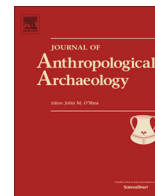




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The first farming communities in the Southwest European Coast: A traceological approach to the lithic assemblage of Vale Pincel I



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ABSTRACT

Vale Pincel I is one of the most relevant sites for the study of the Neolithic transition in the Southwest Portuguese Coast. Despite that, the acidity of sediments prevented the conservation of the botanical and faunal materials at the site, limiting its interpretation. In this work, we present the results of the traceological analysis of the Vale Pincel I flaked stone assemblage; our objective is to advance a first reconstruction of the site economy on the basis of the working process observed by the microscopic observation of a sample of lithic tools. The results indicate that at Vale Pincel I crop-harvesting activities covered a primary role, suggesting an early onset of agricultural practices in Southwestern Portugal. Moreover, a variety of different production tasks have been detected, pointing toward the existence of a mixed type of economy in which farming interplayed with foraging and crafting practices.

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1. Introduction

The early Neolithic in Portugal had been defined for the first time by Guilaine and Ferreira (1970). Based on the revision of archaeological materials from several surface collections and from previous cave excavations, these authors proposed the existence of a Cardial Culture in Portugal. In their interpretation, the so-called 'Neolithic package' would have been diffused over the Mediterranean and Atlantic Iberian coast to the Mondego River Basin. Following the Franco-Iberian typological evolution, after an early Cardial phase, Portuguese Neolithic would have evolved to an Epicardial stage.

Such evolution was called into question when the open-air site of Vale Pincel I was discovered, at the close of the seventies (Soares and Tavares da Silva, 1979; Tavares da Silva and Soares, 1981, 1982, 1987); the ceramic recovered from Vale Pincel I appeared, indeed, incompatible with a similar periodization. Pottery decoration was closer to the *impressa* ceramic complexes, while cardial decorations represented only a small percentage of the assemblage. At the time, *impressa* assemblages were still largely unknown in the north-western Mediterranean; however, during recent years *impressa* pottery has been discovered in southern France, with chronologies between ca. 5700 and 5600 cal BC (Guilaine et al., 2007; Guilaine, 2015), and in the Valencian region,

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around 5600–5500 cal BC (Bernabeu et al., 2009; García-Atiénzar, 2010). The occurrence of pre-Cardial assemblages has been suggested also for the controversial site of Verdelpino, in the interior of the Iberian Peninsula, in the upper Júcar valley (Rasilla et al., 1996) and, more recently, a pre-Cardial early Neolithic with impressed and almagra pottery has been postulated for Andalusia at Cueva de Nerja (García Borja et al., 2010). Some of those sites are still debated since the archaeological evidence is still scarce and, in many cases, very doubtful; however, all these data seem to implicate that the 'cardial model' and its variations are no longer capable of explaining the geographical and chronological variability of the Western Mediterranean Neolithic. A less distinct boundary between 'migrationist' and 'indigenist' perspectives have been gradually accepted; the idea that both multiple incoming farmers and indigenous hunter-gatherers contributed to and, at the same time, were affected by complex processes of transformation is gaining ground.

In this context, Vale Pincel I could represent one of the key-sites for the understanding the Neolithization process in Portugal, not only for its pottery assemblage and for its early chronology, but for a larger set of evidences and arguments associated with the Neolithic economic and technological package. Until now, the poor conservation of the faunal materials and of the archaeobotanical remains – which is a common situation across Portuguese open-air sites – represented the main limit for the Vale Pincel's interpretation and for the settlement and subsistence strategies

reconstruction. Despite that, Vale Pincel I extensive excavations produced a very rich lithic record, composed of both macrolithic and flaked stone assemblages. Until now, only a preliminary description of the lithic remains has been published (Tavares da Silva and Soares, 1981; Soares and Tavares da Silva, 2003). This paper aims to provide a more detailed overview of the lithic record and, more specifically, to explore the techno-economic features of the flaked stone industry. Indeed, the microscopic analysis of the use-wear traces allows investigating the subsistence and productive activities in which lithic tools were used, thereby providing an indirect proof of the resources exploited at the site, partially compensating the lack of organic materials. The main focus of this study is to assess the extent in which agricultural activities were integrated in the local economic system and, thus, determine whether or not lithic tools were used for the harvesting of crops.

2. Materials and methods

2.1. Archaeological context

The site of Vale Pincel I is located on a vast sandy platform, at the base of the southern slope of the igneous massif of Chãos (Sines

Municipality), facing the Atlantic shore (Figs. 1 and 2). With an area of about 10 hectares, it is probably one of the largest early Neolithic sites excavated in the Iberian Western coast. Over such surface, the occupation is organized into several separated areas, approximately separated from each other by a dozen meters (Fig. 4(a)). The base of the archaeological sequence (U.S. C2B) is a well preserved 15/20 cm-thick layer, which contains a high density of domestic structures (Fig. 4(b)), fire-cracked pebble stones, ceramic (Fig. 5) and lithic artefacts, as well as the remains of a few possible grave structures.

The geographical position of Vale Pincel I site is extremely meaningful in the context of a major economic shift at the beginning of the Neolithic period in Southwest Portugal. After the abandonment of the large late Mesolithic site of Vale Marim I (Tavares da Silva and Soares, 1981), the habitat of Vale Pincel I is formed about 2 km north. With respect to Vale Marim I, Vale Pincel I maintains the easy access to the coastal and marine resources, adding a tight control over the more fertile soils of the actual Municipality of Sines (Tavares da Silva and Soares, 1984).

