

Variability versus Diversity
Contributions from the technological study of two final Mousterian sites: the level XX of El Esquilleu (La Liébana, Cantabria) and the concentration of the Area 3 of El Cañaverl (Coslada, Madrid)

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Abstract

Mousterian variability has been object of a wide historiographical discussion where traditionally the attention had been focused on the typology of the retouched elements as well as to the composition of the assemblages. In the last fifteen years, this debate has been renewed by a multiplicity of contributions that have decentralized the discussion to reorient it towards the search of technical and technological answers of the Mousterian groups. In the paper that we present, we will try to analyze these technological answers through two different lithic assemblages, one of them is an open air site placed in the region of Madrid and the other one is a cave located in the Cantabrian mountain range, both belonging to the same chronological frame, placed between 45 and 43 ka.

Keywords: variability, Mousterian, cave, open air, Attribute Analisis System, lithic technology.

Résumé

Le sujet de la variabilité Moustérienne a été objet d'un ample débat historiographique où traditionnellement on a focalisé l'attention à la typologie des utiles retouchés ainsi que à la composition des ensembles. Dans les quinze dernières années, ce débat s'est trouvé rénové par une multiplicité d'apports qui ont décentralisé le débat pour le reconduire par le chemin des réponses techniques et technologiques des groupes Moustérien. Au travail que nous présentons ici, on essayera d'analyser ces réponses a travers de deux ensembles lithiques, l'un d'eux situé au plein air dans la région de Madrid et l'autre dans une grotte dans la corniche cantabrique. Ces deux gîtes archéologiques appartenant à la même frange chronologique située entre les 45 et 43 ka.

Mots Clés : variabilité, Moustérien, grotte, plein air, Système d'Analyse d'Attributs, technologie lithique.

Introduction

The paper presented supposes the technological study of the lithic assemblages proceeding from the level XX of El Esquilleu cave (La Liébana, Cantabria) and from the level 2-3 of the Area 3 concentrations in the open air site of El Cañaverl (Coslada, Madrid).

Both sites, with different context and functionality, are placed in OIS 3, in a chronological interval that covers from 45 to 43 ka. The analysis of these assemblages will allow us to make an approach to the technological variability present in the archaeological record of Mousterian final moments in the Iberian Peninsula (Fig.1).

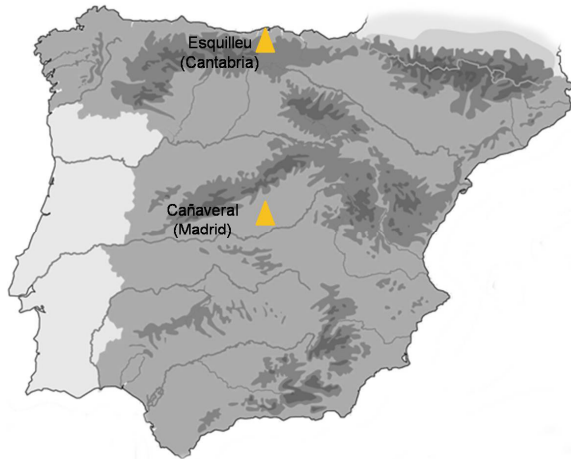


Fig.1. Sites location in the Iberian Peninsula.

Sites and sample presentation

Esquilleu's cave is located in a strong relief, 280 meters over sea level and 68 meters over the river Deva, in the west side of the Hermida's gorge (Jordá *et al.*, i.p.), inside the region of La Liébana (Cantabria). This site has a stratigraphic sequence in which 35 of the 41 documented levels show clear human activity (Baena *et al.*, 2004). In this work, we have studied the materials coming from level XX whose dating, obtained by ^{14}C AMS method on charcoal, has offered >43.690 years BP.

The different works developed in the cave by a wide multidisciplinary team, have established a fundamental frame of knowledge for the interpretation of the assemblage proceeding from the level XX. In this respect stand out the studies of catchment areas of raw materials, developed by Manzano *et al.* (2005) as well as the paleoecological studies (Baena *et al.*, 2005).

On the other hand, El Cañaverál, is placed in Coslada (Madrid), and represents an open air site that has been located by the archaeological works developed in this zone, immersed in an Urban Extension Project (Baena *et al.*, 2008).

