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# RELATIONSHIPS BETWEEN RECENT MAGDALENIAN SOCIETIES IN CANTABRIAN SPAIN, THROUGH THE TECHNICAL AND FORMAL ANALYSIS OF FRONTAL REPRESENTATIONS OF IBEX

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**Abstract:** In connection with the question of mobility and contacts between Magdalenian societies, this paper presents the preliminary results of a review of one of the classic themes in late Magdalenian art: the representations of zoomorphs, particularly ibex, viewed from the front, found essentially in portable art. These motifs are known in both Cantabrian Spain and southern France, and in archaeological literature are often regarded as evidence of long-distance relationships between Magdalenian groups. The direct analysis of practically all the known examples in Cantabrian Spain has provided a more precise knowledge of the theme at technical and formal levels, and has introduced the technological approach for the first time in northern Spain. The study of the artistic record, from the *chaîne opératoire* viewpoint, has succeeded in identifying and ordering the sequence of movements followed in the process of producing the images. The technical and formal choices made by the artists reflect cultural traditions. The identification and comparison of these traditions in a certain geographical area can determine whether or not the same tradition was shared by different groups and is therefore a way to know the mobility and degree of interaction among Magdalenian societies. The homogeneity seen in the sequence of actions producing the representations of ibex seems to indicate that the artists in Cantabrian Spain shared the same *savoir-faire*, and the little information currently available about this type of representation on the other side of the Pyrenees is in harmony with the results from Spain. However, greater variability is seen from the formal point of view, and the significance of this is hard to determine in the light of the present data.

## 1 INTRODUCTION

It is now some decades since the search for the relationship between *static* and *dynamic* led to the proponents of *New Archaeology* undertaking actualist studies, such as ethnoarchaeological research. This allowed them, in L. Binford's words (1988:121) to overcome – at least from a theoretical point of view – the “sedentary view of the world” that had reigned in research on Palaeolithic societies until then.

We know now that, in general, hunter societies operate over wide territories and this mobility obviously hinders any attempt to understand Palaeolithic sites in isolation. They gain meaning and can be interpreted in their local and regional context. A site provides information about itself, but also about its regional context; the integration of data of different kinds enables a characterisation of the activities carried out at a certain place, which makes it possible to propose hypotheses about the existence of other locations where different, perhaps complementary activities were carried out.

Therefore, studies at a regional scale are especially relevant (Menéndez 2012:13–14), although such an approach is not without its problems – for example, the issue of the synchronicity of the sites. However, if high-quality information is obtained from the Palaeolithic record, that is to say, if the social acts that produced the archaeological remains can be determined, significant hypotheses can be put forward about mobility and the way a society managed its territory. Such a preliminary proposal, based on the study of a single site, can be tested by examining all the sites known within a certain geographical area. Only in this way can a model of the population dynamics in a given area of study be established (Fano & Rivero 2012).

In the case of research on Magdalenian societies in Cantabrian Spain, the question of mobility is not new (see, for example, González Sainz 1989; Moure 1994; Utrilla 1994; Corchón 1995). However, perhaps it has been regarded as one more aspect of research, when in reality it is an issue that should be taken into account in any field of study about these groups, due to their nomadic nature.

In recent years, several studies have highlighted the topics of territories and the mobility of Magdalenian societies in northern Spain, with a clear interest in long-distance relationships (Corchón *et al.* 2012; Fritz *et al.* 2007; Sauvet *et al.* 2008). At the same time, other studies have considered mobility over shorter distances, as has been attempted for the drainage basins of the Rivers Sella and Asón, in Asturias and Cantabria respectively (Menéndez 2003; Menéndez *et al.* 2005; García Moreno & Fano 2011).

The significance of long-distance relationships, like those that have been proven with groups in the Pyrenees and south-west France, currently seem difficult to apprehend, although more and better information is gradually coming available about the circulation of goods, such as flint and personal adornments, or ideas related to graphic activity or technical processes. One of the keys to further advances in this matter is the need to pay greater attention to short-distance movements, within what Gamble (2001) called the landscape of habit, the space in which the routines of life in society were performed, in contrast with the social landscape, which is the territory over which long-distance relationships were maintained. It will be difficult to understand long-range interaction if the relationship of sites with their immediate surroundings are not known.

