

**THE CAVES OF CANTABRIA:
NON-FIGURATIVE CAVE ART IN NORTHERN SPAIN**

by © Dustin Riley A thesis submitted

To the School of Graduate Studies in partial fulfillment of the
requirements for the degree of

Master of Arts, Department of Archaeology

Memorial University of Newfoundland

January, 2017

St. John's Newfoundland and Labrador

Abstract

This project focuses on non-figurative cave art in Cantabrian (Spain) from the Upper Palaeolithic (ca. 40,000-10,000). With more than 30 decorated caves in the region, it is one of the world's richest areas in Palaeolithic artwork. My project explores the social and cultural dimensions associated with non-figurative cave images. Non-figurative artwork accounts for any image that does not represent real world objects. My primary objectives are: (1) To produce the first detailed account of non-figurative cave art in Cantabria; (2) To examine the relationships between figurative and non-figurative images; and (3) To analyse the many cultural and symbolic meanings associated to non-figurative images. To do so, I construct a database documenting the various features of non-figurative imagery in Cantabria. The third objective will be accomplished by examining the cultural and social values of non-figurative art through the lens of cognitive archaeology.

Acknowledgements

I would like to thank and express my gratitude to the members of the Department of Archaeology at Memorial University of Newfoundland and Labrador for giving me the opportunity to conduct research and achieve an advanced degree. In particular I would like to express my upmost appreciation to Dr. Oscar Moro Abadía, whose guidance, critiques, and continued support and confidence in me aided my development as a student and as a person. Without him this project, and my many other achievements and experiences, could not be possible. Additionally I would like to thank Bryn Tapper for introducing me to the software and procedures that brought about the various maps found in the document.

I would also like to thank the members of the Instituto Internacional de Investigaciones Prehistorias (Universidad de Cantabria, Spain) for supporting my research and allowing me access to various cave sites, cultural materials, and research facilities. Moreover, I would like Professor Manuel R. González Morales and Dr. Lawrence Strauss for arranging my accommodations abroad, introducing me to Spanish culture and customs, showing me various cave sites and the means to visit them, and allowing me to volunteer in the laboratory analysis of cultural materials from the El Miron cave site.

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List of abbreviations

Assoc. - Association

ca. - *circa*

Grav. - Gravettian

i.e. - *is est*

km - kilometers

m - meters

M.A. - Master of Arts

Magdal. - Magdalenian

NLH - Negative Left Hand

NRH - Negative Right Hand

Polyc. - Polychrome

PLH – Positive Left Hand

PRH – Positive Right Hand

Solut. - Solutrean

U.N.E.S.C.O. – United Nations Educational, Scientific, and Cultural Organization

Chapter 1

Introduction

1.1. Presentation, objectives, and structure

The Upper Palaeolithic is an extraordinary time period in our species history. The archaeological record in Western Europe is one of the most fruitful of this era. Along with various tools and crafts, Western Europe is home to a definitive and unique symbolic tradition, including ornaments, statuettes, carvings, and rock representations (Conkey 1987: 413, 1989: 135-136; Marshack 1976; Mellars 1991; Mithen 1994: 32, 1996: 154-156; Moro Abadía & González Morales 2013: 276). These representations, especially rock images, are primarily found in the caves of Southern France and Northern Spain (Bahn & Vertut 1997; Mellars 2009; Renfrew 2009; Ucko & Rosenfeld 1967). The ancient paintings, finger-flutings, engravings, and sculptures resonate with our contemporary Western culture as the motifs fit into our understandings of ‘artwork’ (Conkey 2009: 180; Mithen 1996: 155; White 2003: 20-24). While figurative representations, especially animal images, have been the object of numerous works (Alcalde del Río, Breuil, & Sierra 1911; Breuil 1905, 1952; Cartailhac 1902; Cartailhac & Breuil 1906, 1907; Peyrony 1914), ‘non-figurative’ motifs, sometimes called ‘signs’, still play a somewhat secondary role in our understanding of Paleolithic visual cultures (Moro Abadía 2015). As a matter of fact, understanding the meaning of non-figurative images

has historically not been the main objective of archaeologists (see, however, the works by Leroi-Gourhan 1968, 1993; Raphael 1945). In this setting, it was not until the 1970's and 1980's that these images began being understood as significant and meaningful (Dowson 1989a; 1989b; Grainger 1972; Hahn 1972; Lewis-Williams & Dowson 1988; Lya 1984 Marshack 1972; Moro Abadía 2015; 1976; Smith 1982). This project looks to gain a deeper understanding of these motifs. Focusing on Paleolithic non-figurative images from Cantabria (Spain), this project seeks to provide a historical overview of the understanding of the non-figurative images, build a detailed database documenting the images and their features in this region, and ultimately look to make inferences about the cognitive processes and functions associated with the representations. This project has four main objectives:

1. To construct a holistic and detailed database of the non-figurative representations that have been documented in Cantabria, Spain.
2. To determine what non-figurative images can be considered conventional.
3. To develop inferences of those cognitive processes that may be associated with conventional non-figurative images.
4. To analyse the relationship(s) between figurative and non-figurative motifs.

The **first objective** is the main aim of this project. Due to a 20th century predilection for realism in art (Elkins 2002; Summers 1981, 1987, 2003: 15-58), the non-figurative images have traditionally received little attention from Paleolithic art specialists (Bradley

1989: 69; Lorblanchet 1989: 120; Marshack 1976; Moro Abadía 2015; Moro Abadía & González Morales 2013: 271-275; Moro Abadía, González Morales & Palacio Pérez, 2012). Non-figurative motifs in direct association with figurative representations have sometimes been omitted from academic publication (Rivière 1897: 507; Marshack 1976: 294). The aim of this project is to construct one of the first detailed databases of the non-figurative motifs in Cantabria, Spain. This is the focus of chapter 3 in this paper. The database will place the non-figurative images and their relevant information into one easily accessible data file. The database will be accessible to archaeologists and will enable different specialists to conduct various statistical inquiries into the documented representations. The construction of the database is essential in fulfilling the second objective of this project.

The **second objective** of this project is to determine the different dimensions of non-figurative images. In particular, I seek to determine the importance of conventionality in modern definitions of non-figurative images. In this sense, conventional imagery may be defined as any form of imagery that would have been familiar or recognized by the culture in which it was produced (Summers 1981; Trilling 2001: 146-183). In Paleolithic art, conventional images may be defined as images that are depicted in a particular manner that would be recognized by the members of one of several groups and communities and, therefore, that would have held meaning to the cultures that produced them (Bicho et al. 2007: 112-115; Camille 2013; Camille, Fuentes & Pinçon 2010: 147; Hayden 1993: 138; Lewis-Williams 1995: 150; Moro Abadía, González Morales & Palacio Pérez 2012: 231). If a particular image is depicted multiple times and in various locations in a concrete geographical context then we may infer that

such images would have been part of symbolic systems recognized by members various groups and communities and can thus be considered cultural conventions (Conkey 1978, 1984, 1985; Wobst 1977). The filtering tools in the database will allow us to easily determine which particular designs reoccur in various contexts. Images that are seldom seen, while we cannot deprive them of meaning or significance, cannot be classified as conventional as there is no evidence multiple people within a group would have recognized the images as meaningful. In this setting, the recurrence of images is one of the main factors determining their conventional dimension.

The **third objective** is related to the theoretical approach of this project. The history of research into the area of prehistoric symbolism shows that cognitive archaeology may be an adequate theoretical framework to approach the analysis of abstract images (Renfrew 1998; D'Errico 1998; Wynn & Coolidge 2009; Reuland 2009; Roepstorff, 2009). In this context, this project will utilize the branch of cognitive archaeology known as cognitive processualism (Abramiuk 2012: 30-33; Renfrew 1994, 1998; Wynn & Coolidge 2009). I explain this approach and method in chapter 4 in detail. In short, cognitive archaeology is a theoretical framework that allows researchers to make inferences into cognitive capacities based on explicit information (Bell 1994; Coward & Gamble 2009; de Beaune 2009; Renfrew 1982, 1994, 2009; Stout, Toth, Schick & Chaminade 2009; Wynn & Coolidge 2009). This approach will be essential in making inferences in cognitive capacities and processes associated with the non-figurative forms of representation.

Finally, the **fourth objective** of this project is to explore a number of relationships between figurative and non-figurative motifs. Almost since the beginning of Paleolithic

art research, the two forms were separated in academic interpretation (as it has been indicated by Moro Abadía 2015: 16-17; Moro Abadía & González Morales 2013: 277). In fact, while most figurative motifs were traditionally interpreted as monumental works of art embedded with intelligent meaning (Breuil 1905: 105; 1952: 23; Cartailhac & Breuil 1906: 135; Palacio-Pérez 2013: 706), non-figurative designs were historically documented as uncomplicated and degraded figurative images (Breuil 1905; Capitan & Bouyssonie 1924: 30; Peyrony 1914: 55; Palacio-Pérez 2013: 706). The division in interpretation has led to division in discussion as almost all literature on Upper Palaeolithic representation places the images into ‘figurative’ and ‘non-figurative’ categories (Bahn & Vertut 1997; Lawson 2012; White 2003; Ucko & Rosenfeld 1967). Creating separate categories aids discussion by allowing researchers to clarify the stylistic form of their focus. However, separating the images suggests unequal value between the different forms of Paleolithic art. Additionally, archaeological and ethnographical documentation indicates that the distinction between representational and non-representational motifs was probably meaningless for Palaeolithic people (Bahn & Vertut 1997: 166-169; Forbes & Crowder 1979; Ucko & Rosenfeld 1967: 39). Despite this, the notion that the figurative style is more valuable than other representational systems has often been promoted in early understandings of Palaeolithic imagery (Moro Abadía & González Morales 2013; Palacio-Pérez 2013: 701-706; see chapter 2: early interpretations). However, symbolic differences between the two categories of motifs are likely related to our own cultural perception of style and aesthetic (White 2003: 20-24; Conkey 2009: 180; Palacio-Pérez 2013). If we agree that both forms of images carried different symbolic connotations, then the symbolic relationships between figurative and

non-figurative motifs must be explored. The project will use the database to explore associations between figurative and non-figurative motifs. If the data shows that the two types of images are generally separated from each other then we would probably be right to assume that these images correspond, in fact, to two independent categories. However, if the two forms are generally associated with each other then we can suggest that any symbolic variance between the two forms are the product of our own cultural perception.

The **structure** of this project will allow the reader to gain an understanding of the images, their historical context, and the methodology used to make inferences from the representations. Chapter 1 introduces the reader to the methodological and conceptual background required to understand the images including the representations, the spatial context, the temporal context, and the environmental context. Chapter 2 proposes a short contextual history of research relating to the Palaeolithic non-figurative images. The chapter examines the first discoveries and interpretation of cave art, explores various theories of the non-figurative images, and ends with an analysis of some current trends on archaeological thought. Chapter 3 is centered on the database. The components of the database will be explained in detail. The chapter will also provide a detailed examination of each of the 39 cave sites analysed in this project and the images that appear in them. Chapter 4 explores cognitive archaeological theory. The basis of the theory is explored, the reasoning for selecting it is explained, and how it is useful in this project is discussed. Chapter 5 will provide a number of additional insights gained from the statistical analysis of the database.

1.2. Paleolithic art research: Methodological and conceptual background

Palaeolithic Europe is a rich and unique cultural and environmental period that has intrigued scholars and the public since the beginnings of archaeological research. Although stone and bone implements have greatly enabled our understanding of Palaeolithic cultures, it is the artistic representations that have become the most popular part of the Paleolithic record. While this is certainly related to the accuracy of the cave paintings, this popularity is equally related to the notion that the paintings and representations from so long ago seem to fit perfectly well into our modern perceptions and standards of artwork (Davis 1985: 9; Conkey 1983, 1987: 424, 2010; White 2003: 20-22; Lorblanchet 2007: 98-101; Palacio-Pérez 2013). Thus an assumed aesthetic link between contemporary cultures and our Palaeolithic counterparts exists that cannot be so easily established by observing and even investigating 'primitive' aspects of their culture such as tool technology. The plethora of representational forms and qualities in Upper Palaeolithic imagery is overwhelming. Representations take the forms of paintings, engravings, bas-relief sculpture, and finger tracings and appear on a variety of mediums including small portable objects and large rock surfaces (Bahn & Vertut 1997: 104-127; Abadía & González Morales 2012: 270-272, 2013: 271-275; Ucko & Rosenfeld 1967: 38-62). Thus a variety of categories have been developed to establish particularities about groups of images (Abadía & González Morales 2012, 2013). The first and most popular categories used to classify Paleolithic images are 'mobiliary art' (or 'portable art') and parietal art (or 'rock art'). These categories are related to the portability of Paleolithic visual cultures and they have determined our understanding of Paleolithic images (Breuil

1952; Capitan 1931: 96; De Morgan 1909: 132; Déchelette 1908: 239; Laming-Emperaire 1962: 21; Leroi-Gourhan 1965; Moro Abadía & González Morales 2004, 2013; Palacio-Pérez 2013: 704-705; White 1992). Discussion on these concepts will settle the ground for further analysis of the two categories that are at the base of this work: figurative and non-figurative representations. We will examine the origins of this distinction and how this divide is particularly relevant for understanding the different interpretations of Paleolithic images.

1.2.1. ‘Mobiliary art’ and ‘Parietal art’

Archaeological documentation of Palaeolithic imagery did not commence with the impressive cave paintings. As a matter of fact, it began with the discovery of small portable objects. The first published evidence of Palaeolithic representation was made by Édouard Lartet (Bahn & Vertut 1997: 14; Lartet 1861). Born in 1801, Lartet developed a great interest in palaeontology and archaeology (Bahn & Vertut 1997: 14-16; White 2003:41-45). From 1834 onwards, he spent the majority of his life excavating and investigating cave sediments (Lawson 2012: 23). In a paper first published in 1861, Lartet provided detailed sketches of two portable objects containing representational images (Bahn & Vertut 1997: 14; Lartet 1861). One is a broken but perforated antler tine from the cave of Massat. This object contains the engraving of a bear's head. The other piece is a split reindeer bone from the Grottes de Chaffaud. This object contains two engraved hinds (Lartet 1861: 13). While these were the first objects of decoration of the Upper Palaeolithic published, there is no discussion of them within the paper (Lartet 1861;

Lawson 2012: 24). Lartet's future research was funded by Henry Christy, a philanthropist, ethnologist, and London banker (Bahn & Vertut 1997: 14; Moro Abadía 2015: 4). During the period from 1862-1863 Lartet and Christy sent out to investigate the site of *Les Eyzies* and a number of other cave and rock art sites in the Vézère Valley of Southwest France (Bahn & Vertut 1997: 14; Lawson 2012: 25; White 2003:45; Moro Abadía & González Morales 2013: 276). The results of their excavations, including engraved animals on hard rock and various animals scratched into reindeer antler, were made public in an 1864 publication (Braun & Palombo 2012: 62; Lartet & Christy 1864; Moro Abadía & González Morales 2013: 276; Palacio-Pérez 2013: 693). In fact, this is the first paper in which an explicit explanation for the appearance of decorated objects is provided (Moro Abadía & González Morales 2004: 329; Ucko & Rosenfeld 1967: 117). With the publication of Lartet 1861 and Lartet & Christy 1864, decorated objects became an indisputable characteristic of Palaeolithic culture (for a critical discussion on Lartet's work and an investigation of the sociocultural environment in which his publications were made see Moro Abadía & González Morales 2004, 2013).

The types of images found by Lartet and Christy are known as 'portable' or mobiliary art. In short, mobiliary art refers to any artifact that is small and light enough to be carried on a person that has been adorned with an artistic image (Lawson 2012: 4; Moro Abadía & González Morales 2008: 532, 2012: 270-272; 2013: 272; Palacio-Pérez 2013: 704). The wide range of artifacts that qualify as portable art, including tools, statuettes and ivory carvings, engraved bones and stones, personal ornaments, and slightly modified natural objects, demonstrate that the mobiliary artwork category consists of both utility items and purely aesthetic objects (Bahn & Vertut 1997: 86-103; Conkey 1987:

413; Moro Abadía & González Morales 2013: 272-273; Moro Abadía & Nowell 2015; Palacio-Pérez 2013: 704; Volkova 2012; White 2003). Despite the abundance of evidence of representation found upon portable artifacts, representation upon the cave walls were not detected until many years later.

It was not until 1879 that Marcelino Sanz de Sautuola, a lawyer and prominent land owner with interest in geology, botany and archaeology, suggested the artistic capacity of Palaeolithic people (Bahn & Vertut 1997: 17; Sanz de Sautuola 1880; Moro Abadía 2010: 4; Moro Abadía & González Morales 2004: 325; Rosengren 2012: 41). De Sautuola had been, allegedly, informed of a large cave labyrinth on the hill Altamira by a local farmer, Modesto Cubillas in 1868 (Bahn & Vertut 1997: 17; Freeman 2009: 287-288, Moro Abadía 2010: 4). After being inspired by the Paris exhibition of Palaeolithic bone and antler carvings in 1878, de Sautuola was able to find an abundance of Magdalenian remains in his 1879 excavation at Altamira (Sanz de Sautuola 1880; Ucko & Rosenfeld 1967: 31-32; White 2003: 45). During this fieldwork de Sautuola spotted a variety of animalistic paintings on the cavern walls of Altamira (Moro Abadía & Pelayo 2010: 4; Ucko & Rosenfeld 1967: 31-32; White 2003: 45). Sanz de Sautuola was impressed by the astonishing paintings. De Sautuola suggested two lines of evidence indicating that the parietal artwork could be, in fact, Paleolithic in age. In the first place, he identified the similar style of the parietal art and the portable Palaeolithic animal carvings and engravings discovered at the entrance of the cave (Sanz de Sautuola 1880: 21). In the second place, he also realized that many of the depicted species had gone extinct and believed that only people that had lived alongside these animals would be able to accurately depict them on the cave walls (Moro Abadía 2010: 4; Moro Abadía &

González Morales 2004: 325; Sanz de Sautuola 1880: 21 Ucko & Rosenfeld 1967: 31-32, 38). These images found by de Sautuola, and other rock images on immovable rock surfaces, were soon termed ‘parietal art’ (Bahn & Vertut 1997: 105; Moro Abadía & González Morales 2013: 273).

The mobiliary/parietal divide is deeply embedded within the academic literature (Breuil 1952; Capitan 1931: 96; De Morgan 1909: 132; Déchelette 1908: 239; Laming-Emperaire 1962: 21; Leroi-Gourhan 1965; Lorblanchet 1995: 13, 21; Moro Abadía 2015; Moro Abadía & González Morales 2013; Moro Abadía, González Morales & Palacio Pérez 2012; Ucko & Rosenfeld 1967: 8). An unfortunate side effect of this conceptualization is that it separates the representations in a fashion that likely did not exist to the Palaeolithic cultures (Moro Abadía & González Morales 2004: 322; Sieveking 1979: 7-8). Moreover, the result of this separation has been that the cultural significance of mobiliary pieces has often been overlooked (Moro Abadía & Nowell 2015; Moro Abadía & González Morales 2004; 2012: 270-272; 2013: 275). The organizational principals used to develop these categories are only one of many ways in which the Palaeolithic images can be coordinated (Moro Abadía & González Morales 2004; 2012: 271). Furthermore this division of representation has become fixed in Palaeolithic literature and it would be difficult to establish new generalized categories (Bradley 1997: 4-5; Moro Abadía & González Morales 2004: 323; 2012; 2013). While such a division is problematic when understanding objective aspects of the Palaeolithic people, it does succeed as a short-hand to quickly organize the motifs or to bring focus into what type of artifact is being discussed (Bradley 1997: 7; Moro Abadía & González Morales 2013: 270). These categories are ultimately useful in categorizing the size and location of the

art. The portable and parietal representations have been broken down into further categories to describe what the images are portraying.

1.2.2. Figurative art versus non-figurative art

The diversity and variety of representations is a key component to determine their possible meanings. Just as there are categories to distinguish the placement of the imagery there are also divisions that refer to what kind of motif is depicted. In this context, two essential categories in the interpretation of Upper Palaeolithic images are ‘figurative’ and ‘non-figurative’. Although there are many exceptions and examples of divergence, these two general categories have typically been used to broadly classify Upper Palaeolithic representations.

Figurative representations include any form of image that represents a real world entity (Lawson 2012:4; Moro Abadía 2015; Moro Abadía & González Morales 2013: 277). In the Upper Palaeolithic this category is mostly comprised of animalistic representations (Forbes & Crowder 1979: 350; Moro Abadía & González Morales 2012: 270; Ucko & Rosenfeld 1967: 38). While different regions and sites show varying patterns (Conkey 1983; Hahn 1984; Lawson 2012: 5), the horse, which makes up approximately 27.6% of the representations (Sauvet & Włodarczyk 2001-2001: 221), is the most common image of the Upper Palaeolithic (Leroi-Gourhan 1968; Moro Abadía & González Morales 2012: 270; Ucko & Rosenfeld 1967: 83-87). The bison, tallying approximately 20.6% of the representations (Sauvet & Włodarczyk 2001-2001: 221), is a close second (Leroi-Gourhan 1968; Moro Abadía & González Morales 2012: 270; Ucko

& Rosenfeld 1967: 87-89). Though it is generally accepted that the horse and bison are the most reoccurring figurative forms depicted in the Upper Palaeolithic, it is important to point out that there are important geographical and temporal variations (Bahn & Vertut 1997; Clottes 1989; Forbes & Crowder 1979: 350; Leroi-Gourhan 1968; Moro Abadía & González Morales 2012: 270; Sauvet & Włodarczyk 2000-2001). Other figurative images include wild boar, deer, stags, hinds, elephants, ibex, mammoths, aurochs, reindeer, lions, rhinoceros, wild oxen, musk-ox, bears, fish, molluscs, and birds (Bahn & Vertut 1997: 144-157; Clark & Straus 1983: 142; Lawson 2012:5; Ucko & Rosenfeld 1967: 80-94). Flora is mainly absent (Bahn & Vertut 1997: 156) and people are rarely represented in Upper Palaeolithic art (Bahn & Vertut 1997: 166; Moro Abadía & González Morales 2012: 270; Ucko & Rosenfeld 1967: 97). This being said, there are some examples of anthropomorphic images in which human and animal features are combined (Bahn & Vertut 1997: 165-167; Ucko & Rosenfeld 1967: 96-97, 1972; see Reed 1976 for a critical analysis of anthropomorphic images). The famous example from *Les Trois Frères* has often been described as a 'sorcerer' (Breuil 1952: 176; Reed 1976: 137; Peake 1922: 27; van Bork-Feltkamp 1955: 176). This Figure contains the tail and back curvature of a horse, bear-like forepaws, an owl-like head, the antlers of a reindeer, and human legs (Bahn & Vertut, 1997: 165-166; Ucko & Rosenfeld 1967: 96-97, 204-206). Other examples of possible anthropomorphic representations in the Upper Palaeolithic include the human-frog engravings of Los Casares (Breuil 1952: 24; Ucko & Rosenfeld 1967: 200), and a painted bison standing upright on human legs found on a hanging rock at Chauvet Cave (Bahn & Vertut 1997: 166; Chauvet, Brunel Deschamps & Hillaire 1995: 24). Along with the anthropomorphic images are representations that appear to be the

amalgamation of multiple species (Bahn & Vertut 1997: 135-137; Ucko & Rosenfeld 1967: 95-97). Such composite figures can be seen at Trois Frères as bear-wolf and bear-bison representations (Bégouën & Breuil 1958: 77), at Roc de Sers as a bison-wild boar representation (Delporte 1984), or at Pech Merle as ‘antelopes’ that are seemingly comprised of horse, caprinae, and megaloceros (Lorblanchet 1989: 118; Ucko & Rosenfeld 1967: 96). Despite the diversity of Palaeolithic imagery, it was the highly realistic animalistic representations that dominated archaeological interest for the most part of the 20th century (Bradley 1989: 69; Breuil 1905, 1952; Cartailhac & Breuil 1906, 1906a; Lorblanchet 1989: 120; Marshack 1976; Moro Abadía 2015; Moro Abadía & González Morales 2013: 275; Moro Abadía, González Morales & Palacio Pérez 2012: 223-229; Raphael 1945). While non-figurative motifs were often briefly mentioned (Breuil 1905; Capitan 1931: 112; Capitan & Bouyssonie 1924: 30; Peyrony 1914: 55; Raphael 1945: 14-16), it was not until the 1960s when the symbolic value of representations that did not pertain to real world entities began to be fully appreciated and explored (Forbes & Crowder 1979; Laming-Emperaire 1962; Leroi-Gourhan 1964, 1965, 1966, 1967; Marshack 1972; 1976; Moro Abadía & González Morales 2013: 272-273; Moro Abadía, González Morales & Palacio Pérez 2012: 230-236).

Non-figurative representations include any type of image that does not resemble an identifiable real world entity (Breuil 1906: 1; Lawson 2012: 5; Luquet 1926; Moro Abadía & González Morales 2013: 277; Moro Abadía, González Morales & Palacio Pérez 2012: 230). Abstract images come in a myriad of forms and can range from simple scrawls to complex geometric motifs (Bahn & Vertut 1997: 166; Forbes & Crowder 1979; Leroi-Gourhan 1993: 379-384; Ucko & Rosenfeld 1967: 100, 216-217). These

strange representations have often been referred to as 'signs' or 'symbols' (Bahn & Vertut 1997: 166-169; Laming-Emperaire 1962; Leroi-Gourhan 1958, 1958a, 1967: 513; Lorblanchet 1989; Martin 2007; Moro Abadía 2015: 13; Raphael 1945: 14-15; Ucko & Rosenfeld 1967: 100, 1972: 162; White 2003: 97-98). Commonly occurring non-figurative forms include geometric designs, dots, lines, zigzags, circles, grids, triangles, rectangles, and spirals (Dowson 1989, 1989a; Forbes & Crowder 1979; Leroi-Gourhan 1993: 382-383; Moro Abadía 2015: 13; Ucko & Rosenfeld 1967: 100, 216-217; White 2003: 97-98 Whitley 2005: 44). Although non-figurative images were overshadowed in early research, they are now increasingly recognized for their importance to the archaeological record and the cultures that produced them (Conkey 1978, 1980, 1981, 1984; Dowson 1989, 1989a; Laming-Emperaire 1962; Leroi-Gourhan 1967; Marshack 1972; Moro Abadía 2015; Moro Abadía, González Morales & Palacio Pérez 2012; Wobst 1977). Ethnographic studies on non-western art have shown non-figurative forms such as symmetrical designs, geometrical forms, and conceptual images to be highly symbolic (Boas 1955; Faris 1972; Moro Abadía & González Morales 2013: 284-285; Morphy 1990; Myers 1991; Strathern & Strathern 1971; Turner 1984; White 2003: 24-30). The symbolic importance of non-figurative images is made evident by the documentation of recurring images across geographical regions (Bahn & Vertut 1997: 168; Conkey 1984; Mac Curdy 1924). Examples of this include the 'quadrangle' sign found 20 kilometres apart from the El Castillo cave complex (El Castillo, La Pasiega, and Las Chimeneas) to Altamira (Bahn & Vertut 1997: 168), the 'tectiform' sign found at various cave sites, including Font de Gaume and Bernifal, in the Dordogne (Capdeville 1986), and the 'aviform' sign found 35 kilometres apart from Cougnac to Pech Merle, and 165

kilometres away at Placard (Bahn & Vertut 1997: 168; Clottes, Duport & Ferugilo 1990). The occurrence of these images across geographical regions seems to indicate that many of these motifs can be interpreted as conventions of a symbolic language (Bahn & Vertut 1997: 168; Conkey 1984, 1985; Forbes & Crowder 1979; Laming-Emperaire 1962; Leroi-Gourhan, 1967: 80; Rowntree & Conkey 1980: 465-147; White 2003: 97-98). Following a long standing classification tradition of non-representational imagery (see the works by Alpert 2008:5-6; Bahn & Vertut 1997: 167; Breuil 1905, 1906; Dowson 1989, 1989a; Forbes & Crowder 1979; Giedion 1962: 93-98; Leroi-Gourhan 1984, 1968: 513-516, 1993: 182-184, 370-375; Lorblanchet 1989; Mac Curdy 1924: 44-48; Martin 2007: 149-154; Ucko & Rosenfeld 1967: 99-100; Uomini 2009; White 2003: 68-71, 97-98; Whitley 2005: 44), the non-figurative forms that have been analysed in this project are barbed, blotched, claviform, circle, dot (Large), dot (Small), geometric form, half-circle, line, negative left hand stencil, negative right hand stencil, oval, positive left hand stencil, positive right hand stencil, quadrangle, triangle, vulva, and zig-zag images. Criteria to determine each image are provided in chapter three.