Inside this palimpsest, we were able to document some concentrations of fresh material. We have isolated one of them, composed by 500 pieces that come from the level 2-3, which has offered a dating battery, that will soon be published, and that fits this deposit in a chronological range similar to the obtained for the XX level of El Esquilleu. In this respect, the preservation of a great number of sites has been possible thanks to different sedimentary episodes that took place during the Quaternary, that have

favoured the preservation of the archaeological record.

Methodology

To approach the technological study of the lithic material we have used the Attribute Analysis System, which allows, by a definition of the present attributes in the material, to endow the pieces of a technical projection (Baena, 1998; Carrión, 2001).

This system has its origin in the Anglo-Saxon wave and supposes a model of eclectic analysis, characteristic that makes it applicable to a great diversity of assemblages with different particularities. The objective of this system is to establish a frame of analysis in the concepts of technique and technology. This method of analysis takes as interpretive base the recognition of technical and technological attributes depending on knapping experiences, on the technological reading of the pieces as well as the interpretation of diacritic schemes.

Thus, the principal objective of the technological study that we present here will be the reconstruction of the operative chains (Pelegrin *et al.*, 1988; Karlin *et al.*, 1991; Bodu, 1999) that take place in both sites since the systematic approach to the lithic industries, identifying the operative chains seems to allow an analysis of the lithic production systems as well as its cultural, spatial and economic implications (Boëda *et al.*, 1990).

On the other hand, it is necessary to indicate that for the identification of the technical systems of the Mousterian complex we have followed the definitions of Levallois concept contributed by Boëda (1988; 1993, 1994), Van Peer (1992) or Dibble and Bar-Yosef (1995). On the other hand, discoid and Quina methods have been approached from the definitions done by Boëda (1993) and, more recently, by Peresani (2003); Turq (1989) and Bourguignon (1997), respectively.

Assemblages interpretation

The analysis of these two assemblages has allowed us to know the production processes that have taken place in each of them.

In this way, in the case of El Esquilleu cave we could have detected the practice of production at two different levels. On one hand we find the importation of whole boulders that comes from

the Deva river. These pebbles are the base for a discoid production that gives place to products that will be retouched in a simple way and, in the last moment, to an intensification of the exploitation that leads us to document a series of discoid cores of small dimensions.

On the other hand we find that the second type of tools presents an abrupt and gradual Quina retouch that is normally configured on a thick support, whose production does not seem to be carried out inside the cave. For this reason we took the hypothesis that in the Deva's riverbed, a clactonien exploitation took place, focused in

obtaining *gajos de naranja* flakes and *tranche saucisson*. These supports are systematically chosen for this type of scrapers. These scrapers suppose an important percentage in the assemblage and, in general, they present a high intensification in the phase of consumption, because its edges are constantly re-retouched. This preference for semicortical and thick supports for the configuration of Quina type scrapers is common to several assemblages where this kind of tool production has been documented (Turq, 1989) (Fig. 2).