As mentioned above, both parietal and portable art have played a major role in reflections on the mobility of Magdalenian societies. Analogies, both in the themes and in the formal and technical characterisation, have often been used as the basis for such reflections (Fritz *et al.* 2007; Sauvet *et al.* 2008). However, unlike in France, in Cantabria Spain the technological approach has only recently been applied to art studies (Rivero 2007, 2011) and therefore, in general, the comparative analysis of the representations has not gone beyond stylistic aspects.

Zoomorphic figures, mainly ibex, depicted from the front, a classic theme found mostly in Late Magdalenian portable art, are a good example of this situation. These are motifs found in both Cantabrian Spain and southern France, and often regarded in archaeological literature as evidence of long-distance relationships. In the case of the French record, in addition to the inventory drawn up by S. Tymula (1991), a microscopic study of five examples from La Vache (Ariège) revealed the same technical scheme (Fritz 1999). In contrast, in northern Spain, the studies of these motifs have included few technological observations.

As a result, this kind of motif loses much of its potential to inform about mobility and contacts between the societies who produced this type of graphic expression. The study of the artistic record from the chaîne opératoire point of view enables, among other aspects, the identification and sequencing of the actions made to produce the decorative elements, which, together with stylistic analogies, favours an approach to the recognition of a single (or different) “cultural identity” in the records being studied (Fritz 1999; Rivero 2012).

## 2 OBJECTIVES

A project is currently focused on studying zoomorphs depicted frontally, with two objectives. In the first place, a more detailed understanding of this theme, which appears on a large number of portable objects and in a small number of parietal contexts, will be obtained. The exhaustive catalogues of I. Barandiarán (1973) and M.S. Corchón (1986) are still vital for information about the theme in its portable version. However, the increase in the corpus of representations since the 1980s advises the updating of the catalogue, while the new study techniques permit more precise readings of the engraved or painted figures (González Sainz *et al.* 1985). At the same time, as noted above, the introduction of the technological approach to the study of this type of representations signifies a qualitative leap in the understanding of the theme.

This greater precision enables the second basic objective of the project: to achieve, by the direct study of the materials, a more critical view to what these figures can contribute towards understanding the long and short-range mobility of Late Magdalenian societies, as commented in the previous section. In this way, a more precise assessment can be made about the variability/homogeneity of the theme – at formal, stylistic and technical levels – along the northern Spanish coast. These observations should be completed, in a later stage of the project, with the direct study of the figures documented in southern France.

This paper aims to present some of the interim results of the project in connection with the two objectives explained above. Thus, first, the corpus of motifs that has been analysed will be described, and the methodologies employed to analyse the portable and parietal depictions. This study reveals clear variability within the theme, in this case of the ibex figures, which are the representations being studied here. Second, some preliminary data will be presented about the nature of this variability along the Cantabrian coast.

### 3 MATERIALS AND METHODS

The corpus being studied includes a total of 16 archaeological sites and 50 figures, both parietal and portable, which for the Cantabrian record is a practically exhaustive review of the objects and walls decorated with ibex depicted from the front, according to the latest inventories (Utrilla & Mazo 1996; Barandiarán 1994; González Sainz 1993) (figures 1 and 2). The only examples not included in this direct re-study of these figures are from La Paloma in Asturias (a figure on a spear point), and from Abauntz in Navarre, a site in the Pyrenean foothills but whose archaeological record exhibits clear links with Cantabrian Spain (two cobble-stones with over 25 motifs, *cf.* Utrilla *et al.* 2009).

The review of the corpus of representations found that the morphological criteria used to identify this type of figure needed to be restricted. It has traditionally been thought that frontally-viewed ibex form a homogeneous group, in which the main characteristic is the simplified representation of the elements by which an ibex can be recognised from the front, mainly the horns, although other elements like the body and head might be present. However, as the figures became increasingly schematic, some of these elements were omitted, resulting in a series of V-shaped lines that are occasionally hard to assimilate with a figure of an ibex.

