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Open-air Gravettian lithic assemblages from Northeast Portugal: The Foz do Medal site (Sabor valley)



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ABSTRACT

Recent works undertaken in Sabor valley, Northeast Portugal, revealed an important Upper Paleolithic sequence to the North of Douro River in a region with little Paleolithic evidence. Previous Upper Paleolithic occupation evidence in the region had only been identified and studied in C^oa Valley, to the south of Douro River. Foz do Medal site is located in an interior area of Iberia, on the fringe of the Spanish Meseta in the transition to the Atlantic *fa*ade. The work accomplished allowed the identification of Gravettian levels.

The Gravettian lithic assemblage from Foz do Medal presents different characteristics when compared with other more “traditional” Gravettian assemblages, namely from Portuguese Estremadura, although sharing some features. The objectives of the reduction and the strategies applied show big peculiarities which can be related mainly with the geological context and the raw material sources. The scarcity of biogenic chert and the availability of other local siliceous rocks such as hydrothermal cherts, rock crystal and other types of fine quartz, have played a major role in the choices made by prehistoric humans. Quartz, in its several varieties, was the chosen raw material for knapping, reaching more than 80% of the total collection. As a result, the regional environmental context and human strategies show great variability between Foz do Medal and C^oa valley Gravettian assemblages and other Gravettian assemblages where chert is easily available.

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1. Introduction

In recent decades, the general understanding of the Gravettian in western Iberia has seen major advances. The study of assemblages from old excavations (Zilh^o, 1997) and the new archaeological works developed mainly at Portuguese Estremadura (Almeida, 2000; Aubry et al., 2001; Zilh^o and Trinkaus, 2002), C^oa valley (Aubry, 2009a, b) and Algarve (Marreiros et al., 2015) brought new light to the issue. There is still an ongoing discussion about the transition to the Upper Paleolithic in western Iberia and the first presence of anatomic modern humans around 28 000 BP (Aubry

et al., 2006) with some stating that the Gravettian is the first Upper Paleolithic techno-complex, since the existence of an Aurignacian techno-complex in the Portuguese territory has not been clearly demonstrated (Bicho et al., 2012). With the exception of C^oa and Sabor valleys, as shown below, human occupations during Gravettian times in Portuguese territory are only known alongside the major rivers (Mondego and Tagus) and the sedimentary massifs of the Atlantic margin (Estremadura and Algarve) (Aubry et al., 2007).

During Gravettian times, the clusters of radiocarbon dates show three moments when climatic conditions seemed to have favored low energy sedimentation, and thus the formation of archaeological sites: from 27 000 to 25 000 BP, during Heinrich Event H3; around 25 000 to 24 500 BP; and between 23 000 and 21 500 BP, during H2 (Aubry et al., 2007). The periods between are considered sedimentation hiatus in the archaeological record (Zilh^o and Almeida, 2002; Aubry et al., 2007). However, new data and a

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different interpretation of the absolute dates available for the Portuguese territory indicates that, for center and southern Portugal there are no gaps in the sequence (Bicho et al., 2012). During these periods the cold climate conditions favored an arid landscape with herb and steppe vegetation (Haws, 2012).

The Portuguese Estremadura region has the best Gravettian records for Western Iberia and must serve as a comparison. New data from Southern Portugal contexts and a critical review of the radiometric dates from Portuguese Estremadura resulted in a new approach which only recognizes 3 different stages concerning the western Iberia Gravettian, namely the Early Gravettian, Late Gravettian and Proto-solutrean (Bicho et al., 2012, 2015). However, we will summarize the classical proposal made by João Zilhão (1997) and Almeida (2000; Zilhão and Almeida, 2002) which schematizes the Gravettian of Portuguese Estremadura in the following way:

For the initial phase of the Gravettian, around 26 000 BP, there are only 2 sites with radiocarbon dates, Buraca Escura (layer 2f), and Caldeirão (Jb layer), with small and non-diagnosable lithic assemblages, with exception for the La Gravette point from Buraca Escura (Zilhão and Almeida, 2002). The open-air sites of Estrada da Azinheira and Vascas and the cave site of Salemas (level III) are also included in this chronology (Zilhão, 1997).

The main features of the lithic industries during this period are the production of backed bladelets from prismatic cores and Dufour and marginally backed bladelets from burins and thick end-scrapers. The primary objective of the reduction is to obtain bladelets instead of blades as blanks. Core platform faceting is broadly used in opposition to platform abrasion (Zilhão, 1997).

The existence of a Middle Gravettian stage, around 25 000 to 24 500 BP, is questionable. However Covão, Fontainhas, and Furninha cave sites assemblages were hypothesized as belonging to such stage featuring La Gravette points as index fossil (Zilhão, 1997). The burial event of Lagar Velho Shelter, dated around 24 500 BP, fits this chronology (Zilhão and Almeida, 2002). In the same publication, a review of previous conclusions led to the inclusion in this period of Vale Comprido Barraca and Vale Comprido Cruzamento open-air sites, with a TL date of $27\,900 \pm 2200$ BP for the latter (Zilhão and Almeida, 2002). Dates obtained for layer Ja of Caldeirão and layer 3n of Lapa do Anecrial cave sites both fit the 24 500 to 25 000 BP interval but assemblages are either poor or inexistent (Zilhão and Almeida, 2002). The Casa da Moura cave human skull which was found in 19th century excavations is also related with this chronology, following dating obtained in remnant sediment (Zilhão and Almeida, 2002).

