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## Quaternary International

journal homepage: [www.elsevier.com/locate/quaint](http://www.elsevier.com/locate/quaint)

## The function of graphic signs in prehistoric societies: The case of Cantabrian quadrilateral signs

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### ARTICLE INFO

#### Article history:

Received 4 May 2016

Received in revised form

18 December 2016

Accepted 28 January 2017

Available online xxx

#### Keywords:

Paleolithic cave art

Abstract signs

Cantabrian region

Formal analysis

Identity markers

### ABSTRACT

The making of images has played an important role in the functioning of prehistoric societies because it is a tool of communication that contributes to the stability of social groups. First and foremost, the image can serve as a form of visual support for the collective myths that form the basis of culture, but all forms of imagery, figurative and non-figurative, can serve as significant markers within a society.

Members of traditional societies can be defined by their membership in a group (clan, lineage, social status, etc.), which can be made visible through graphic signs that are made according to more or less strict rules known by all members of the larger society. Such distinctive marks can be applied directly to the body of each individual (through body painting, tattooing, scarification), but they can also be reproduced on external surfaces (such as cave or rock walls), and thus acquire the status of a representative *in absentia*. It has been proposed at various times that these graphic expressions, generally called “signs,” constitute veritable “identity markers” that can be perceived at multiple levels. Within a group, they serve to signal the membership of each individual to a social status or category. In intergroup relationships, they can have a more general role as markers of territory or ethnicity (Leroi-Gourhan, 1981).

Certain signs lend themselves particularly well to the social-markers hypothesis because they possess all of the characteristics required for this function. Such is the case of the quadrilateral signs from Upper Paleolithic contexts in the Cantabrian region, Spain. In the caves of El Castillo, La Pasiega, Altamira, and Las Chimeneas, relatively close together, we find groupings of signs that share a common quadrilateral structure but vary in terms of the arrangement of internal details. A formal analysis based on the method of correspondence analysis and other statistical tests reveals two primary groups based on these independent formal characteristics. This schema appears to be the product of a codified system that allows for a large number of variants with a high potential for distinction based on the flexible combination of a relatively small number of elements. These examples constitute a form of differential marking, of which numerous examples are known over time and across cultures, from the first modern humans to contemporary societies.

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### 1. Introduction

In the archaeological remains available today, we find strong evidence to suggest that the social life of prehistoric societies was probably rhythmically structured by the observance of rituals. These ritual expressions would have constituted an important element of group life because they would have contributed to cohesion and stability by reinforcing a sense of belonging to a

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shared cultural community (Rappaport, 1999). Images play an essential role in these processes.

In this article we are particularly interested in the role played by images in Upper Paleolithic societies. From its origins in the Aurignacian to its apex in the Magdalenian, Upper Paleolithic iconography has been classically divided into two categories: figurative representations, which are primarily zoomorphic, and the non-figurative (or “geometric”) images often referred to as “signs.” Within the category of signs, several types of simple signs are traditionally recognized, including crosses, rods, and dots, as well as more complex signs that show a greater formal variability, such as quadrilateral and tectiform (roof-shaped) examples, which appear in Paleolithic societies, after the Last Glacial Maximum (Petrognani and Robert, 2010). The latter are abundant, with more than sixty examples known at several sites in the Périgord region of France. They are integrated, sometimes in a repetitive manner as in Font-de-Gaume cave (Vialou and Vilhena-Vialou, 2014), into compositions with bison or mammoths (Fig. 1). These signs are integral components of image systems that participate in what we can say is a singular *semiological system*.

The same is true of the quadrilateral signs of Lascaux and Gabillou that regularly appear in close association with animals, as shown by the examples in Fig. 2 where one can see: a quadrilateral

sign wedged between two ibex facing each other; an ibex turned to face the rear, looking at a quadrilateral sign; a bovid captured in mid-leap whose head is superimposed on a large partitioned sign. From these examples, we can reliably infer that signs are full participants in the content of these messages.

Certain types of signs only have a restricted geographic range, presumably because they only had significance for a limited community. This is the case for the tectiform signs, which, *sensu strictu*, are known only in five caves in the Périgord (Vialou, 1987). In contrast, certain other signs are found at sites over large distances, which raises the question of the mechanisms of diffusion and of the function of signs that were transplanted from one region to another. For example, the claviform (club-shaped) signs, of which more than 200 examples are known in the Pyrénées, were also found in small numbers in the region of Cantabria. In this particular case, cultural influences and relationships extending from the Pyrénées to Asturias are supported by a number of complementary lines of evidence (Sauvet et al., 2014).

The case of quadrilateral signs is different, because their geographic distribution is very large (Périgord, Quercy, the French Pyrénées, Cantabria) and the variety of forms is such that one would be hard-pressed to identify a point of origin or even specific paths of diffusion (Fig. 3). The fact that we refer to all of them by the



Fig. 1. Two examples of association by superposition of tectiform signs and bison in the cave of Font de Gaume, Dordogne (after the renderings of H. Breuil).