1.3 Representational Techniques

The archaeological record demonstrates Palaeolithic people's aptitude for an expanded and diverse symbolic culture through the creation of representations on mobile objects and larger rock surfaces. The Upper Palaeolithic record indicates their propensity to create representations by using a plethora of styles and techniques including outline contour line, cross-contour line, parallel hatching, cross hatching, cameo and intaglio

marking, modeling, carving in relief and in the round, champlevé carving, linear perspective, twisted perspective, optical perspective, areal perspectives, smudging, shading, overlapping, stenciling, foreshortening, polychrome paintings, use of friezes, and the use of plane and void perspective (Alpert 2008: 1-3; Bahn & Vertut 1997: 121-125; Breuil 1907: 14; Capitan 1931: 111; Laming-Emperaire 1962: 56-57; Leroi-Gourhan 1993: 390-393; Peyrony 1914: 83; Quiroga & Torres 1880/1976: 266). In general, the images that appear on the cave walls can be categorized in four broad categories: finger-flutings, engravings, bas-reliefs and sculptures, and paintings (Bahn & Vertut 1997: 105-121; Lawson 2012: 7; Moro Abadía & González Morales 2013: 272; Ucko & Rosenfeld 1967: 50). These categories are not mutually exclusive as many representations amalgamate multiple techniques (Corchón et al. 2014: 72; Jordá Pardo, Pastor Muñoz & Ripoll López 1999; Ucko & Rosenfeld 1967: 50). These classes will be briefly explored below with the exclusion of bas-reliefs as these works rarely depict non-figurative forms (Ucko & Rosenfeld 1967: 100). There will be an emphasis on the paintings as it is a more complex style of representation, requires a great deal of preparation, and is the most documented form of application of the non-figurative motifs in Cantabria (see Figure 1).

Finger-fluting is the act of using one's fingers to create a representation on a fine cave surface (Bahn & Vertut 1997: 106; Ucko & Rosenfeld 1967: 54; Van Gelder 2014: 141; Van Gelder & Sharpe 2006: 281, 2009: 326). It is one of the simplest forms of representation, as it requires no tools or great effort on the part of the creator. Many cave walls are lined with a fine clay or mondmilch that requires nothing more than minor pressure to make an impression or tracing (Bahn & Vertut 1997: 106; Ucko & Rosenfeld 1967: 53-55; Van Gelder 2014: 141). To produce a finger-fluted design a person could

simply place their fingers into the soft clay and trace an image (Ucko & Rosenfeld 1967: 54). While many finger-fluted images, such as those found in Pech Merle cave (Lorblanchet 1992: 451) and Rouffignac cave (Marshack 1977; Van Gelder & Sharpe 2006), represent non-figurative spirals and lines with no detectable pattern or purpose (Plassard 1999: 62; Van Gelder 2014: 154; Van Gelder & Sharpe 2006), there are examples of animal images traced in the clay of the cave walls such as the mammoths at Rouffignac (Plassard 1999; Van Gelder 2014: 148), the bovine head found in Altamira (Bahn & Vertut 1997: 106), or the various animals at Gargas (Breuil 1952: 39; Ucko & Rosenfeld 1967: 54). Overall, finger flutings make up 1.4% of the non-figurative images documented in this project (see Figure 1).

Engraving is one of the more popular techniques in Upper Palaeolithic representation. Engravings are found in great abundance on portable artifacts (Bello, De Groote & Delbarre 2013; Corchón Rodríguez 1991; d'Errico & Carmen 1994; Güth 2012; Marshack, 1971; Martin 2007: 171; Utrilla, Mazo, Sopena, Martínez-Bea & Domingo 2009) and are commonly seen on cave/rock walls (Bahn & Vertut 1997: 107; Corchón et al. 2014; González Sainz & Gárate Maidagán 2006; Jordá Pardo, Pastor Muñoz & Ripoll López 1999; Martin 2007; Villaverde, Cardona & Martínez-Valle 2009). Engravings can be made in a variety of forms depending on a number of factors, such as the nature of the rock and the tools used by the artists. Incision can range from the fine to broad deep lines (Bello, De Groote & Delbarre 2013: 2471-2473; d'Errico & Carmen 1994: 189; Martin 2007: 147; Ucko & Rosenfeld 1967: 50-52) and scratching and scraping were also used (Bahn & Vertut 1997: 107; Bello, De Groote & Delbarre 2013: 2471). Engravings were made by the use of a variety of tools including burins, simple blades, flakes, and backed

bladelets (Bahn & Vertut 1997: 107; d'Errico & Carmen 1994: 188; Ucko & Rosenfeld 1967: 51-52). Some authors have suggested that, for a skilled or experienced artist, the production of engravings was not a time consuming endeavour (Bahn & Vertut 1997: 121; Couraud 1982; Lorblanchet 1980). Engravings make up a large portion of the representations found on the cave walls and due to the difficulty to see these types of forms it is likely that many more are yet to be discovered. Overall, engravings make up about 5.6% of the non-figurative motifs documented in this project (see Figure 1).

Painting has been often considered as the queen of prehistoric arts. Paint was typically added to the natural surface of the caves to produce a representational or non-representational image. However, Palaeolithic painters also added minimal paint to emphasize a wall surface and on rare occasion provided multiple colours to create distinct polychrome and bichrome images such as those seen in Altamira, Tito Bustillo, Ekain, Font de Gaume, and Labastide (Bahn & Vertut 1997: 121; Breuil 1907: 14; Laming-Emperaire 1962: 56-57; Lawson 2012: 7-8; Ucko & Rosenfeld 1967: 58). Painting techniques in the Upper Palaeolithic were varied. Experiments suggest that some painters used brushes made of animal hair and chewed vegetable fiber (Couraud 1982: 4). Other techniques to produce Palaeolithic images included applying paint with hands or fingers, blowing or spitting paint on the wall through bone or flute, using 'crayons' composed of raw pigments and prepared painting matter, and possibly attaching a brush to the end of a pole to decorate the ceiling (Clottes 1993: 227-229; Chalmin, Menu & Vignaud 2003: 1594; Bahn & Vertut 1997: 117-125; Leroi-Gourhan 1963: 6; Ucko & Rosenfeld 1967: 58-59). The surfaces were sometimes prepared by being scraped down until they functioned as an ideal canvas and to provide contrast (Altuna & Apellániz 1976; Bahn &

Vertut 1997: 122-123; Chauvet, Brunel Deschamps & Hillaire 1995). One of the aspects that separate paintings from other forms of representation is the amount of preparation required to produce the paints. Although representations such as bas-relief and sculpture require a great deal of skill and preparation, painting is the only technique in which an intuitive process is required to develop the material that would be used to create the representation.

Palaeolithic cultures could not directly obtain a form of paint ready to be applied to the cave walls. Thus the preparation procedures and techniques used to develop Palaeolithic paint has become an area of archaeological inquiry (Chalmin, Menu & Vignaud 2003; Clottes 1993; Clottes, Menu & Walter 1990). Paint samples analysed with techniques such as scanning electron microscopy, x-ray diffraction, and proton-induced x-ray emission have revealed that painting formulas were comprised of a pigment, an extender, and a binder (Clottes 1993; Chalmin, Menu & Vignaud 2003; Lawson 1012: 147). A plethora of materials were used as pigment, extending agents, or binding agents to create a variety of different 'recipes' (Chalmin, Menu & Vignaud 2003: 1596; Clottes 1993: 229-234; Clottes, Menu & Walter 1990). Mixes would ultimately be grinded into liquid or paste and in some instances even heated to alter effect (Bahn & Vertut 1997: 115, 118). Pigment determined the colour of the paint. Due to the natural materials available in the Palaeolithic environment the cultural representations were limited to a small colour scheme comprised of red, yellow, brown, black, and in rare cases white (Bahn & Vertut 1997: 115). Reds, yellows, and browns can be traced to naturally occurring ochre (Hradil, Grygar, Hradilova & Bezdicka 2003: 227-231). Ochre is a natural clay used to make earth colours and the particular colour is determined by the

presence iron oxyhydroxides and oxides such as goethite or haematite (Hradil, Grygar, Hradilova & Bezdicka 2003: 227). While yellows and browns were likely developed from natural ochre, reds may have come from a natural red, heating yellow ochre, or red haematite (Bahn & Vertut 1997: 114; Chalmin, Menu & Vignaud 2003: 1591; Clottes 1993: 229; Helwig 1997: 181-183; Lawson 2012: 147; Schmandt-Besserat 1980). The blacks, often used for outline, were created from black manganese oxide or charcoal (Chalmin, Menu & Vignaud 2003: 1594-1595; Clottes 1993: 229; Lawson 2012: 147). Common extending agents included biotite with feldspar or talc (Chalmin, Menu & Vignaud 2003: 1591). Adding an extending agent to the mix would offer an adhesion property and create a larger quantity of useable paint, aid in the spreading of paint, provide darker hues, and avert cracking paint upon drying (Bahn & Vertut 1997: 116; Clottes 1993: 226-227; Lawson 2012: 147). Finally binding agents would be added to the mix to give the paint consistency and fluidity (Clottes 1993: 226-227). Binding agents included water and organic material such as blood (Chalmin, Menu & Vignaud 2003: 1591; Lawson 2012: 147). The process of developing pigment clearly demonstrates ingenuity, creativity, preparation, planning, and importance of symbolism to the Upper Palaeolithic cultures. Overall, painting comprises of 83.2% of the non-figurative images documented in this project (see Figure 1). It is important to stress that this percentage is probably biased. As a matter of fact, on the surface of a cave, certain representations (such as engravings) are more difficult to detect than others (such as paintings) for a number of reasons related to the visibility of images on the wall of the cave.

In Figure 1 I added an additional category entitled 'archaeological sketch'. I would like to comment now some methodological limits of my work. Unfortunately, no

photographic evidence is available for much of the parietal art analysed in this project. Such images are only documented through the artistic renderings of investigators. While the majority of these sketches are highly detailed, this type of documentation presents a number of problems. Some issues, such as an erroneous interpretation, mistakes in the copy, and artistic license emerge in the initial interpretation of the rock art and the producing the sketch (Clottes 1989: 45-47). This interpretive problem is illustrated by the fact that there are eighteen different published versions of an engraved human head from the Grotte du Placard (Bahn & Vertut 1997: 54; Laurent 1963 1971), five different reproductions of an engraved reindeer from Les Combarelles (Bahn & Vertut 1997: 54; Tosello 1983: 285), and roughly fifty different reproductions of the famous mammoth of La Madeleine (Bahn & Vertut 1997: 54; Bouvier 1977: 54-57). Researchers do not only disagree on the stylistic details composing an image but also on the type of species depicted (Bahn & Vertut 1997: 134-135; Clottes 1989: 45-47; Ucko & Rosenfeld 1967: 95). Furthermore, archaeological sketches are not free from artistic license. This is made evident in some of Henri Breuil's sketches in Altamira in which he left out many engraved lines (Bahn & Vertut 1997: 49-50; Freeman, Bernaldo de Quirós & Ogden 1987: 206-208, 233-234). Here it can be concluded that all artistic reproductions of Palaeolithic imagery will contain a degree of subjectivity and deviance from the parietal reality (Bahn & Vertut 1997: 49-56). For these reasons it is necessary to note that some of the images being analysed in this project are being viewed as second hand sketches.

Some other additional problems become evident when interpreting the archaeological sketches. These include a loss of context and the third dimension and difficulty in distinguishing paintings from engravings and flutings. Essentially it is an

interpretation of an interpretation that has been removed from its cave context. The addition of the category 'archaeological sketch' is then necessary to avoid validating and quantifying uncertainties that arise when interpreting these sketches. I am uncertain of the techniques used to produce the representations that have been documented in the sketches and will not risk placing them into the established categories of technique. Despite this effort, a claim that the table is fully exempt from subjectivities and that it expresses the Palaeolithic reality would be short sighted. A current issue with quantifying techniques is that, due to the nature of the technique used, some images are easier to spot than others. For example, paintings are much more obvious than engravings or flutings. The result is that the quantification is skewed because a larger percentage of one type of image has been documented than another. Additionally many sites have yet to be discovered and others have not survived into the archaeological record (Bahn & Vertut 1997: 45).

Finally, the possibility of misidentifying one technique for another, based on my own bias and susceptibility to mistakes, should not be ignored. Like the researchers before me, I am not exempt from any of the issues of interpretation stated in the previous paragraph. The problem with tables such as the various graphs throughout this paper is that they present subjective or uncertain data in a seemingly objective way. For these reasons Figure 1, as well as the other tables presented in this document, should not be taken as an objective reality of Palaeolithic imagery but as a single interpretation, not exempt from bias and subjectivity, of the documented representations.

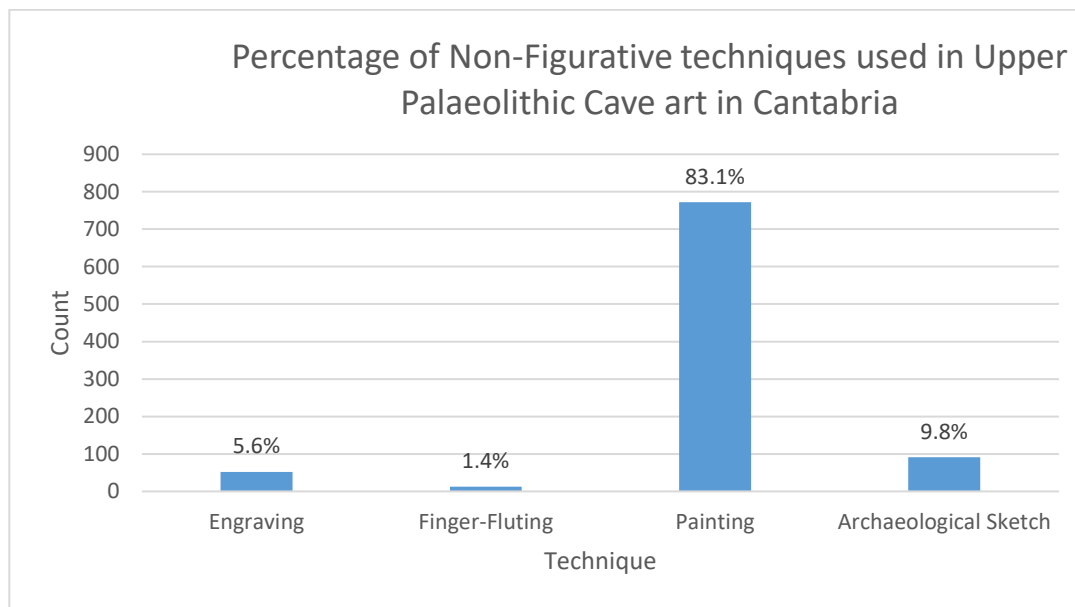


Figure 1. Percentage of non-figurative motif techniques in Cantabria

1.4. The spatial context: The Cantabrian Region

More than 300 Palaeolithic rock art sites have been unearthed in Western Europe (Bahn & Vertut 1997: 44-45; Bicho et al. 2007; Clottes 2008: 14; Lawson 2012: 155). The largest clusters of sites have been found in France and Spain (Bahn & Vertut 1997: 42-47; Bicho et al. 2007; Clottes 2008: 14; Lawson 2012: 12; Mellars 2009; Ucko & Rosenfeld 1967; 24-25). With only a few notable exceptions, the majority of the cave art systems extend from the Loire Valley of central France to the Cantabrian Mountains of Northwest Spain (Bahn & Vertut 1997: 42-47; Mellars 2009: 212; Renfrew 2009a: 1-2; Ucko & Rosenfeld 1967; 24-25, 36-37). France is home to more than 170 sites (Bahn & Vertut 1997:46; Bicho et al. 2007: 83 Clottes 2008: 14; Lawson 2012: 155), including UNESCO World Heritage site La Grotte Chauvet and Lascaux (Lawson 2012: 155, 191,

341-352). The majority of the French sites are clustered into three geographical regions. The densest cluster occurs in southwest France in the valleys of the Vézère region in the Périgord (Bahn & Vertut 1997: 42-47; Ucko & Rosenfeld 1967: 24-25, 36). The other two clusters appear near the central Rhône Valley and the Pyrénées (Bahn & Vertut 1997: 42-47; Lawson 2012:155; Ucko & Rosenfeld 1967: 24-25, 36). Political boundaries did not exist in the Palaeolithic period so the cave sites of France can be geographically linked to the sites in northern Spain. Over 150 Upper Palaeolithic cave sites have been documented in Spain (Bicho et al. 2007: 83; Clottes 2008: 14; Lawson 2012:164). The bulk of these sites are concentrated in the Northern part of the country (Bicho et al. 2007; Lawson 2012: 164; Ucko & Rosenfeld 1967: 24-25). The majority of the caves are found at low latitudes no more than 200m above sea level and are located in the narrow corridor between the Cordillera Cantabria and the Mar Cantábrico (Bahn & Vertut 1997: 42-45; Bicho et al. 2007: 86-87, 89 Lawson 2012:165; Straus 1987). This project documents and examines a total of 39 caves containing non-figurative representations distributed throughout the Spanish *Comunidad autónoma* of Cantabria (please see Figure 2).

Cantabria is a mountainous province in central northern Spain. It is bounded on the north by the Cantabrian Sea, on the south by the Cantabrian Cordillera, on the east by the western Pyrenees, and on the west by Asturias (Clark & Straus 1983: 137; Schwendler 2012: 339-340; Straus 1987a: 150, 1991: 84). With over fifty identified decorated caves, Cantabria is one of the richest regions in the world of Palaeolithic representation (Bahn & Vertut 1997: 42-45; Lawson 2012: 173; Straus 1987a: 150-151, 1992). The cave sites in Cantabria are generally distributed in to a narrow corridor between the Atlantic Ocean and the Cantabrian Cordillera (Bahn & Vertut 1997: 42-47;

Bicho et al. 2007: 89; Lawson 2012: 166; Straus 1987; Ucko & Rosenfeld 1967: 24-25; see Figure 2). Over nineteen of the sites have been classified as UNESCO World Heritage sites including Altamira, El Pendo, Covalanas, Hornos de la Peña, and the Castillo cave complex (Ontañón, García De Castro & San Miguel Llamosas 2008). The caves are home to a diverse number of Palaeolithic representations and representational styles including a wide range of animal species and a variety of non-figurative motifs. The unique and abundant archaeological record makes of Cantabria a privileged area for the analysis of Paleolithic representation.

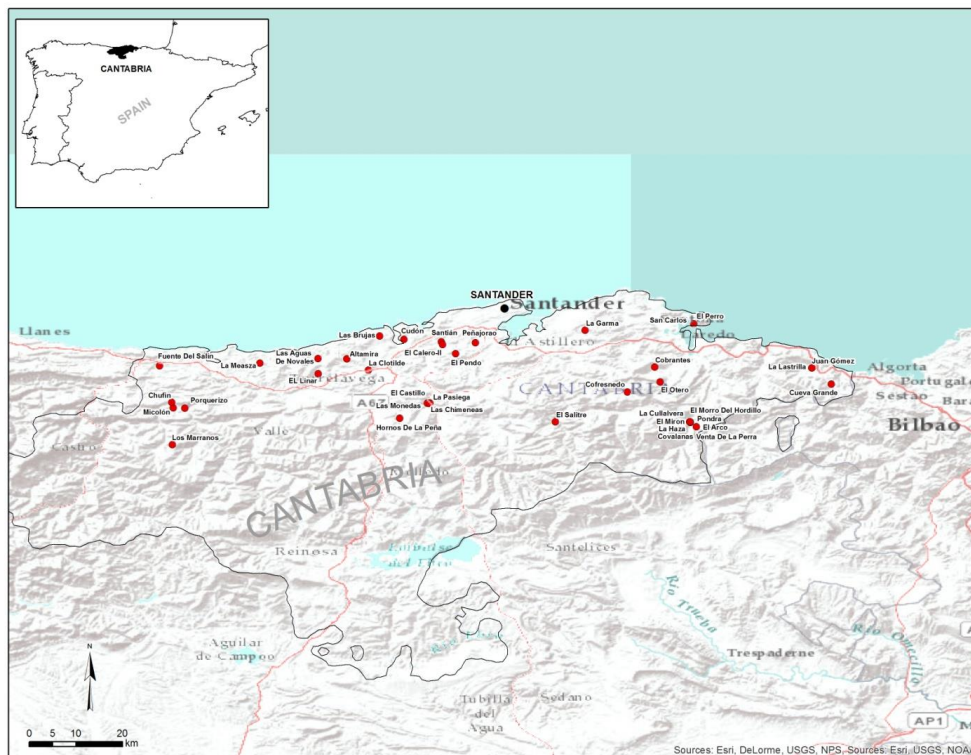


Figure 2: Distribution of caves containing non-figurative motifs in Cantabria

1.5. The temporal context: The Upper Paleolithic

The first anatomically modern humans evolved in Africa roughly 160,000-200,000 years ago (McDougall, Francis & Fleagle 2005; Rito et al. 2013; Renfrew 2008: 2042; Tattersall 2009: 114; White et al. 2003). Northern migration beginning 60,000-50,000 years ago resulted in the occupation of Eurasia just 10,000 years later (Ambrose 2001: 1752; Forster 2004; Mithen 1996: 22-23, 30; Mellars 2006; Tattersall 2009). It has been traditionally accepted that human dispersal was accompanied by apparent dramatic changes in cultural behaviour. These behaviours include innovations in tool technology and the appearance of parietal art (Bar-Yosef 2007: 5; Mellars 1991; Pfeiffer 1982; Renfrew 2009). These cultural outputs provide such a seeming contrast to previous human activities that it has been interpreted as the 'human revolution' (Pfeiffer 1982; Mellars & Stringer 1989; Renfrew 2009; Renfrew, Frith and Malafouris 2008: 1935-1936). The Upper Palaeolithic period, from *circa* 40,000 years ago to 11,000 years ago, was defined environmentally by a number of glacial retreats and advances (Bahn & Vertut 1997; Butzer 1971) and culturally by the development of new tools and technologies (Strauss 1992: 66-75) for hunting and food processing (Pike-Tay & Bricker 1993; Wojtal & Wilczynski 2015), and new forms of elaborate symbolism and artistic trends including painting, sculpture, and music (Bahn & Vertut 1997; Conard 2009; Conard, Malina & Munzel 2009; Díaz-Andreu & García Benito 2012; Lawson 2012: 69-78; Morley 2013; Ucko & Rosenfeld 1967). Four overarching cultural periods of the Upper Palaeolithic are widely recognized today: the Aurignacian, the Gravettian, the

Solutrean, and the Magdalenian. It is within this temporal framework that representations appear in the caves of Cantabria.

Emerging ca. 40,000 years ago and ending roughly 28,000 years ago in Western Europe, the **Aurignacian** record displays a sharp contrast to previous periods in expanding social networks, innovative tool working techniques, materials used for manufacture, hunting weaponry, and symbolism (Bahn & Vertut 1997: 13; Bar-Yosef 2002; Mellars 1989; Strauss 1992: 66-87; Vanhaeren 2010; von Petzinger. G. & Nowell 2014; White 2003:68). The Aurignacian culture is defined by innovations in stone, bone points, antler, and ivory working techniques, unprecedented social networks, and improved hunting weaponry (Straus 1992: 66-89; White 2003: 68). Aurignacian representation was traditionally interpreted through stylistic chronologies and, falling into paradigmatic notions of progress, determined to be the primitive beginnings of art (Breuil 1952; Francis 2001: 222; Laming-Emperaire 1962; Leroi-Gourhan 1965, 1968; Moro Abadía & González Morales 2012: 223-229). However, a growing number of parietal representations and decorated mobiliary artifacts from the Aurignacian demonstrate an artistic mastery comparable to subsequent Palaeolithic cultures and that the traditional chronological schemas of dating representations are problematic (However, stylistic comparisons are still useful and applied in contemporary debate and research. See Combier & Jouve 2012; Lorblanchet 2014; Moro Abadía & González Morales 2007; Pettitt & Bahn 2003, 2014; Pettitt, Bahn & Züchner 2009). Arguably the most striking finds are from the Chauvet cave in Vallon Pont d'Arc, Ardèche, France. The Chauvet cave is one of the most impressive symbolic sites in the Upper Palaeolithic (Clottes 2003, 2008: 32-53). Its walls and caverns are adorned with myriad figurative and non-figurative

motifs either standing alone or combined in various panels (Clottes 2008: 32-53). The numerous parietal images within the cave, produced through painting and engraving (Clottes 2008: 32-53), are technically, stylistically and aesthetically impressive (Clottes 2003; Sadier et al. 2012: 8002). One of the more impressive panels within the cavern is The Panel of Horses (Clottes 2008: 38). Included on this panel of roughly twenty animals is a rare depiction of dueling rhinoceros and, the center piece of the cave, four aligned horses (Clottes 2008: 38). The technical skill displayed in the final product (Clottes 2008: 32-53) and the intricacies in the production of these images (Clottes 2008: 38) make them, on a technical level, as exceptional as any image in Upper Palaeolithic representation. In spite of the traditional approaches to Palaeolithic imagery, representations from Chauvet cave have been radiocarbon dated to the Aurignacian period (Clottes 2008: 38; Clottes et al. 1995; Sadier et al. 2012: 8002; Valladas et al. 2001: 479). The direct dates of the Chauvet images has proven, in spite of traditional stylistic chronologies, that Aurignacian artists were equal in skill to the artists of the other Upper Palaeolithic cultural periods. Other sites with parietal representation dating to the Aurignacian include la grotte d'Aldène (Ambert et al. 2005), Arcy-sur-Cure (Baffier & Girard 1998), Castanet (White et al. 2012), Baume Latrone (Azéma, Gély, Bourrillon & Galant 2012) in France and Altxerri B Cave (González-Sainz, Ruiz-Redondo, Garate-Maidagán & Iriarte-Avilés 2013), Tito Bustillo, Altamira and Castillo (Pike et al. 2012) in Spain. Aurignacian portable art is not exempt from the technical prowess displayed on the large rock surfaces. Of particular interest are the various artifacts found in the Swabian Jura in Southwest Germany (Conard 2003, 2009, 2011; Floss & Conard 2010). Discovered in Aurignacian layers in the Hohle Fels cave are four mammoth-ivory

carvings, a Venus Figurine (Conard 2009), and portable objects depicting the head of a horse, a water bird, and a therianthrope (Conard 2003). These artifacts exhibit a technical skill on par with any Pleistocene culture. Additionally various statuettes of impressive nature have been found at the sites Vogelherd, Hohlenstein-Stadel, and Geissenkösterle in the Swabian Jura (Moro Abadía & González Morales 2007: 115-117). Other forms of portable representation in the Aurignacian include the use of teeth, stone, bone, antler, and amber in the manufacture of beads and pendants (Floss & Conard 2010; Hahn 1972; Heckel 2009; Lawson 2013:124; Taborin 2004; Vanhaeren 2010; von Petzinger. G. & Nowell 2014: 39; White 1995, 1997). The various portable and parietal representations dating to the Aurignacian demonstrate great technical skill and suggest a highly symbolic culture.