To seek a solution to this problem and refine the corpus of study as much as possible, some minimum criteria were fixed to be able to define a motif as an ibex viewed from the front. Hence, from the morphological point of view, a representation of this kind should possess three essential elements: horns, ears and head, although the latter may sometimes be omitted if it is represented together with the body, as two long parallel lines.

These criteria have made it possible to distinguish, among the ibex viewed frontally published in the literature, several representations that cannot be assimilated with the type and are better interpreted as a series of angles.

**FIGURE 1** Location in Cantabrian Spain of the sites with frontal ibex depictions that have been studied (portable art: Sofoxó, Tito Bustillo, Cueto de la Mina, Llonín, El Pendo, Morín, El Valle, El Horno, Lumentxa, Bolinkoba, Santimamiñe, Urtiaga, Ekain, Torre, and Aitzbitarte; parietal art: El Otero and Ekain).



**FIGURE 2** Sites with portable art that have been studied, with the number of figures analysed and the number of objects they are represented on. In the case of parietal art, five motifs have been studied in Ekain Cave, and one in El Otero Cave.

SITE	NUMBER OF FIGURES ANALYSED	NUMBER OF OBJECTS
Sofoxó	1	1
Tito Bustillo	2	1
Cueto de la Mina	3	2
Llonín	4	1
El Pendo	12	9
Morín	1	1
El Valle	3	2
El Horno	2	1
Santimamiñe	1	1
Bolinkoba	2	1
Lumentxa	1	1
Urtiaga	8	3
Ekain	1	1
Torre	2	1
Aitzbitarte	1	1
TOTAL	44	27

Thus, out of the total number of figures studied, 32 % of them have been omitted. They include motifs such as those depicted on spear points from Bolinkoba and Santimamiñe which, additionally, share the characteristic of not belonging to the chronological period generally attributed to this type of figure (Late Magdalenian) (figure 3). At the same time, the revision *in situ* of all the accessible parietal figures has succeeded in identifying examples that had not been recognised until then, such as a painted ibex in Cueva de Ekain (*vid infra*) (Fano *et al.* 2012).

The engraved figures on portable objects that were maintained in the corpus have been studied microscopically in order to determine the order in which the lines were carved and the direction of the movement. These parameters can determine the technical method used to depict a figure, and can therefore be used to compare different figures. This methodology follows the principles of *chaîne opératoire* analysis, as first defined by Leroi-Gourhan (1964, 1965) and later adapted to the study of the archaeological record in general (Pelegrin *et al.* 1988) and portable art in particular by F. D'Errico (1994) and C. Fritz (1999).

For the microscopic analysis of the figures a Leica S8APO stereo microscope, a Leica DM2500 microscope, a Nikon SMZ800 stereo microscope and a Dino-Lite AD-7013MZT handheld microscope were used, in all cases with built-in image capture systems.

In the case of parietal depictions, the study was conditioned by their state of conservation and the limited analytical possibilities of the paintings as regards the individualisation, order in which the lines were painted and movement direction.

The reconstruction of the sequence of actions is a way to identify a society's *savoir-faire* regarding its artistic production. The technical and formal choices made by the artists reflect their cultural traditions. The study and comparison of these traditions within a given geographical area can determine whether or not the same tradition was shared by different groups and it therefore becomes a way to know their mobility and the degree of interaction between them.

#### 4 SOME PRELIMINARY RESULTS OF THE STUDY

The direct study of the objects has, in the first place, succeeded in renewing the existing documentation about these motifs. This involved a detailed formal and technical description, macro- and microphotographic studies and drawings of the figures, including aspects such as the representation of relief and the characteristics of the objects and the incisions. In some cases, such as the bone from Torre Cave and other cylindrical objects, photomontages could be assembled to see the whole object in a single image, with the consequent advantages for understanding the decoration (**figure 4**).

