



Provenance and proximity: a technological analysis of Late and Final Neolithic ceramics from Euripides Cave, Salamis, Greece



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ABSTRACT

This paper examines application of the provenance hypothesis in areas of complex regional geology, where all potential sources of raw materials cannot be isolated or taken into account. With a few notable exceptions most pottery of the Late and Final Neolithic in Central and Southern Mainland Greece is considered to be locally produced by non-specialist household potters. Nevertheless small quantities of pottery with fresh volcanic fabrics have been found in largely non-volcanic areas and interpreted as imports. This interpretation has been questioned and alternative local sources proposed either in isolated palaeovolcanic units amongst otherwise non-volcanic rocks or through reuse of imported artefacts such as millstones made from fresh volcanic rock. In this study we examine evidence for pottery exchange at the Cave of Euripides, located opposite the island of Aegina, a potential source of imported volcanic materials in the region. The analysis uses petrography to identify raw materials, production technologies and provenance of the pottery. Results show that most pottery at the cave was produced locally. It is argued that grog and sparry calcite tempered fabrics are indicative of shared technological knowledge amongst potters in different communities. Pottery imports are identified based on their fresh volcanic inclusions. They are consistent with pottery fabrics from Aegina and distinguished from the local palaeovolcanic rocks that occur in close proximity to the cave.

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1. Introduction

Petrography is a powerful method for determining pottery provenance based on the composition of rock and mineral inclusions incorporated within the clay body at the time of production. However using these compositions for provenance determination introduces demanding requirements because all potential sources should be taken into consideration so far as possible when identifying (a) whether or not pottery at a site was locally produced or imported and (b) if the latter then identifying its likely origin. According to the provenance hypothesis, variation between potential sources needs be greater than that within a single source (Wilson and Pollard, 2001) so that each candidate source can be discriminated. Fulfilling these requirements is particularly challenging in geologically complex areas where similar raw materials may occur in several locations, sometimes as small, isolated outcrops that may be heterogeneous in nature and unrecorded in the geological literature. In such situations the possibility that viable raw materials

occur locally within the regional geology can call into question an interpretation that pottery was imported and the networks of movement that this may represent. This situation has arisen in the study of pottery exchange in Central and Southern Greece during the Late (LN) and Final Neolithic (FN) periods, 5300–4500 BC and 4500–3200 BC respectively (Demoule and Perlès, 1993, 366, Fig. 2), and this paper aims to address some of these problems based on analyses of pottery from the Cave of Euripides on the Island of Salamis (Fig. 1).

1.1. Previous analytical studies on Neolithic ceramic imports in central and southern Mainland Greece

Grey, black burnished and matt-painted wares occur widely in the LN of Central and Southern Mainland Greece, but in general pottery styles appear to be more numerous, regionally restricted and varied in the levels of skill expressed compared with the preceding Middle Neolithic (MN) (Phelps, 2004, 65ff.; Perlès, 1992; Perlès and Vitelli, 1999; Vitelli, 1993a, b). Moreover, LN and FN assemblages contain significantly larger quantities of coarse ware (Perlès and Vitelli, 1999) indicating a greater concern for pottery in its utilitarian role rather than as a prestige material for display and

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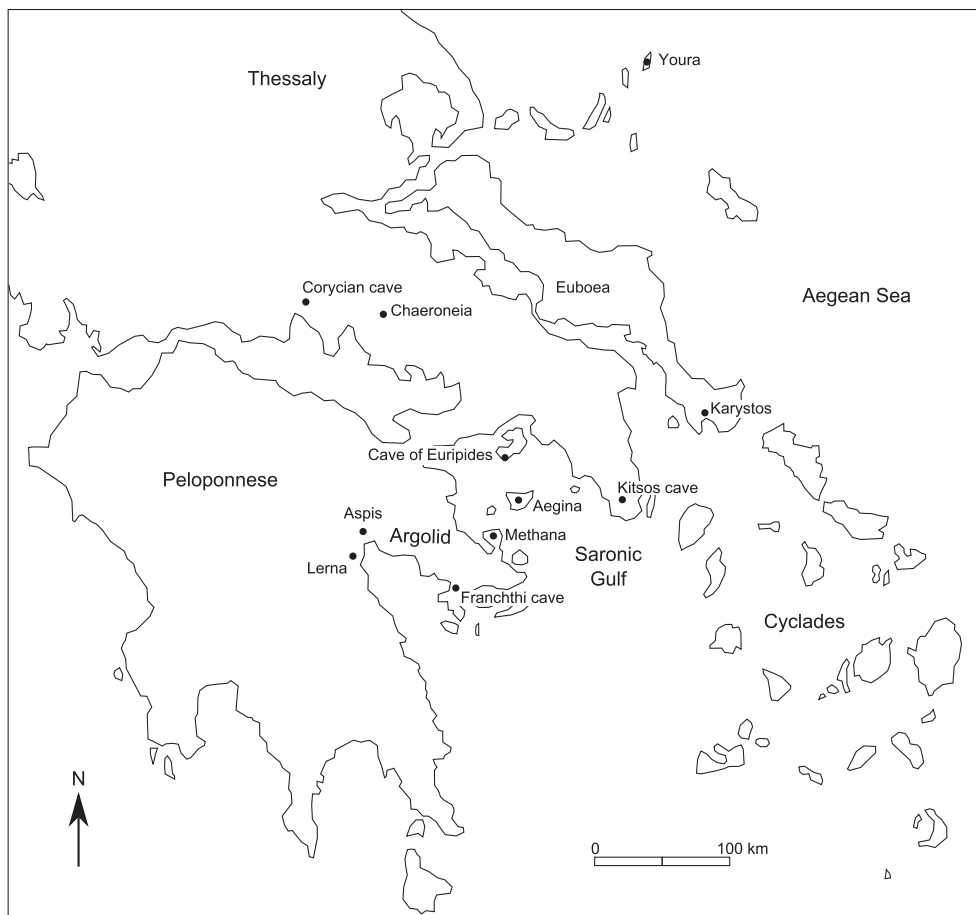


