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# EARLY HELLADIC II POTTERY FROM THEBES: AN INTEGRATED TYPOLOGICAL, TECHNOLOGICAL AND PROVENANCE STUDY

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*Abstract: This paper concerns the integrated archaeological and scientific study of Early Helladic II ceramics from Thebes, Boeotia, which aims to shed light on aspects of pottery production and consumption. Detailed typological study shows two co-existing ceramic traditions; a 'local' with vessel shapes derived from earlier local Helladic contexts and an 'Anatolianising', relating to the so-called 'Lefkandi I' pottery and linking the Theban assemblage to other sites in the Aegean. The analytical programme, incorporating petrographic analysis and planned ICP-AES analysis, aims to achieve compositional, technological and, potentially, provenance characterisation of the products of the two ceramic traditions. Petrographic analysis of pottery and the procurement of, and experimentation with, geological samples from the broader area has laid the foundations for the consideration of 'local production' and the 'Anatolianising' vessel shapes; the latter as possible imports to the site, or as locally derived adaptations to a wider regional trend. In this way, the present study has significant social and cultural implications for understanding EHII society in Thebes but, furthermore, provides a new basis for assessing a more generalised phenomenon; the appearance of a small number of 'Anatolianising' drinking and pouring shapes in many sites across the Aegean during the later part of EHII.*

*Περίληψη: Το άρθρο αυτό αφορά στη μελέτη της κεραμικής της Πρωτοελλαδικής ΙΙ από τη Θήβα, στη Βοιωτία, που ενσωματώνει την εφαρμογή τεχνικών από τις θετικές επιστήμες, με στόχο να φωτιστούν όψεις του φαινομένου της παραγωγής και κατανάλωσης της κεραμικής. Η λεπτομερής μελέτη της τυπολογίας υποδεικνύει δύο κεραμικές παραδόσεις που συνυπάρχουν: μια «τοπική», με σχήματα που προέρχονται από πρωιμότερα τοπικά Ελλαδικά σύνολα και μια «Ανατολιζούσα», που σχετίζεται με την επονομαζόμενη κεραμική «Λευκαντί Ι» και συνδέει το θηβαϊκό σύνολο με άλλες θέσεις στο Αιγαίο. Το αναλυτικό πρόγραμμα, το οποίο ενσωματώνει αρχικά πετρογραφική ανάλυση και στη συνέχεια ανάλυση φασματομετρίας πλάσματος επαγωγικής σύζευξης, έχει ως στόχο τον χαρακτηρισμό της σύστασης, της τεχνολογίας και, εν δυνάμει, της προέλευσης της κεραμικής των δύο διαφορετικών παραδόσεων. Η πετρογραφική ανάλυση της κεραμικής, μαζί με τη συλλογή και την πειραματική επεξεργασία γεωλογικών δειγμάτων από την ευρύτερη περιοχή, θέτουν τις βάσεις για τη μελέτη του φαινομένου της «τοπικής παραγωγής» αλλά και της κεραμικής με «ανατολιζόντα» σχήματα, με την τελευταία να θεωρείται πιθανώς επείσοκτη ή τοπική απομίμηση μιας ευρύτερης τάσης. Έτσι, η παρούσα μελέτη έχει σημαντικές κοινωνικές και πολιτισμικές προεκτάσεις για την κατανόηση της κοινωνίας της Πρωτοελλαδικής ΙΙ στη Θήβα, αλλά, επιπλέον, παρέχει μια νέα βάση για την εκτίμηση ενός γενικότερου φαινομένου, δηλαδή την εμφάνιση μικρού αριθμού κεραμικών σχημάτων, που συνδέονται με την πόση ή το σερβίρισμα υγρών, σε αρκετές θέσεις στο Αιγαίο κατά τα τέλη της Πρωτοελλαδικής ΙΙ περιόδου.*

## Introduction

This paper presents the preliminary petrographic analyses of Early Helladic II ceramics from recent excavations in Thebes, Boeotia<sup>1</sup>. The preliminary analyses presented here form part of an integrated scientific study based at the Fitch Laboratory, British School at Athens, aimed at shedding light on aspects of Theban pottery production and consumption. The present study has been designed to incorporate petrographic and chemical analyses, using inductively coupled plasma atomic emission spectroscopy (ICP-AES)<sup>2</sup>, in order to assess social and cultural implications for understanding EHII society in Thebes.