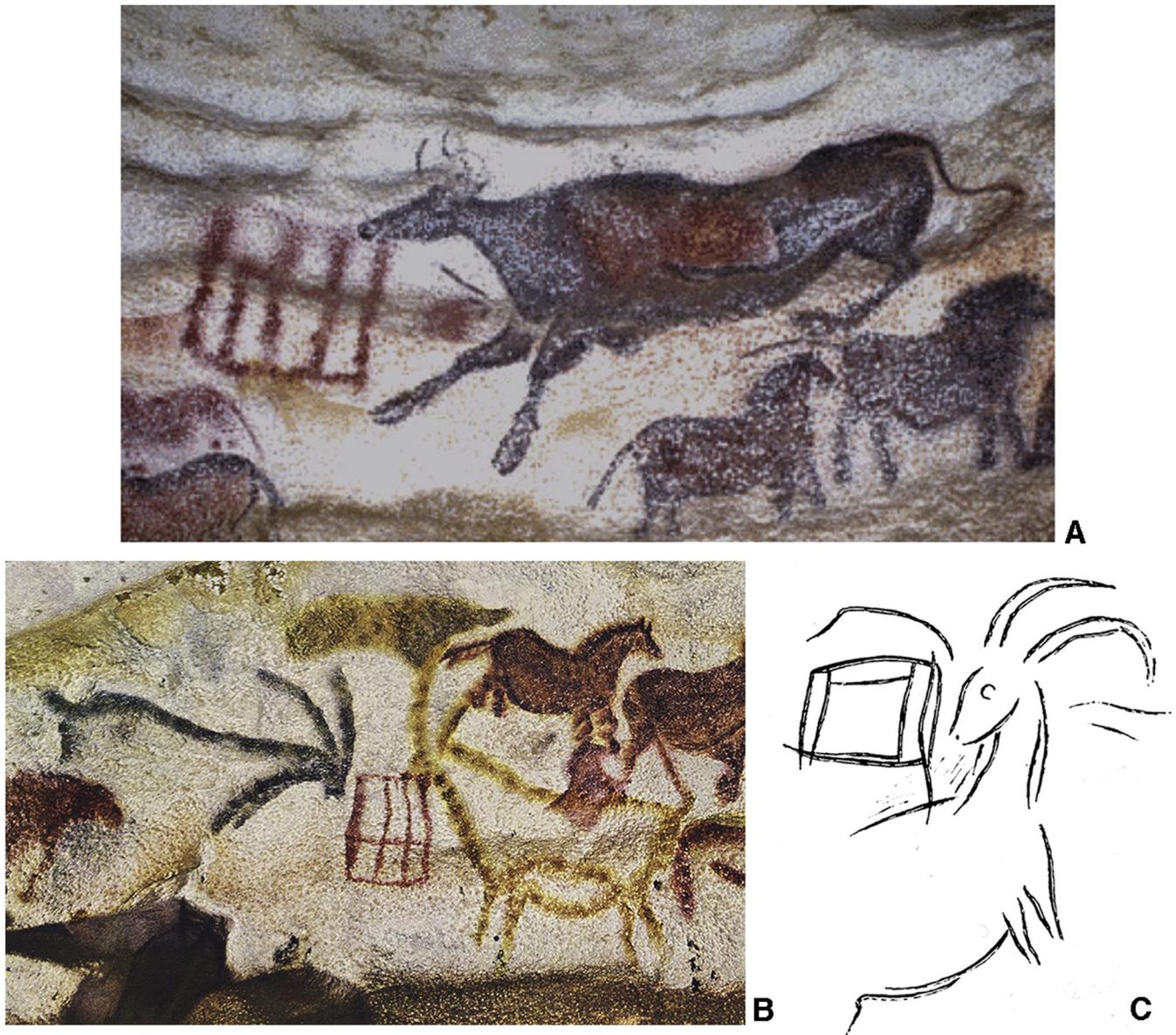


Fig. 2. Examples of quadrilateral signs closely associated with animals at Lascaux (A, B; after G. Bataille) and Gabillou (C; after J. Gaussen).

same term gives the impression that they have the same meaning in all occurrences, which is very likely not the case. The observed variability in fact suggests a multiplicity of meanings and functions.

These signs, whose one of point of commonality to our eyes is their quadrangular form, pose a particularly thorny problem when it comes to classification because they don't fall easily into our formal schemes of categorization. It has been proposed that they be subdivided on the basis of a sharp protruding form in the upper part of the quadrangle or internal partitions, but no matter the criteria chosen, the signs remain unclassifiable. Between each distinct type lie an infinite series of intermediate forms that prove these typologies to be rather irrelevant. This goes to show, however, that immense variability is probably an intrinsic property of the system of these signs and a key element of their functionality.

The variability of the quadrilateral signs is not entirely boundless; it seems that they are made according to certain rules, which again suggests a collective function. It is worth noting that signs found side by side on the same panel present formal differences

that seem to have been made intentionally. One gets the impression that there are *distinctive marks* intended to make these signs different from one another. This is the basis for the hypothesis that each variant could have functioned as a *mark of distinction*. The Cantabrian quadrilateral signs present an ideal context for the testing of this hypothesis.

## 2. Cantabrian quadrilateral signs

Cantabrian quadrilateral signs present an interesting idiosyncrasy that merits careful examination because it is most probably related to their function. These signs are frequently grouped together on panels isolated from the primary cave tunnels, most often in the absence of animal representations. One such panel, in Castillo cave, is called the "nook of tectiforms." Here we find a dozen quadrilateral signs accompanied by dots on a panel that is oblique to the roof of the cave, in a small recess barely large enough for two people to enter together (Fig. 4).