The **Gravettian** period began ca. 28,000 years ago and ended roughly 22,000 years ago (Bahn & Vertut 1997: 13; Straus 1992: 40; White 2003: 67). This cultural period is marked by changes in the production of tool technology and transformations of representational forms (Straus 1992: 70-75; White 2003: 82). Common tool types in the Gravettian include decorated bone, antler, specialized burins, and ivory and flint objects (Kozłowski 2015; Lawson 2012: 130; Pike-Tay & Bricker 1993: 129-131; Straus 1992: 70-75; Wojtal & Wilczynski 2015: 76-77). Items of adornment included pierced teeth, shells, pendants, ivory objects, and reindeer antler decorated with figurative and non-figurative motifs (Lawson 2012: 130; Tátá, Cascalheira, Marreiros, Pereira & Bicho 2014; Wojtal & Wilczynski 2015: 76-77). Perhaps the most unique forms of representation are the exaggerated portrayals of woman known as the ‘Venus’ Figures. These highly stylized forms are found on cave walls in bas relief, such as the Venus with

a Horn depicted at Laussel Shelter in the Dordogne (Camille 2004: 4-5; Clottes 2008: 74), and as carved statuettes, such as the twelve carved ivory Figures excavated by Piette in the Grotte de Pape, Brassempouy (Piette 1895). Venus Figurines have been found distributed throughout Europe during the Gravettian (Bahn & Vertut, 1997: 160- 163; Clottes 2008; Lawson 2012: 130; Soffer, Adovasio & Hyland 2004). A quantitative increase in geometric motifs and distribution is evident in the Gravettian (White 2003: 82). Parietal art becomes more extensive in this period with imagery including bison, horse, finger-fluting, positive and negative hand stencils, signs, dots, and red paintings (Clottes 2008: 66-103; Henry-Gambier et al. 2007; Lawson 131-135, 141; Lorblanchet 1996; White 2003: 82). Paintings in this period are often outlined in black or red pigment and are found in deep cave contexts (White 2003: 93).

The **Solutrean** began roughly 22,000 years ago and ended 15,500 years ago (Bahn & Vertut 1997: 13; Straus 1992: 90-91; White 2003: 67). The Solutrean is the coldest period of the ice age and is marked by the Last Glacial Maximum (Banks et al. 2009; Burke et al. 2014; Lawson 2012:175, Straus 1991b, 1991c). This culture is characterized by leaf-shaped flint spear points, blade technologies, awls and pins, small barbed arrow heads, eyed bone needles, the atlatl, spear-throwers, and pressure flaking (Banks et al. 2009: 2854-2855; Cattelain 1989; Clottes 2008: 12; Smith 1966; Straus 1991c: 196-197, 1992: 90-91, 106-111, 1992: 106-110; Straus, Meltzer & Goebel 2005: 514; White 2003:94; Ucko & Rosenfeld 1967: 18-19). Personal ornaments dating to this period include beads, pendants, seashells, and perforated animal teeth (Lawson 2012: 135; Straus 1992: 116-117; Straus, Meltzer & Goebel 2005: 514; Tátá, Cascalheira, Marreiros, Pereira & Bicho 2014; White 2003: 97). Solutrean caves are less widely distributed than

the lithic culture that ranges from Spain, France, and Belgium (White 2003: 94; Lawson 2012:140). Despite numerous Solutrean material assemblages, it is difficult to separate Solutrean and Magdalenian rock art definitively (Clottes 2008: 122-181; Straus 1991c: 197). In fact, the archaeological absoluteness of the Solutrean and Magdalenian distinction has been challenged (Straus 1975, 1987, 1991c: 197, 1992). Based on lone Solutrean deposits only a limited number of cave art sites, including El Buxú, Peña de Candamo, Cueva Chufín, La Pasiega, and La Haza, can be confidently placed within this time period (Bahn & Vertut 1997: 62-63; Straus 1992: 117, 1982: 78). Large herbivores, such as the ibex, were an important component of figurative parietal forms in the Solutrean (Clottes 2008: 122-181; Lawson 2012: 143; White 2003: 97). Non-figurative parietal representations include a variety of abstract signs, geometric forms, hand stencils, and dots, although they are less frequent than in the Gravettian (Bahn & Vertut 1997: 13: 62-63; Clottes 2008: 122-181; Lawson 135-143; Straus 1992: 118; White 2003: 94-97). Climate improvement during the later stages of the Solutrean set the stage for greater population sizes and the richest symbolic cultural of the Upper Palaeolithic.

The **Magdalenian** is the last cultural phase of the Upper Palaeolithic. Beginning roughly 18,000 years ago and ending with the emergence of a number of post-Paleolithic cultures approximately 11,000 years ago (Bahn & Vertut, 1997: 13; Straus 1992: 122; White 2003: 67). Geographic distribution of sites, human population, and the quantity of representation greatly expands during this epoch (Clark & Straus 1983; Schwendler 2012; Straus 1977, 1981, 1991b, 1992: 129-135; Ucko & Rosenfeld 1967: 20; White 2003: 97). Evidence of the Magdalenian culture is found from Iberia to Poland and the number of representations dating to this period outnumbers the totality of all previous cultural

periods (Ucko & Rosenfeld 1967: 20; White 2003: 97). Magdalenian cultures were characterized by intricate carvings, polychrome paintings, and an extensive use of antler and bone to craft a variety of tools, weapons, shells, harpoons, and other objects (Lawson 2011: 143-152; Schwendler 2012; Straus 1992: 135-146, 159-165; Straus, González Morales, Martínez & María Paz 2001: 1407-1411; Ucko & Rosenfeld 1967: 20-23). Non-figurative motifs outnumber the figurative representations and are displayed in a wide diversity of complex forms including spots, rectangular signs, oval signs, and a variety of geometric designs (Clottes 2008: 206-285; Lawson 2011: 150; Straus 1992: 261; White 2003: 97;). These images decorate the cave walls, open-air rock shelters, and are also found on a large portion of portable artifacts (Ucko & Rosenfeld 20-22). The quantitative explosion of Magdalenian symbolism and artistic richness has given archaeologist great insight into the representational traditions of these cultures.

1.6 The Environmental Context

A seemingly strange curiosity is that despite human occupation of all parts of Europe in the Palaeolithic period (Bocquet-Appel, Demars, Noiret & Dobrowsky 2005; Mithen 1996: 22-23), parietal representation is largely confined to the Franco-Cantabrian region (Bahn & Vertut 1997: 42-46; Clottes 2008: 14; Mellars 2009; Renfrew 2008: 2042-2043; Ucko & Rosenfeld 1967: 36-37). While examples of cave art from this time period exist outside of the Franco-Cantabrian region, such as in Russia and in Italy (Abramova 1995: 109-110; Bahn & Vertut 1997: 42-46; Clottes 2008: 13; Donahue 2010: 360), these traces are rare and do not constitute a parietal symbolic culture on the scale of

Western Europe (Ucko & Rosenfeld 1967: 36). This does not mean that cultures of Palaeolithic Europe were symbolically superior to the cultures of central Europe, Asia, and Africa. In fact, there were just different cultures developing different traditions of symbolic and cultural expression. In fact, the predominance of parietal artwork in Western Europe is likely related to a number of factors, including an incomplete archaeological record, environmental factors, and population size.

The Franco-Cantabrian region has the geological foundations for the development of cave art. An extensive limestone formation runs through France and Spain, giving this region a geological advantage to the appearance of cave art (Mellars 2009: 213). This is an essential factor to understand why the parietal art is mostly limited to this area. This region contains a wealth of geological features that provide ideal preservation environments. Any imagery that was made on biodegradable material or produced in open air rock shelters are more susceptible to deterioration and leave little or no trace in the archaeological record (Bahn 1995; Bahn & Vertut 1997: 45, 128; Aubry, Dimuccio, Bergadà, Sampaio & Sellami 2010; Straus 1992: 132). Mobile artwork such as tools, ornaments, and statuettes from numerous regions shows that symbolic representation is a human trait and was not limited to France and Spain (Bader 1978; Beaumont & Vogel 1978; Dortch 1979; Efimenko 1958; Gladkih, Kornietz & Soffer 1984; Gvozdover 1996; Kozłowski 1992; Singer & Wymer 1982; White 1993, 2003: 128-193). Another factor to explain why representations are more abundant in France and Spain is that they preserved better. There is more cave art found in the Franco-Cantabrian region because it has more caves than other geographical areas. However, this alone is not enough to constitute the extensive number of representation in the region. Additionally, it has been suggested that

the high and growing demographic concentration in the region (Bocquet-Appel & Demars 2000; Bocquet-Appel, Demars, Noiret & Dobrowsky 2005; Jochim 1987; Straus 1977, 1991: 89-90) may be another factor explaining the abundance of cave art in the area (Jochim 1987; Mellars 2009: 218-223). Population growth and settlement in this region are largely the result of its unique climate. With warmer winters and cooler summers and less fluctuation in extreme temperatures than inland regions, the Franco-Cantabrian climate provided a rich growth of vegetation that encouraged the influx of animal species (Straus 1991c: 192). These factors played an important factor in human survival and growth in this region.

The climatic conditions during the Upper Paleolithic would have made survival difficult. However, the climatic patterns would have given the people in Western Europe a survival advantage over their inland counterparts. The Paleoclimate of Cantabria has been largely reconstructed from nitrogen and collagen samples extracted from faunal assemblages and a variety of pollen samples taken from controlled stratigraphic columns in multiple sites (Clark & Straus 1983: 137; Courty & Vallverdu 2001; Ellwood et al. 2000; Ellwood et al. 2001; Laville 1986; Peña-Chocarro et al. 2005; Peñalba 1994; Stevens, Hermoso-Buxán, Marín-Arroyo, González-Morales & Straus 2014; Straus 1991: 90). Intensive frosting would have been common in the landscape that was nearly entirely deprived of arboreal vegetation. Spain's oceanic climate (Muñoz Sobrino, Ramil-Rego & Gómez-Orellana 2007: 224-225) resulted in periodic shifts in precipitation, warmer winters, and cooler summers (Clark & Straus 1983: 137; Mellars 2009: 215). Less extreme temperatures experienced in this region as compared to central Europe may have influenced an influx of people to the area.

These climatic conditions would have influenced a productive growth of flora in the region. Despite the fact that the climate was probably cooler than in other areas during the same contemporary time period, due to the glacial advances, Southwestern Europe produced the highest growth of herbaceous tundra and steppe vegetation in all of Europe during this time period (Butzer 1971: 463; Mellars 2009: 217). The maritime climate of the region would not have supported extensive tree growth, although the trees that were able to form were deciduous, and thus the region held a tundra-like environment and vegetation (Butzer 1971; Iversen 1973; Mellars 2009: 216; Muñoz Sobrino, Ramil-Rego & Gómez-Orellana 2007: 231-237; Peñalba, Arnold, Guiot, Duplessy & de Beaulieu 1997; Van Andel & Tzedakis 1996: 494-495). While tree growth was scarce, access to more sunlight, a longer period of growth in late autumn, and abundant rain fall (Ucko & Rosenfeld 1967: 27) would have contributed to a rich and productive prosperity of all low-growing vegetation (Mellars 2009: 216; Muñoz Sobrino, Ramil-Rego & Gómez-Orellana 2007: 231-237). The rich, used as a comparative term, vegetative growth in the region would encouraged the influx and the success of abundant and diverse animal populations.

The animals that dominated this region's ecosystem were as variable and numerous as the artwork itself. The rich vegetation of the region encouraged migration and promoted the success of a wide range of open country species including herds of reindeer, wild horse, aurochs, steppe bison, red deer, ibex, chamois, mammoth, rhinoceros, wild pig, roe deer, and giant elk (Freeman 1973; Mellars 2009: 217; Straus 1991: 93, 1992; Ucko & Rosenfeld 1967: 28-29). All of these animals are represented to some degree in the Upper Palaeolithic artwork. Populations of red deer drastically

increased during the glacial advance of the Solutrean and are generally the predominant species found throughout Late Upper Palaeolithic faunal sites of Northern Spain (Bernaldo de Quirós, Maillo-Fernández, Castaños & Neira 2015: 465; Cabrera Valdés 1984; Freeman 1973: 26-33; Garcia-Guixé, Martínez-Moreno, Mora, Núñez & Richards 2009; Stevens, Hermoso-Buxán, Marín-Arroyo, González-Morales & Straus 2014: 47; Straus 1992: 81-84, 111-114, 146-149, 261-262; Straus & Clark 1978: 292). Horse and bison also appear to be in abundance during the Early Upper Palaeolithic but wane off during the later phases of the epoch (Clark & Straus 1983: 144; Straus 1992: 81-84, 148, 261-262). The affluence of ibex throughout Upper Palaeolithic Spain made them an ideal game species, especially in the Cantabrian mountain sites (Altuna 1981, 1990; Straus 1977, 1987). Marine species also played a key role in the lives of Upper Palaeolithic people as aquatic resources were an important component of Pleistocene diet and shell ornament (Bocherens, Drucker & Madelaine 2014: 32; Cabrera Valdés 1984; Francisco, Guerra-Mechán, Lozano-Francisco & Vera-Peláez 1997; Gutiérrez-Zugasti et al. 2013; Ortea 1986; Richards, Pettitt, Stiner & Trinkaus 2001; Richards & Trinkaus 2009).

Animals caught and processed include sea urchins, molluscs, crabs, and fish (Clark & Straus 1983: 142; Gutiérrez-Zugasti et al. 2013; Menéndez de la Hoz, Straus & Clark 1986; Straus 1981, 1992: 111-112; Ortea 1986). The extensive variety and large population numbers of the species in this region are directly related to the climate and vegetation patterns. The combination of a warmer climate, low growing vegetation, and a large population of game animals made this region an ideal home for Palaeolithic humans. The larger human population numbers are highly responsible for the quantity artwork in this region.

Chapter 2

The History of Research

2.1. The discovery of Paleolithic Art: Rejection and Acceptance

Palaeolithic cave art is a well-researched, documented, and important area of archaeological research. However, despite the establishment of mobile art by Lartet and Christy in 1864 (Lartet and Christy 1864), cave art was not immediately recognized after the first publication of prehistoric parietal art in 1880 (Sanz de Sautuola 1880). De Sautuola's publication and the acceptance of an ancient date for the art by Juan de Vilanova, a professor at the University of Madrid, were not enough to convince most scholars of the antiquity of the representations in the late 19th century (Moro Abadía 2010). The academic community would begin its own examinations into the parietal representations that would ultimately delay cave art investigations over twenty years.

Edouard Harlé, a prominent French scholar, was asked by the most prestigious French archaeological journal, *Matériaux pour l'histoire primitive et naturelle de l'homme*, to investigate the reported parietal paintings in Altamira in 1881 (Moro Abadía & Pelayo 2010: 4). Harlé's conclusion was that the paintings were probably not from the prehistory times (Freeman 1994: 340; Harlé 1881; Lawson 2012: 53). His decisive clue about the age of the paintings was related to the style of the paintings. Harlé would contend that the painters were highly skilled based on the accuracy of painted deer.

However, the representations of extinct animals, such as the aurochs, were highly stylized and not anatomically accurate renderings of their real life counterparts. According to Harlé, the inaccuracies and inconsistencies between the depiction of extant and extinct species were not related to talent and technique, and if the artists were contemporaneous to the extinct species these animals would have been depicted as accurately as the deer (Bahn & Vertut 1997: 18-19; Harlé 1881: 280-283; Ucko & Rosenfeld 1967: 33). The question of the 'artistic style' would play a similar role in delaying the recognition of the importance of non-figurative images (please see below).

Harlé had also noted that the ancient lamps used by prehistoric humans should have caused an excessive amount of soot to form, that certain signs should not have remained in a pristine state from antiquity, the freshness of some of the paintings, and that a thin layer of stalagmite that had covered some of the representations is not proof of great age (Bahn & Vertut 1997: 18-19; Harlé 1881: 280; Ucko & Rosenfeld 1967: 33-34). With these observations in mind, Harlé refuted the antiquity of the parietal art. This would be the popular position of the academic community until the early 20th century (Bahn & Vertut 1997: 16-22; Freeman 1994: 337-341; González Morales & Moro Abadía 2002; Lawson 2012: 49-67; Moro Abadía 2006; Moro Abadía & González Morales 2004, 2013: 276; Palacio-Pérez 2013: 697-698; Whitney 1993: 235-238). However, despite the rejection by academia a number of new rock art sites were discovered at the end of the 19th century, including Chabot in 1880 (Chiron 1889), La Mouthe in 1895 (Rivière 1896) and Pair-non-Pair in 1896 (Freeman 1994: 340; Lawson 2012: 56-57; Ucko & Rosenfeld 1967: 33).

Archaeologists showed little enthusiasm for the new discovered sites. They seemed to remain satisfied with Harlé's observations and had even made claims of forgery (Bahn & Vertut 1997: 18-20; Freeman 1994: 338-340; Lawson 2012:49-59; Minvielle 1972: 169; Ucko & Rosenfeld 1967: 33; Whitney 1993: 235). However, the archaeological context of many of the newly discovered images made the denial of Palaeolithic age impossible. In caves such as La Mouthe and Pair-non-Pair, the walls decorated with images were actually covered by sediment deposits of Upper Palaeolithic age (Lawson 2012: 53-57), meaning that the paintings underneath must correspond to the Palaeolithic period (Ucko & Rosenfeld 1967: 36). Finally, in caves such as Marsoulas in Southwestern France, in which paintings had been recorded in 1887 (Fritz & Toselle 2007; Lawson 2012: 57), the entrance had been sealed by Palaeolithic deposits and remained unopened until their discovery, confirming the antiquity of the contents inside (Ucko & Rosenfeld 1967: 36). The evidence for the Palaeolithic age of the representations was overwhelming. By 1902 the representations found in Les Combarelles and Font de Gaume were given prehistoric dates in the publications by Louis Capitan and Henri Breuil (Capitan & Breuil 1901, 1902). Prominent French prehistorian Émile Cartailhac, an early antagonist of the ancient age of parietal art, had altered his view after visiting excavations at Pair-non-Pair and La Mouthe (Moro Abadía 2006: 132; Berghaus 2004: 4). Carthailhac had published his concurrence with the prehistoric dates of the cave paintings in his 1902 article '*Mea culpa* d'un sceptique' (Cartailhac 1902). Soon after, the *Association Française pour l'Avancement des Sciences* visited the cave sites and Harlé himself had accepted the antiquity of the paintings after revisiting Altamira (Ucko & Rosenfeld 1967: 34). Once the antiquity of the parietal art had been

accepted, hunts for more sites were carried out. The next two decades brought about the detection of an abundance of sites in the Dordogne, the Cantabrian Mountains, and the Pyrenees (Alcalde del Río 1906; Alcalde del Río, Breuil & Sierra 1911; Breuil & Verner 1915; Cartailhac & Breuil 1908, 1910; Gailli 2006; Hernández Pacheco y Esteban 1919; Lawson 2012: 66; Madariaga de la Campa 1972; Ucko & Rosenfeld 1967: 34).

The sophisticated style of some paintings was a major barrier in the acceptance of the age of the artwork. The ancient paintings were considered too exceptional to have been created by prehistoric people. The acceptance of the age of the images did not however remove all barriers in parietal interpretation. Cultural understandings and artistic style played a prominent role in what images were sought after, documented, examined, and interpreted and what images were largely overlooked and devalued.

2.2. The Influence of Art History

Accepting the antiquity of Upper Palaeolithic representations encouraged archaeologists to search for rock art sites and examine, analyze, document, and write about the context and meanings of the images. Early interpretations of the ancient symbolic representations were heavily influenced by the cultural understandings of art dominant at that time. In fact, the literature produced on prehistoric representations was deeply rooted in the particular cultural *zeitgeist* dominant at the end of the nineteenth century. Following the period of enlightenment, the cultural climate of progress stemming from the industrial revolution played a key role in determining what parietal representations were given priority in documentation and analysis. In fact, various

theoretical ideas, concepts, and terminology prominent in the field of art history were adopted for the study of ancient cave paintings. Naturalistic ideals in artwork and the social development of a division between the fine arts and decorative or utilitarian arts created a large discrepancy between the analysis of figurative and non-figurative images (Moro Abadía & González Morales & Palacio Pérez 2012).

While, in a general sense, the first decade of the twentieth century was marked by the decline of the idea of progress in many fields, the archaeologists, anthropologists, and art historians that first examined the cave art at the beginning of the 20th century were highly influenced by the narrative of progress prominent in the previous century. Natural progress and development were ideals that dominated academic thought during the enlightenment movement from the mid-18th century to 19th century (Moro Abadía 2006: 120; Munck 2000: 13-14; Arouet de Voltaire 1965; Rousseau 1965; Kant 1965). A movement signified by economic, political, and social growth, and the development of the scientific method and fundamental principals in physics, biology, and chemistry (Bowler 1989; Briggs 1959, 1985; Collins 1964; Moro Abadía 2006: 122-123). Western notions of artwork had developed within this notion of progress. Thus interpretations of Pleistocene images were influenced by the idea of a unilinear development, that is, the idea that all cultures and cultural endeavours naturally develop from primitive to complex, or modern, society (Bowler 1989: 30-39; Moro Abadía & González Morales 2004: 328; Moro Abadía 2006: 120; Lubbock 1870; Nilsson 1868). During the 18th century most disciplines, including anthropology, archaeology, and history, began to produce models of unilinear development that became prevalent in popular and academic thought (Moro Abadía 2006: 120). Thus the cave images were evaluated from primitive to realistic

within strict cultural constitutes. Realistic images were glorified, while non-representational motifs were ignored and unappreciated (Breuil 1952; Cartailhac 1902; Cartailhac & Breuil 1907, 1908; Capitan & Breuil 1901).

Western understandings of ‘art’ and ‘aesthetic’ had been reformulated since the 18th century (Kristeller 1951; Shiner 2001). For the first time in history, there was a distinct divide between the creators of products, artists and the artisans, and the products themselves, fine arts and crafts (Moro Abadía 2015: 6-10; Moro Abadía & González Morales 2013: 273-275; Shiner 2001: 5-7, 99-115; Summers 2003: 31). Craftwork, such as pottery or jewellery (Moro Abadía 2006: 125), were considered the product of the artisan. The process of craft making was assumed to only require technical skill and rote knowledge (Moro Abadía 2015: 6; Moro Abadía & González Morales 2013: 274; Shiner 2001: 5 and 115). On the other hand, the so-called fine arts, such as poetry, painting, sculpture, architecture, and music (Moro Abadía & González Morales 2013: 274), were referred to as unique products of creativity and aesthetic and were only able to be produced by the artists (Moro Abadía 2015: 6; Moro Abadía & González Morales 2013: 274; Shiner 2001: 115). An artist would have to draw on originality, inspiration, and freedom to produce a true work of fine art (Moro Abadía 2006: 125). This division between arts and crafts had its beginning in the Renaissance and by the middle of the 19th century it would dominate public and academic understanding of the arts (Moro Abadía, González Morales 2013: 276). In other words, the classical understanding of art as any human skill separated, during the Renaissance, into the modern distinctions of art and crafts (Moro Abadía 2015: 6; 2006: 125; Shiner 2001: 5). In this context, parietal

representations were interpreted through the lens of the 'modern system of arts' (Kristeller 1951; Shiner 2001).

In the eighteenth and the nineteenth century, naturalistic or realistic representations were considered the culmination of art. In art history, 'naturalism' refers to works of art that attempt to accurately depict elements of the natural world (Carrier 2008: 23-38; Furst & Skrine 1971: 2; Moro Abadía, González Morales & Palacio Pérez 2012; Stafford 1984; Summers 1987: 3-9). The naturalistic movement developed as the new form of Western representationalism during the Renaissance and soon became the most popular form of artistic paintings (Moro Abadía, González Morales & Palacio Pérez 2012: 220; Sewall 1953: 604-605; Summers 1987, 2003). The height of naturalism was seen with the development of artistic techniques including perspective, foreshortening, and modelling (Moro Abadía, González Morales & Palacio Pérez 2012: 223). 19th century art historians promoted the idea that nature was the foundation for art and that the goal of the artist was to reproduce nature accurately (Balfour 1893; Gombrich 1950, 1960; Greenberg, 1961; Jones 1995: 127, 133; Moro Abadía & González Morales & Palacio Pérez 2012: 221). The naturalistic ideal would ultimately infiltrate the minds of the first parietal investigators and determine what works of art these researchers deemed as important.

The discovery and interpretation of cave paintings cannot be removed from their cultural context. Social, political, and economic growth, along with advances in the physical sciences had sculpted the 19th century mindset. Ideas of progress infiltrated cultural development theories. Naturalistic accuracy was believed to be the final goal of the artistic endeavour (Balfour 1893; Haddon 1895; Holmes 1886, 1888; Moro Abadía,

González Morales & Palacio Pérez 2012: 221; Jones 1995:127; Riegl 1992: 14) and figurative forms, in discussions on Palaeolithic imagery, were thought to progress from simple to complex representations (Alcalde del Río, Breuil, & Sierra 1911: 205-216; Breuil 1907: 23-24, 1952: 37-45; Cartailhac & Breuil 1906: 113; Laming-Emperaire 1962; Leroi-Gourhan 1964, 1965; Moro Abadía & González Morales 2006; Moro Abadía, González Morales & Palacio Pérez 2012: 223-229). The idea of a unilinear cultural development towards progress, the division of lesser and greater arts, and the emphasis on naturalism played a significant role in the early interpretations and focus of Palaeolithic rock art research (Moro Abadía 2015; Moro Abadía & González Morales 2004, 2006, 2013; Moro Abadía, González Morales & Palacio Pérez 2012; Palacio-Pérez 2013). These ideas influenced researchers to understand figurative representations as masterpieces and non-figurative forms as degraded motifs. Additionally, as I show in the following section, these notions played a fundamental role in archaeological interpretations of non-figurative images.

2.3. The degradation theory and the interpretation of non-figurative art

As we have seen, the naturalistic detail oriented the activity of artists from the Renaissance to contemporary times. In this setting, a number of art historians interested in what they believed to be a progress towards naturalism began to look to ethnographic examples to attempt to reconstruct the origins of artistic expression (Balfour 1893; Grosse 1928; Haddon 1895; Ranke 1879). Scholars believed that non-European cultures were 'primitive' and that studying groups of people that have not yet elevated themselves to

'civilization' could provide great insights into the beginnings of artwork (Balfour 1893: 13-17; Grosse 1928: 132-142; Riegl 1992: 16). However, ethnographic examples introduced a number of problems in the conception of art dominant during the 18th century. While art historians of Europe believed that the purpose of the artist was to imitate nature (Balfour 1893; Castagnary 1863/1998: 412; Haddon 1895; Holmes 1886, 1888; Moro Abadía, González Morales & Palacio Pérez 2012: 221-223; Riegl 1992: 14), artistic forms found in ethnographic cases did not confirm this idea. Certain forms, referred to as the geometric or decorative style (Boas 1955; Haddon 1895; Riegl 1992), stood in direct contrast to theories of naturalism in art as these motifs did not resemble the natural world or reflect realism. The geometric style was initially said to consist solely of the simplest shapes and formal elements, such as symmetry, in art (Boas 1955: 9-62; Haddon 1895; Riegl 1992: 14-40). In other words, examining 'primitive art', art historians realized about the existence of a long tradition of non-figurative motifs that could not be explained by appealing to naturalistic progress. To explain the origins of these non-figurative images and understand them within the ideas of naturalism, art historians suggested that the stylized conventional and non-figurative forms of primitive art were, in fact, the product of a process that they called 'degradation'.