An industry named Fontesantense emerged around 23 000 BP. It is found only at Fonte Santa and Casal do Felipe, and features Casal do Felipe points and a lithic economy directed to the production of this index fossil with a production of elongated blanks showing lipped butts prepared by platform abrasion. Splintered cores indicated the production of barbs through bipolar technique. There is also an important amount of flat prismatic cores, many of which are on flake. The burin blow technique is almost absent (Zilhão, 1997). The chronology for Fontesantense is, however, still problematic (Zilhão and Almeida, 2002).

Final Gravettian, around 22 000 BP, is present at Vascas, Picos and Cabeço de Porto Marinho II (lower base) open-air sites, and Casa da Moura and Buraca Escura 2e (Middle) caves (Zilhão, 1997). It shows a high frequency of truncated backed bladelets, which are absent in the assemblages of the following stages. Microgravettes, backed bladelets, Dufour and marginally backed bladelets are produced from prismatic cores but can also be obtained from thick end-scrapers and burins. The toolkits also feature burins and retouched blades with lipped and abraded butts. Alternated bi-directional reduction is present (Almeida, 2000). Crest technique

use is rare and core platform abrasion is more used than faceting (Zilhão, 1997; Almeida, 2000). Bi-products of core shaping, mostly thick cortical flakes are used for end-scrapers and other tools or for bladelet production (Zilhão, 1997). Quartz use in Final Gravettian assemblages is considered moderate (Zilhão, 1997).

After the work of Almeida (2000) it was concluded that the transition from Final Gravettian to Proto-Solutrean was in fact a 3-stage process with an intermediary stage, the Terminal Gravettian, around 21 500 BP which is present at Lapa do Anecrial layer 2 and Buraca Escura Layer 2b (base) caves, Cabeço de Porto Marinho III (Middle) and Cabeço de Porto Marinho II (Lower top) open-air sites and Lagar Velho shelter us complex, TP06, (Almeida, 2000; Zilhão and Almeida, 2002). Technologically, is somewhat similar to Final Gravettian, with differences being mainly of a typological nature. Backed elements are very rare or nonexistent in the Terminal Gravettian assemblages from Estremadura whereas marginally retouched bladelets dominate as lithic barbs (Almeida, 2000). Quartz can reach 40% of the terminal Gravettian assemblages, despite the proximity of chert sources. This tendency is especially observed in cores for elongated blanks and in tools. Although the peak in quartz use is reached in the terminal Gravettian, this tendency is in continuity with the Final Gravettian period where quartz was already used to some degree (Almeida, 2000).

Proto-solutrean dates around 22 000 to 21 000 BP and includes the assemblages of Terra do Manuel layer 2S, Vale Comprido Encosta, Terra do José Pereira e Vales da Senhora da Luz (Zilhão, 1997; Almeida, 2000). There is a reduction sequence producing blades with converging edges obtained from cores with pyramidal tendency, directed to Vale Comprido points. Blades with lipped butt are obtained from prismatic cores, with flat or abraded platform, while bladelet production is achieved from thick end-scrapers, used without being retouched (Zilhão, 1997).

The Upper Paleolithic human occupation of Northeastern Portugal and neighboring Spanish regions is not well understood, mainly due to the lack of archaeological studies. The one exception is the Côa valley, which is a tributary of the Douro located in the vicinity of the Sabor valley. The discovery of a large aggregation of Upper Paleolithic rock art made a systematic study of the valley possible. The discovery of several sites (Aubry, 2009a, b) allowed the construction of the following regional framework, where 4 different stages were identified before the Solutrean.

The first phase, observed in Stratigraphic unit 3 of Olga Grande 4, is characterized by angle burins on fracture or truncation, notches on chert flakes and bladelets and backed elements as one microgravette, backed bladelets, triangles, circle segments and marginally backed bladelets. Numerical dating methods applied at the site did not produced accurate enough results. Despite this, when analyzed together with other assemblage from the Estremadura region, this occupation can be positioned around 25 000 BP (Aubry, 2009b), which would correspond to the initial or hypothetical middle Gravettian.

Phase 2 comprises Stratigraphic unit 4b of Cardina I, Olga Grande 14 and the top of Stratigraphic unit 2 of Insula II. The types present on the lithic assemblage include end-scrapers and retouched flakes, mainly in quartz, backed elements, like backed bladelets with or without truncation, atypical microgravettes, marginally backed bladelets, small flakes and angled burins on fracture or truncation. The comparison with the Portuguese Estremadura and Sicó region, as well as other occupations in Southwestern Europe, mainly in France, point to an inclusion of these contexts in the Final Gravettian complex, around 23 000–21 500 BP (Aubry, 2009b).

Phase 3, observed in artificial layers 9 and 10 of Stratigraphic unit 4 of Cardina I, presents a similar composition in the lithic assemblages to phase 2. The only difference seems to be the

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