Fig. 1. Map of central and southern Greece showing the location of the Cave of Euripides and principal sites mentioned in the text.

exchange. These developments have been interpreted as the outcome of localized production by non-specialist household potters (Vitelli, 1993b) with evidence of pottery exchange for the most part remaining limited.

A comparable situation has been argued for Thessaly (Perlès and Vitelli, 1999) where LN and FN pottery is predominantly local and imports are limited, although consistently present, especially in LN (Schneider et al., 1991; Pentedeka and Dimoula, 2009). Recent petrographic and chemical analyses have however begun to challenge this interpretation. Extensive and overlapping networks of MN and particularly LN pottery exchange, mainly in grey and black burnished wares, have been identified in Thessaly based on evidence from vessel morphologies, decoration, production technologies and inclusion compositions (Pentedeka, 2008, 30–36, 211–216, 2011). Similarly, long-distance exchange has been recognised through examination of pottery from the Cave of Cyclops, on the island of Youra (Quinn et al., 2010), in the northern Aegean. The case of Youra is striking because, in its present form, this small island is limited in both its range of lithologies (limestone, phyllites, quartzites, conglomerates and sandstones) and sources of clay for pottery production. The presence of pottery containing volcanic, serpentinite and schist inclusions incompatible with local geology is therefore particularly conspicuous and has been interpreted as evidence for far wider pottery exchange networks operating in the MN and LN than had hitherto been recognized. The degree of geological contrast between pottery fabrics and regional geology at Youra is however rare in many parts of Mainland Greece.

In Central and Southern Mainland Greece extensive petrographic analyses of LN and FN pottery from the Corycian and Kitsos

caves (Courtois, 1981a, 1981b; Dimou, 1981), Thorikos (on the coast east of the Kitsos cave) and Karystos (De Paepe, 1982) (Fig. 1), have demonstrated that production was predominantly local to each site. Nevertheless, importation has been suggested to explain the occurrence of some pottery containing fresh volcanic material at sites situated in otherwise predominantly non-volcanic areas. At Chaeroneia LN black ware with distinctive fabrics containing volcanic beach sand and micaceous clays may indicate contacts with Euboea (Parker and Tzavella-Evjen, 1995). Pottery with altered pyroclastic inclusions at the Corycian cave, above Delphi, was attributed to local palaeovolcanic sources but examples containing fresher volcanic inclusions were thought to be from areas of more recent volcanic activity in the Aegean (Courtois, 1981b; Dimou, 1981). Four pottery samples from the Kitsos cave, in the predominantly metamorphic region of Attica, contain fresh to partially altered volcanic inclusions interpreted as potentially coming from the islands of Euboea, Aegina, the Cyclades or the Dodecanese islands further to the southeast (Courtois, 1981a). FN pottery from Aspis, in the Argolid, is predominantly local containing quartz, calcite and mica schist, but coarse fabrics with quartz, mica and probably pyroclastic inclusions natural to the clay (Touchais, 1980) may be imports.

Doubts have been raised about these suggestions of pottery imports from the Aegean based on the pottery in question being absent in potential source areas, such as the Cyclades, and the likelihood that pyroclastic inclusions could be derived locally from the transported weathering products of remote older igneous and palaeovolcanic rocks (Jones, 1986, 375). There are indeed numerous scattered outcrops of igneous and, more specifically, volcanic

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