Diverging from 19th century understandings of artistic ideals was the geometric style documented in various ethnographic studies. The fundamental component of the geometric style is the straight line. The straight line was considered an elementary design feature. By adhering to symmetry the straight line develops into all the principal shapes of the geometric style including triangles, squares, rhombuses, and zigzag patterns. (Boas 1955: 9-62; Grosse 1928: 15-17; Haddon 1895; Riegl 1992: 14-15). To justify the

existence of geometric motifs it was asserted that these designs were the products of a simplification process of natural forms and that no matter how stylized, conventional, or removed from nature an image may seem, the natural model could always be detected through an investigation of the individual details (Balfour 1893; Haddon 1895: 168-169; Holmes 1886, 1888; Riegl 1992: 16-40). The development of geometric forms began when an artist would attempt to imitate a naturalistic form, either directly from nature or the naturalistic motif of another piece of art, and through a variety of possible processes and chains of development would produce a motif greatly removed from the original naturalistic inspiration (Balfour 1893; Haddon 1895: 168-169; Holmes 1886, 1888; Trilling 2001: 165-167; Riegl 1992: 16-40). This is the general premise of what some specialists call the degradation or degeneration of art (Balfour 1893: 28; Breuil 1905, 1908; Cartailhac & Breuil 1907: 33; March 1889: 174).

The process of imitation, or naturalism in art, marked the beginning of degradation. Degradation is not a linear pathway from a natural form to a conventional one (Balfour 1893: 34; Haddon 308-318). Instead there were a variety of methods proposed through which a natural form could become a geometric stylized motif (Balfour 1893; Boas 1955: 181-121; Grosse 1928; Haddon 1895; Holmes 1886, 1888; Riegl 1992). The two major processes in which degradation can occur were unconscious variation and conscious variation (Balfour 1893: 23-31). Unconscious variation occurs when the artist lacks skill or experience in their attempt to imitate nature (Balfour 1893: 23-31). The artist is unable to perfectly replicate the natural form and variation occurs (Balfour 1893: 23-24). Other artists will imitate overtime copies of the original copy. Due to their lack of skill, new variations will appear in each successive copy until the image no longer

resembles the original form at all (Balfour 1893: 23-31). In this way a once natural form has been altered over time to become a non-figurative conventional representation (Balfour 1893: 23-31; Boas 1955: 113-119; Haddon 1895). It is thus possible that new cultural meaning can be associated with this degraded motif turning it into a conventional image.

A conscious model of degradation is required to explain the highly stylized appearance of many geometric forms that the unconscious model cannot account for. Conscious variation is not a result of accidental changes in the imitation of the original forms but it is instead intentional modifications made by the artist to improve upon or to emphasize particular aspects of the original form (Balfour 1893: 31-39). Within the conscious variation model particular aspects of a naturalistic form are emphasized and combined with the principal of symmetry (Balfour 1893: 34; Haddon 1895: 164-183). The use of symmetry in emphasized aspects of previous depictions allows an image to quickly be reduced from realism to a decorative conventional motif (Balfour 1893: 41). Newly produced images in the model are not necessarily only influenced by one previous form (Balfour 1893: 34). In fact, freshly produced motifs may take influence from a variety of forms and will not progress in a linear way but will themselves potentially produce a variety of new stylized motifs. The interpretive result of the variety in conventional forms was that conscious variation was considered to be the driving force behind the production of conventional and ornamental objects from naturalistic depictions (Balfour 1893: 31).

Art historian recognized the stylized motifs as having a large degree of elegance and a high aesthetic value (Balfour 1893; Boas 1955; Haddon 1895; Riegl 1992).

However, these forms were considered primitive and deprived of meaning. It was asserted that such degenerated motifs may lose all resemblance and meaning that the original form once contained and may even be interpreted as a completely different object than what was originally presented (Balfour 1893: 24-30; Haddon 1895; Riegl 1992: 14-40).

Although these forms could take on new meanings and symbolic values, it was generally believed by 18th century art historians that these images, while appealing to aesthetics, have lost all intrinsic value (Balfour 1893: 30-35; Haddon 1895; Riegl 1992). Art historians believed that the highest forms of artwork represented nature and expressed realism. Because the relationship of conventional forms with nature had been lost, their only value was in the aesthetic appeal of the ornamental design. While the artistic effect was greater, the attraction to the symmetrical geometric forms was seen as having little more meaning or value than the first ornaments of appeal that were suggested by nature. The overall praise of naturalism and the reduction of value of geometric conventional forms heavily influenced the first cave art researchers in the 20th century.

2.4 The foundations of the modern interpretations of Paleolithic non-figurative images: 1900-1960.

The early 20th century marked the onset of the acceptance of Palaeolithic artwork and inspired the search and discovery of a myriad of sites. Along with the highly realistic images, such as the first discovered images at Altamira, investigators identified hundreds of non-figurative forms (Bahn & Vertut 1997: 166; Moro Abadía 2015: 13). To interpret both sets of images researchers borrowed and adopted the primary ideas and ideals of

19th-century art history (Moro Abadía 2015; Moro Abadía, González Morales & Palacio Pérez 2012). In this setting, while figurative images were understood through the lens of the naturalistic theory of art, non-figurative representations were typically considered the result of inexperience and degradation.

Early understandings of Palaeolithic artwork were largely influenced by the work of Henri Breuil. As the son of a lawyer growing up in Northern France, Breuil developed a great affection towards nature and entomology (Brodrick, 1963: 18-19, 25). In his young life as he was able to make acquaintance with respected pre-historians in France. When visiting the ancient sites of the Somme region he met Louis Capitan who introduced him to the study of prehistoric tools (Brodrick 1963: 38). As he was formally trained in art history (Moro Abadía 2015: 12) and developed a strong skill for drawing animals, he worked directly with Édouard Piette and Émile Cartailhac when they required assistance in the study and illustration of portable and parietal art (Brodrick, 1963: 41-59). Breuil would develop a dynamic career studying the megalithic art of France and the Iberian Peninsula, documenting rock art in parts of Southern Africa, and developing a prehistoric tool typology (Garrod 1961). His detailed illustrations and interpretations on the cave art in France and Spain are arguably his most pioneering work as he would become the most influential scholar on cave art in the early 20th century (Moro Abadía 2015: 11-16; Moro Abadía, González Morales & Palacio Pérez 2012: 226; Ucko & Rosenfeld 1967). His methods and inferences were paramount and thus his views on Upper Palaeolithic cave art were widely accepted and influenced the general academic understandings of these images.

Breuil has provided an unprecedented investigation, documentation, inventory, and analysis on Upper Palaeolithic cave art. However, he was never able to separate his interpretation from the evolutionary model of artwork advocated by the art historians of his time to explain the figurative images that adorn cave walls and rock shelters. Breuil was one of the pioneers in developing the cultural chronologies of the Upper Palaeolithic (Bahn & Vertut 1997: 68-69; Ucko & Rosenfeld 1967: 71-72; Brodrick 1963: 30). Due to the difficulty in accurately dating parietal art, Breuil derived relative dates for the images based on style (Breuil 1952; Moro Abadía 2015: 12; Moro Abadía, González Morales & Palacio Pérez 2012: 226-227; Ucko & Rosenfeld 1967: 70-71). For Breuil, each cultural period was defined by specific stylistic variations with little or no overlap between cultural periods (Moro Abadía, González Morales & Palacio Pérez, 2012: 126-127; Ucko & Rosenfeld 1967: 70-71). Breuil proposed that prehistoric artwork progressed chronologically with time and that each successive cultural period saw improvements in artistic technique and style (Alcalde del Río, Breuil & Sierra 1911; Breuil 1907, 1952). For Breuil, the earliest drawings of the Upper Palaeolithic were crude renderings of natural objects that lacked style and form (Alcalde del Río, Breuil & Sierra 1911: 207; Breuil 1907: 10). However, the prehistoric people would eventually reach the artistic mastery displayed in the Magdalenian by introducing rudimentary perspective, developing artistic techniques such as modelling and shading, and ultimately combining various styles to produce highly realistic depictions of natural objects such as seen in Altamira (Breuil 1907: 14; Moro Abadía 2015: 12; Ucko & Rosenfeld 1967: 70-71). Later in his career he refined his thoughts on the development of Palaeolithic cave art and suggested the existence of two independent cycles of the evolution of parietal art: the

Aurignacian-Perigordian cycle (c. 35,000-20,000 BC) and the Solutreo-Magdalenian cycle (c. 20,000-10,000 BC) (Breuil 1952). Both of these cycles document rude or simple imagery that progresses into more naturalistic forms (Bahn & Vertut 1997: 68-69; Breuil 1952; Moro Abadía, González Morales & Palacio Pérez 2012: 227; Ucko & Rosenfeld 1967: 71-72). While naturalistic art theories were evident in Breuil's interpretation of the ancient figurative images, it was the tenets of degradation theories that influenced his understandings of the various non-figurative motifs.

To explain the presence of non-figurative representations in the Upper Palaeolithic archaeological record Breuil would draw on degradation theories of art. As stated above, degradation theories of art were based on the premise that naturalism is the purpose of artwork and that abstract motifs were the result of conventionalization of realistic forms through simplification (Balfour 1893; Collier 1882; Haddon 1985; Riegl 1992). The influence of degradation theories on Breuil's conception of ancient imagery is stated in his investigation of decorative pottery (Breuil 1906) and evident in his studies on Palaeolithic imagery (Alcalde del Río, Breuil & Sierra 1911; Breuil 1905, 1907, 1952). In fact, Breuil believed that many of the non-figurative representations were the unrecognizable or degraded depictions of natural objects (Breuil 1905; Moro Abadía 2015: 13-16). He proposed that motifs on portable objects were indistinguishable renderings of goats and horses (Breuil 1905: 112-118), that particular geometric signs were degraded serpents and reindeer antler (Breuil 1905: 108-109), and that the various 'tectiforms' were clumsy depictions of houses or tents (Breuil 1905: 105-106). With this interpretation we see the influence of unconscious degradation in Breuil's writing. Due to the lack of skill and experience of the painters the naturalistic forms become skewed and

lose most resemblance to reality and, in Breuil's opinion, all value (Alcalde del Río, Breuil & Sierra 1911; Breuil 1905: 120, 1907; Cartailhac & Breuil 1907). The generalized premise of Breuil's complex system is that there is a unilinear progression from the older 'simple' and 'crude' images to younger perfected images (Bahn & Vertut 1997: 68-69; Moro Abadía 2015: 9-16; Moro Abadía, González Morales & Palacio Pérez 2012: 26-27; Straus 1992a: 6). For Breuil it was not until Palaeolithic people developed their skills that they were able to produce accurate images (Alcalde del Río, Breuil & Sierra 1911; Breuil 1907, 1952). The promotion of this unilinear sequence of cave art added to the already accepted notion of cultural progress. Due to Breuil's authority in the field of prehistory, his complimentary interpretation to contemporaneous art history was widely spread, influential, and accepted by many prehistoric investigators (Moro Abadía, González Morales & Palacio Pérez 2012: 223-229; Straus 1992a; Ucko & Rosenfeld 1967: 129).

The notions of 'degradation and 'unilinear' development in art theory would influence the work of a variety of other prominent 20th century prehistorians and thus their understanding of the non-figurative forms. Some of the more notable specialists that would incorporate these ideas into their conception of Palaeolithic imagery include André Leroi-Gourhan, Annette Laming-Emperaire, and Max Raphael.

During the 1960s, Leroi-Gourhan would become one of the most influential researchers in the development of cave art. His novel ideas and extensive inventory would be a cornerstone in the revolution of Palaeolithic understanding. In fact, Leroi-Gourhan was one of the first investigators to ascribe symbolic value and cultural meaning to non-figurative motifs (Leroi-Gourhan 1962, 1993: 190). His interpretation of Upper

Palaeolithic imagery would provoke many future discussions on the symbolic value of non-figurative motifs (Moro Abadía, González Morales & Palacio Pérez 2012: 130-131). However, despite cataloguing and attributing symbolic value to the non-figurative forms, Leroi-Gourhan's conception of figurative motifs was influenced by evolutionary schemes of progress and his understanding of non-figurative representations was rooted in theories of degradation (Bahn & Vertut 1997: 69-71; Leroi-Gourhan 1968, 1982, 1993; Moro Abadía 2015: 15-16; Moro Abadía, González Morales & Palacio Pérez 2012: 227-229; Ucko & Rosenfeld 1967: 74). In fact, Leroi-Gourhan, and Annette Laming-Empeire, adopted and utilized a number of terms and categories developed by preceding investigators such as "signs", "naturalism", "form", "meaning" and "non-figurative" to advance their work (Laming-Empeire 1962; Leroi-Gourhan 1960, 1962, 1968, 1982; Moro Abadía & Palacio Pérez 2015). The unilinear evolutionary scheme is present in Leroi-Gourhan's interpretation of figurative motifs as he believed that Palaeolithic imagery progressed chronologically through four distinct 'styles' (Bahn & Vertut 1997: 69-71; Leroi-Gourhan 1962, 1995: 51; Moro Abadía, González Morales & Palacio Pérez 2012: 229). Leroi-Gourhan's 'styles' saw the Palaeolithic images evolve chronologically through time from archaic to complex and realistic representations (Bahn & Vertut 1997: 69-71; Leroi-Gourhan 1962, 1995: 51; Moro Abadía 2015: 22; Moro Abadía, González Morales & Palacio Pérez 2012: 229). Ultimately, unilinear and naturalistic notions guided Leroi-Gourhan's conception of the figurative motifs of the Upper Palaeolithic (Leroi-Gourhan 1964: 87; 1968: 43-48, 1993: 374-396; Ucko & Rosenfeld 1967: 74). Like Breuil, Leroi-Gourhan believed that the non-figurative abstract signs were degenerated or schematic versions of naturalistic motifs (Leroi-Gourhan 1993: 373-396; Moro Abadía

2015: 15-16). In fact, he believed that rectangular, triangular, and oval signs were degraded representations of female genitalia, and that linear compositions were stylized versions of male genitalia (Leroi-Gourhan 1960: 42). However, unlike Breuil, Leroi-Gourhan believed that these stylized signs were as much a part of the Palaeolithic symbolic system as the figurative motifs (Leroi-Gourhan 1993: 190; Moro Abadía, González Morales & Palacio Pérez 2012: 230). Although notions of degradation are prominent in Leroi-Gourhan's interpretation of non-figurative images, his attribution of symbolic value to the forms would influence other scholars to advocate cultural and symbolic meaning for non-figurative signs.

Annette Laming-Emperaire had begun her doctoral thesis under aesthetic philosopher Etienne Souriau in 1947. In 1956 Souriau proposed to transfer her supervision to Leroi-Gourhan as her work became more archaeological in nature (Moro Abadía & Palacio Pérez 2015: 22-23). Laming-Emperaire applied an evolutionary scheme to her interpretation of the cave art (Moro Abadía, González Morales & Palacio Pérez 2012: 229; Laming-Emperaire 1962: 56-57; Ucko & Rosenfeld 1967: 74). She believed that the artistic representations progressed in a straight line from an archaic period to a 'cumulating phase'. The archaic period contained simple animal outlines, engravings, and hand stencils. Laming-Emperaire referred to the second phase as intermediate when Solutrean artists developed twisted perspective and made use of bas-relief sculptures and black animal outlines. The final phase of Laming-Emperaire's model was characterized by the most complex motifs such as polychrome representations (Moro Abadía & González Morales & Palacio Pérez 2012: 229; Laming-Emperaire 1962: 56-57; Ucko & Rosenfeld 1967: 74). Laming-Emperaire's appeal to naturalistic unilinear theories is

evident in her conceptualization of the Palaeolithic artistic record. Laming-Emperaire would also adopt tenets of degradation theory in her understanding of non-figurative motifs. Laming-Emperaire's belief that non-figurative motifs were distortions of naturalistic forms reflects those of Leroi-Gourhan. In fact, Laming-Emperaire felt that many of the abstract 'signs' were schematized renderings of female representations (Laming-Emperaire 1962: 211; Ucko & Rosenfeld 1967: 221). Like Leroi-Gourhan, she believed that the non-figurative motifs were a part of the cultural symbolic system (Laming-Emperaire 1962) and thus helped pave the way to a symbolic understanding of non-figurative representations in the Upper Palaeolithic.

Max Raphael's approach represents an interesting case in the understanding of non-figurative forms. Raphael was a Modernist art historian of Marxist methodology and served as a professor in the Berlin Volkshochschule (Truitt 1971). In his presentation, analysis, and interpretation of the Palaeolithic artwork he provides a slight twist to the degradation theory when examining the non-figurative forms. Raphael recognized variation in the copies of images but did not believe that the variations resulted in unintelligible representations (Raphael 1945: 1-19). He also rejected any unilinear progressive model of primitive forms to highly realistic forms. Instead he correctly advocates that all forms are contemporaneous and represent ideas and life in the Upper Palaeolithic (Raphael 1945). According to Raphael, the stylistic geometric forms are not the result of a degradation of natural forms relating to skill or style but they are reduced as a result of taboo (Raphael 1945: 14-16). Raphael was very strong in his assumptions of a Palaeolithic culture concerned with magic. He believed that the lack of human depictions and that the majority of the animals drawn in profile showed that there was a

superstition for depicting the human face or the frontal views of animals. He suggested that the geometric motifs showcase frontal views of animals that have been simplified to avoid any taboos of the culture (Raphael 1945: 14-16). For Raphael the non-figurative forms are the representations of weapons and the stylized geometric motifs are intentionally reduced naturalistic forms.

2.5. New developments in the understanding of Paleolithic non-figurative representations: The 1960s and 1970s.

In the last four decades, non-figurative representations have increasingly been recognized for their high levels of symbolic value (Conkey 1978, 1984, Moro Abadía, González Morales & Palacio Pérez 2012: 230-235). This revalorization of non-figurative images is related to a variety of factors: a number of artists in the early 20th century would challenge the assumption that naturalism was the goal in art; Palaeolithic artwork and culture would soon fall under the global domain of research for anthropologists; the *zeitgeist* of unilinear cultural development began to waver under ethnographic studies; and technological developments have shown that non-figurative and figurative images are equally important to understand the symbolic universe of hunter-gatherer societies. All these factors have converged to increase our understanding of the importance and symbolic value of the non-figurative images.

The promotion of artistic progression towards naturalism by art historians was a major factor in early interpretations of Palaeolithic figurative and non-figurative images. As we have seen in the previous pages, the naturalistic ideal that had begun during the

Renaissance had influenced artists, art historians, and art connoisseurs to value realism in artwork. A reaction to this notion in the early 20th century would be pivotal to art history and rock art research. Naturalism emphasised the value of accurate depictions of nature. The first few decades of the 20th century saw groups of artists defying the naturalist paradigm. The artistic world was revolutionised with the emergence of post-impressionism, cubism, and abstract art (Thomson 1998; Collins 2002; Golding 1959; Hilton 1975: 60-144; Karmel 2003; Gooding 2001; Mondrian 1970; Moro Abadía, González Morales & Palacio Pérez 2012: 230-231). The works by artists such as Paul Cézanne, Vincent Van Gogh, Pablo Picasso, Georges Braque, and Piet Mondrian were innovative in the fact that they represented highly skilled and imaginative works that separated themselves from realism (Rewald 1968; Taylor 1968; Barnes et al. 1965: 50-53; Krauss 1983; Hilton 1975; Zurcher 1988; Cogniat 1970; Mondrian 1970). Naturalistic development continued to be asserted by art historians into the first half of the 20th century (Gombrich 1960; Moro Abadía; González Morales; Palacio Pérez 2012). Ernst Gombrich's works illustrate the impact of naturalism during this period of time (Gombrich 1950, 1960). However, during the 1960s and 1970s, it became evident that art historians could no longer ignore the importance of non-figurative images not only in contemporary art but also in art history. These images provided evidence that the goal of the artistic endeavour was not a progression towards realism and that abstract images could hold great meaning and value. The fact that art historians began to recognize the value of abstract representations of their own time helped to open up the door to recognizing the value of the prehistoric abstract images (Moro Abadía & González Morales; Palacio Pérez 2012: 230-235). The degenerative theory to describe

non-figurative or distorted forms could no longer function because an attempt to represent and copy nature was no longer considered the primary goal or driving force of art.

Together with these developments in art history, ethnographic research has shown that a variety of cultural groups around the world engage in an enormous variety of artistic activity, producing material ranging from simple to technical and complex (Boas 1955; Carpenter 1973; D'Altroy 2003; Faris 1972; Morphy 1990; Morris 1991, 1995; Munn 1986; Myers 1986; Turner 1984; O'Hanlon 1989; Ucko & Rosenfeld 1967: 158). Anthropological developments in the early 20th century challenged traditional conceptions of art. Various ethnographic investigations, such as those conducted by Franz Boas (1955) and Edmund Carpenter (1973) would shed light on the complexity of seemingly simple cultural materials and the cultures themselves. These new perspectives would put the nail in the coffin of cultural evolutionism and inspire new investigations and insights into the examination of non-figurative images beginning in the 1970s and continuing in contemporary discussions (Conkey 1978, 1984; Moro Abadía, González Morales & Palacio Pérez 2012; Nowell 2006; White 1992, 1997; Wobst 1977).

Anthropological studies around the world in the twentieth century that were closely tied to archaeology provided strong evidence of the high symbolic values of abstract designs (Moro Abadía & González Morales 2013: 283; Munn 1986; Morphy 1990; Faris 1972; Myers 1991; Strathern & Strathern 1971). Of particular importance was the work by Franz Boas. In his book *Primitive Art*, first published in 1927, Boas was able to provide detailed accounts of the artistic material produced by a large variety of tribes and cultures around the world. Although there was a primary focus on the aesthetics and pleasure of the mastery of technique and form, Boas was able to recognize the cultural

values of non-figurative images (Boas 1955: 22-25). Boas identified the value of symmetry created by the simplistic dots and lines produced by the inhabitants of Tierra del Fuego, the level of expression seen in the scratches in ostrich eggs made by African Bushmen, and the relevance of simplistic representations amongst the masterful paintings made by the Melanesians in New Guinea (Boas 1955: 23-24). Boas later went on to describe the artistic and cultural values of symmetry, inverted symmetry, and curved and straight lines (Boas 1955: 31-40). According to Boas, the present form of artwork (decorative or naturalistic) was less important than the understanding that they function as two different sources of artistic activity and that geometric images contain representative value when they function as social conventions (Boas 1966: 6).

Initial interpretations of Palaeolithic representations were developed in the context of modern Western understandings of art. Anthropological research would show that Western notions of art are not culturally universal (White 2003: 24-30). The 1950 publication by Edmund Carpenter noted differences in observation, environmental and space-time perception, and understanding of 'artistic' cultural material (Carpenter 1973: 26-31). The Aivilik people, studied by Carpenter, have no distinction between utilitarian objects and decorative objects. While some products are better than others, there is no value placed on originality or individual expression (White 2003: 27; Carpenter 1973: 191). What these ethnographic examples show us is that art is not art in the Western sense. Perception and function of cultural products will fit into various schemes depending on the cultures. Palaeolithic representations can no longer be understood as 'art' and non-figurative motifs need to be conceptualized as equally important as figurative art.

A side effect of the anthropological investigations around the world was a change in Western thinking of cultural development. Unilinear evolutionism had dominated traditional theories of cultural development during the 19th century (Fraser 1966: 1, 2; Conkey 1988: 301). The idea was that primitive people, around the world and of European ancestry, represented universal stages of cultural development with the apex being Western civilization (Balfour 1893; Blocker 1994: 42-44; Bowler 1993, 2003; Fraser 1966: 1, 2; Haddon 1895). These 19th century views of cultural development were ultimately ethnocentric, racist, embedded in colonialism, and not always based on empirical investigation and fieldwork (Blocker 1994: 42, 43). Anthropological investigations of the 20th century showed through fieldwork and cultural interaction that the evolutionary model for cultural development was too simple to account for a huge diversity of artistic representations (Blocker 1994: 41-44). Various anthropological case studies would ultimately change the perception of cultural development. The once 'primitive' cultures of contemporary were now interpreted as highly complex in their cultural structure and activity. Like the cultures at large, there is no evidence for a gradual evolutionary capacity for art (Mithen 1996a: 668). The interpretation of these cultures as 'complex' influenced the anthropological and archaeological research on prehistoric cultures.

2.6. Recent developments in the study of prehistoric non-figurative images

As we have seen in the previous section, beginning in the 1960s and peaking in the 1980s there is an increased academic interest and exploration of the symbolic value

and cultural importance of non-figurative images, portable works, and personal ornaments in the field of Paleolithic art (Conkey 1983, 1987; Laming-Emperaire 1962; Lewis-Williams & Dowson 1988; Marshack 1972; Moro Abadía & González Morales 2013: 271-274). The altered understandings of the symbolic value of Upper Palaeolithic imagery have largely been expressed through structuralism and semiotics (Conkey 2009; Faris 1983; Laming-Emperaire 1962; Leroi-Gourhan 1968; Moro Abadía, González Morales & Palacio Pérez 2012: 230; Sauvet & Sauvet 1977; Sauvet, Sauvet & Włodarczyk 1977). The underlying assumption to these contemporary approaches and their development is that non-figurative images contain a large degree of symbolic value and are contemporaneous with figurative representations. The developed understandings and interpretations of Palaeolithic imagery that took place in the late 20th century continue to influence our understandings today. These ideas further our understandings of Upper Palaeolithic representations and the cultures that produced them.

Seminal works by Palaeolithic pioneers André Leroi-Gourhan and Annette Laming-Emperaire were published in the 1960s. Leroi-Gourhan and his provisional work and influence on cave art studies have already been discussed (please see above). The detailed systematic and analytical nature of their work has provided the preliminary framework for current cave art investigation. While many of their interpretive ideas have been subject to criticism, such as the practicality of defining and organizing cave sections (Ucko & Rosenfeld 1967: 196-198; Vialou 1981, 1983) and that all images are symbolic representations of femaleness and maleness (Ucko & Rosenfeld 1967: 213-223), two general concepts of their work are today considered as particularly relevant. The first is that non-figurative representations have symbolic meaning beyond their literal naturalistic

depiction. The second is that representations are organized spatially into a coherent structured system.

Leroi-Gourhan revolutionized understandings of Palaeolithic representations with his monumental work *La Préhistoire de l'art occidental* (1965). In this book, Leroi-Gourhan broke away from traditional approaches to understanding Palaeolithic motifs. One of the innovative tenants of Leroi-Gourhan's approach was that Palaeolithic parietal art did not represent aesthetic naturalism but that the images formed a symbolic language that could be read and understood by Palaeolithic cultural groups (Leroi-Gourhan 1965). According to Leroi-Gourhan, Palaeolithic images represented a binary opposition of maleness and femaleness (Leroi-Gourhan 1964, 1965; Ucko & Rosenfeld 1967: 139-141). In his detailed analysis of Palaeolithic cultural sites, Leroi-Gourhan documented the domination of two prominent images: the horse and the bison (Leroi-Gourhan 1965; Ucko & Rosenfeld 1967: 140). Leroi-Gourhan believed that these animals, along with the non-figurative signs, were the primary images maleness and femaleness and used this distinction to classify all types of Ice Age images (Leroi-Gourhan 1964, 1965; Ucko & Rosenfeld 1967: 141). Almost at the same time, Laming-Empeaire had equally documented the juxtaposition between animal species and non-figurative motifs and supposed that the contrast must represent maleness and femaleness (Laming-Empeaire 1962). The main difference between the conclusions of both researchers is that, while Leroi-Gourhan had attributed maleness to the horse and femaleness to the bison, Laming-Empeaire assumed the opposite (Laming-Empeaire 1962; Leroi-Gourhan 1965; Ucko & Rosenfeld 1967: 147). Specific meanings were of less importance to the researchers than that juxtaposed symbolic themes are recognized (Ucko & Rosenfeld 1967: 147). What is

most important here to the study of abstract signs is that for the first time the non-figurative representations are interpreted as part of the same symbolic continuum as the figurative motifs.