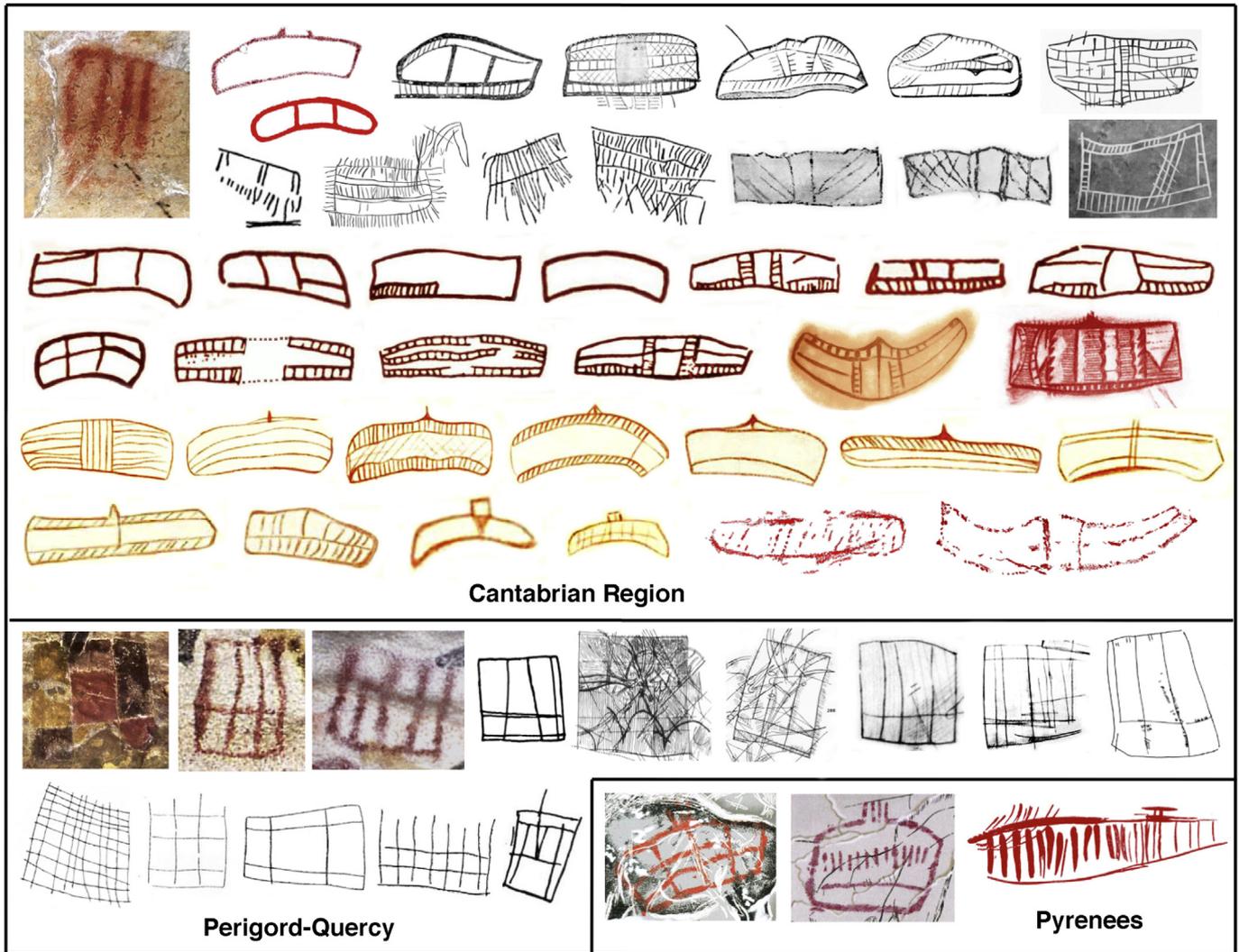


Fig. 3. A tableau of quadrilateral signs in the three major regions of Paleolithic parietal art, showing the immense variability of these signs. The signs selected for the statistical analyses in this paper constitutes a reduced sub-sample chosen for the homogeneity of their formal features and their geographical proximity.

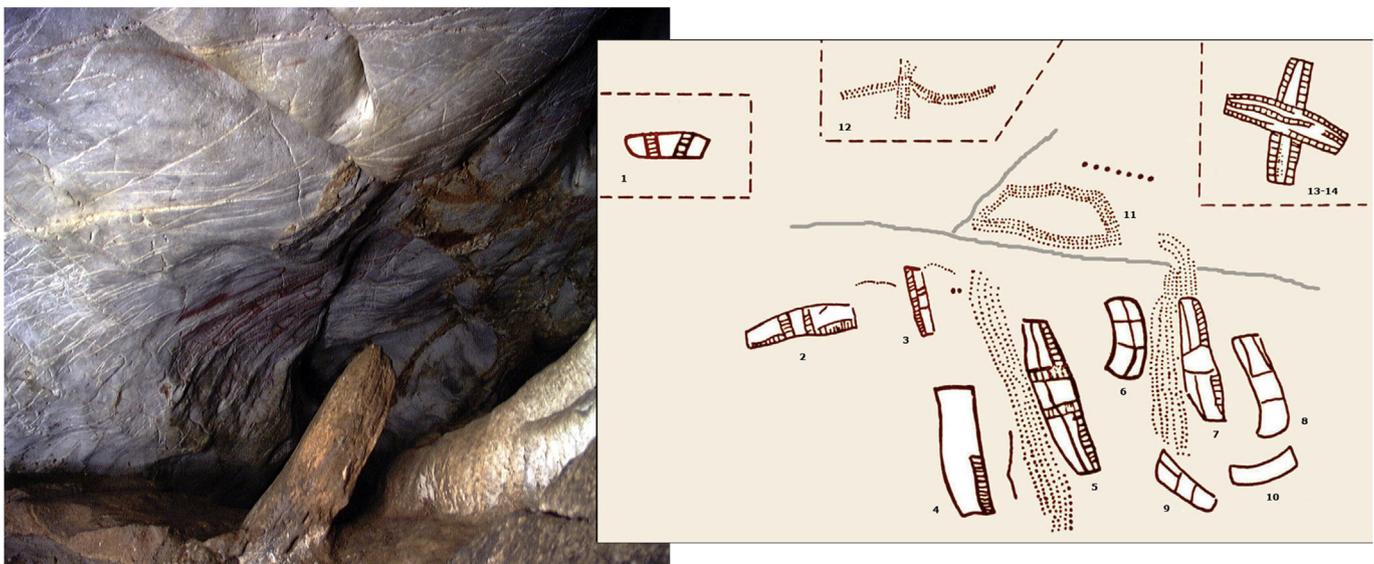


Fig. 4. The niche of quadrilateral signs known as the "nook of tectiforms" in Castillo cave (after the rendering of H. Breuil).