As stated above, some of the figures that were studied had to be eliminated as they did not meet the requirements corresponding to a frontal representation of an ibex. Out of the total of 44 engraved figures on portable objects, only 30 were retained in the corpus. In contrast, as well as the parietal engraving in El Otero Cave and the four paintings in Ekain Cave, an additional fifth painted ibex was identified in the latter cave.

**FIGURE 3** Some examples of representations that have been excluded from the corpus of frontally viewed ibex: a. Lumentxa; b. Santimamiña; c. Bolinkoba (detail, 10x).





The microscopic analysis of the portable representations has been able to obtain information about movement directions in 66% of the objects, and about the order in which the incisions were made in 36% cases. Out of these representations that have provided information about the engraving technique, the similarities are very marked. In 85% of the objects, the direction followed to make the incisions was the same: downwards for the lines forming the horns, head and ears. Fewer figures provide information about the order of execution, as the lines do not always cross each other. However, in these cases, the same uniformity can be seen (90%) (figure 5).

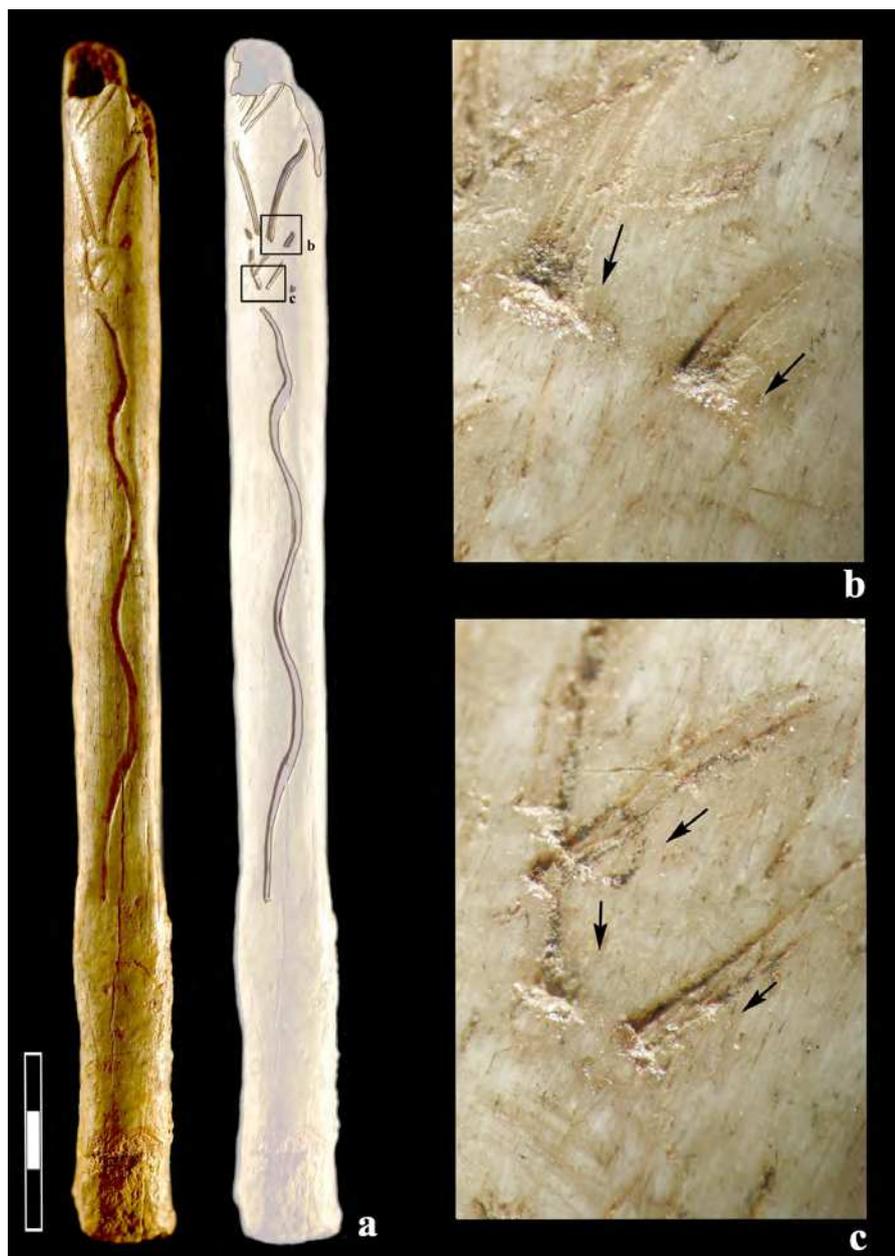
The homogeneity seen in the sequence of engraving is not a response, as might at first be thought, to the relative simplicity of the figures. From the technical and formal viewpoint, the frontal ibex representations are quite variable, from simple representations formed by incisions produced with a single movement of the cutting tool, to figures of greater technical (dissymmetrical V-section incisions, relief) and formal complexity (presence of such attributes as the coat and roughness of the horns, etc.) (figure 6). However, the technical methods are the same in nearly all the examples that have been studied. In addition, in some cases like the second ibex on the bone from Torre and the spear point from Cueto de la Mina, the direction of the engraving is inverse, or upwards, but this seems to be the consequence of the position of the object in the hand: the engraving direction was the same, but the object was inverted.