Advocating a form of symbolism that extends beyond the literal depiction of animals enabled the non-figurative images to be fundamental in the interpretations of the symbolic nature of the Upper Paleolithic cultures. For the first time, non-figurative forms were taken out of a rudimentary interpretive context and were given as much symbolic value as the naturalistic images that had dominated the investigations of Upper Palaeolithic imagery. Leroi-Gourhan himself believed that the non-figurative forms were the result of an artistic evolution towards highly stylized conventional figurative representations (Leroi-Gourhan 1993: 396). Leroi-Gourhan's and Laming-Emperaire's interpretations had a great impact in modern understandings of the symbolic value of non-figurative images. Their insights into the placement of the artwork would influence structuralist and semiotic approaches to Upper Palaeolithic representations.

Leroi-Gourhan and Laming-Emperaire suggested and demonstrated that caves were highly organized spaces (Conkey 1987: 414; Conkey 1988: 308-309; Laming-Emperaire 1962; Leroi-Gourhan 1965). Although Leroi-Gourhan's direct relationship with structuralism is ambiguous (Moro Abadía & Palacio-Pérez 2015), the parallels between his approach and that of structuralism have been pointed out by several authors (Bahn & Vertut 1997: 196; Clottes, 2011: 31; Conkey 2001: 297; Dobres 2001: 67; Lorblanchet 1999: 174; Sauvet 2004: 260-261; White 2003: 56; Whitney 2005: 145; Moro Abadía & González Morales 2012: 265). Leroi-Gourhan promoted the idea that cave paintings represent a symbolic language system that could be read by Palaeolithic

peoples (Leroi-Gourhan 1958; Moro Abadía & Palacio-Pérez 2015: 665-666). He was able to develop a generalized context of the cave environment by dividing each cave into different regions: the first point of representations, passages that connect to large galleries, points at the beginning of fissures, the deepest region of decoration, the central part of decorated walls in large galleries, marginal zones around the central part of the cave, and points inside fissures, diverticules, and alcoves (Leroi-Gourhan 1965; Ucko & Rosenfeld 1967: 40-41). The organized representations of images in these well-defined areas constitute the basis of Leroi-Gourhan's juxtaposed symbolic system of femaleness and maleness (Leroi-Gourhan 1965). Laming-Emperaire proposed a simpler model concerning the organization of the paintings, engravings, and bas-reliefs. She divided representations into those in areas of natural daylight and images found deep within the caves interior (Laming-Emperaire 1962; Ucko & Rosenfeld 1967: 43-44). Laming-Emperaire identified the main differences in open-air sites and deep cave sites as the types of images and animals that were represented in each. Open-air sites contained mainly horse and bison but lacked dangerous animals. The deep caves contained ambiguous signs, tectiforms, and many dangerous animals such as the rhinoceros, mammoth, and feline (Laming-Emperaire 1962; Ucko & Rosenfeld 1967: 144). Although both Leroi-Gourhan and Laming-Emperaire developed different models of organization for the cave contexts, their research would implement the systematic organizational abilities of Palaeolithic people into rock art research. For both researchers the symbolic value of the images and their organized placement throughout the cave environments represent a complex system of beliefs and practices (Laming-Emperaire 1962; Leroi-Gourhan 1965; Ucko & Rosenfeld 1967: 146). These interpretations would ultimately

pave the way for the prevalence of semiotics in cave art research.

Following the abovementioned changes in art history, anthropological investigations, as well as the monumental works of Leroi-Gourhan and Laming-Emperaire, the 1970s and 1980s brought about a decreased importance of naturalism in Paleolithic art and a structural semiotic application to Pleistocene images. The fundamental idea of structuralist and semiotics is that there is no simple, consistent, or necessary relationship between a representation and what it might stand for (Chippindale 2004: 36, Bal & Bryson 1991; Danesi & Santeramo 1999; Eco 1976 Jamani 2011; Pierce 1999; Saussure 1999). The main idea derived from this assumption regarding non-figurative images is that any particular representation lacking a clear meaning or form may still hold high symbolic value. In the context of a symbolic system that includes abstract signs, it can be assumed that the non-figurative forms are symbolically equivalent to the figurative motifs. During the latter stages of the 1970s authors began to apply the semiotic philosophy to Palaeolithic art and imagined the plethora of images as part of a symbolic language for transmitting social information (Conkey 1978, 1984; Moro Abadía, González Morales & Palacio Pérez 2012:230-235; Wobst 1977). The general idea is that symbolic motifs can obtain particular social criteria that could be understood and read by the cultures that produced and lived with them (Moro Abadía & González Morales & Palacio-Pérez 2012: 231; Rowntree & Conkey 1980). Any image that fits into this symbolic scheme would transmit messages or meaning to the Pliocene people but are lost for contemporary humans. Under this paradigm all motifs are potentially functional or conventional.

The revolution of Upper Palaeolithic thinking was completed by the late 20th

century. The acceptance of non-figurative forms in art history, empirical studies conducted by ethnographers, the influence of structuralism, and the rise of semiotics converged in the 1980s to change how researchers understood Palaeolithic artwork and the cultures that produced them (Moro Abadía & González Morales 2013). Prior to this period, research on Upper Palaeolithic parietal had mainly focused on the grandiose figurative cave paintings (Cartailhac 1902; Cartailhac & Breuil 1907, 1908; Capitan & Breuil 1901). Research in the 1980s and in the contemporary period tends to recognize all representational work, including non-figurative forms and mobiliary artwork, as being of equal importance and value as figurative images (Moro Abadía, 2004; Moro Abadía & González Morales 2013: 271-273; Moro Abadía, González Morales & Palacio Pérez 2012; Moro Abadía & Nowell 2015). Non-figurative images are no longer seen degraded motifs or the first steps towards an ideal form. Instead, these images are known to have the same importance of figurative representations and, therefore, they are playing a major role in current debates and discussions on Palaeolithic art and symbolism (Moro Abadía, González Morales & Palacio Pérez 2012: 231). Additionally, other developments in the field of archaeology have influenced modern conceptions on Paleolithic non-figurative art. Arguably the most relevant and subversive example of how the revolution in representational forms has effected and researchers to explore the value of non-figurative forms is the recent findings of geometric etchings on small pieces of ochre found in Cape Town, South Africa.

2.7. Revolution in Action

Archaeological evidence unearthed at the Blombos Cave site has provided great insight into our understandings of the symbolic endeavour of our species. Located in South Africa, Blombos cave reveals some of the earliest known examples of symbolic behaviour. The cave site was occupied ca. 75,000 years ago. Material evidence includes bone and bifacial stone tools, engraved ochre, shell ornaments, and engraved bone fragments (Church 2006: 381-382; D'Errico, Henshilwood & Nilssen 2001; Henshilwood 2009; Henshilwood & D'Errico 2011; Henshilwood, D'Errico & Watts 2009; Henshilwood, D'Errico, Vanhaeren, Van Niekerk & Jacobs, 2004; Mourre, Villa, Henshilwood & C. S. 2010). The geometric engravings on the incised bone and ochre artifacts are of conscious design (Bahn 1998; d'Errico & Villa 1997; Henshilwood, 2009; Henshilwood & D'Errico, 2011: 82-88; Henshilwood et al. 2002, 2011; Henshilwood and Nilssen 2001:313-316 Henshilwood, D'Errico and Watts 2009:28; Noble & Davidson 1996) and demonstrate the existence of symbolic behaviour since the emergence of anatomically modern humans. The existence of these artifacts in the archaeological record provides conclusive evidence that symbolic thought and expression is a trait that has always been a part of the human species. However, this notion has not always been promoted and without the revolution in understanding Palaeolithic art that arose in the 20th century, it is unlikely the findings at Blombos cave would have any impact on our association of symbolism with ancient humans.

The findings at Blombos Cave have been substantial to our understanding of the human artistic endeavour. Additionally, the material recovered has provided a pivotal

piece of evidence against the Eurocentric ‘Human Revolution’ model. This model states that despite humans evolving in Africa roughly 200,000 years ago, they did not develop behavioural modernity until arriving in Europe at the beginning of the Upper Palaeolithic (Renfrew, Frith and Malafouris 2008: 1935, 1936). The copious amounts of artwork that adorns the caves in France and Spain, the so-called artistic revolution, have often been cited as concrete evidence of the human revolution model (Pfeiffer 1982). The geometric etchings and shells of adornment have shown us that symbolic displays are not a European innovation but are, although perhaps not exclusively, human trait. Moreover, these materials indicate that abstract representations can have symbolic significance. However, without the changes in Palaeolithic cultural understandings in the late 20th century, it is difficult to believe that the materials recovered from the cave site would have had any substantial effect on our understanding of human cultural development. As talked about above, the importance of non-figurative images was typically overlooked in early Palaeolithic studies. Moreover, personal ornaments such as shells and portable artifacts containing representations were mainly considered crafts or purely decorative (Moro Abadía 2006: 122). However, the paradigm changes developed through the 20th century have enabled the discovery of artwork and shells at Blombos Cave to be one of the most important in our understanding of human nature and representative symbolic expression.

Chapter 3

The Database

The focus of this chapter is to make explicit the methodology used to gain and to construct a database recording Paleolithic non-figurative images from the caves of Cantabria, Spain. The chapter will begin by describing the database in detail. I will explain the software used, the categories created, the relevance of each category, and how images were placed into different conceptual boxes. I will then proceed to define each non-figurative image analysed and documented in the database. While many of the non-figurative representation can be understood *a priori*, others are complex and it is therefore necessary to specify the criteria used to define each type of motif. Finally, I will conclude by providing a brief summary of each of the caves in Cantabria under analysis containing non-figurative images. Each individual cave summary will include quantitative statistics, historical information, and dates where available.

3.1. The Database: General Considerations

The database will be one of the first collections of non-figurative cave images in the region of Cantabria. In chapter 2, I discussed a history of parietal research that mostly excluded or ignored non-figurative representations. However, as I mentioned in the last sections of the previous chapter, today prehistoric art specialists increasingly recognize

the symbolic and artistic value(s) of non-figurative forms. In this setting, a database compiling the non-figurative images from one of the most important regions for the study of prehistoric art may help to promote a better understanding of Paleolithic art. The database chronicles a total of nine-hundred-twenty-nine representations found in thirty-nine cave sites. The database will present factual information about the caves and the images found within. The completion of the database will additionally serve as a base to develop distribution maps, highlight the most popular forms and techniques used in the region, and ultimately aid interpretations of conventionality (see chapters 5 and 6).

Given the nature and the scope of this project (MA thesis), the information presented in the database is not the result of my own archaeological endeavours. While I visited several caves in Spain during my fieldwork including El Castillo, Tito Bustillo, El Sidrón, Las Monedas, and the Altamira reconstruction museum, most of the information that I used to create the database is based on extensive bibliographical research. The caves in Cantabria have been largely documented and figurative and non-figurative forms presented in different kinds of publications. This project investigates these documents, separates non-figurative from figurative motifs, classifies each according to the categories within the database, and places all non-figurative forms into a large and focused data file. While the conclusions are certainly provisory, I hope this work will contribute to a better understanding of the importance of non-figurative imagery in prehistoric societies. It should be noted here that while the list of cave art sites discussed in this project is extensive, some Palaeolithic rock art sites in the region, such as “La Graciosa II”, “El Risco”, “El Portillo II”, and “Cueva Auria”, have been omitted from the project. This is

because these are lesser known sites and documentation was not accessible during development of the database.

Concerning the database, two levels of analysis are considered. In the first place, the database provides information about the **context** in which Paleolithic non-figurative images are found, i.e. the caves. In this setting, the database provides brief information of each cave in which Paleolithic non-figurative images have been found in Cantabria. When the information is available the database provides the cave name, the region (Cantabria), the town or municipality in which the cave is located, the discoverer of the cave, the date of discovery, and GIS coordinates to facilitate the development of distribution maps. In the second place, the database provides essential information about the **contents** of non-figurative art in the caves of Cantabria, i.e. it provides specific information about each individual non-figurative motif. Several criteria are considered to examine Paleolithic non-figurative images, including the kind of image (please see below), the technique used to create the form (painting, engraving, finger-fluting, or archaeological sketch), the colour of the motif, the spatiality of the image within the cave (entrance, interior cave, or deep cave), the association (direct and indirect) that can be established with other images within the cave, and the chronology (if some kind of relative or absolute date has been attributed to the motif). While some of the criteria used to describe non-figurative images may sound evident, the use of certain categories may require some explanation.

The most important category in the database is the generalized form of the motif. In this project I refer to a total of fourteen types of non-figurative forms. In a basic level,

these categories may be divided into two main groups: basic and complex forms. **Basic forms** include lines, dots (large or small), triangles, circles, half-circles, ovals, and zig-zags, that is, all those forms that can be considered universal fundamental motifs of the geometric style (Grosse 1928: 15-17; Haddon 1895; Riegl 1992: 15-40). **Complex forms** include barbed images, barbed, claviform, geometric, positive and negative hand-stencil, quadrangle, and vulva; that is, forms that are too sophisticated to be universals in the geometric style. It must be stressed here that the categories used in this project are generalized. It is certain that there will be technical differences between particular motifs placed in the same category. Due to such technical differences it is highly possible that representations that would have been different to the Palaeolithic people have been placed in the same generalized categories in the preceeding analysis. This may be particularly true for claviforms and quadrangles. However, creating unique categories for minute variations in each motif would have convoluted and bloated the data. The generalized categories developed and adopted are sufficient for identifying and placing each motif. While Paleolithic art specialists have been using these categories since the beginnings of the twentieth century (Breuil 1905, 1952; Laming-Emperaire 1962; Leroi-Gourhan 1958, 1965, 1968), some of them require brief explanation.

According to Leroi-Gourhan, **barbed images** are those that resemble an arrow (Leroi-Gourhan 1968: 514-516). In other words, at the core of these forms there is a straight line that is completed by other kind of oblique and perpendicular lines. Usually, near the top of the central line are acute diagonal lines that project in the same downwards direction as the long body line. Often near the bottom of the center line will be more

diagonal lines and two short lines that are parallel to the center line. These short parallel lines can be found on either side of the center line.

The **claviform** is a distinct image in Upper Palaeolithic culture. This term was first used by Leroi-Gourhan (1958: 388) and, since then, it has been of common use among Paleolithic art specialist. This motif takes the general shape of a rectangle (Leroi-Gourhan 1968: 513) that may be positioned vertically or horizontally. The rectangular body of the claviform is slightly curved upwards when the motif is positioned horizontally and it curves to the left when it is positioned vertically. At the center of the top of the claviform's body is a peak that is usually modest. In the case of horizontal claviforms, the peak projects upwards and in the vertical claviform the peak generally projects to the left.

Geometric motifs are geometric designs that do not fall into any of the other general categories. These motifs are usually restricted to one panel in one cave or even just one individual motif. Because of these motifs lack resemblance to any of the other classifications, I created an all-encompassing category for them. While I understand that condensing into one category all the diverse range of geometric non-figurative images found in Cantabrian caves is reductionist, this strategy prevents the database from becoming bloated.

Hand prints are of particular interest to archaeologists. The hand stencil is a global image (Giedion 1962: 93) that, in the case of European Paleolithic art, is associated to a very specific chronology. Hand prints are intriguing in the sense that they are symbolic forms of representation displaying a real world physical aspect of the painter. Representations of human hands can be of two types. *Positive hand prints* and *negative*

hand stencils (Alpert 2008: 5, 6; Bahn & Vertut 1997: 119-121; Giedion 1962: 95-98; Ucko & Rosenfeld 1967: 99). Positive hand prints are made when the creator places their hand in a pigment and then presses it on the wall (Alpert 2008: 5, 6; Bahn & Vertut 1997: 119). Negative hand stencils are produced when the creator places one hand against the wall and sprays pigment over it (Alpert 2008: 5, 6; Bahn & Vertut 1997: 119; Lawson 2012: 131). Negative stencils are the most popular in the ice age caves and are typically from the Gravettian period (White 2003: 82).

Quadrangles have been documented in Paleolithic caves since the beginnings of the twentieth century. Its general form is that of a rectangle that can be positioned either horizontally or vertically (Leroi-Gourhan 1968: 513). What prevents these forms from being classified simply as a rectangle is their consistent design. The quadrangle interior is generally divided into three sections. Two dividers near the center of the interior create three sections of equal measure. While there is variation within the interior, each quadrangle is generally divided in the same fashion. Some of the best-preserved quadrangles in Cantabria come from the caves of Altamira (Clottes 2008: 281, 282) and El Castillo (Clottes 2008: 156, 157)

The **vulva** is a triangular-like design that appears in a few cave sites. While these images could be placed into the triangle category, they have been interpreted as vulvas since the time of Breuil's and Leroi-Gourhan's work (Breuil 1952: 331; Leroi-Gourhan 1965). These triangular-like motifs generally contain a thin line through the center and certainly resemble female genitalia.

Another category of classification that may require clarification is the **spatiality** of the image within the cave. Each cave system is of unique design. No two caves are

alike and each will naturally be structured in a different way. However, following the work of a number of specialists, Leroi-Gourhan in particular (1958, 1968), and despite the environmental variation of each individual cave, we may infer three general areas in Paleolithic caves: the entrance, the interior, and the deep cave. The entrance refers to areas near the main opening of the cave where natural light would have illuminated the cave walls. The interior refers to the middle areas of the cave and the deep cave includes all cave areas well past the central points.

Associations among motifs can help us make insights into potential coupling patterns that may exist between specific sets of motifs. The database has included *direct* and *indirect* categories of association. Direct associations are images that appear on the same panel as the motif being analysed. Indirect associations are motifs that appear in the same passage or chamber as the representation of interest. In this project, figurative representations have been considered as significant in order to determine significant association. Each category of representation allows for both figurative and non-figurative forms. It must be noted that despite superimpositioning and panels containing images from multiple Palaeolithic time periods, the chronology of the images has largely been ignored when determining associations. This is because direct dates are difficult to establish and while older images cannot be considered to be temporally associated with younger images, younger images may have been intentionally associated with older motifs.

With these considerations in mind, I will detail in the second part of this chapter the caves under analysis and the different non-figurative motifs that have been found within them. It is not an objective of this project to describe in detail the history of research at each cave site. However, bibliographic references, when available, have been

provided for a more comprehensive understanding of the various research projects undertaken at each cave.

3.2 Cantabrian Caves with Non-figurative Images (See Appendix A)

Altamira

The cave of Altamira has been extensively discussed (Alcalde Del Río 1906; Altuna & Straus 1976; Álvarez Fernández, Peñalver Mollá & Delcrós Martínez 2005; Álvarez Fernández 2001; Apellániz 1982; Breuil 1952; Breuil & Obermaier 1935; Cabrera-Garrido 1980; Cartailhac 1902; Conkey 1980; Freeman & González Echegaray 2001; García Guinea 1979; García Guinea 1988; González Echegaray 1988; Harlé 1881; Jordá Cerdá 1968, 1973, 1981; Lasheras Corruchaga *et al.* 2005/6; Martí 1977; Moure Romanillo & Bernaldo De Quirós 1995; Moure Romanillo *et al.* 1996; Moure Romanillo & Ortega Mateos 1994; Ripoll López 1988-89; Valladas *et al.* 1992). As discussed in chapter 1, Marcelino Sanz de Sautuola discovered Altamira in 1878. Once the authenticity of the cave art was accepted in the early 1900s, Émile Cartailhac and Henri Breuil travelled to the site to create a full inventory of the images (Lawson 2012: 153). Since this time, Altamira has become one of the most rigorously researched and popular Palaeolithic cave art sites. Since 2004 a programme of research has been re-examining the stratigraphy of the cave mouth and since 2009 a small excavation has been conducted outside the sealing door (Lawson 2012: 254). The cave is naturally structured in a zig-zag pattern. It is 270m long in total with the deepest part of the cave being a narrow meandering passage that is 70m in length (Lawson 2012: 254). Although there are various

parietal representations throughout the cave, the majority of images are found in a cavern, known as "The Hall of Paintings", near the entrance of the cave.

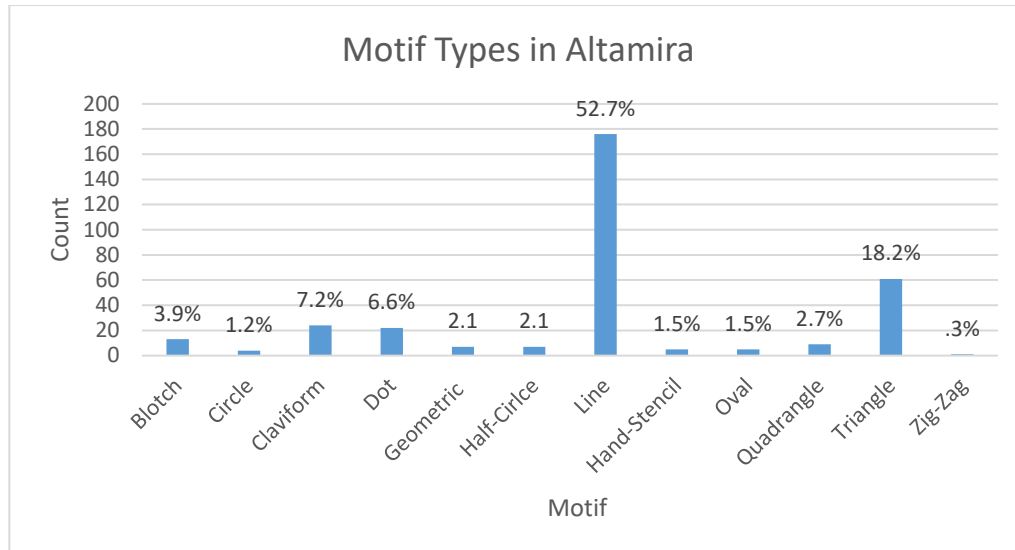


Figure 3. Percentage of motifs in Altamira

Altamira is filled with a variety of figurative and non-figurative motifs. In total there are three hundred and thirty-four non-figurative images within the cave (Figure 3), including one hundred and seventy-six lines (52.7%), sixty-one triangles (18.4%), twenty-four claviforms (7.2%), twenty-two dots (6.6%), twelve blotches (3.6%), nine quadrangles (2.7%), seven geometric images (2.1%), seven half-circles (2.1%), five ovals (1.5%), five hand stencils (1.5%), four circles (1.1%), and one zig-zag (0.3%). The majority of the non-figurative representations are paintings. In fact, of the three hundred and thirty-four non-figurative representations three hundred and thirty-two are paintings. The other two motifs are finger flutings. As it happens in many other caves, paintings are made with either black or red pigment (Figure 4). Two hundred of the paintings are made with black pigment (60.2%) and the remaining one hundred and thirty-two forms are made with red pigment (39.7%). Three hundred and twenty-four of the motifs appear in

the interior (97%) and the remaining ten images are found within the deep cave (3%) (Figure 5). Three hundred and twenty-three of the non-figurative forms are directly associated with other non-figurative forms, three hundred and sixteen are directly associated with figurative motifs and both figurative and non-figurative motifs. Three hundred-and seventeen non-figurative images are indirectly associated with other non-figurative forms, three hundred and sixteen non-figurative images are indirectly associated with figurative images, and three hundred and sixteen non-figurative images are indirectly associated with figurative and non-figurative forms. All of the images are either directly or indirectly associated with non-figurative motifs and three hundred and twenty-seven of the images are directly or indirectly associated with both figurative and non-figurative images (97%). Representations within Altamira belong to all Upper Palaeolithic cultural groups.

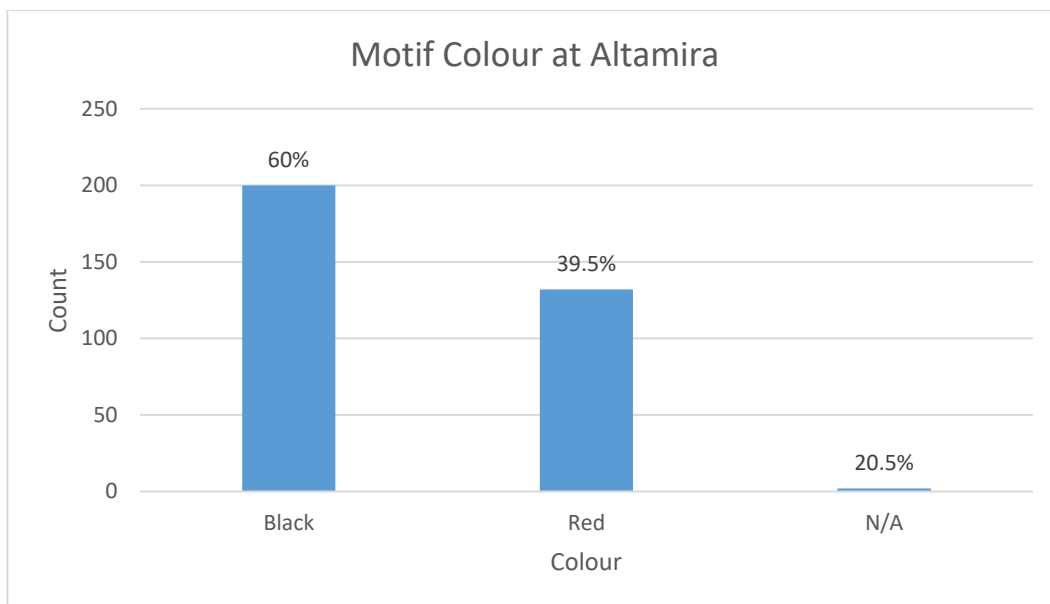


Figure 4. Motif colour at Altamira

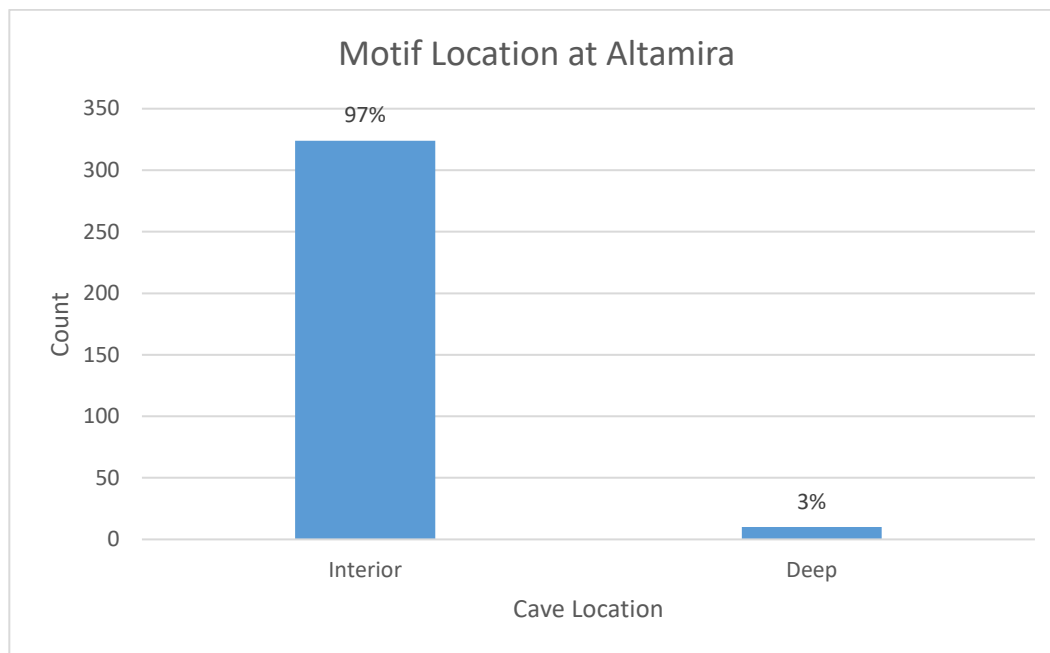


Figure 5. Cave location of motifs at Altamira

Chufín

Chufín is located near the village of Riclones in the municipality of Rionansa. The cave has been moderately documented (Almagro Basch 1973; Almagro, Cabrera Valdés, & Bernaldo De Quirós 1997; Boyer-Klein 1980; González Sainz 2002). The entrance of the cave is located in a cliff on the right bank of the river Lamasón (Ontañón, García De Castro & San Miguel Llamosas 2008: 58). The parietal artwork was first discovered in 1972 by M. de Cos Borbolla. Soon after the discovery was reported to Martín Almagro Basch who began to study the rock shelter. Almagro's report documenting the artwork in the cave was published in 1973 (Ontañón, García De Castro & San Miguel Llamosas 2008: 58). One year later, V. Cabrera Valdés and F. Bernaldo de Quirós began excavating the cave beneath a panel of engravings. Their excavation yielded a variety of lithic

material dating to the Solutrean period (Ontañón, García De Castro & San Miguel Llamosas 2008: 58).