In addition, this study also provides a new basis for assessing a more generalised phenomenon; the appearance of a small number of 'Anatolianising' drinking and pouring shapes in many sites across the Aegean during the later part of EHII (Renfrew 1972, Rutter 1979). Detailed typological study of the Early Helladic II ceramics by Psaraki (2004) has shown a remarkably standardised assemblage reflecting the introduction of 'Anatolianising' elements to the wider 'local' ceramic tradition found at Thebes. These 'Anatolianising' elements relate to the so-called 'Lefkandi I' pottery and therefore link the Theban assemblage to other sites in the Aegean.

## The ceramic assemblage

The ceramics under study were recovered during recent excavations for the extension of the Thebes Archaeological Museum, which revealed a unique set of EHII architectural remains. Substantial deposits of late Early Helladic II pottery were found within a three-roomed apsidal house and its surroundings (Aravantinos 1997). The material assemblage from the site also included tools and a seal made from flint and obsidian, as well as a 'hoard' of metal

<sup>1</sup> The excavations were carried out under the direction of Dr Vassilis Aravantinos, Ephor of the Θ' Ephoreia of Prehistoric and Classical Antiquities, whilst Ms Kiriaki Psaraki has undertaken the detailed study of the pottery for the final publication (in press). This study would not have been possible without the generous assistance and invaluable experience of the members of the Ephoreia in Thebes. The authors would also like to thank the Institute for Aegean Prehistory (INSTAP) for funding the current project.

<sup>2</sup> The ICP-AES results will not be presented here due to the preliminary nature of the data at the time this paper was presented.

weapons. The site offers a unique insight into the late EHII horizon within Boeotia and the tightly constrained chronology provides an excellent opportunity to evaluate technological variability in ceramic production without having to consider differences through time.

It is important to note that all of the vessels within the Theban assemblage are handmade. In general the late EH II pottery assemblage displays a high degree of standardisation in terms of vessel shape, with clear boundaries between each vessel type. However, earlier typological and macroscopic investigation revealed a number of different surface treatments for vessels of the same shape and variation in the inclusions of the vessel fabrics (Psaraki 2004). The main shapes of the assemblage include pithoi, pans, cooking pots, basins with t-rims, ellipsoid bowls with straight and in-curved rims, one-handed or Trojan cups (Fig. 1), two-handed cups, two-handed tankards (Fig. 2), as well as askoi, hydrias and pithamphorae. The assemblage contains predominantly shapes from the 'local' tradition, such as the two-handed tankard, the cooking pots, the basins with t-rims and the ellipsoid bowls with in-curved rim. In addition to these local shapes are vessels with varying degrees of, what has been described in other Lefkandi I group literature as 'Anatolianising' elements (Psaraki 1997).

The one-handed cup (Fig. 1) is a very common shape during this late Early Bronze II horizon, found from the Cyclades to Thessaly, and has become known as the Trojan cup due to its similarity with vessels from the Troy III ceramic assemblage in Anatolia (Rutter 1979, Mellink 1986). Also present at Thebes are the shallow bowls with simple rims that Rutter has included within the Lefkandi I group (1979:3). An interesting shape within the late EHII Theban assemblage is the two-handed cup. This shape has strong parallels with the local two-handed tankard shape, yet the concept of a small two-handed drinking vessel finds parallels in the 'Anatolianising' bell-shaped cups. The smaller two-handed cup found at Thebes has a wavy rim, a characteristically Boeotian stylistic trait, similar to the rims found on the larger local tankard (Psaraki 2004). However, macroscopic investigation has recognised important similarities of fabric, surface treatment and body thickness between 'local' vessels and those containing 'Anatolianising' elements.

### Research questions and methodology

So, the initial investigations have raised three important questions that must be asked of the Theban ceramic assemblage:

- What is the relationship between the mineralogy of the ceramic fabrics and the local geological environment - can we confidently propose a 'local' Theban centre of ceramic production?
- Does the macroscopic variation found within fabrics



Figure 1 – One handed 'Trojan' cup (height approx. 11cm).



Figure 2 – Two handled tankards with wavy rims (height approx. 17cm).