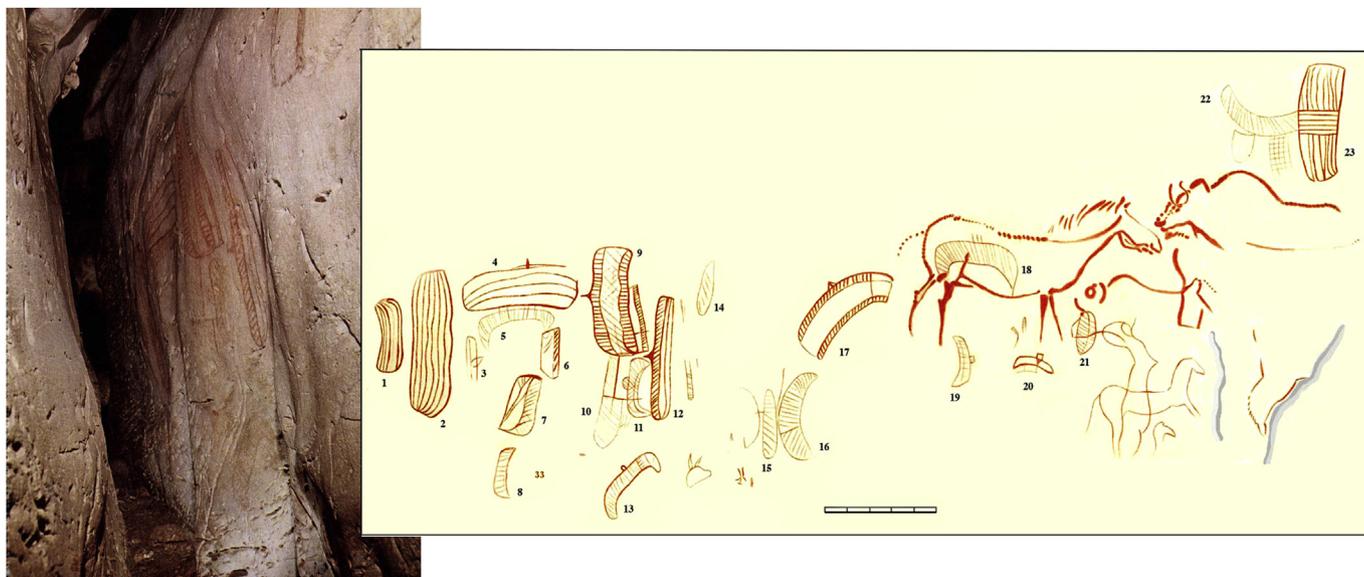


Fig. 5. Terminal gallery of La Pasiega A (montage after the renderings of H. Breuil).

The cave of Pasiega A presents a similar case. The principal gallery ends in a narrow joint, inside of which, at the most inaccessible point, is a cluster of quadrilateral signs (Fig. 5). It is worth noting here that the horse and bison that can be seen in the rendering by H. Breuil post-date the signs (Breuil et al., 1913: 41), which were made before the addition of the animals.

A third example can be found in the Altamira cave, at the deepest point of which is a narrow and low-lying gallery called the “horse’s tail” (*cola de caballo*). There, a group of four distinct complex quadrilateral signs with a tripartite division is found (Fig. 6). In a minuscule chamber of the same cave we find, once more in an enclosed space, four quadrilateral signs with tripartite divisions.

Thus, the three caves of Castillo, La Pasiega, and Altamira, located along an axis of thirty kilometers, share a certain number of common concepts with regard to graphic signs: it is in the hidden and nearly inaccessible spaces (Robert, 2009, 2016), removed from the main routes of circulation that are decorated with remarkable animal compositions, that the various graphic signs are clustered, sharing the unique common point, in terms of the graphics, of being in a category of quadrilateral signs.

The signs of each panel were likely made in a short period of time, but we have no proof that they are contemporary in the four caves. The only direct dating concerns one of the black signs in Altamira cave ( $15,440 \pm 200$   $^{14}\text{C}$  BP, GifA-91185). Even if the signs concerned in this study are not strictly contemporary, we may assume that they constituted a homogeneous system because a large number of variants are obtained by the combination of a small number of formal features.