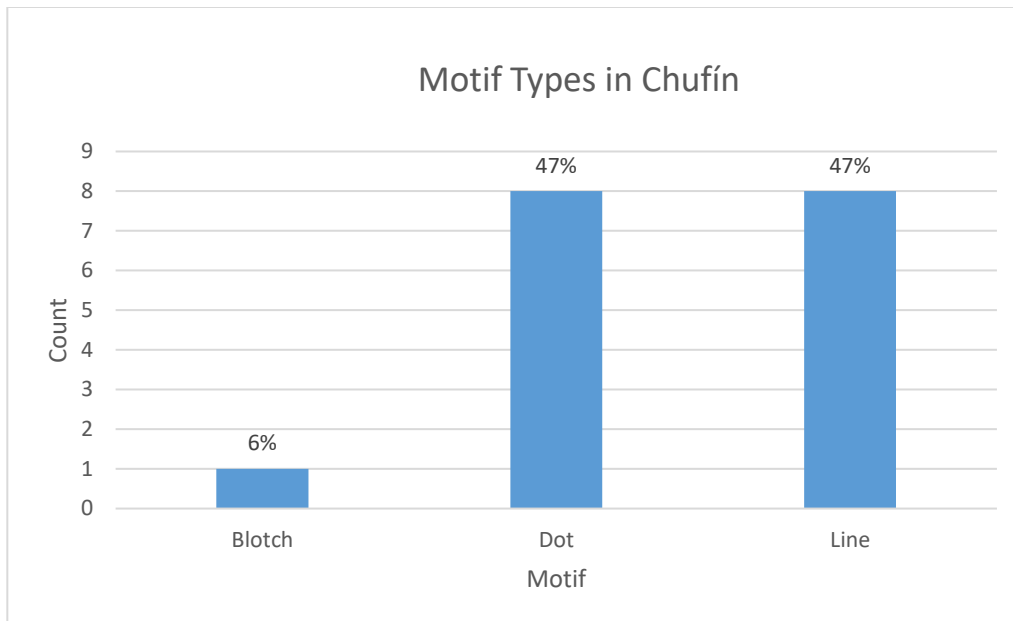


Figure 6. Motif type at Chufín

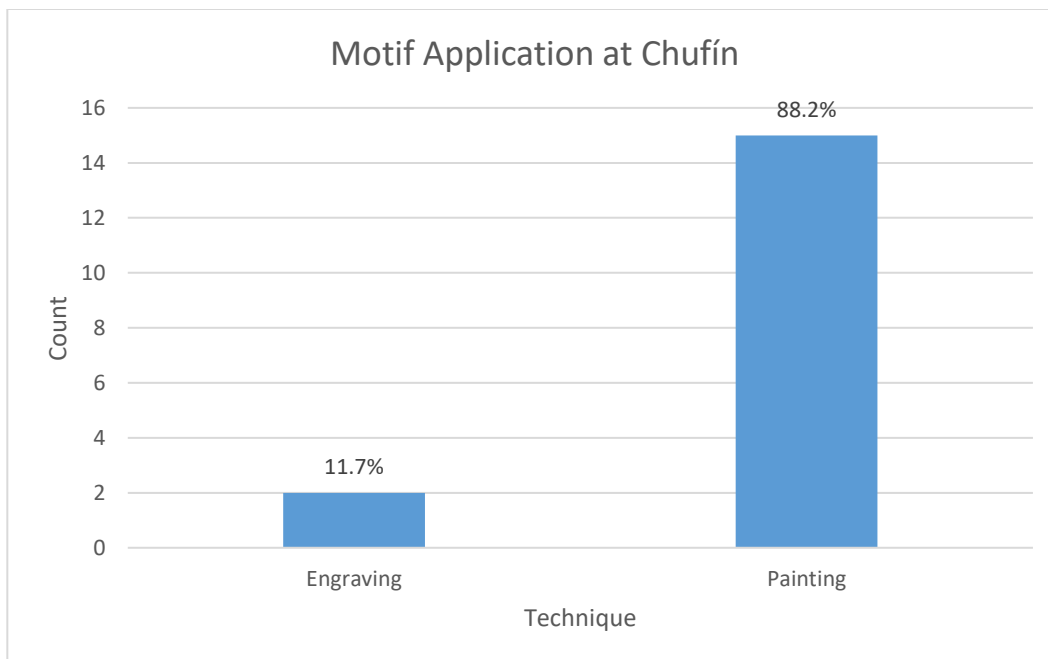


Figure 7. Motif application at in Chufín

The cave is adorned with a variety of painted and engraved figurative and non-figurative motifs. A total of seventeen non-figurative forms have been identified. Eight of the non-figurative representations are lines (47%), eight of the motifs are sequences of small dots (47%), and the other image is a blotch (6%) (Figure 6). The images are either paintings or engravings (Figure 7). The majority of the non-figurative forms are paintings (88.2%), while the minority of images are engravings (11.8%). Red pigment is the most popular in this cave (Figure 8). One image, an engraved line, is located near the cave entrance and the other images are located within the deep cave (Figure 9). Nine of the images are directly associated with other non-figurative forms (53%), one image is directly associated with a figurative form (5.9%), and seven images are directly associated with both figurative and non-figurative forms (41.2%). Eight of the non-figurative motifs are indirectly associated with other non-figurative forms (47%), one image is indirectly associated with figurative forms (5.9%), seven images are indirectly associated with both figurative and non-figurative forms (41.2%), and one image has no direct association (5.9%). The images have been dated to the Solutrean cultural period.

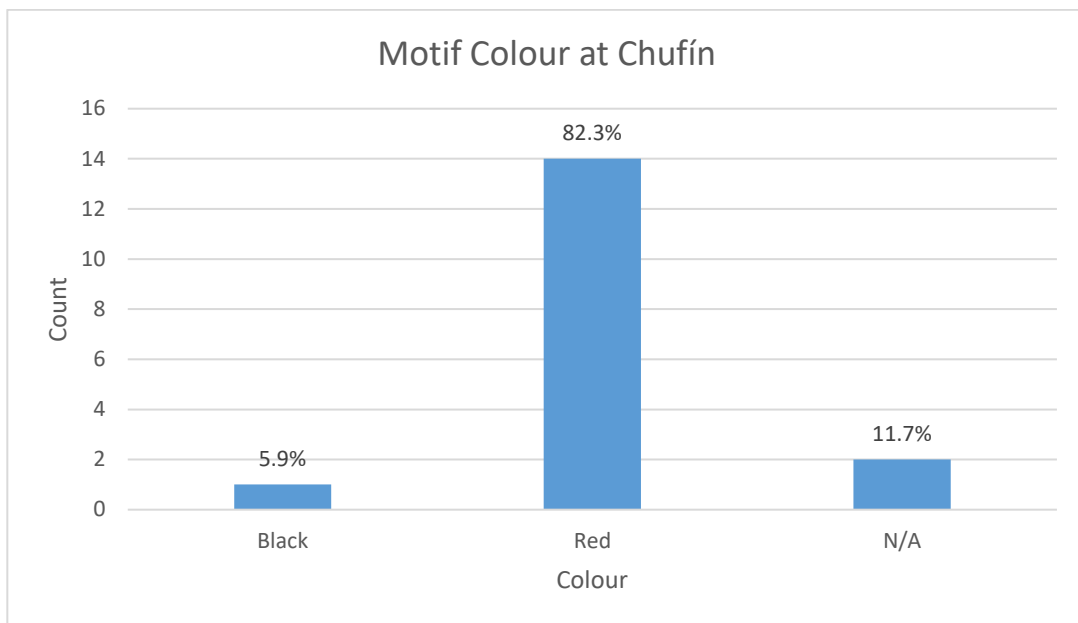


Figure 8. Application technique at Chufín

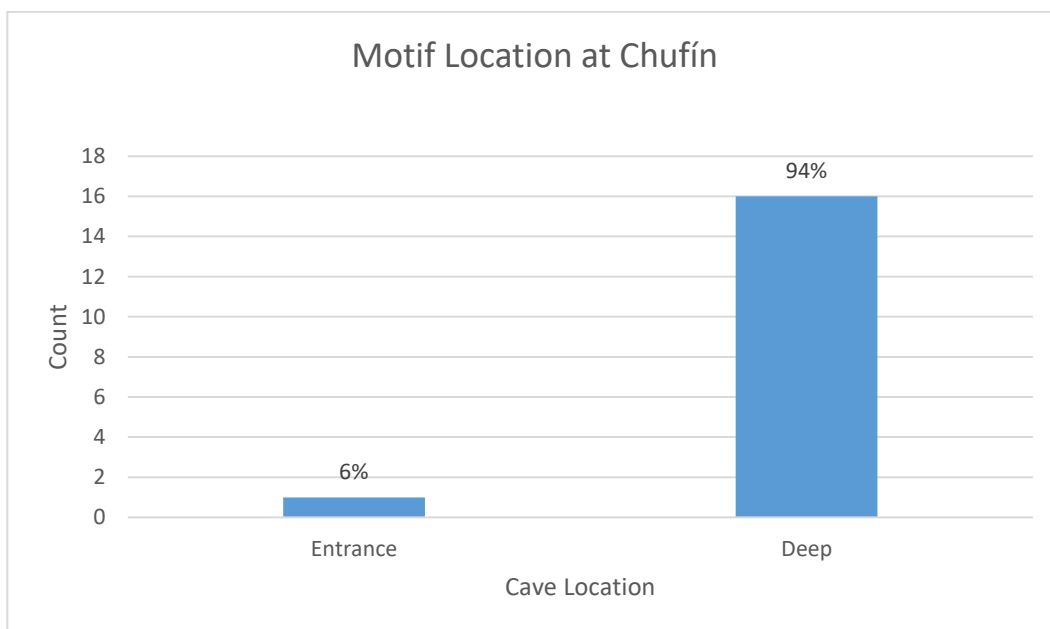


Figure 9. Cave location of motifs at Chufín

Cobrantes

The cave of Cobrantes is located in San Miguel de Aras. It was discovered by Sautuola at the end of the nineteenth century and classified as a rock art site in 1966. The

paintings were published by García Guinea two years later. The cave contains a number of figurative representations and a sparse number of non-figurative representations. The most interesting design within the caverns is an anamorphic owl depicted in a frontal position. There are a total of four non-figurative representations within the cave. Each of the motifs is a single line. Unfortunately archaeological sketches are the only available documents of parietal art for this project. The sketches suggest that the images are traced in black. However, other paintings on the panel appear to have been created with red pigment. The images are located in the interior cave. Each of the non-figurative motifs are directly associated with both figurative and non-figurative forms. The representations within this cave have been dated to the Solutrean cultural period (García Guinea 1968).

Cofresnedo

The cave of Cofresnedo is located in Matienzo. The cave has been modestly documented (Ruiz Cobo & Smith 2001, 2003). The cave was discovered and classified as a rock art site in 1997. The cave contains a variety of non-figurative motifs and a few figurative forms. In total, there are eight non-figurative representations found within the cave. The majority of the paintings within the cave occur in blotched or smeared patterns. Six of the eight non-figurative motifs can be classified as blotches. It has been noted that these images may have once been patterns of dots or lines. However, a number of factors such as running or smeared paint, overlap, and erosion over time have made any identifiable pattern indiscernible. The other two motifs in the cave are short sequences of small dots. Six of the paintings are made with red pigment and the other two paintings are made with black pigment. Two of the images occur near the entrance. The spatiality of

the other images is not marked/documented. Six of the non-figurative forms are directly associated with non-figurative images, two are directly associated with figurative and non-figurative motifs, and one image has no direct associations. Two images are indirectly associated with non-figurative forms, while the other six images have no indirect associations. The Palaeolithic cultural group that these paintings belong to is unclear.

Covalanas

Covalanas is located in Monte Pando in the municipality of Ramales de la Victoria. Cave paintings were initially discovered in 1903 and the site has been extensively documented since (Alcalde del Río 1906; Alcalde Del Río, Breuil, & Sierra 1912; Apellániz 1980, 1982; Bischoff, García Díez, González Morales, & Sharp 2003; González Morales & Moure Romanillo 1988; Moure Romanillo, González Sainz, & González Morales 1990; Moure Romanillo, González Sainz, & González Morales 1991). The entrance of the cave rests on a high cliff bank overlooking the River Calera. The cave immediately divides into two passageways. The right passageway runs straight at a consistent width until it divides into a series of narrow rifts. The end of this passage and its rifts are the location of the parietal representations (Ontañón, García De Castro & San Miguel Llamosas 2008: 116). Alcalde del Río made his first publication on the representations in 1906 and a second publication, in collaboration with Breuil and Sierra, in 1911. Alfonso Moure, César González Sainz, and Manuel Ramón González revisited the cave in the 1980s (Ontañón, García De Castro & San Miguel Llamosas 2008: 116).

The cave is decorated with a variety of figurative and non-figurative motifs from either the Solutrean or Gravettian period. There are in total twelve non-figurative images within the cave. Six of the non-figurative forms are lines (50%), three are quadrangles (25%), two are triangles (16.6%), and one is a barbed motif (8.3%) (Figure 10).

Unfortunately the majority of the non-figurative images are only documented through archaeological sketch (Figure 11). However, the non-figurative images within the cave are all paintings made with red pigment (Ontañón, García De Castro & San Miguel Llamosas 2008: 116-119). All of the motifs are located in the deep cave. Ten of the images are directly associated with other non-figurative motifs (83.3%), seven of the motifs are directly associated with figurative representations (58.3%), six of the images are directly associated with both figurative and non-figurative forms (50%), and one image has no direct association (8.3%). Seven of the non-figurative motifs are indirectly associated with figurative forms (58.3%), six of the motifs are associated with figurative and non-figurative forms (50%), and five images have no indirect associations (41.6%). Ten of the images are directly or indirectly association with non-figurative motifs (83.3%), seven of the images are directly or indirectly associated with figurative motifs (58.3%), and six of the images are directly or indirectly associated with both figurative and non-figurative forms (50%).

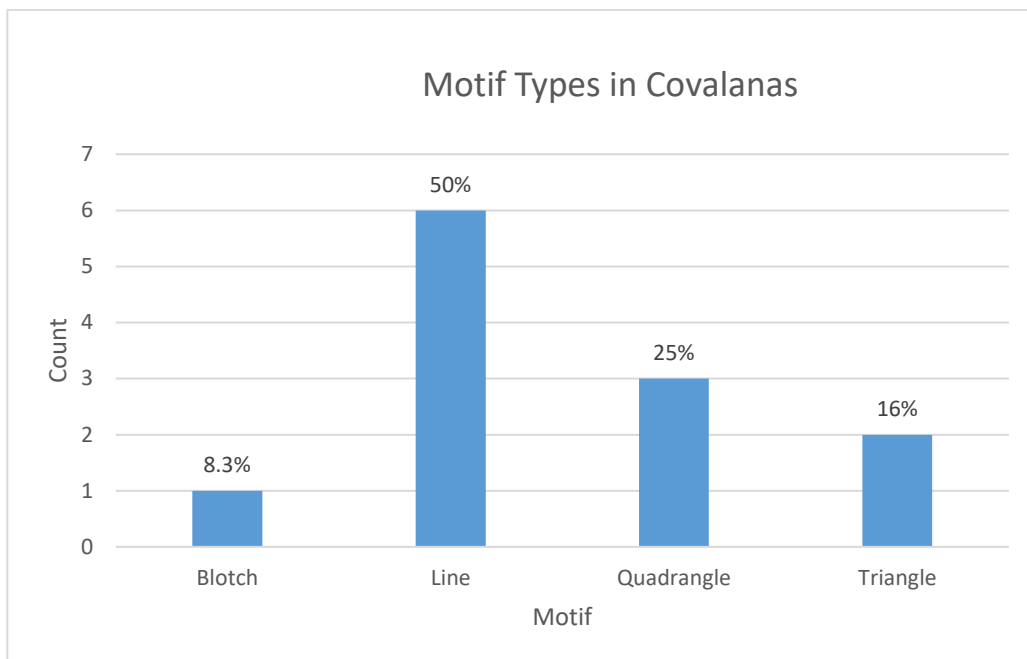


Figure 10. Motif types at Covalanas

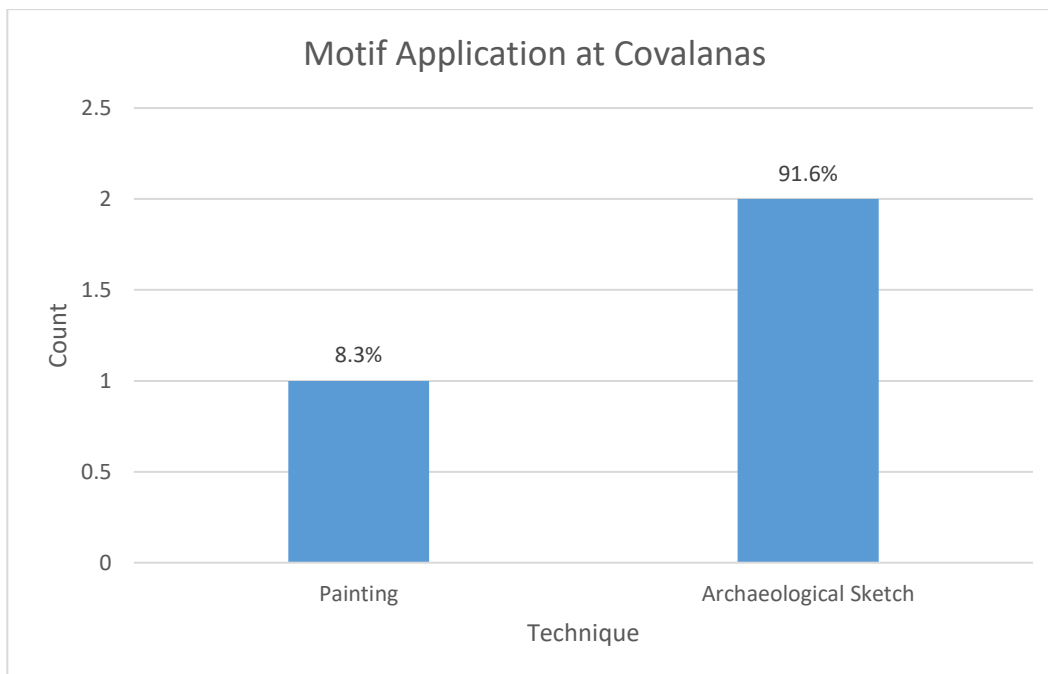


Figure 11. Motif techniques in Covalanas

Cudón

The Cudón cave is located in Cudón, (Miengo Muñoz Fernández, San Miguel Llamosas, & Gómez Arozamenza 1991). It was established as a rock art site in 1933. Excavations in the cave have yielded material from a variety of cultural periods including Mousterian, Chatelperronian, and Magdalenian. The majority of the representations found at Cudón are non-figurative. In sum, there are nine non-figurative forms spread throughout the cave. There is one finger fluted circular pattern, two sequences of dots, four patterns of lines, one open triangle, and one poorly preserved negative hand stencil. The images have been produced using a variety of techniques. Two of the images are developed from the finger fluting technique, one image of lines has been made by engraving, and the other images have been produced by painting. Three of the paintings use red pigment, two use black pigment, and one image can be defined as a polychrome image. The motifs are found within two general areas of the cave. One area is in the interior cave and contains three motifs. The other area is in the deep cave and contains six motifs. Four of the motifs are directly or indirectly associated with non-figurative motifs, while the other six images are in isolation.

Cueva Grande

Cueva Grande is located in Otañes, Castro Urdiales. The cave was discovered and classified as a rock art site in 1993 (González Sainz et al. 1994; González Sainz & Fernández Ramos 1994). Representation within the cave is limited. There are two figurative representations and four non-figurative representations. Two of the non-figurative forms are black blotches. These forms are underneath figurative motifs. Also in

the cave are two line sequences, and a small pattern of dots. All but one of the non-figurative motifs are paintings. The other is an engraved line. The paintings within the cave make use of black pigment except the sequence of dots that was produced with red pigment. Three of the images are located within the deep cave, while the spatiality of the other forms is unclear. All of the images are directly associated with non-figurative motifs. Two of the images are directly associated with figurative representations. The Palaeolithic cultural group that these non-figurative representations belong to is unclear (González Sainz et al. 1994; González Sainz & Fernández Ramos 1994).

El Arco

El Arco is located in Ramales de la Victoria. The cave was discovered and classified as a rock art site in 1996 and has been documented by a number of specialists (González Sainz, & San Miguel Llamosas 1996, 1997, 2001; San Miguel Llamosas & Gómez Arozamena 1992). El Arco is a diverse and complex cave filled with numerous figurative and non-figurative motifs. In total there are forty six non-figurative motifs within the cave. There are fourteen oval images (30.4%), eleven lines (24%), eight half-circles (17.4%), six quadrangles (13%), four circles (8.7%), two geometric motifs (2%), and one blotch (2.2%) (Figure 12). Two of the motifs are engraved into the rock wall (4.3%) and six of the images were created with paint (13%). Unfortunately, thirty-eight motifs in the cave are only documented through archaeological sketch (Figure 13). However, these archaeological sketches are likely paintings. All of the painted motifs and archaeological sketches are made with the colour red. All of the non-figurative motifs are located in the deep cave. Forty three of the non-figurative motifs are directly associated

with other non-figurative motifs (93.5%), forty of the non-figurative images are associated with figurative forms (87%), thirty-eight of the non-figurative representations are directly associated with both figurative and non-figurative forms (82.6%), and one non-figurative form has no direct associations (2.2%). Forty-three images are indirectly associated with non-figurative forms (93.5%), forty images are directly associated with figurative and non-figurative motifs (87%), and two images have no indirect associations (4.3%). Forty three images are either directly or indirectly associated with other non-figurative motifs (93.5%) and forty images are either directly or indirectly associated with figurative motifs (87%). The Upper Palaeolithic cultural period that these images belong to is unclear.

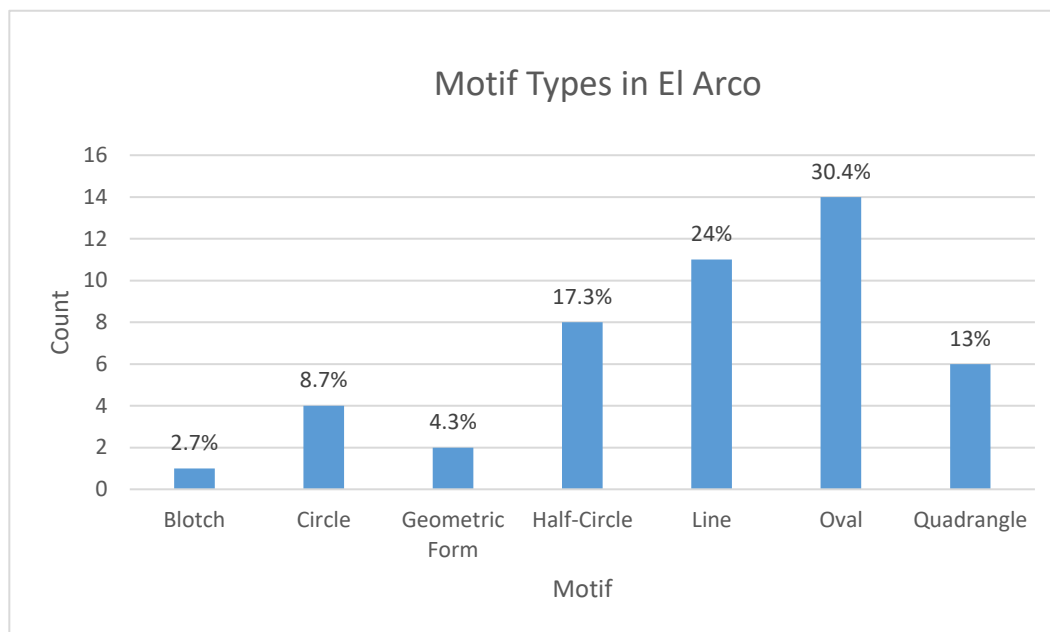


Figure 12. Motif types in El Arco

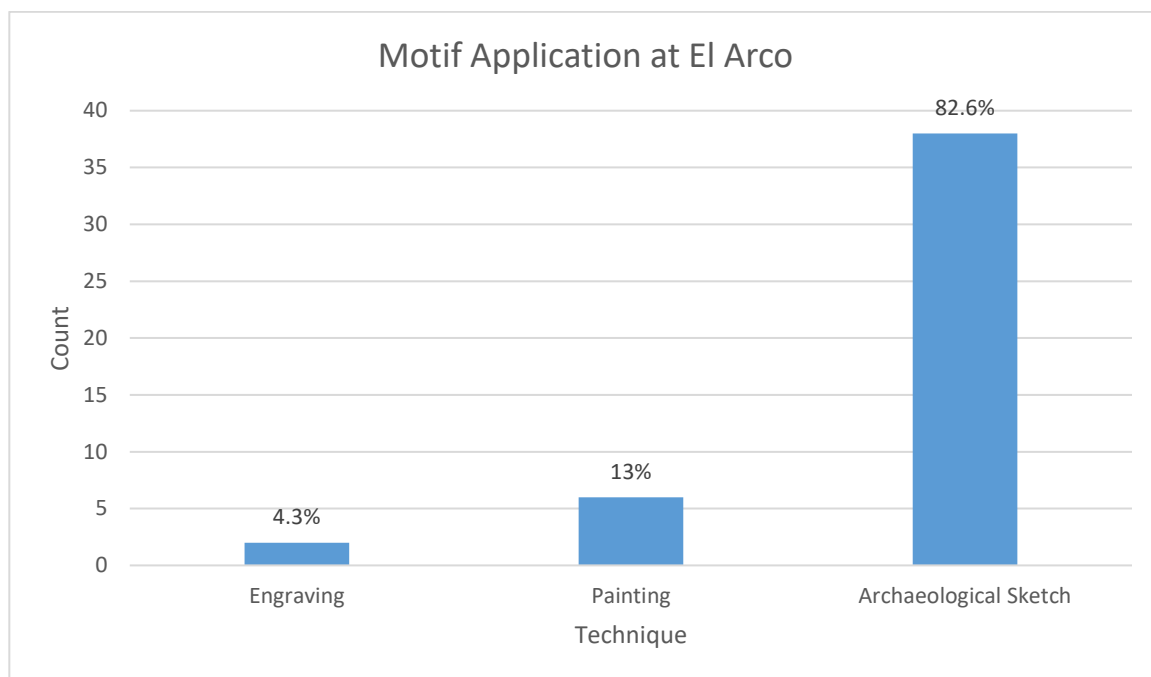


Figure 13. Motif application at El Arco

El Calero-II

El Calero-II is located near the village of Puente Arce. The artistic representations from this cave site were recently reported in 1997 and the cave has been modestly documented (Morlote & Muñoz Fernández 1999). This cave is unique in this study as there are few figurative representations found within the cave. Instead the cave is sporadically decorated with non-figurative representations. The non-figurative motifs in this cave are mostly unimpressive curved or parallel lines or unorganized sequences of small dots. There are thirteen non-figurative forms within the cave. Two of the motifs are comprised of dots (15%), seven of the motifs are comprised of lines (54%), there is one half circle (7.6%), and one open triangle (7.6) (Figure 14). The majority of the non-figurative forms are the products of painting (Figure 15). The paintings are split between

black and red colours (Figure 16). Four of the images are made with red pigment (30.8%) and seven of the images are made with black pigment (54%). Eight of the images are either directly or indirectly associated with non-figurative forms (61.5%), two images are completely isolated (15.3%), and one image is associated with a figurative motif (7.6%).