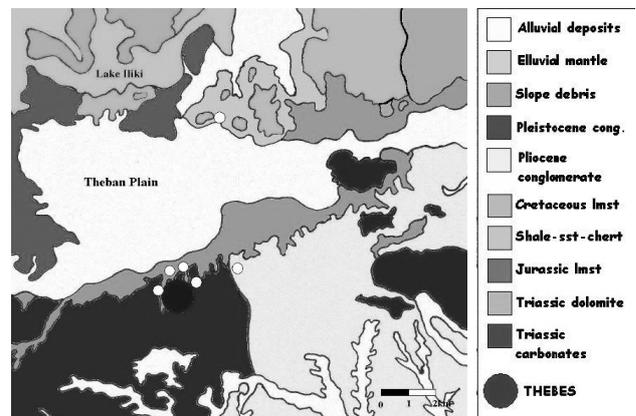


Figure 3 – Simplified geological map of the area around Thebes, with sampling locations outside of the city highlighted by white dots.

relate directly to technological decisions during the production process?

- Do the 'Anatolianising' elements represent a foreign ceramic presence within the Thebes assemblage or a local adaptation of a wider regional influence?

A total of 145 samples were carefully selected to represent the existing variation within the EH II pottery assemblage. These samples were then made into thin sections for petrographic analyses. In addition to the petrographic analyses, refiring tests were carried out at 1050°C in an oxidising atmosphere to qualitatively assess the variation of the clays within the assemblage. The results obtained have begun to help us answer the main questions surrounding the Theban ceramic assemblage.

## **The results**

### *Local production*

Integral to the consideration of ‘local’ ceramic production is an understanding of the relationship between the fabric of a ceramic and the local geological environment. In the immediate area surrounding Thebes, several geological facies dominate the landscape (Fig. 3). Thebes itself sits upon a large unit of Pleistocene conglomerate, consisting of sandstones and red-loams, all derived from nearby underlying deposits of carbonates and the Shale-Sandstone-Chert Formation. Within a radius of 5km from Thebes also lie Pliocene sediments, a series of sandstones, marls and clays (all containing microfauna associated with lacustrine to brackish conditions) and a unit of limestone containing ophiolitic and Shale-Sandstone-Chert Formation lenses (I.G.M.E. 1970).

As a means to identify the relationship between the ceramic fabrics and the local geology, an extensive geological sampling program of local clays, sediments and outcrops has been undertaken within the vicinity of Thebes, including locations such as the Mycenaean chamber tombs of Kastellia, and various streambeds throughout the city. The highly variable nature of the underlying Pleistocene conglomerate, evidenced by repeated sampling throughout the city itself, is reflected within the fabric variation of the largest defined petrographic group from our analyses. This group composes the majority of the samples studied and, although highly heterogeneous, is entirely compatible with the local geological environment, containing a mixture of serpentinites, sandstones, cherts and various forms of calcareous inclusions. A comparison of the geological samples collected against the archaeological fabrics studied can be seen in Figure 7.

Vessels of coarse, medium and fine fabric fall within the ‘local’ group and, importantly, all of the vessel shapes sampled can also be found within this group. This suggests a significant level of local ceramic production within Thebes during the later part of the EH II period, in a range of fairly standardised shapes, fabrics and surface treatments.

There does not appear to be a significant amount of ‘foreign’ or imported pottery within the Theban ceramic assemblage at this time. In the coarse wares of the assemblage there are only two confirmed non-local vessels, unrelated to the local geological environment of Thebes, a pithamphora and a fragment of an unidentified brown burnished cup, both with a mica-schist derived fabric. The natural variation within the local sediments however has produced a number of petrological sub-groups based on the main mineralogical constituents of the Pleistocene conglomerate i.e. with their respective quantities and associations within the vessel fabrics. Almost 17% of the sample assemblage were fine wares and, as such, too fine to allow detailed characterisation by petrography. Additional information

on the elemental compositions of these fabrics and the sub-groups just mentioned from ICP-AES analyses, currently underway, will give us a more secure means of characterising these vessels and determining their relationship to the local production system.

### *Technological decisions*

We have already established the compatibility of the majority of the fabrics analysed to the local geology, and therefore possible raw materials; however the technological decisions behind Theban ceramic production are a little more difficult to define. The problem again stems from the variability within the abundant source material, the Pleistocene conglomerate. The alluvial run-off from the conglomerate constitutes a substantial area between the unit itself and the Theban plain and would have contained the ideal association of coarse sand deposits, finer sediments and clays required for ceramic production. It is highly likely that a number of different clay compositions could have developed from the weathering of the conglomerate. It is even possible that these clays may have varied in composition within a single source due to the range of parent material present within such a small area. This is reinforced by the results of our geological sampling program, which was unable to link specific areas to specific associations of minerals.