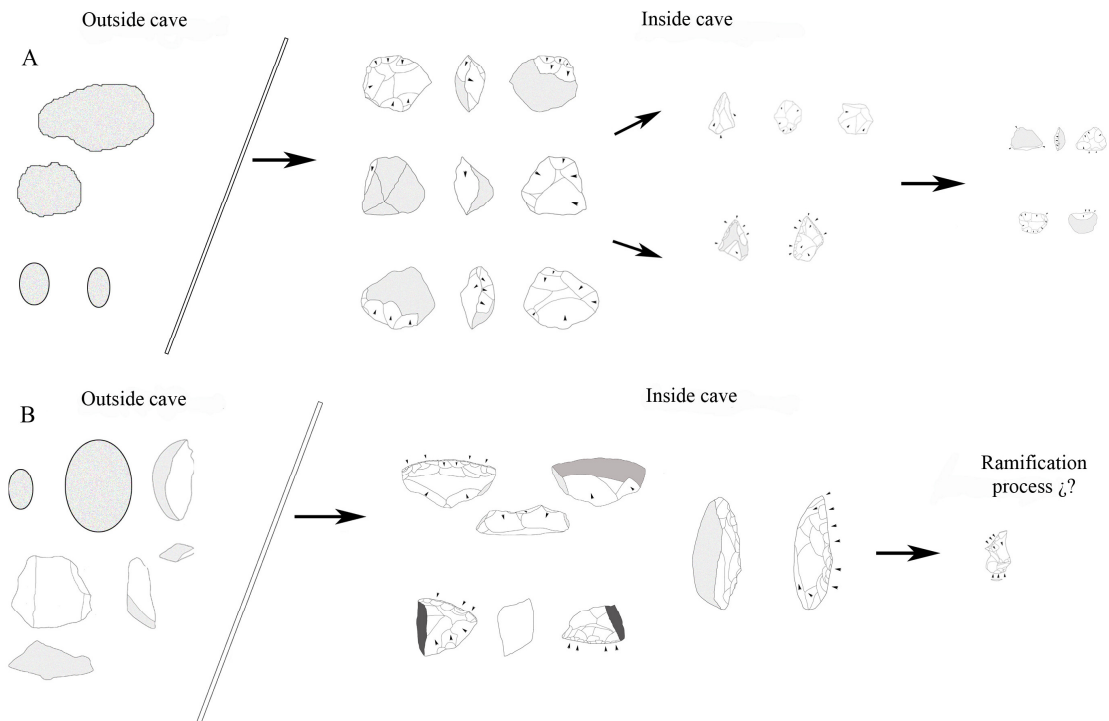


Fig.2. Scheme of the operative chain interpreted for level XX of El Esquilleu's cave.

In the case of El Cañaveral, the study of the assemblage coming from this site also seems to show the presence of two scales of production. The first one supposes the direct exploitation of the big nodules that appears in the surface and that coincides with the general evidences registered in other areas, consisting in the application of a unipolar exploitation that generates big flakes and fragments.

In a second level of production, the big flakes and fragments, obtained in the first stage, are exploited in a full production phase using the Levallois reduction method (Fig. 3).

Like this, we might indicate that the level XX of El Esquilleu seems to show a model based on the importation of supports, whereas El Cañaveral, on the other hand, seems to be a model based on the exportation of the same ones.

Discussion

The study of these two deposits allows us to play with a part of the final Mousterian scene in the Iberian Peninsula, since it will allow us to know how these assemblages fit in its regional context and, in turn, to make questions not only

related to the technique or the technology, but also to confirm the variability documented regarding the specialization of the habitat as well

as of the strong knowledge of the environment of these human groups.

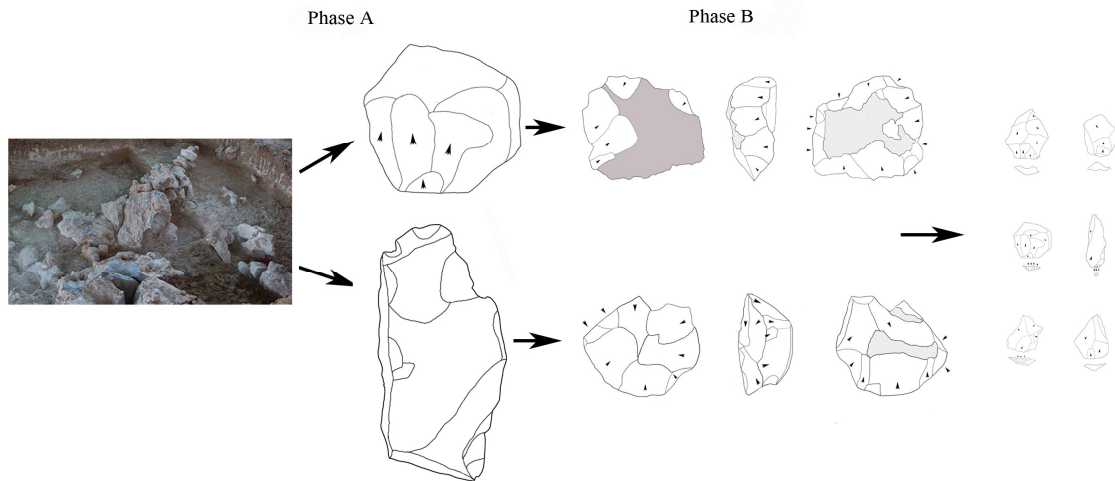


Fig.3. Scheme of the operative chain interpreted for Area 3 concentration of El Cañaveral's open air site.