### 3. Formal analysis of quadrilateral signs

In order to examine the similarities and differences between these Cantabrian quadrilateral signs in as objective manner as possible, we employed correspondence analysis (CA) based on 45 morphological characteristics that we have come to consider as distinctive features. These features are the general shape (convex, concave or linear sides; rounded or sharp-angled edges; presence of vertical and horizontal divisions; type of filling; use of scari-form bands; presence of an excrescence at the top, etc.) To the sites of El Castillo, La Pasiega and Altamira, we have added the site of Las

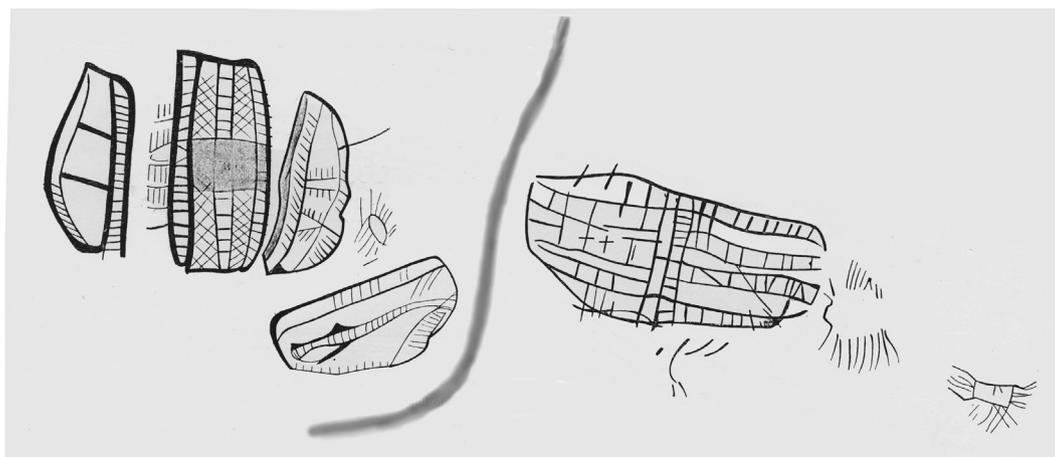


Fig. 6. Quadrilateral signs in the terminal gallery of Altamira (renderings of H. Breuil).



The principal elements of these figures are recurrent and can be freely combined such that a wide range of figures can be created with differences that are immediately perceptible, which is one important criterion from the point of view of the Gestalt psychology (Guillaume, 1979).

The combinability of these characteristics in the Cantabrian quadrilateral signs can also be demonstrated through the construction of a theoretical assemblage of basic forms based on the three principal elements (tripartite division, scalariform bands, and upper excrecence, Fig. 8). These elements can exist alone and in pairs, and a single example is known that combines all three, making it a paradigm of the series.

This sign, found in El Castillo cave, appears to constitute the summit of a hierarchy. It is emblematic, firstly in terms of size (at nearly 90 cm tall it is by far the largest of the signs in the assemblage) but also in terms of its visibility and location on an area of natural relief, which cannot be accidental. In contrast to the other signs, this one is not hidden in a cranny or small axial chamber; it is visible from afar, just outside the “nook of tectiforms.”

As outlined above, the quadrilateral signs from the site-group of Castillo-Pasiega-Altamira-Chimeneas constitute a distinct family with remarkable particularities. Not only are they clustered in distinctive places, hidden (in three cases) and removed from the

panels of animal figures, but they also present distinctions at the level of individual signs that distinguish them from one another and yet seem to form a system that suggests they belong to a relatively unified society and share a certain level of contemporaneity. One most likely hypothesis is therefore that these signs served as *marks of distinction*.

But what is a mark of distinction? What is its function? Marks of distinction can be thought of as signs created by societies to individualize their members. In traditional societies, each person is often identified on the basis of perhaps multiple and shifting memberships in a group, a clan, a caste, a lineage, and/or by a particular social status or age class or by their abilities and activities. This membership is most often *made visible* to other members of the community, which is most often accomplished through designs that can be directly inscribed on the body of each person in the form of body painting, tattooing, and scarification (Rouers, 2008). This differential marking was widely practiced in sub-Saharan Africa and elsewhere until fairly recently. Often performed in a ritual context, its function was above all a social one. In graphic design terms, the markings had to be immediately recognizable and interpretable to all. For this reason, they were based on repertoires of strictly codified elements (Piette, 1986; Renaut, 2004) that consequently constitute a *semiological system*.