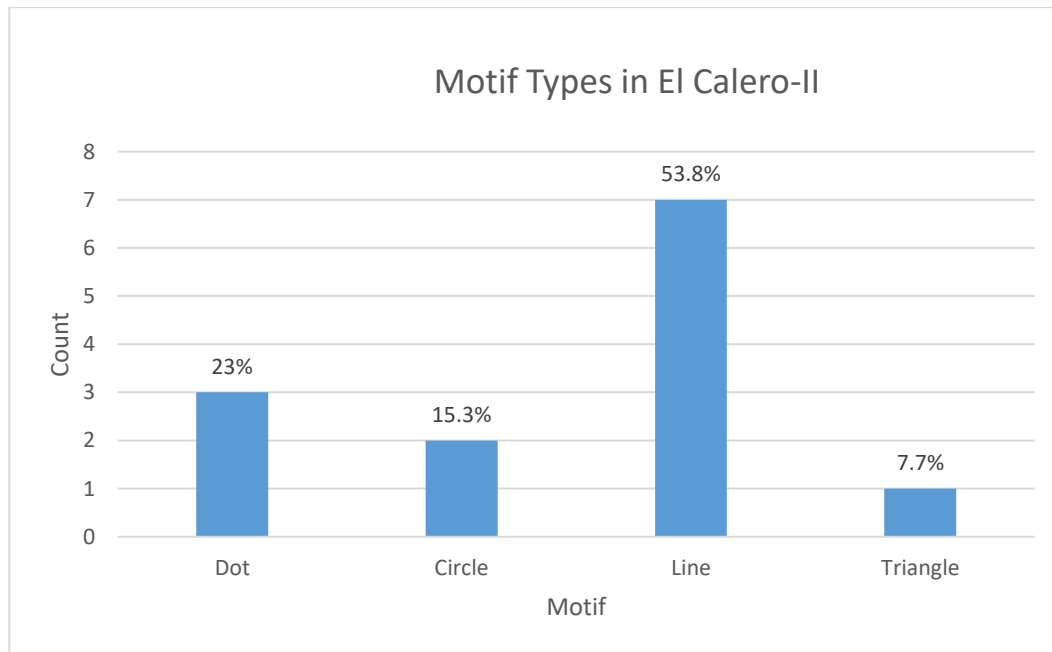


Figure 14. Motif types at El Calero-II

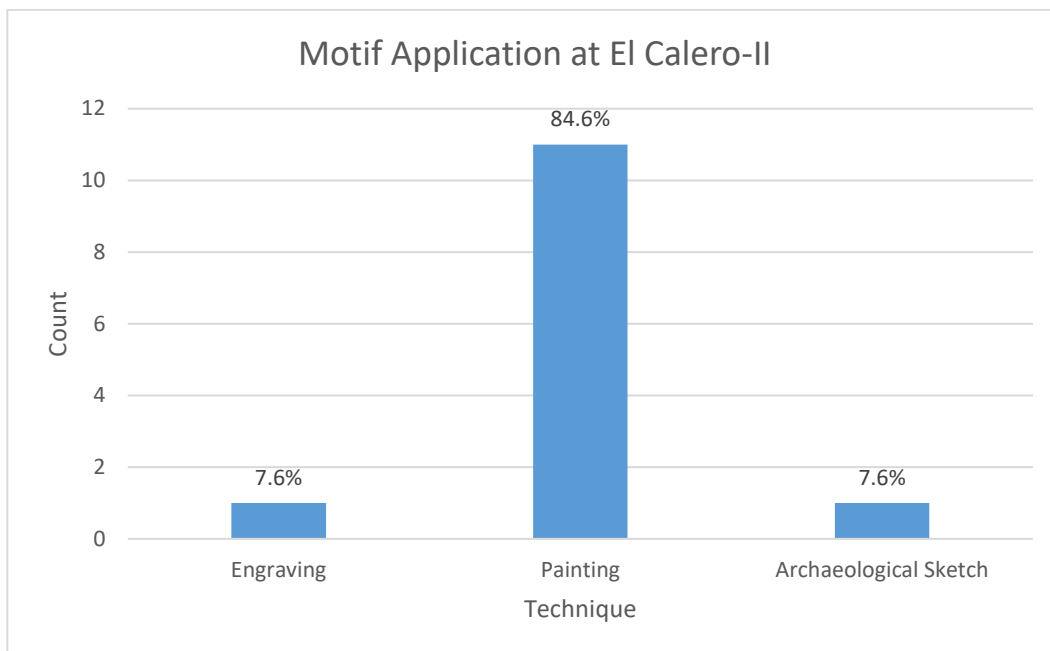


Figure 15. Application technique at El Calero-II

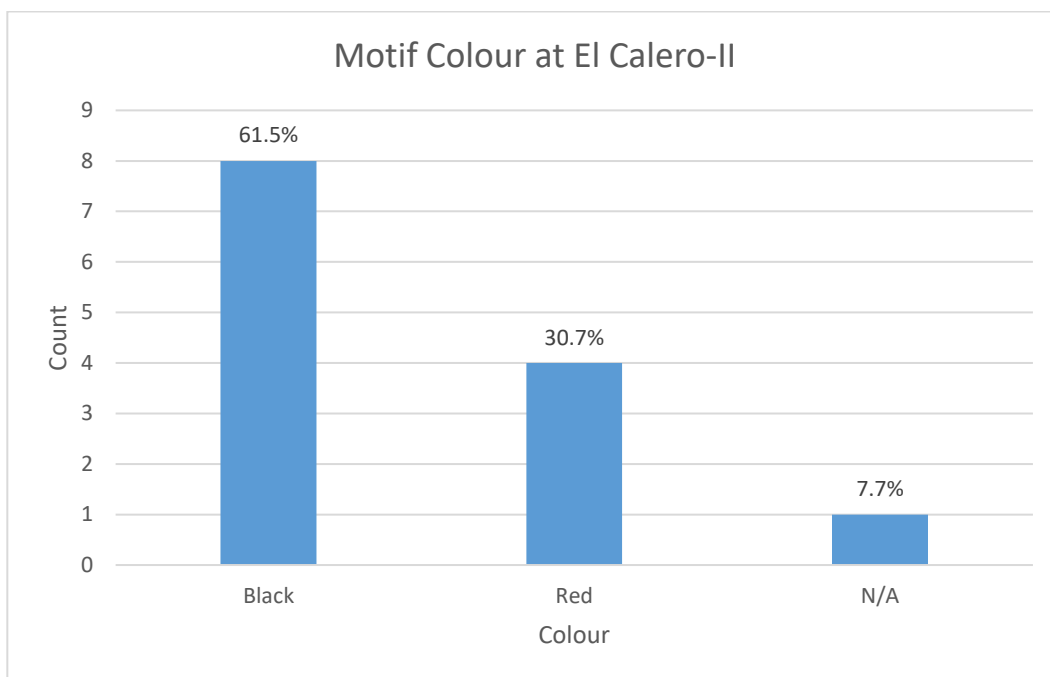


Figure 16. Colour of motifs at El Calero-II

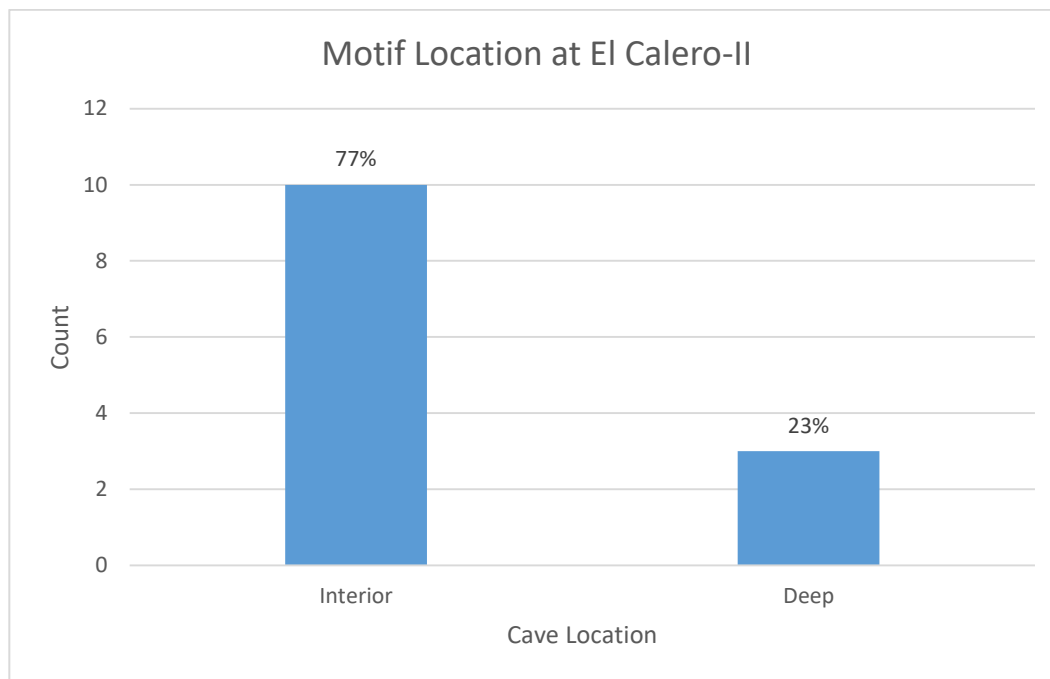


Figure 17. Cave location of motifs at El Calero-II

El Castillo

El Castillo is one of the most important caves of El Castillo complex and one of the most recognizable Palaeolithic cave sites (Alcalde del Río 1906; Alcalde Del Río, Breuil, & Sierra 1912: 112; Almagro Basch 1976; Cabrera Valdés 1978, 1984; Cabrera Valdés & Bernaldo De Quirós 1996; Cabrera Valdés & Bischoff 1989; Cabrera Valdés, Maíllo-Fernández, Lloret, & Bernaldo De Quirós 2000; Cabrera Valdés, Pike-Tay, Lloret, & Bernaldo De Quirós 2000; Cabrera Valdés, González García 1985, 1987; González Morales & Moure Romanillo 1984; Moure Romanillo, González Sainz, Bernaldo De Quirós, & Cabrera Valdés 1996; Ripoll Perelló 1971-1972, 1973; Valladas et al. 1992). The cave is located in Monte Castillo near the small village of Puente Viesgo. The archaeological deposit and cave paintings were discovered in 1903 by Hermilio Alcalde

del Río. After Alcalde del Río investigated and published his findings in 1906, an intensive programme of excavations was carried out by Henri Breuil and Hugo Obermaier between 1910 and 1914 (Ontañón, García De Castro & San Miguel Llamosas 2008: 85-86). A detailed publication of the cave art from El Castillo appeared in *Les Cavernes de la Region Cantabrique*, published by Alcalde del Río, Breuil, and Sierra (1911). In the 1930s, the Commission of Paleontological and Prehistoric Research conducted study and reproduction of the representations found within the cave (Ontañón, García De Castro & San Miguel Llamosas 2008: 86). Prehistorian Victoria Cabrera Valdés extensively studied the cave and its archaeological content from the 1970s until the early 2000s. The interior of the cave begins with what has been named the "Great Hall". The great hall plays an important part in the distribution of prehistoric art (Ontañón, García De Castro & San Miguel Llamosas 2008: 85-86). The cave continues as a narrow and curving passageway that ultimately ends at a total of 759m in length. Parietal representations are positioned throughout the entire cave. El Castillo remains one of the most important Palaeolithic cave sites.

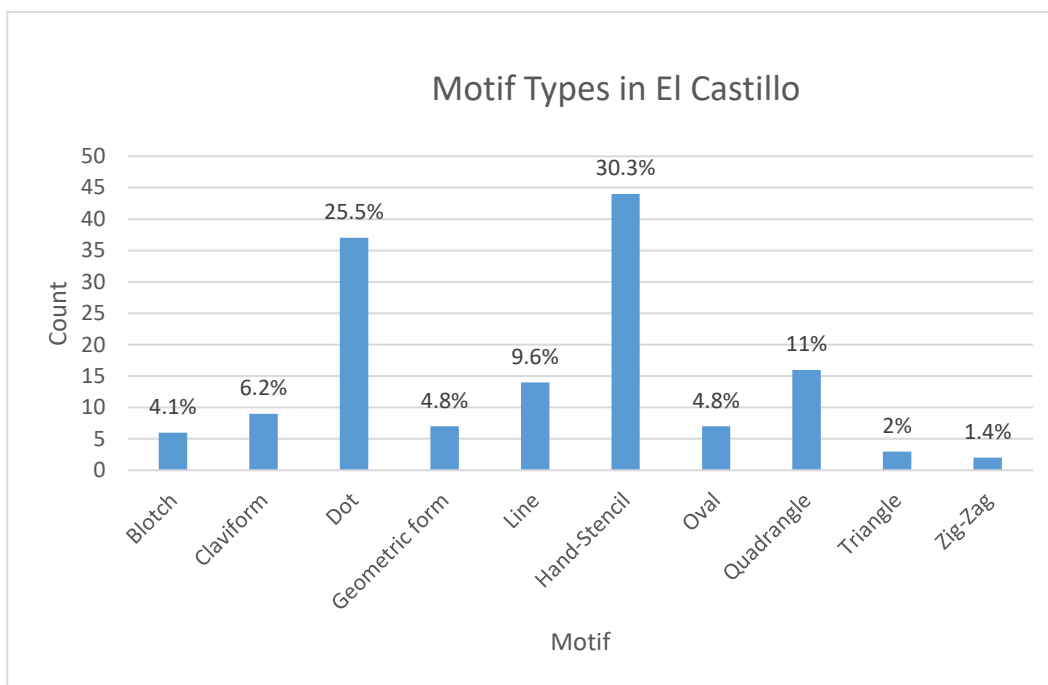


Figure 18. Motif types in El Castillo

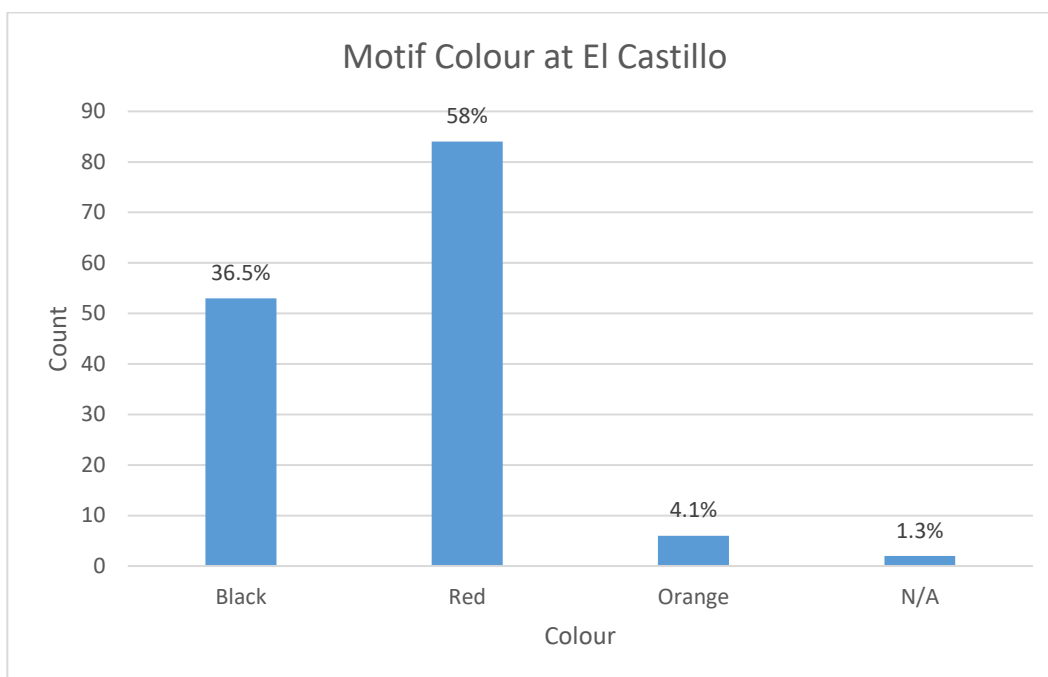


Figure 19. Motif colour at Altamira

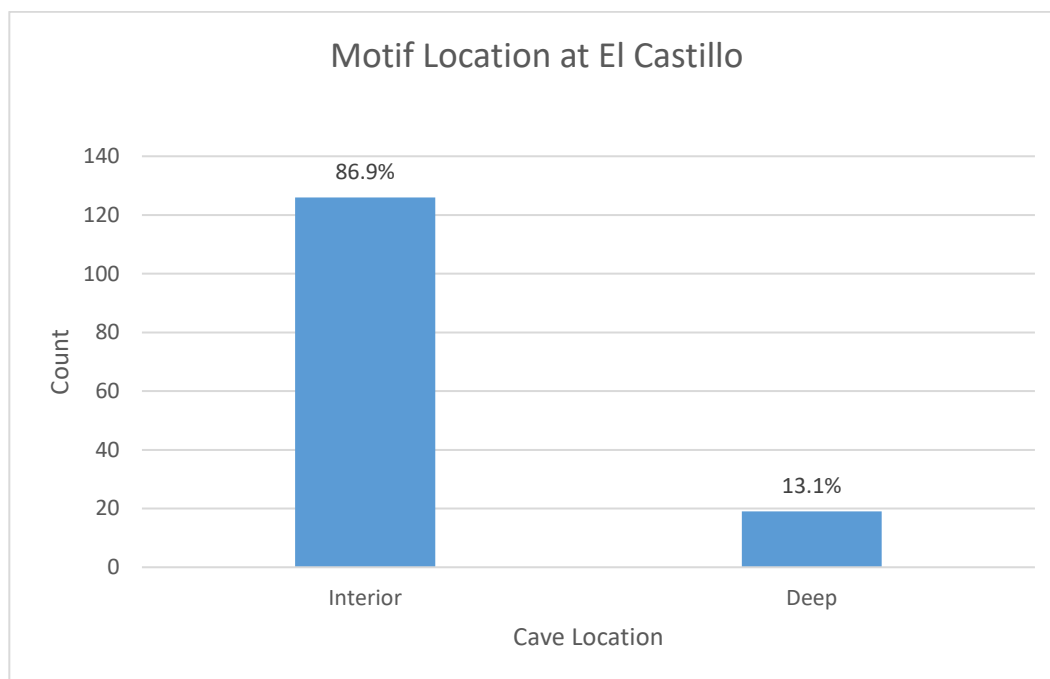


Figure 20. Cave location of motifs at El Castillo

The cave is decorated with a numerous variety of both figurative and non-figurative representations. In total, there are one hundred and forty-five non-figurative representations within the cavern. There are forty-four negative hand stencils (30.3%). Thirty seven of the hand stencils were made with the left hand (84%) and seven of the stencils were made with the right hand (16%). Other non-figurative representations include thirty-seven dots (25.5%), sixteen quadrangles (11%), fourteen lines (9.7%), nine claviforms (6.2%), seven ovals (4.8%), seven geometric forms (4.8%), six blotches (4.1%), and two zig-zags (1.4%) (Figure 18). All but one of the images are paintings (99.3%). The other image is an engraving (.7%). Eighty-four of the paintings are red (58%), fifty three of the paintings are black (37%), and six of the paintings are orange (4.2%) (Figure 19). One hundred and twenty-six of the images are found in the interior "Great Hall" (87%). The remaining nineteen images are found within the deep cave

(13%) (Figure 20). One hundred and twenty-nine of the images are directly associated with other non-figurative forms (90%), ninety-nine of the images are directly associated with figurative motifs (68%), and ninety-six of the representations are directly associated with both figurative and non-figurative motifs (66%), thirteen on the images have no direct association (9%). Ninety of the images are indirectly associated with other non-figurative motifs (62%), one-hundred and four are indirectly associated with figurative forms (72%), sixty-nine images are indirectly associated with both figurative and non-figurative forms (47%), and twenty images have no indirect associations (13.7%). One hundred and thirty-eight images are directly or indirectly associated with other non-figurative forms (95%), one hundred and seven are directly or indirectly associated with figurative motifs (74%), and one hundred images are directly or indirectly associated with both figurative and non-figurative forms (70%). The representations within the cave are thought to belong to the Magdalenian period.

El Linar

El Linar is located in Alfoz de Lloredo, basse vallée. The cave was discovered in 1966 and has been moderately researched (Lasheras Corruchaga, Montes Barquín, Muñoz Fernández, Rasines Del Río, De Las Heras Martín, & Fatás Monforte 2005/2006; Muñoz Fernández & San Miguel San Miguel Llamosas 1991). Representations in the cave are sparse. There are a limited number of figurative representations and just one non-figurative motif. All representations appear in a small cavern within the deep cave. The non-figurative decoration is a series of intersecting engraved lines. The lines make no

disenable pattern. The lines are directly associated with figurative motifs. The representations in this cave have been dated to the Magdalenian period.

El Mirón

El Mirón (González Morales & Straus 2000, 2000a; González Morales, Straus, & Marín 2005; Straus & González Morales, 2003; Straus, González Morales, Àngel Fano & García-Gelabert 2002) is located in the municipality of Rames de la Victoria.

Excavation of the cave site, led by Manuel R González Morales and Lawrence Guy Straus, had begun as early as 1996 (González Morales & Straus 2000a). Although the cave contains various materials from the Solutrean period and a human skeleton, parietal representation within the cave is rare. There is only one example of representation within the cave. It is a non-figurative engraving. A series of intersecting lines are found near the cave entrance. The engravings are in close proximity to the location where the human skeleton was discovered. The engravings likely date to the Solutrean period.

Morro Del Horidillo

Morro Del Horidillo is located in Rames de la Victoria. The cave was discovered and classified as a rock art site in 1983. The cave is almost completely absent of both figurative and non-figurative representation. There is just one non-figurative motif within the cave. On one panel within the cave is an area of smeared paint that can only be classified as a blotch. The blotched paint looks as if it were created with hands and possibly running paint. The blotch was created using red pigment. It is located in the interior cave. The motif is in complete isolation as it is neither directly or indirectly

associated with any other representations. The Upper Palaeolithic cultural group that this image belongs to is unclear.

El Otero

El Otero is located in Secadura and was discovered in 1983 (González Sainz & Muñoz Fernández & San Miguel Llamosas 1985). Parietal representations in the cave are rare. The cave contains just one figurative representations and one non-figurative representation. The figurative form is unique in Palaeolithic representations. It is the frontal view of what appears to be a deer or a goat. The non-figurative form is a jagged line that is placed just to the right of the figurative form. The representations are directly associated with each other and found in a cavern in the deep cave. The images are engraved into the rock wall. It is unclear which Palaeolithic cultural period the images in this cave belong to.

El Pendo

El Pendo is a cave site located near the town of Escobedo, Camargo, and it has been the object of extensive archaeological scrutiny (Alcalde Del Río, Breuil, & Sierra 1911; Álvarez Fernández, Peñalver Mollá, & Delcrós Martínez 2005; Aura 1986; Carballo & González Echegaray 1952; Corchón Rodríguez 1970-71; Montes Barquín & Muñoz Fernández 2001; Montes Barquín & Sanguino González 1998; Montes Barquín, Sanguino González, Gómez Laguna, & Luque 1998). The cave is 150m in length and is relatively linear. Sanz de Sautuola first excavated the cave in 1887 during his various prehistoric explorations near Santander (Ontañón, García De Castro & San Miguel

Llamosas 2008: 101-102). While cave Alcalde del Río reported engravings in 1907, the various painted images were discovered one hundred years later (in 1997) by Ángeles Valle, Carlos González Luque, and José Manuel Morlote (Ontañón, García De Castro & San Miguel Llamosas 2008: 102). The cave has been extensively researched by a variety of investigators since its discovery. Materials discovered in the cave have been featured at the Provincial Museum of Prehistory and Archaeology of Santander and have shown that the cave experienced occupation in the Middle and Upper Palaeolithic, Mesolithic, recent prehistory, and the Middle Ages (Ontañón, García De Castro & San Miguel Llamosas 2008: 101-102). All of the painted motifs in the cave appear near the end of the central passage. All images are created with a red pigment that may have been obtained in the cave itself. The majority of the paintings are figurative motifs with few examples of non-figurative representations. There is a narrow meandering passage at the end of the main chamber. Within the passage there is a group of engraved figurative motifs. While the paintings in the cave are dated to the Solutrean, the engravings at the end passage are likely Magdalenian in age (Ontañón, García De Castro & San Miguel Llamosas 2008: 101-104).

There are a total of five non-figurative motifs in this cave. Each non-figurative image is of the set of red paintings. Two of the non-figurative motifs are developed from small dots, two of the images are comprised of a series of lines, and the final image is a quadrangle. All of the non-figurative forms are found in the interior cave and are composed of red pigment. None of the forms are indirectly associated with any other image. However, all the images are directly associated with figurative and non-figurative forms except of the lines which is only directly associated with a reindeer.

El Perro

El Perro (San Miguel Llamosas 1992) is located in Santoña. The site was discovered and classified as a rock art site in 1984. The cave is comprised of one large chamber with various small rooms extending from it. Representation in the cave is rare. There is only one non-figurative motif documented and no trace of figurative representations. The non-figurative motif is a series of deep line engravings. These engravings are found in the interior cave. Because this is the only representation it contains no associations. The engravings are possibly from the Magdalenian period.

El Salitre

El Salitre (Alcalde Del Río, Breuil, & Sierra 1912: 23-26; Cabrera Valdés & Bernaldo De Quirós 1981) is located in Ajanedo-Miera. Lorenzo Sierra discovered the rock art in this cave in 1903. The cave contains a variety of figurative and non-figurative motifs. There are a total of five non-figurative motifs within the cave. Three of the motifs appear on a single panel. On this panel are three triangular motifs and a variety of lines. All images on this panel are made by finger fluting. While they are directly associated with each other, they have no indirect association. The other non-figurative motif is a barbed image created with orange coloured pigment. This image is directly associated with figurative motifs but has no indirect association. The representations are located in the interior cave and have been dated to the Solutrean period.