Therefore it is not possible at this stage to distinguish between the use of a single or multiple source areas for the raw materials used in ceramic production within the vicinity of Thebes. Refiring tests carried out on all 145 samples within the study have revealed a range of clays with highly variable iron and calcium contents. Interestingly, no relationship could be defined between members of the same set. If we highlight the buff firing fabrics (14% of the total sample): this set contains a range of coarse through to very fine fabrics, but even the coarser buff fabrics cannot be distinguished by mineralogy or texture from other coarse vessels that display red or pink fabrics after refiring. The results of the fine ware analyses by ICP-AES will give us hopefully a clearer look at the relationship between these clays and the local geological environment.

The inability of the geological sampling to distinguish between specific compositional areas within the conglomerate or the alluvium may not be as disappointing as first thought. A tankard from the assemblage, showing what appears to be a coil-join, is highlighted in Figure 5. From the photomicrograph it is possible to see that the fabric types on either side of the join are different. Both fabrics are still geologically compatible with the local geological environment and also have parallels with other petrographic sub-groups defined within the study. This exploitation of multiple raw material sources within a single vessel and therefore, by extension, a single production unit, is difficult to interpret archaeologically and we must be cautious when considering how technologically meaningful this feature

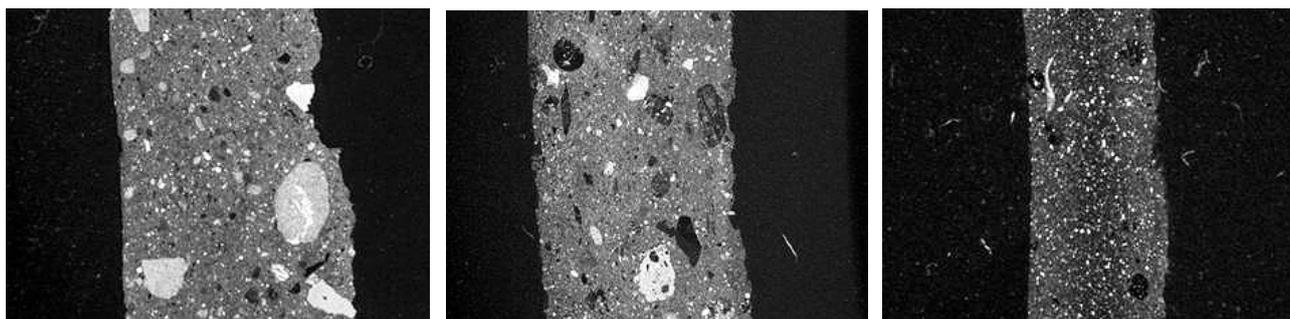


Figure 4 – Example of the fabric variation seen within the ellipsoid bowls with in-curved rim XPL, height = 24mm.

may be. For instance, there may have been a deliberate technological choice to use two distinct clays due to slightly different mechanical properties of the raw clays with regards to shaping. Perhaps the potter was unaware that the raw clay used to continue the vessel had a slightly different composition or, if they did, then perhaps this difference was immaterial to the vessel making process and another factor, such as shape or surface treatment, was the defining characteristic of the vessel for the potter.

Technological decisions made with regard to coarseness of fabric are clearly illustrated by the initial petrographic analyses, which have highlighted an obvious distinction between vessel shapes of coarse and fine fabrics. At the coarse end of the spectrum the pithoi, pans and cooking pots form a coherent group, whilst the finest fabrics encountered belong predominantly to the one- or two-handled tankards/cups. However the analyses also reveal a continuum between the coarse and fine wares, highlighted in particular by the pronounced fabric variation within the ellipsoid bowls with in-curved rims (Fig. 4). The same also applies to askoi, jugs, hydria and pithamphora shapes of the assemblage. The fabric variation seen within the bowls reveals a very flexible approach towards paste preparation and may indicate more than one unit of production within Thebes during the late EHIII period. If we consider the ‘local’ fine and medium fabrics alongside the coarser examples, then it is possible to recognise the addition of coarse alluvial sediments derived from the Pleistocene conglomerate as temper.

#### *‘Anatolianising’ wares*

The consideration of our third and final question, the status of the vessels with ‘Anatolianising’ elements within the ceramic production system at Thebes, has only been permitted by combining typological analyses with the petrographic results and the geological sampling program. Two main possibilities were initially recognised through the typological analysis. Firstly, that these vessels represent a foreign presence at Thebes, either by import or through the introduction of a new ceramic technology, or alternatively, that these vessels represent locally derived adaptations to a wider regional trend at this time.