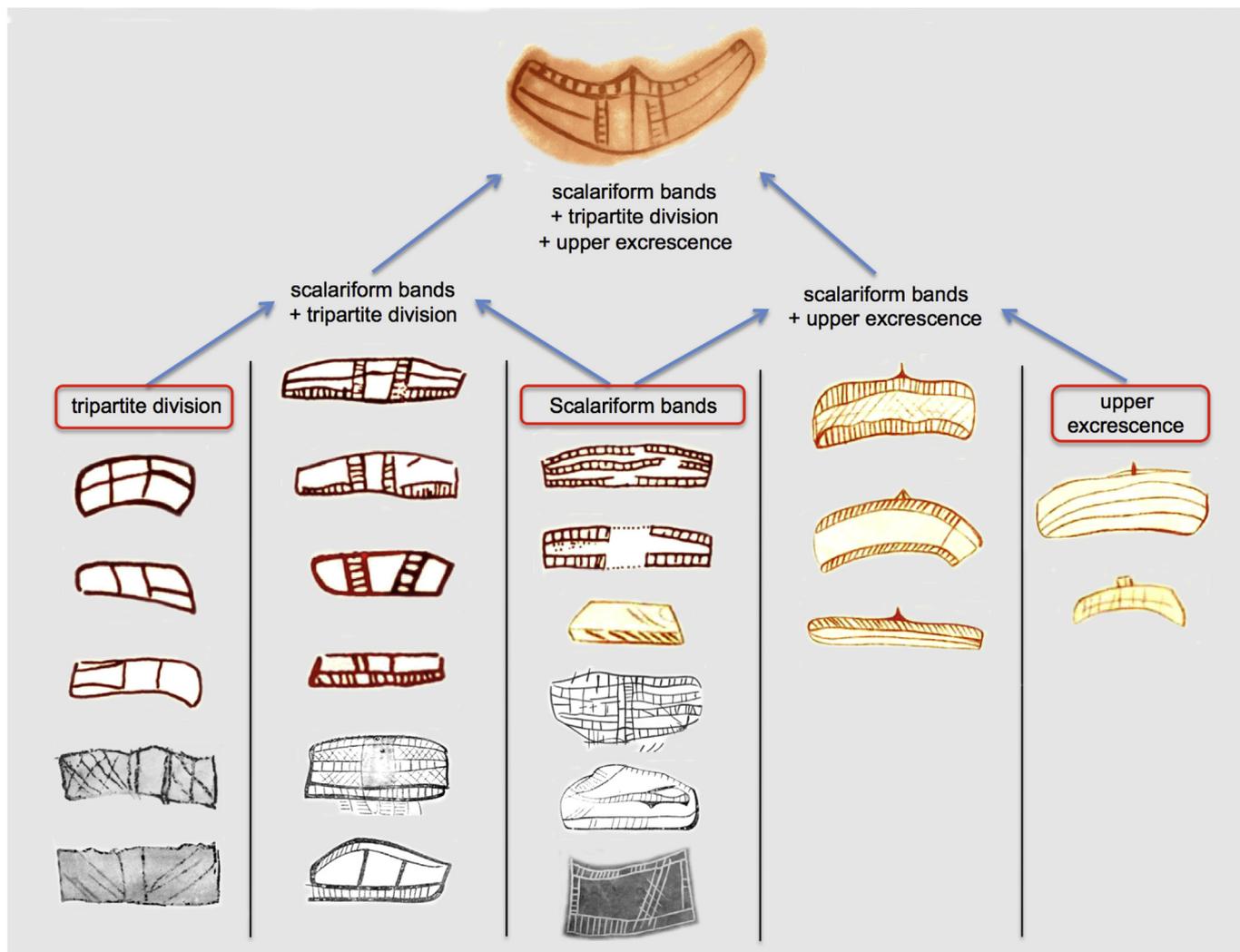


Fig. 8. Ensemble of quadrilateral signs showing different combinations of three principal characteristics (tripartite division, scalariform bands, upper excrecence).

Well established by the Neolithic (Boghian, 2010), the practice of body decoration is difficult to address in the Upper Paleolithic, even though some rare examples have been interpreted as evidence for the practice. The marks on the arms of the statuettes from Hohle Fels and Hohlenstein-Stadel in the Swabian Jura (Germany) could represent scarification in the Aurignacian, as could the markings on the face of the Man of La Marche in the Magdalenian (Fig. 9), but there is thus far no direct archaeological evidence to confirm this with any certainty.

Body marking is widespread globally, but the identity of a person or his/her membership in a group can just as well be externalized in the form of an object displayed outside the human body. Adornment is a primary medium employed to this effect, and is often employed in concert with and as another form of body decoration (Taborin, 1998). But one can go a step further: any design made on a mobile background, or, even better, on a fixed surface like a cave wall, is equally able to play the role of identifying mark of the individual or the group that made it.

### 5. Marks of distinction throughout history and prehistory

The development of a graphic system permitting to identify a person is a practice that spans the entire history of our species, from the first anatomically modern humans to the present day. This concept could be described as follows: from a model motif belonging to an entire group, individuals or social sub-groups developed a variant that would become their distinct markers and serve to identify them. This process appears very similar to what Richard Wilk calls a “structure of common difference”, i.e. a common code allowing “the expression of distinctions, boundaries and disjunctures” (Wilk, 1995: 118). To demonstrate that this kind of behavior could have been widely spread at different periods of

time and in different types of societies, we have selected a few examples.

The oldest example is probably that of the engraved ostrich eggshells from the site of Diepkloof (South Africa), where 270 engraved fragments have been recovered from archaeological levels dated to the Middle Stone Age, around 60,000 years ago. The repertoire of forms is simultaneously very restricted in geometric terms (to parallel and perpendicular straight lines), and highly varied in their combination (Fig. 10). The researchers who studied this fascinating assemblage (Texier et al., 2010) have come to the conclusion that these designs, engraved on eggshells that served as containers, followed a set of relatively strict rules that were the product of a social code, but left significant opportunity for the personalization of these markings by certain groups or individuals. This system appears to have been part of a cultural tradition that could have lasted several thousands of years, over the course of which an inevitable evolution of form would have occurred. However, in the actual state of knowledge, very few examples are known outside of Diepkloof and this tradition appears to concern a restricted group.

Another example, much more recent, is maker's marks on Gallo-Roman pottery from a site in the department of Moselle (France). A motif made of concentric circles was used by all the potters of the workshop and imprinted on the ceramics (Delort, 1948), but each potter possessed a unique variant based on this motif, and each of these marks only varied in terms of small details, such as the number of impressed dots (Fig. 11).

An even more recent example comes from the Guild system (Fr: *compagnonnage*) that was particularly developed in France during the 19th Century. Guild members were apprentices who traveled the countryside in order to learn a craft under the tutelage of an experienced master. These craftspeople could recognize one



Fig. 9. Anthropomorphic representations from the Paleolithic bearing markings that could be interpreted as scarifications. A: Hohle Fels (Aurignacian) (Thilo Parg/Wikimedia Commons); B: Hohlenstein-Stadel (Aurignacian) (Thilo Parg/Wikimedia Commons); C: La Marche (Magdalenian) (after J. Airvaux); D: Scarification (Congo).