Thus, the interpretation to which we have gotten thanks to the technological study of the assemblage that came from the XX level of El Esquilleu's cave, makes us think that these groups moved in a context of certain climatic roughness (Baena *et al.*, 2005) where, though a severe shortage of resources did not exist, it wasn't characterized by the abundance of the same ones either.

In this way, the presence inside the tool assemblage with Quina retouch as well as the intense re-retouchment of its edges, comes to match with hard climatic moments, as it is documented in other assemblages (Turq, 2003). Nevertheless, not only Quina scrapers indicate the search by these groups of sequences of technical gestures in a row (Bourguignon, 1997), but also the high degree of exploitation that shows the assemblage, visible both in the cores and in the flake products that seem to indicate a high planning degree in the development of all the operative chain phases. This operative chain leads to obtain a very diversified lithic assemblage both typologically and in the raw material.

This high exploitation degree, as well as the presence of numerous secondary products generated as consequence of the re-retouch of the

scrapers edges that is documented in different sites, as in the Cantabrian coast, Axlór (Ríos, 2005), Morín cave (Mañllo, 2005) as well as the XI level El Esquilleu cave (Carrión and Baena, 2003) have suggested the possible use of these scrapers simultaneously as tools and cores. Thus, the use of the thickness of these scrapers to obtain a whole series of products comes to place the discussion into the question of the ramification, proposed on the basis of the evidences located in some French sites (Bourguignon *et al.*, 2004; Faivre, 2008).

On the other hand, the studied concentration of El Cañaveral has been interpreted as a punctual episode inside the intense activity that is documented in this area, in which the aim of the human groups would be the exploitation and raw material supply. Possibly the raw material obtained in this place is used by the human groups in another place more related with habitat occupation.

This interpretation is suggested on the basis of the lithic assemblage composition, where both cores and flake products are abundant, though it is evident the absence of retouched elements, whose volume does not exceed the 2 % of the total. It seems that, in this assemblage, the human groups are giving preference to the supports

exploitation for its exportation, because we neither document the same intensification processes of the phase of exploitation nor the phenomena of ramification that are recognized in other contexts of the same chronology.

These characteristics place this concentration in what has been already defined as workshop facies, of which we have several examples in Madrid, giving place to its definition (Baena, 1994; Conde *et al.*, 2000). We emphasized that in the sites assigned to this workshop facies, we find a circumstance that also takes place in El Cañaveral case, the absence of faunal remains.

Nevertheless, El Cañaveral presents a particularity from other workshop site in Madrid, since it's placed in an interfluvial basin. Up to the moment the well documented facies was associated with deposits added in the riverbed of the Manzanares river.

In this way, El Cañaveral moves away from the pattern of settlement that was linking, on one hand, these workshops with a very nearby or immediate processing activity of animal resources and, on the other hand, a direct exploitation on a material source. This last characteristic is very well documented in some sites placed along the Nile (Gijssels *et al.*, 1986; Vermeersch, 2002), whose researchers considered that systematic flint exploitation activities in primary outcrops were restricted in Europe up to more recent moments.

It has been pointed out that the variability present in the archaeological assemblage is derived from the functional aspect, the style - morphology and the random variation (Speth, 1972). Nevertheless, we might add to these four agents that generate variability, the aspects related to the different degrees of technicity (Ploux, 1991), the characteristics of the occupation (Mora *et al.*, 2008) or the intensification of the exploitation in moments of climate toughness that would lead to the ramification in a certain moments of the operative chain (Bourguignon *et al.*, 2004; Faivre, 2008).

The analysis system used in this work has allowed us to pay attention both to the techno-economic factors and to the techno-psychological ones. Like this, apart from the most evident differences, proceeding from the own functionality of each site, we have suggested the possible existence of different margins for testing activities in each of these sites.

Thus, both the functionality and the abundance of raw material of El Cañaveral indicate us that the exploitation of this raw material and the knapping strategies are taking place in a context less restricted than the ones in level XX of El Esquilleu cave.

To summarize, the study of these two assemblages show the multiple answers that the human Mousterian groups can generate in certain situations and needs, narrowly linked to the environment where they are living.

Conclusion

Thanks to the study of these two assemblages we have been able to approach the Mousterian variability discussion. At this respect, we can emphasize the diversity of technical and technological answers that Mousterian groups could offer to resolve the different problems developed in each of these contexts.

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