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Quaternary International

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## Diachronic variation in the Middle Paleolithic settlement of Abrigo de la Quebrada (Chelva, Spain)

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### ARTICLE INFO

#### Article history:

Available online xxx

#### Keywords:

Settlement  
Spatial analysis  
Mobility  
Middle Paleolithic  
Spain

### ABSTRACT

This paper compares levels IV and VIII of Abrigo de la Quebrada. The study includes knapping technique, raw material, fauna, and the spatial distribution of lithic and bone remains. Although both levels correspond to cumulative palimpsests, patterns of resource management and use of space that suggest changes in the rhythm of occupation and the functionality of the settlements can be discerned. A change in mobility patterns probably underpins the differences between these two levels of Quebrada, but assessing this hypothesis is made difficult by the lack of comparable documentation for other sites in the region.

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## 1. Introduction

The diachronic analysis of archaeological assemblages from given sites has been used to establish patterns of technological continuity and change within specific periods. Site function, mobility patterns and type of occupation have been considered the main causes for the variation in lithic assemblage composition seen in the Middle Palaeolithic record (Rolland and Dibble, 1990; Dibble and Rolland, 1992; Kuhn, 1995; Vaquero, 1997). These aspects have also been closely related to the assessment of how groups used their territories. As, to a large extent, most archaeological deposits are palimpsests that result from an unknown number of occupations of the same place (Bailey, 2007; Henry, 2012), recent studies have focused on how to subdivide the diachronic components of such palimpsests, namely via the spatial distribution of raw materials (Conard and Adler, 1997; Vaquero, 2011; Machado et al., 2013), the analysis of hearths, or the vertical projection of finds (Stevenson, 1991; Galanidou, 2000; Sañudo et al., 2012). As a result, significant progress has been made in the combined assessment of these aspects, especially when aided by evidence derived from the

refitting of lithic and bone remains (Julien et al., 1992; Morin et al., 2005; Rosell et al., 2012; Vaquero et al., 2012).

Our study uses data from levels IV and VIII of Abrigo de la Quebrada, which contribute sufficient information for a chronological analysis and consequent interpretation of Neanderthal patterns of behavior. We focus on the technological assessment of the lithic industry, the procurement of raw material, the study of the fauna and the analysis of the spatial structure of human activity patterns, both at micro- and macro-spatial levels.

## 2. The site

The Abrigo de la Quebrada is located near Chelva, 65 km NW of the city of Valencia (Fig. 1). The site is on the left side of the Rambla de Ahillas canyon and corresponds to a sheltered, quite even horizontal platform 38 m long and 2–9 m wide that slopes slightly from North to South. Given its position (NW-facing, and at the bottom of a narrow, steep gorge), direct exposure to sunlight is limited. The Rambla de Ahillas opens onto a wide plain known as Plano de Arquela, which, combined with the characteristics of the canyon, which terminates in a dead end, forming a sort of natural trap, clearly hint at the reasons underpinning human use of the place.

Stratigraphy features a total of eight units distributed over a thickness of 3 m. The base of the sequence has not yet been

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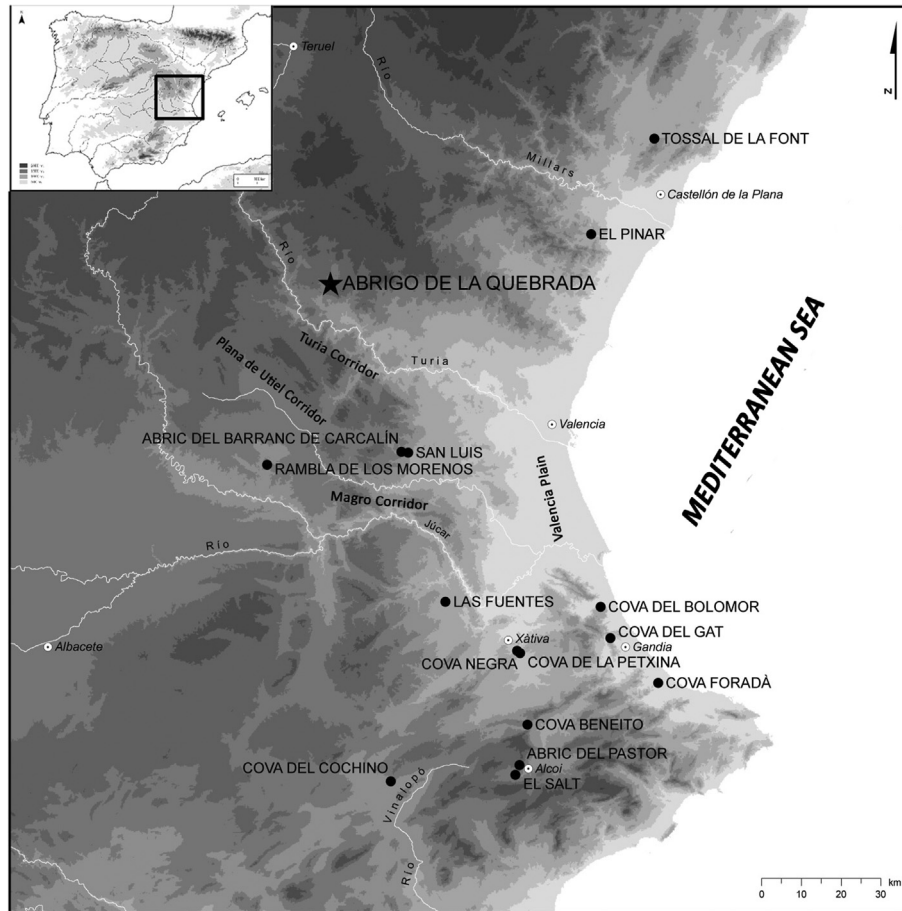