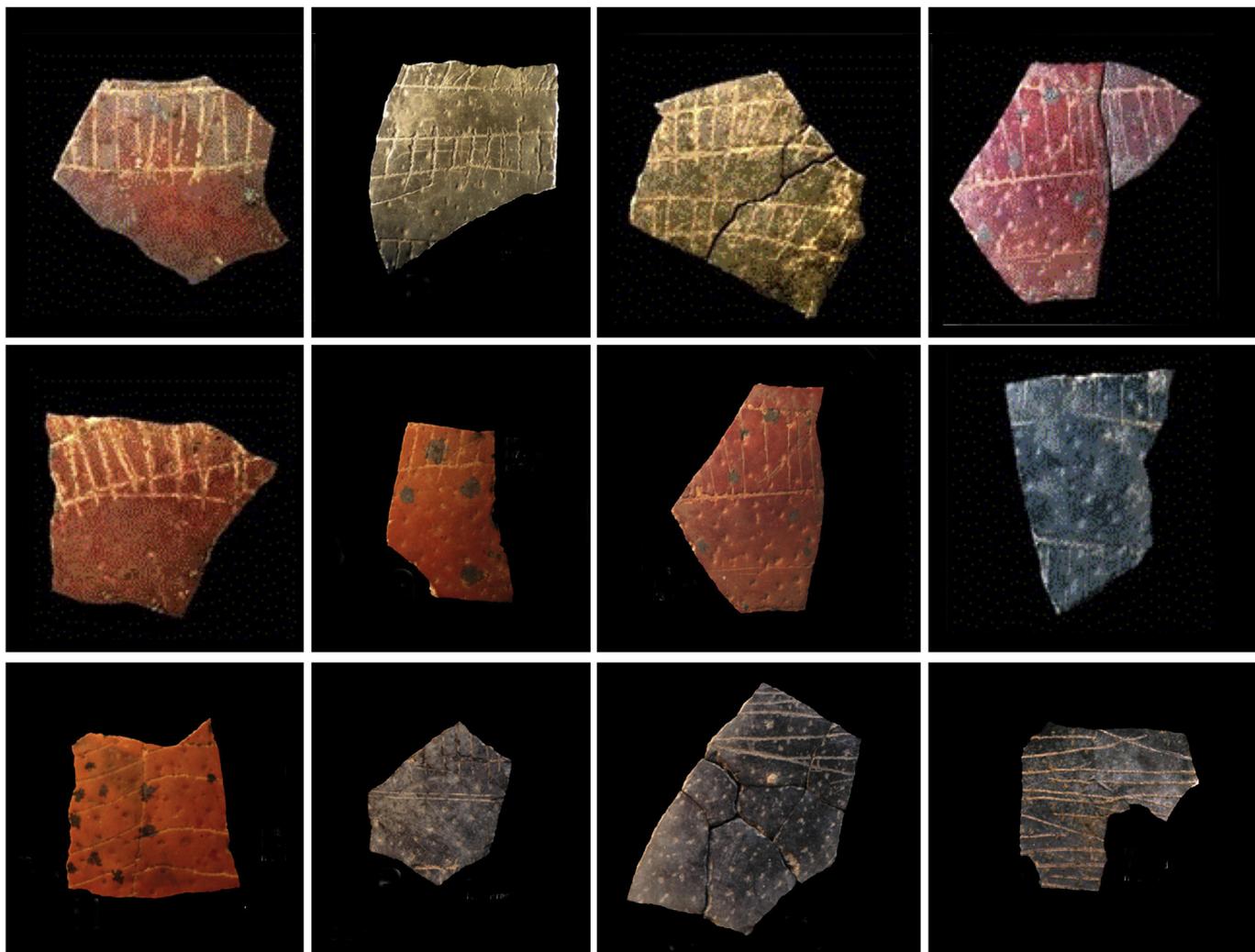


Fig. 10. Engraved Ostrich Eggshells from Diepkloof Rock Shelter (South Africa), ca. 60,000 BP (after Texier et al., 2010).

another by sartorial details and marks distinct to each discipline. From a standard model, each craftsperson designed his/her own variant by which s/he could be identified. Hundreds of such marks can be found closely nestled against each other in a crucial pilgrimage site for *compagnons* (Fig. 12). In this example, all of the marks are different, but based on a distinct horseshoe motif that indicated a specific community: the *Compagnons du Devoir*.

## 6. Conclusion

The few prehistoric, historic, and ethnographic examples that we have provided above indicate that social groups and communities of practice have frequently used graphic systems to identify their members through *marks of distinction*, and that these codified marks sometimes constitute highly complex semiological systems. All of the examples cited above have a twofold pattern: they are based on a common graphic motif (acting as a marker for the whole group) from which a large number of distinctive variants may be derived in order to identify different subgroups of the community (or persons). Such process is the expression of the same need shared by all human groups to employ a system of social mediation. The recurrence and similarity of the observed phenomena, from ostrich eggshells of the Middle Stone Age of South Africa to the

distinctive marks of the 19<sup>th</sup>-century *compagnons*, by way of the maker's marks of Roman potters and African tattoos and scarification, lead us to the conclusion that the Cantabrian quadrilateral signs studied in this paper could have had a similar function for the Paleolithic hunter-gatherers who have frequented the caves of Castillo-Pasiega-Altamira-Chimeneas.

We have no proof that these Cantabrian groups were engaged in such a process, but the quadrilateral signs they have produced support this hypothesis. These signs present an ensemble of characteristics that point in the direction of this interpretation: the numerous variants are constructed on the basis of a limited number of highly recognizable graphic elements; they are grouped, at three of the four sites, in hidden spaces or spaces that are difficult to access and removed from the panels of animals; taken altogether, the signs all differ from one another but only in small details. It is worth to note that the system appears to have been used by a relatively small group since other quadrilateral signs found in a larger area possessed different formal features (e.g. El Buxu and Las Herrerias in Asturias).

