view from Kephala Petras, east Crete, *American Journal of Archaeology* 117, 353–381

Papadopoulou, Z.D. 2011: Akrotiraki and Skali: new evidence for EBA lead/silver and copper production from southern Siphnos, in P.P. Betancourt & S. C. Ferrence (eds), *Metallurgy: Understanding How, Learning Why. Studies in Honor of James D. Muhly*, 149–156, Philadelphia

Parlama, L. 1984: *Ἡ Σκύρος στὴν Ἐποχὴ τοῦ Χαλκοῦ*, Athens

Renfrew, C. 1972: *The Emergence of Civilisation*, London

Renfrew, C. 2005: The duration of the Cycladic cemeteries: the case of ~~Akrotiri~~ on Siphnos, *Πρακτικά Β΄ Διεθνούς Σιφναϊκού Συμποσίου*, 43–60, Athens

Renfrew, C. & R.K. Evans 2007: The Early Bronze Age pottery, in C. Renfrew, *Excavations at Phylakopi in Melos 1974–77*, 129–180, London

Roumpou, M., N.S. Müller, N. Kalogeropoulos, P.M. Day, I. Nikolakopoulou & V.

Kilikoglou 2013: An interdisciplinary approach to the study of cooking vessels from Bronze Age Akrotiri, Thera, in S. Voutsaki & S.M. Valamoti (eds), *Diet, Economy and Society in the Greek World: Towards a Better Integration of Archaeology and Science*, 33–46, Leuven

Spitaels, P. 1984: The Early Helladic period in mine no. 3 (Theatre Sector), in H.F. Mussche, J. Bingen, J. Servais & P. Spitaels, *Thorikos* VIII, *1972/1976*, 151–174, Brussels

Theocharis, D. 1952: Ἀνασκαφὴ ἐν Ἀραφῆνι, *Praktika*, 129–151

Theocharis, D. 1953–1954: Ἀσκηταριό, πρωτοελλαδικὴ ἀκρόπολις παρὰ τὴν Ραφήναν, *Archaiologikē Ephēmeris*, 59–76

Tomkins, P.D. & P.M. Day in press: Technology and provenance of the Neolithic and Early Bronze I pottery from Katsambas, in N. Galanidou, *Excavations at Neolithic Katsambas*, Philadelphia

Vaughan, S. 2006: Macroscopic and petrographic studies of pottery from Markiani on Amorgos, in L. Marangou, C. Renfrew, C. Doumas & G. Gavalas, *Markiani, Amorgos. An Early Bronze Age Fortified Settlement*, 99–101, London

Vaughan, S. & D.E. Wilson 1993: Interregional contacts in the Aegean in Early Bronze II: the talc ware connection, in C. Zerner (ed), *Wace and Blegen. Pottery as Evidence for Trade in the Aegean Bronze Age, 1939–1989*, 169–186, Amsterdam

Whitelaw, T. 2006: The surface survey of 1987, in L. Marangou, C. Renfrew, C. Doumas & G. Gavalas, *Markiani, Amorgos. An Early Bronze Age Fortified Settlement*, 9–24, London

Wiencke, M.H. 2000: *Lerna: A Preclassical Site in the Argolid IV. The Architecture, Stratification, and Pottery of Lerna* III, Princeton

Williams, D. & S. Vaughan 2007: The pottery fabrics, in C. Renfrew, *Excavations at Phylakopi in Melos 1974–77*, 91–126, London

Wilson, D.E. 1985: The pottery and architecture of the Early Minoan IIA West Court House at Knossos, *Annual of the British School of Athens* 80, 281–364

Wilson, D.E. 1987: Kea and East Attike in Early Bronze II: beyond pottery typology, in J.M. Fossey (ed), *ΣΥΝΕΙΣΦΟΡΑ McGill. Papers in Greek Archaeology and History in Memory of Colin D. Gordon*, 35–49, Amsterdam

Wilson, D.E. 1999: *Keos* IX.1. *Ayia Irini: Periods I–III, The Neolithic and Early Bronze Age Settlements.* Part 1: *The Pottery and Small Finds*, Mainz-am-Rhein

Wilson, D.E. 2007: Early Prepalatial (EM I–EM II), in N. Momigliano (ed), *Knossos Pottery Handbook. Neolithic and Bronze Age (Minoan)*, 49–77, London

Wilson, D. E. 2013: Ayia Irini II–III, Kea: the phasing and relative chronology of the Early Bronze Age II settlement, *Hesperia* 82, 385-434

Wilson, D.E. & P.M. Day 1999: EM IIB ware groups at Knossos: the 1907–1908 South Front tests, *Annual of the British School at Athens* 94, 1–62

Wilson, D.E., P.M. Day & N. Dimopoulou-Rethemiotaki 2004: The pottery from EM I–IIB Knossos and its relations with the harbour site of Poros-Katsambas, in G. Cadogan, E. Hatzaki & A. Vasilakis (eds), *Knossos: Palace, City, State*, 67–74, London

Wilson, D.E., P.M. Day & N. Dimopoulou-Rethemiotaki 2008: The gateway port of Poros-Katsambas: trade and exchange between north-central Crete and the Cyclades in EB I–II, in N. Brodie, J. Doole, G. Gavalas & C. Renfrew (eds), *Horizon. A Colloquium on the Prehistory of the Cyclades*, 261–270, Cambridge