The material culture of Vale Pincel I shows a coarse-ware with impressed and plastic-decoration; cardial motives are very scarce. Polished and grinding stone tools were also recovered. The knapped stone tool assemblage is dominated by a bladelet production; typologically, it must be noted the presence of notched tools and microlithic abrupt-retouched segments; pre-heating treatment of chert materials for debitage purposes had been used.

Because of the acidity of the sediments, organic materials are scarcely preserved. Although, during the rescue excavations that took place in 1986 and 2000, charcoal samples were retrieved from several fireplaces (Table 1) (Soares and Tavares da Silva, 2003). The anthracological analysis carried out by Ernestina Badal suggests a more forested landscape than today, with pine woods (*Pinus* sp.; *Pinus pinea*) around the site and a mixed forest in the hinterland valleys, mainly characterized by the following arboreal taxa: *Quercus* sp. *perenifolio*; *Quercus suber*, *Olea europaea*, v. *sylvestris*; several bushes had also been identified, such as *Arbutus unedo*, *Pistacia* sp., *Pistacia lentiscus*, *Rhamnus-Phillyrea*.

A chronological framework has been defined on the basis of 11 radiocarbon dates obtained on wood charcoals and charred macrofloral remains. All of them were collected from well-defined negative domestic structures at the base of the archaeological deposit (Table 1; Figs. 3(a), (b) and 4(b)), associated with impressed ceramic and flaked lithic industry. The calibrated age ranges from 5675–5623 cal BC (60.2%) of structure 8 to 5376–5297 cal BC (65.3%) of structure 75. Given the nature of the samples, the possibility of an ‘old wood effect’ should also be taken into account; however, it is remarkable that the older dating (Beta-164664) is made from a scale of a pine cone, which can be considered a quite reliable sample, having a short life span. Moreover, pine cones are commonly used as fire starters and, thus, their occurrence in the hearth should not be considered accidental or intrusive. This is true also for the other samples. Shrubs as *A. unedo* and *P. lentiscus* are likely to be collected in twigs and thin branches as fire kindling, being fuels of high flammability; while species such as *P. pinea* and *Quercus perenifolio* are more likely to have been used as firewoods. In conclusion, the samples selected for dating represent a set of different fuels for the different stages of fire making.

As all the structures belong to the same archaeological layer, being all in horizontal relation between them, it is not possible to carry out any Bayesian treatment of the data in order to highlight different phases of occupation. Nevertheless, it is remarkable that all of the dates are distributed in a regular manner over the period and no evident aberrant dates can be detected.

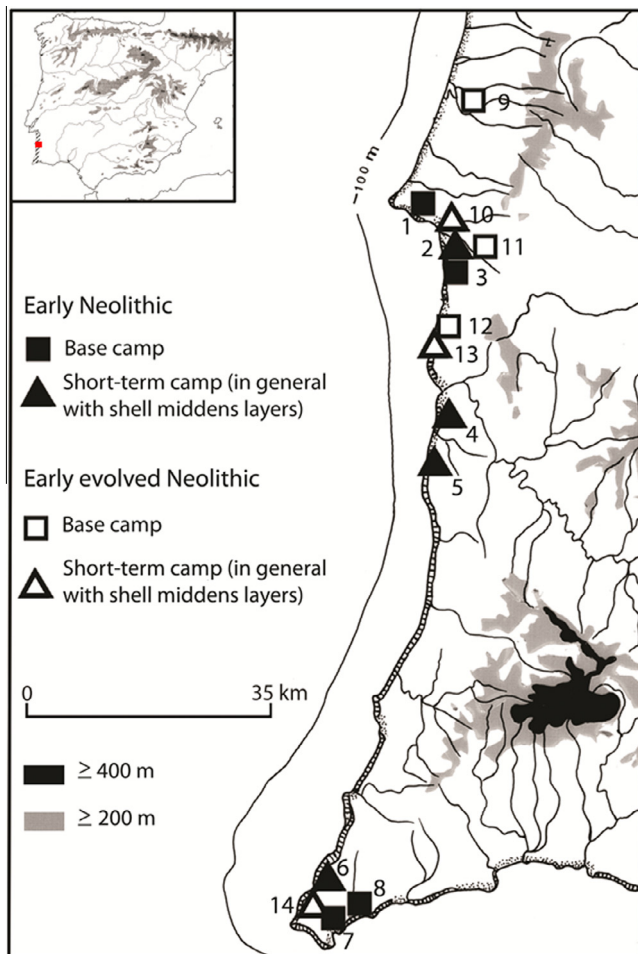


Fig. 1. Geographical framework of the Vale Pincel I site, in the Southwest Portuguese Coast. Early Neolithic sites (middle of the VI millennium cal BC): 1 – Vale Pincel I (Sines); 2 – Praia da Oliveirinha (Sines); 3 – Samouqueira II (Porto Covo); 4 – Água da Moita (Odemira); 5 – Medo Tojeiro (Odemira); 6 – Castelejo (Vila do Bispo); 7 – Cabranosa (Vila do Bispo); 8 – Padrão (Vila do Bispo). Early evolved Neolithic sites (last quarter of the Sixth/middle of the Fifth millennium cal BC): 9 – Salema (Santiago do Cacém); 10 – Brejo Redondo (Sines); 11 – Vale Marim II (Sines); 12 – Vale Vistoso (Porto Covo); 13 – Galés (Odemira); 14 – Vale Santo I (Vila do Bispo).

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