The Trojan cups, the vessels most strongly associated with

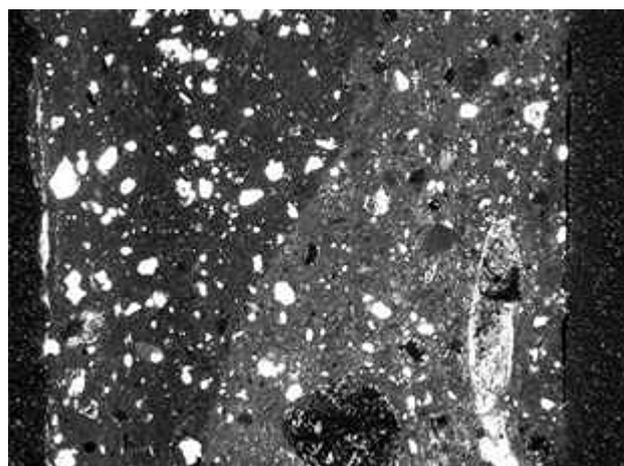


Figure 5 – Sample 81, a tankard, showing two different types of clays. XPL, width = 15mm.

the Anatolianising phenomenon, represent only 1% of the ceramic assemblage. They have predominantly fine fabrics but petrographic analyses have been able to identify 9 of the 12 cups in our sample as mineralogically compatible with the local geological environment of Thebes. The remaining 3 cups, of noticeably finer fabric, have insufficient inclusions to enable petrographic characterisation, so we await the results of the ICP-AES analyses to determine the relationship between these vessels and the local suite of fabrics. It is possible at this stage though to argue that the majority of these vessels represent locally derived Boeotian adaptations of the ‘Anatolianising’ drinking/table ware phenomena.

The shallow ellipsoid bowls compose 4% of the ceramic assemblage at Thebes and they form an interesting picture in terms of fabric. The three coarsest samples within our study are similar in terms of their inclusions i.e. the coarseness of the grains and their relative proportions within the matrix. However, as Figure 6 demonstrates, they have different vessel wall widths, exhibit varying fabric densities and appear to consist of different clay matrices. There is a mixture of buff and red firing vessels within this shallow bowl category. The coarse inclusions are all compatible with the local geological environment of Thebes, and the variation in clay composition can

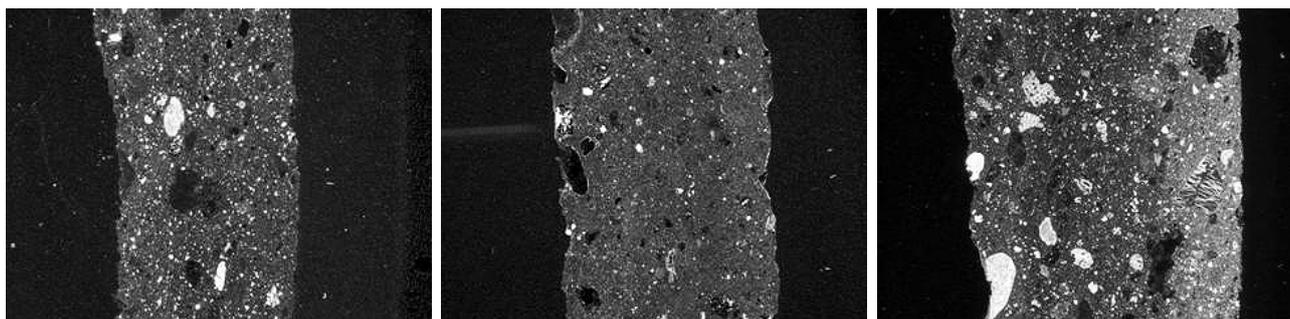


Figure 6 – Comparison of shallow ellipsoid bowls with simple rim (the central sample is a buff fabric). XPL, height = 24mm.