Fig. 1. Geographical location of Quebrada.

reached. Level I is a disturbed unit resulting from use of the rock-shelter as a sheep stable in recent times. Below, levels II through V, VII and VIII show evidence of human occupation. Level VI, almost 1 m-thick, is sterile. All the occupations feature Middle Paleolithic stone tool assemblages. The richest are those in levels III, IV and V. The following AMS dates on charcoal have been obtained: for level III,  $40,500 \pm 530$  BP (Beta-244003), on a sample of *Pinus nigra* recovered in spit 5 of square B5; for level IV,  $43,930 \pm 750$  BP (Beta-244002) on an ABA-treated sample of *Pinus cf. pinaster* from a combustion feature in spit 6 of square A4, and  $>50.8$  ka BP (OxA-24855) on an ABOx-ed sample of *Pinus cf. nigra*. The lower levels (VII and VIII) may well date to MIS 5 (Villaverde et al., 2008; Eixea et al., 2011–2012).

### 3. Materials and methods

This paper focuses on the assessment of levels IV and VIII of Abrigo de la Quebrada. A sufficiently large area has been excavated in both; being deep inside the shelter, this area would have been suitable for occupation and represents a significant proportion of the total space originally available that featured good living conditions. Therefore, the finds and data gathered in the excavation trench and the remarkable contrast in technology and economy observed between those levels are believed to be representative of how the site was used.

The excavation of level IV has been carried out over a number of seasons and encompasses a  $30 \text{ m}^2$  surface. The level is 13–18 cm-thick and made up of a clayish silty matrix containing medium and fine brown sand (7.5YR 5/3) and 1–4 cm limestone pebbles of sub-

angular morphology whose size increases toward the top. The accumulation of sediments results from the low intensity action of rain water combined with minor cryoclastic processes, the latter having become more intense towards the upper part of the level. The biological activity indicates stability and a slow sedimentation rate (Eixea et al., 2011–2012) (Fig. 2).

Level VIII is 60 cm thick and was excavated over a  $23 \text{ m}^2$  surface. It is made of fresh edge platelets and brown and orange clayey silts (7.5 YR 6/2); *in situ* gelification processes are noticeable, especially towards the base.

In order to establish the technological characteristics of each material used and their relation to procurement (Roebroeks, 1988; Conard and Adler, 1997; Adler et al., 2003; Vaquero, 2008), different RMU (Raw Material Units: flint, quartzite, limestone or quartz) have been considered. The separateness of the different groupings was verified by macro and microscopic analysis (Eixea et al., 2011, 2014; Roldán et al., 2015). The technological study was conducted from a *chaîne opératoire* perspective (Tixier et al., 1980; Böeda et al., 1990; Turq, 2000; Bourguignon et al., 2004), and retouched pieces (including those with macro- and micro-use-wear) were classified with the type list of Bordes (1988).

#### 3.1. Level IV

##### 3.1.1. The lithics

Flint is the raw material most frequently used in level IV (61.4%); the local Domeño variety predominates (51.4%), followed by non-local Types 2 (1.9%), 3 (0.8%) and 1 (0.4%). Quartzite comes next (21.1%), followed by limestone (17.4%) (Table 1).

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