It is more difficult to analyse the parietal figures (figure 7), due to the problems with individualising the lines and determining the order in which they were executed, especially in the case of paintings. However, a technological study was possible for three painted ibex in Ekain Cave and the engraving in El Otero Cave. In all these cases, the figures were constructed following the same downwards procedure from the upper part of the figure, the horns, to the lower part, either head or body, depending on the anatomical parts represented in each example. However, this is a very small sample, insufficient for any statistical treatment.

These technological observations, displaying clear homogeneity in the sequence in which the figures were produced, mean that it can be proposed that the artists who carried out this type of motifs shared the same *savoir-faire*. Indeed, the available information about the French record (from La Vache) suggests the same hypothesis (Fritz 1999:153).

**FIGURE 4** Photographic montage with 10x micrographs of the engraved bird bone from Torre (Gipuzkoa).

**FIGURE 5** Engraved rib from El Pendo (Cantabria) with a frontal view of an ibex: a. Photomontage and tracing of the engravings; b. Lines of the horn and ear, engraved downwards (10x); c. Lines of the head drawn in the same direction (10x).



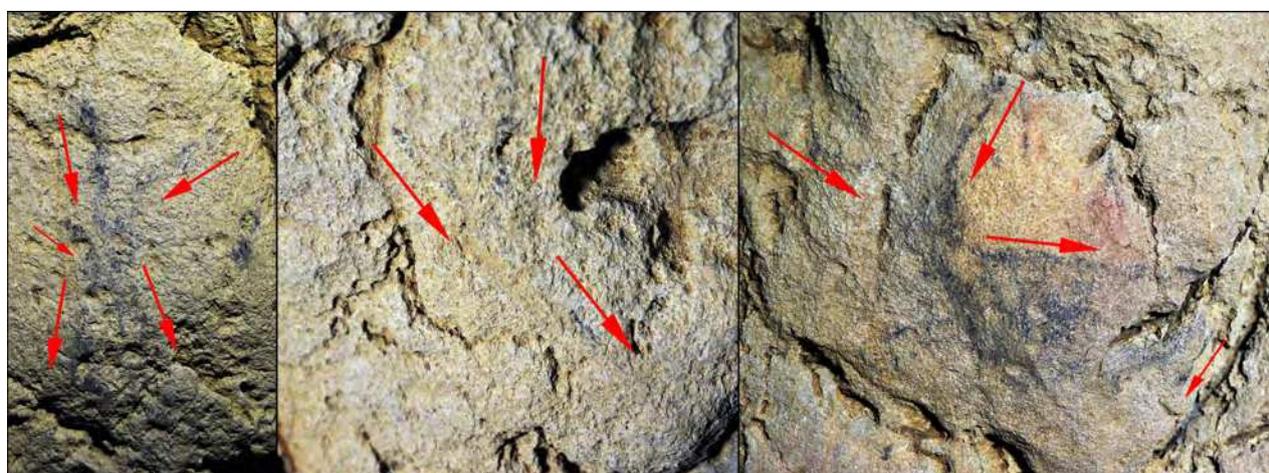
As one of the present authors has noted in connection with the Middle Magdalenian artistic record (Rivero 2011), the common technical patterns could be associated with the existence of systems for learning and transmitting knowledge within Magdalenian societies. At the same time, the convergence at a technical level that has been observed takes the discussion about stylistic aspects a step further, by introducing new data of interest in assessing the nature of long distance contacts in the Late Magdalenian.