Figure 7.a

Figure 7.b

Figure 7.c

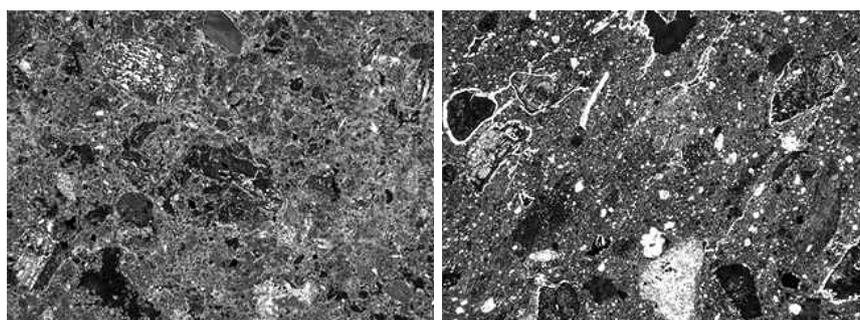


Figure 7.d

Figure 7.e

Figure 7 – Comparison of geological vs. archaeological fabrics. Geological sampling helped to assess the compatibility of local raw materials to the proposed local fabric: a) One handled cup (S02/64), b) Silt sample (G02/02), c) Alluvial sand (G03/02), d) Coarse alluvial deposit (G07/02), e) Pithos (S02/02) XPL, width = 3.7mm.

also be demonstrated in other vessel categories from the site, such as the pithoi. These samples fit the local fabric criteria and, as such, can be confidently ascribed to a local production unit (or units). Whether the difference in clay composition reflects the existence of different production units within Thebes at this time is uncertain. The remaining two samples are of very fine fabric and are difficult to characterise petrographically. They also display higher levels of optical activity within the matrix, indicative of lower firing temperatures than their coarser counterparts. These samples are included within the current ICP-AES analysis program so we can gain more insight to the relationship between these vessels and the local fabric suite.

The final category to discuss under this question is that of the two handled cups. As mentioned earlier, these shapes are more stylistically grounded in the wider ‘local’

tradition, particularly with regards to the two handled tankards and the wavy rim feature, but the concept of a small two handled drinking vessel within this period is derived from the ‘Anatolianising’ phenomenon at the end of the Early Bronze II period. The six examples within our study are all of a medium to fine fabric with red firing clays; however the inclusions of these vessels appear to vary from the coarse local fabrics. There are much lower amounts of serpentinites, in association with higher levels of quartz and feldspars. This is a general feature of the medium to fine fabrics present at Thebes and as such there is nothing within these fabrics to discount provenance from the immediate vicinity of Thebes. This observation strengthens the possibility of more limited technological processing of raw materials for some, if not all, of the medium and fine vessels within the assemblage. The two handled cup however appears to stem from entirely local technological traditions.

## Conclusions

To conclude, this paper has drawn on the results of the petrographic analysis, combined with refiring tests and geological sampling, in order to characterise, and thereby assess the relationship between the variations of style and fabric within the Theban ceramic assemblage. The geological samples taken not only have clarified the results of this project but also will form an important background for future analytical work in this region. The bulk of the fabrics analysed, representing the majority of the pottery of the assemblage, are compatible with the local geology. We can, therefore, assume a broadly local production (within the wider vicinity of Thebes) for the majority of the pottery. There is significant variation, both in the ceramic fabrics and the geological samples/units, which will hopefully be better characterised and understood, with respect to raw material variability, production technologies and choices, through the intended future combination of petrographic and chemical analyses.

This study has added to general discussion of the Lefkandi I phenomenon by approaching the problem from a technological perspective. Through studying the technology of the Theban ceramic assemblage we can clearly see in the late EHII levels a continuation of 'local' ceramic tradition. This very much echoes the words of Broodbank (2000:310) who talks about the "Kastri group shapes form[ing] a statistically minor component that slots into existing repertoires". This can be seen with respect to the Lefkandi I horizons on the mainland and surrounding regions also (Manika – Sampson 1993; Lefkandi – Popham & Sackett 1968). There was no radical change in the technology of production, merely the introduction of certain stylistic developments into the established local tradition. Our approach can be used to evaluate theories on migration or invasion that have surrounded the appearance of Lefkandi I/ Kastri Group horizons over the years. In the case of Thebes, our study does not support the pervasive appearance of a brand new culture or people into Boeotia at this time; it merely suggests the partial incorporation of a regional trend into a strong well-defined local culture. As

with many sites at which Lefkandi I type material has been found, there is no complete package of 'Anatolianising' vessels at Thebes. Instead, as illustrated by our study, local communities appear to have chosen a variety of these core shapes and adapted them to their own requirements. This case study has shown the importance of concentrating on local technological choices in order to gain a more detailed understanding of the regional 'Anatolianising' phenomenon. We believe that the application of this locally focused approach would be a valuable tool in the study of other ceramic assemblages at Lefkandi I/Kastri group sites, in order to better understand the nature of the 'Anatolianising' phenomenon across the Aegean during the end of the Early Bronze II period.

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