The hypothesis that Cantabrian quadrilateral signs could have served as marks of distinction that identified individuals or groups of individuals is therefore entirely plausible. Admittedly, the circumstances that motivated these peoples to inscribe such signs in

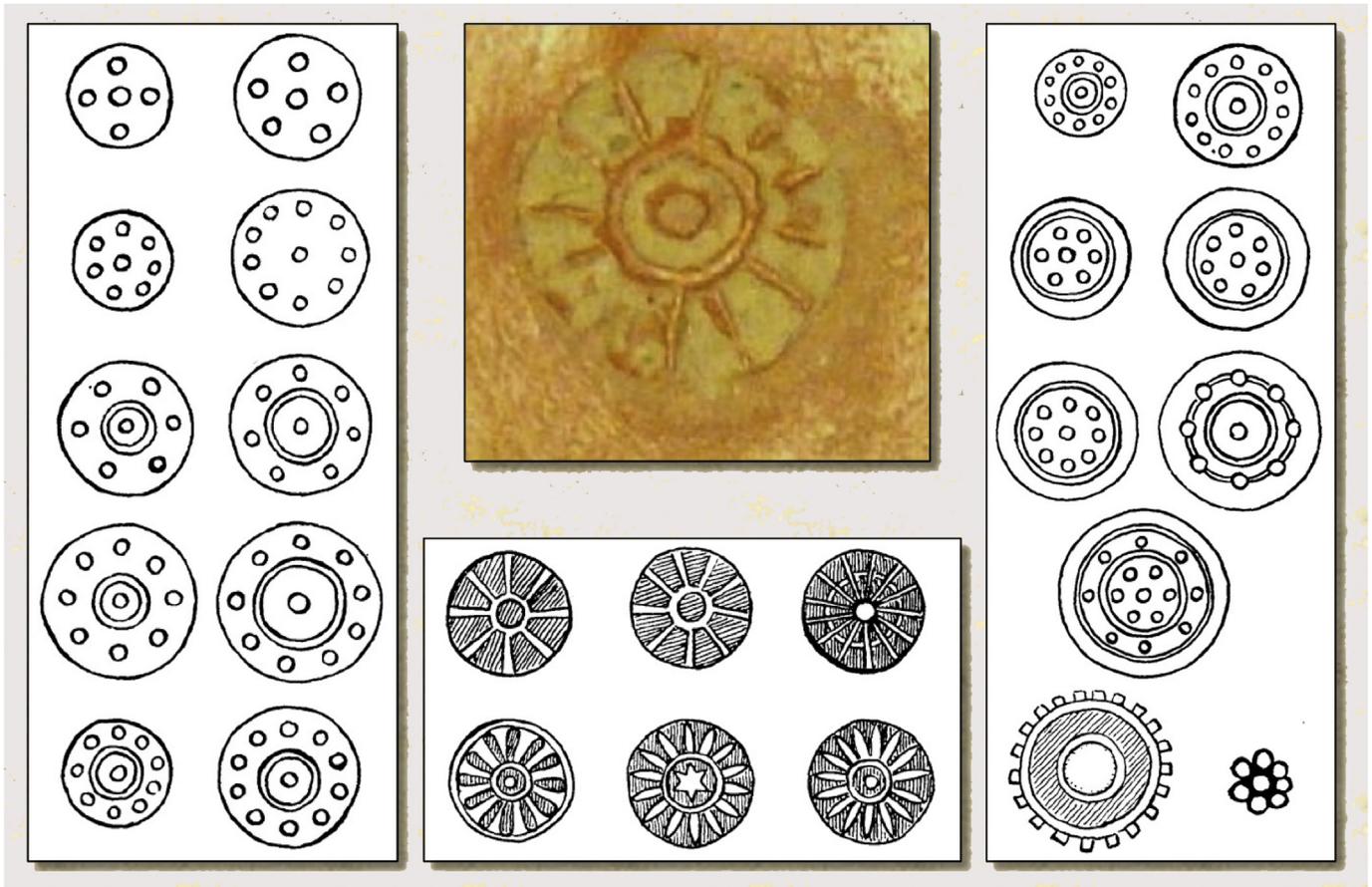


Fig. 11. Maker's marks of Gallo-Roman potters from the atelier at Satto (Moselle, France), (after Delort, 1948).

the depths of caves remain unknown and their motivations conjectural. Even so, we can offer here two potential explanatory models:

- **a collective function**, for example to mark an event of social or religious significance involving several groups such as an alliance or an important ceremony, with each group adding its



Fig. 12. Personal marks based on the horse-shoe motif made by different "Compagnons" at the basilica of St-Maximin-la-Sainte-Baume (Var, France).

mark as a form of signature and testament to their participation. We have already proposed such a hypothesis in the case of the figurative art of La Covaciella (Asturias) to explain the proximity of bison in very different styles (recognized as Pyrenean and Perigordian) in the same panel (Sauvet et al., 2014).

- **a personal function**, to celebrate an individual act or an important change in social status, or simply to leave a trace of one's presence in a place that has great traditional value. Such a gesture is evident to a certain extent in the accumulation of the *compagnons'* marks that can still be seen in a prestigious place of strong cultural resonance like a basilica.

### Acknowledgments

This work was carried out within the framework of the ANR "Prehart: The arts of prehistory and the cultural dynamics of societies before writing" (ANR-10-CREA-001). The translation of the French manuscript was made by Claire Heckel.

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