Similarly, the formal variability observed through the direct study of the material could also contribute towards that more critical outlook being sought, from the perspective of art studies, on the contacts and mobility of Magdalenian groups. This formal heterogeneity is clearly seen, for example, in the different angles between the two horns, the presence of such attributes as the roughness of the horns, whether or not the head and its internal lines are depicted, the beard, and the varying degrees of representation and schematisation of the body (in profile, as a sinuous line, or two parallel lines as a prolongation of the head, and so on).

**FIGURE 6** Some examples of frontally viewed ibex showing the technical and formal variability of this kind of figure: a. Pressure flaker from Urtiaga and detail of the ibex (10x); b. Rib from Llonín and details of the ibex on the reverse side (10x); c. Chisel from El Valle; d. Perforated baton from El Pendo; e. Chisel from Tito Bustillo; f. Perforated baton from El Pendo.



**FIGURE 7** Order in which the three black ibex were painted in Ekain.



These interim observations have not detected any pattern of variability along the northern Spanish coast, in the form of regional peculiarities. While the simplest variation, consisting solely of horns engraved with a single line, ears and face or body, is the most widespread, no models are unique to a certain area or site. However, most of the sites have yielded a single representation of this kind, or a single object decorated with frontally-viewed ibex (see **figure 2**), and this makes it difficult to determine intra-regional differences. *A priori*, all the evidence suggests that, just like the technical methods, the formal characteristics of the theme, as diverse as they were, were shared along the Cantabrian coast, and the use of one or another appears to have been the artist's choice. However, the direct study of a large number of representations documented in the south of France will provide a more precise view of these aspects, as well as allowing the introduction of statistical tests, due to the considerable increase in the number of examples. In this way, hypotheses can be tested and possible specific formal models in the representation of frontally-viewed ibex might be compared.

## 5 CONCLUSION

For some time, art has been offered as conclusive proof of the mobility of Magdalenian societies. This study has shown that research into the *savoir-faire* of Late Palaeolithic artists can contribute a more critical approach to the nature of contacts among Magdalenian groups. After many decades of reflections based on formal and stylistic observation, the introduction of the technological approach to the study of art, which is a novelty in northern Spain, provides another element for discussion within research on a decidedly complex matter. The example presented here, focusing on the representations of ibex as seen from the front, reveals that the absence of technological observations reduces the potential of art as a source of information about the contacts among Magdalenian hunter societies. Thus, the homogeneity seen in the sequence of movements followed to depict the ibex seems to suggest that the artists in Cantabrian Spain shared the same *savoir-faire*; and the available information does not indicate any great differences on the other side of the Pyrenees. However, from the formal point of view, greater variability can be recognised and it is difficult to determine the significance of this in the light of the present data. To analyse these aspects in greater depth, it is necessary to widen the technical study to the French record, or extend the analysis to other similar themes, such as the representations of red deer stags viewed from the front. The technical and formal analysis of these representations, their thematic associations and the type of objects decorated will obtain complementary data to the present study. It is evident that a full study of single theme, such as frontally-viewed zoomorphs, can only attain moderate progress in our understanding of the mobility of Magdalenian groups, in comparison with aspects mentioned in the introduction, such as the question of short-distance mobility, which is hard to address when most of the sites possess a single representation or decorated object. However, there is little doubt that it is a research strategy that may make interesting advances in the understanding of one of the most significant cultural traits of Magdalenian societies.

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