Fuente del Salín

Fuente del Salín (Moure Romanillo & González Morales 1992; Moure Romanillo, González Morales, & González Sainz 1984-85) is located in the municipality of Val de San Vicente. The cave was identified as a rock art site in 1985. The cave art site is known for containing a variety of hand stencils. In the cave there are a total of ten non-figurative images. Figurative motifs are absent in the cave. Nine of the non-figurative representations are hand stencils (90%), while one non-figurative motif is a blotch of paint (10%) (Figure 21). Two of the hand stencils are made with black paint (20%), while the other eight motifs are created with red pigment (80%) (Figure 22). The majority of the hand stencils in the cave are negative prints (77.8%). All seven of the negative hand stencils are clustered together on one panel. These hand stencils were made with red pigment. The other two hand stencils are positive prints (22.2%). The two positive hand stencils were made with black pigment and appear in the same chamber but on a different panel than the negative hand stencils. All of the images in the cave are both directly and indirectly associated with non-figurative motifs. The hand stencils have been dated to 22,340 years ago with a 510 year range of error. This places the representations within the Gravettian cultures.

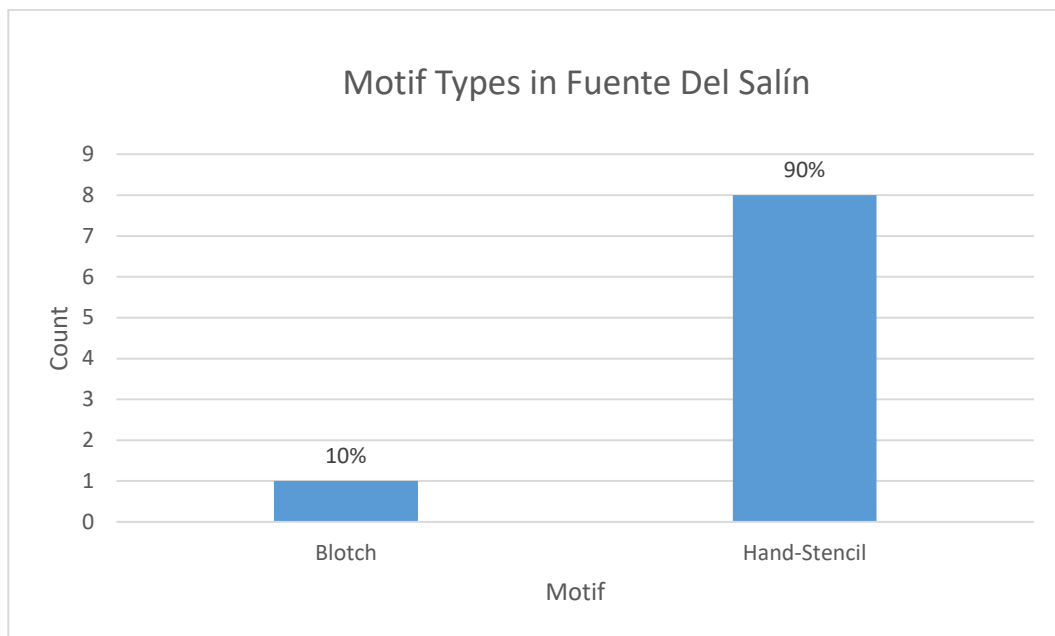


Figure 21. Motif types in Fuente Del Salín

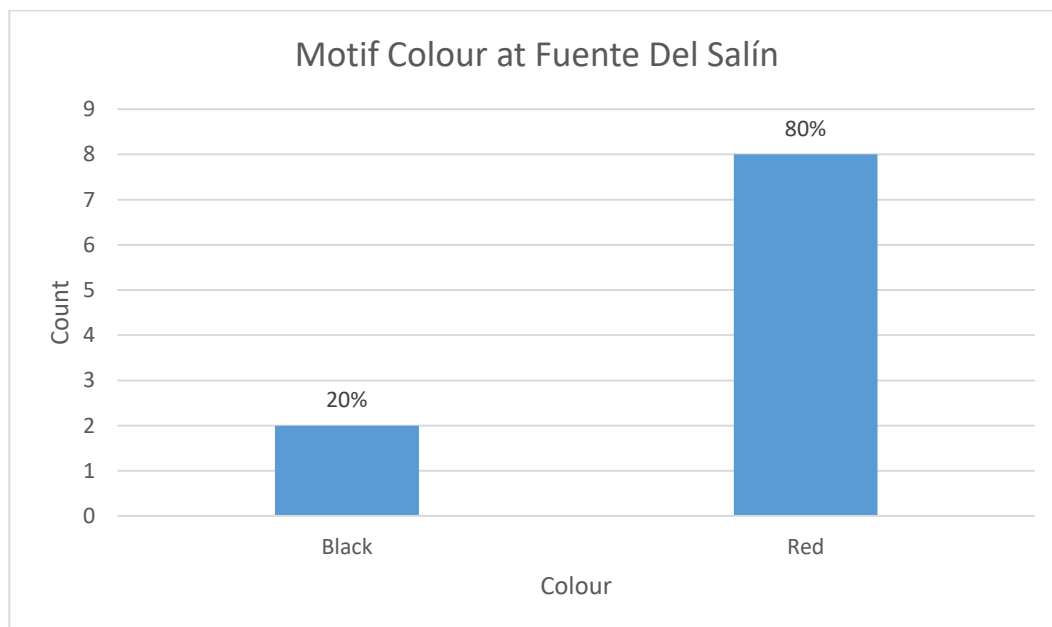


Figure 22. Motif colour at Fuente Del Salín

Hornos de La Peña

Hornos de La Peña (Alcalde del Río 1906; Alcalde Del Río, Breuil, & Sierra 1912; García Morales 1986-87; Ucko 1987) is located on a hilltop in San Felices de Buelna. Alcalde del Río discovered the cave in 1903. The cave is richly decorated with a wide variety of engraved figurative motifs including animals such as horses, bison, wild bulls, goats, deer, and anamorphic representations. All of the non-figurative motifs are located in the deep cave. There are eighteen non-figurative motifs in this particular cave (Figure 23). The specific forms are a black blotch, various engraved lines, an engraved zig-zag line, and an engraved geometric form that resembles a long and curved rectangle. All but one of these non-figurative representations are engravings (Figure 24). The dominant image on this particular panel is the detailed depictions of two horses. These images are thus directly associated with figurative forms but are also indirectly associated with other engraved horses.

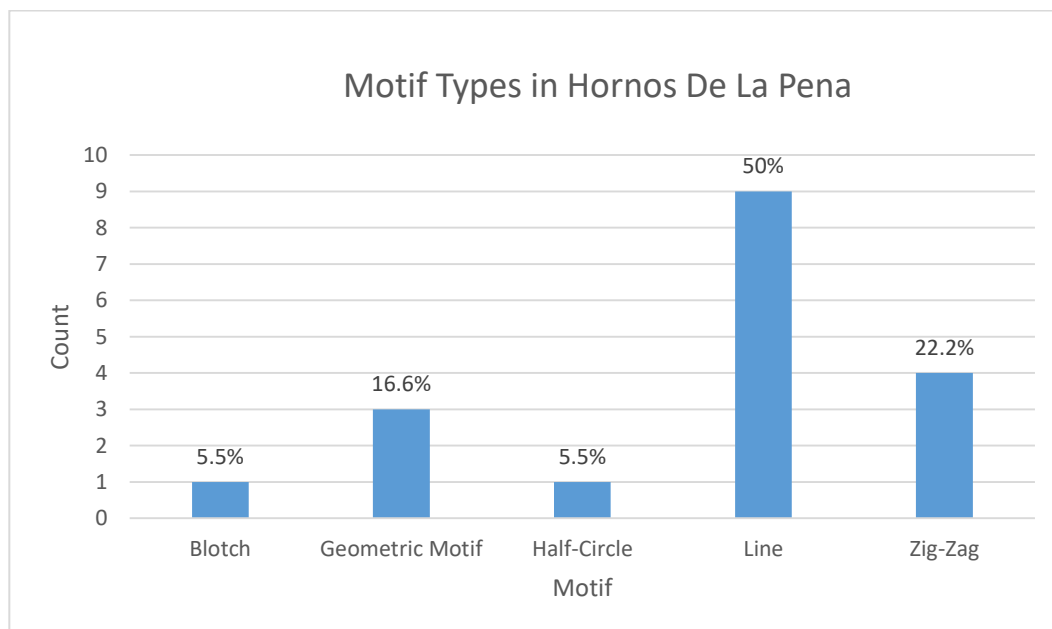


Figure 23. Motif types in Hornos De La Peña.

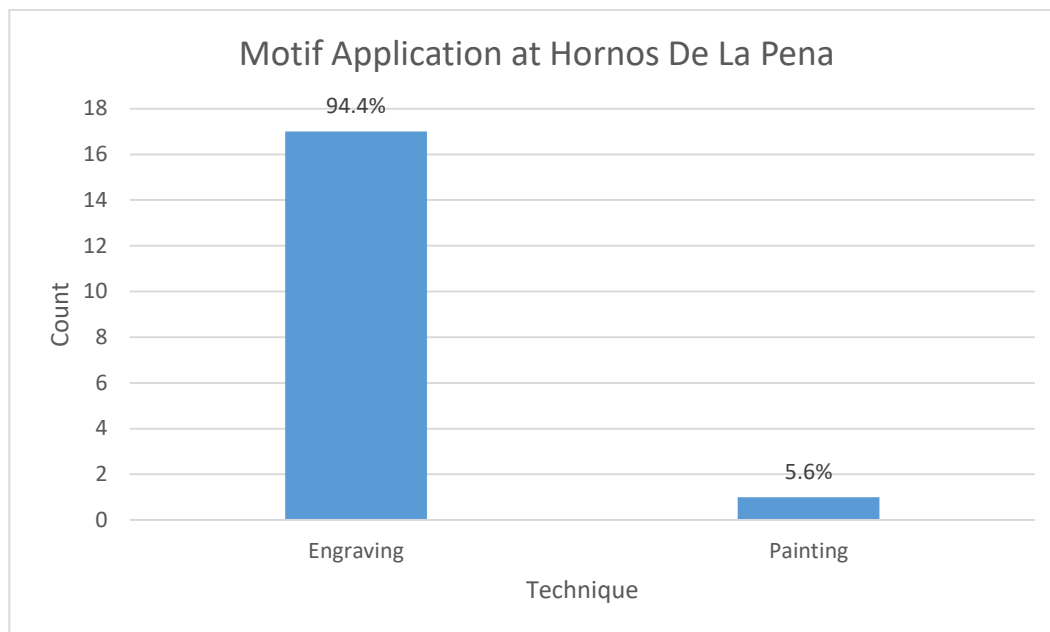


Figure 24. Motif application in Hornos De La Peña

Juan Gómez

This cave located in Sámano, Castro Urdiales, was discovered and classified as a rock art site in 1978 (Barandiarán Maestu, González Echegaray, & González Cuadra 1981). The cave was discovered and classified as a rock art site in 1978. The cave contains a limited number of parietal representations. The most intriguing motif is what appears to be a skewed human face in frontal view. There are few other examples of figurative representations and one example of a non-figurative motif. The non-figurative motif is a vertical line. It is possible that this line was barbed at the top. However, the condition of the motif has deteriorated and it is impossible to classify this image as anything but a line. While the line is directly associated with modern graffiti, it would appear that the line is Palaeolithic in origin. The line is created with red paint and is

located in the interior cave. It has no direct or indirect associations. The Palaeolithic cultural group to which this image belongs to is unclear.

La Clotilde

La Clotilde (Ripoll Perelló 1957) is located in Santa Isabel de Quijas. The cave was discovered in 1906 but was not classified as a rock art site until 1997. The cave is comprised of a number of narrow corridors. Within one of the passageways are a number of figurative and non-figurative representations. There are thirteen non-figurative motifs within the cave. Six of the motifs are lines (46%), two of the motifs are triangles (15.4%), there are two barbed motifs (15.4%), two of the images are geometric forms (15.4%), and one motif is a circle (7.7%) (Figure 25). Many of the images in this cave, both figurative and non-figurative, are finger flutings, although only archaeological sketches were available for some of the motifs documented in this project (Figure 26). Archaeological sketches depict the non-figurative motifs in both black and red colours (Figure 27). This is a unique example of the finger fluting technique. Many examples of finger fluting are simple lines or spirals. In La Clotilde the finger flutings show great detail in the figurative motifs and intentional design in the non-figurative motifs. All of these images are directly associated with non-figurative and figurative motifs. All of the images are found within the deep cave. The motifs have no indirect associations. It is not clear which cultural group the representations belong to.

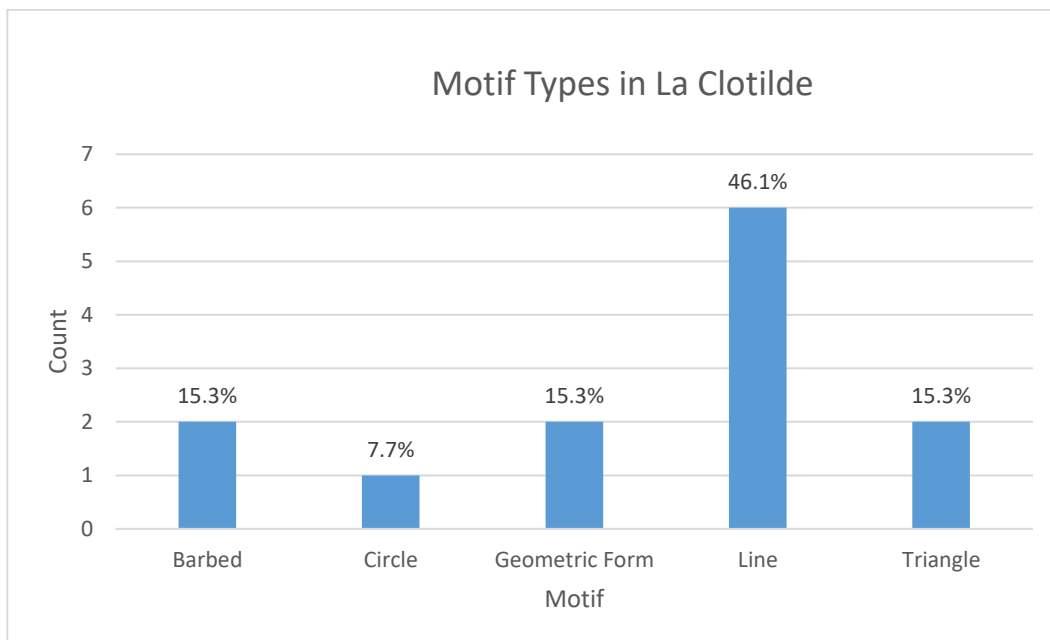


Figure 25. Motif types in La Clotilde

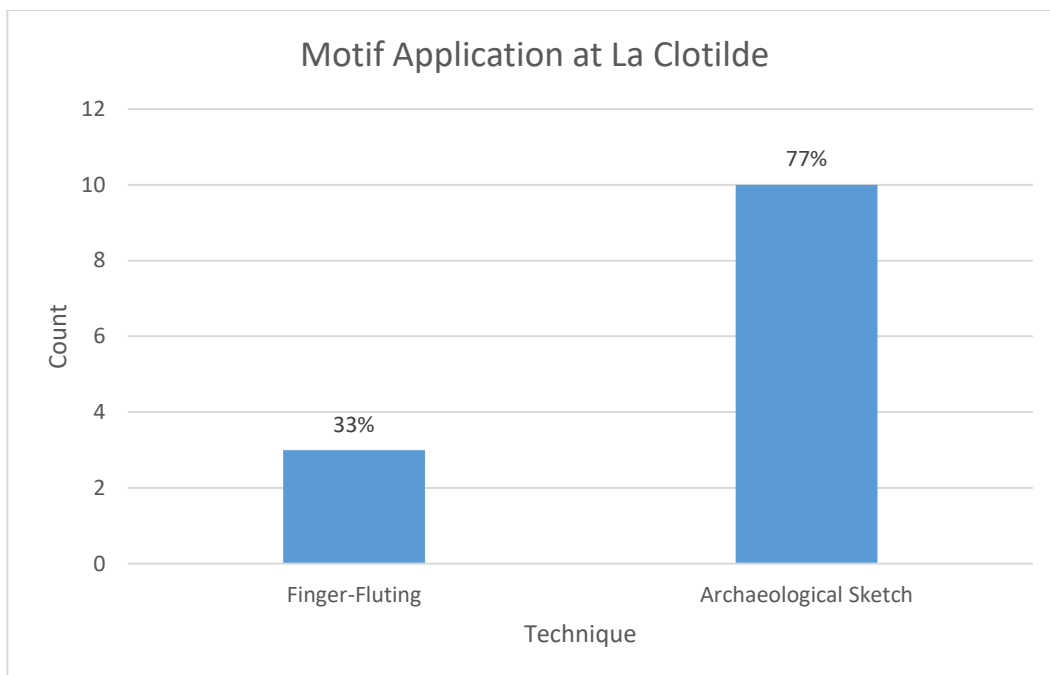


Figure 26. Motif application in La Clotilde

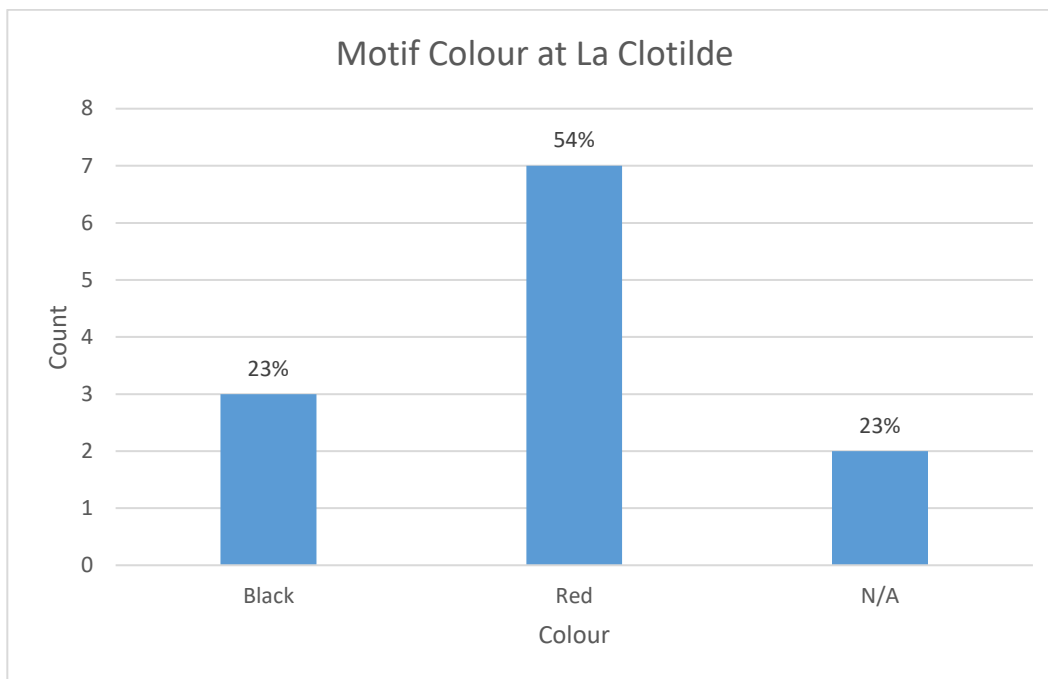


Figure 27. Motif colour at La Clotilde

La Cullalvera

La Cullalvera (González Echegaray 1959; González Sainz, Muñoz Fernández & Morlote 1997; González Morales, & Moure Romanillo 1988) is located in the municipality of Rames de la Victoria. The walls throughout the cave are adorned with a variety of figurative and non-figurative motifs. In sum, there are nineteen non-figurative representations. Significantly, nine of the non-figurative forms are dot sequences (47.3%), eight are lines (42%), one image is a positive hand stencil (5.2%), and one image is a blotch (5.2%) (Figure 28). Fourteen of the images are paintings and the remaining five images are only documented as through archaeological sketches (Figure 29). It should be noted that these sketches are likely paintings. The majority of these paintings are made with red pigment (Figure 30). All of the non-figurative representations are found within

the interior cave. All of the non-figurative images in the cave are directly associated with other non-figurative motifs. Thirteen of the motifs are indirectly associated with other non-figurative forms and the other six images have no indirect associations. All images are either directly or indirectly associated with non-figurative motifs. None of the images has any associations with figurative representations.

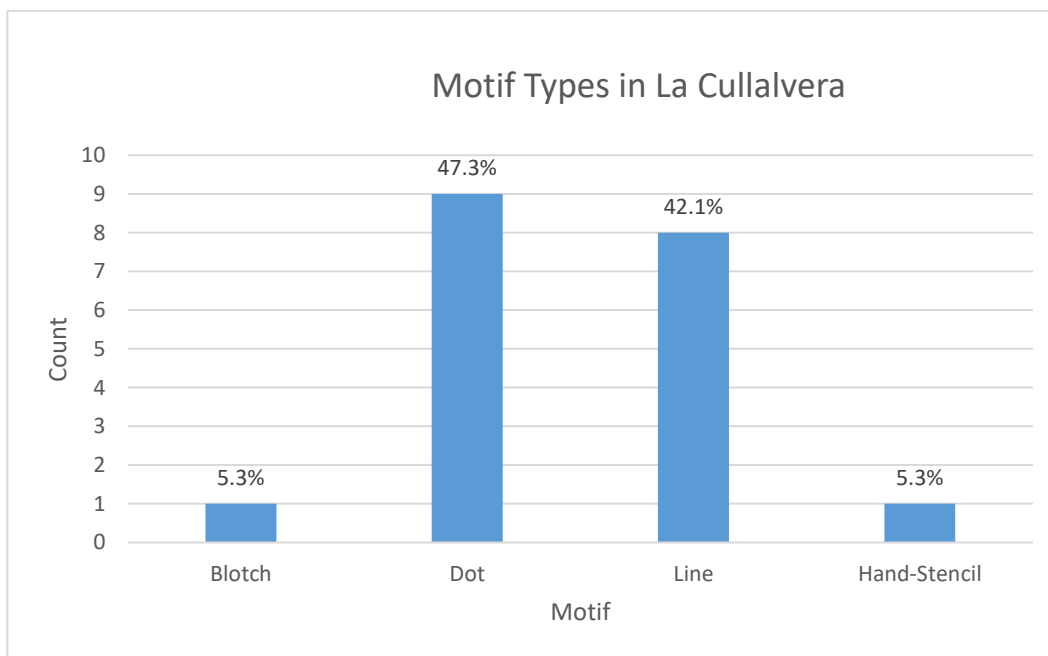


Figure 28. Motif types in La Cullalvera

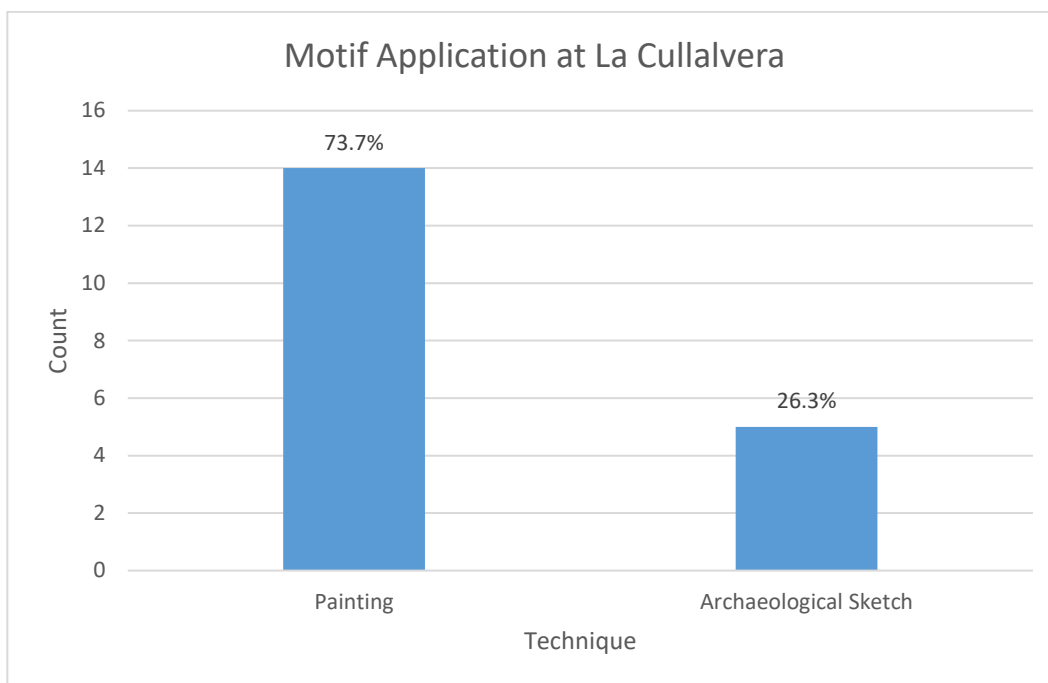


Figure 29. Application of motifs at La Cullalvera

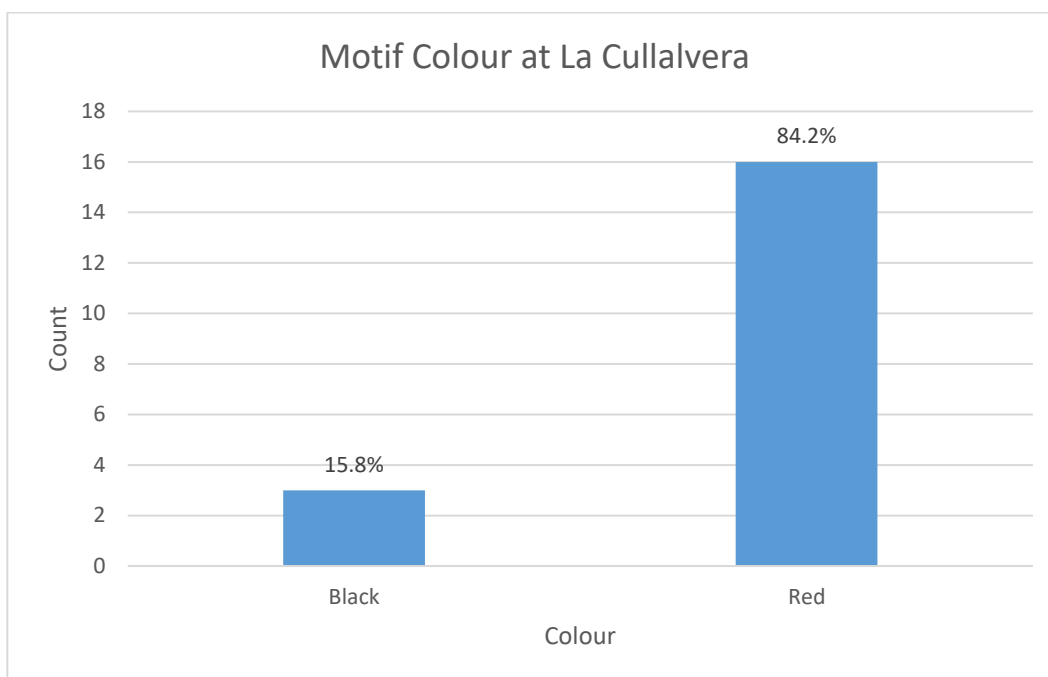


Figure 30. Motif colour at La Cullalvera

La Garma

La Garma (Álvarez Fernandez, Peñalver Mollá, & Delcrós 2005; Arias Cabal, González Sainz, Moure Romanillo, & Ontañón Peredo 1996, 1997, 1999; González Sainz 1999) is located near Omoño, in the municipality of Ribamontán al Monte. The Lower Gallery containing the representations was found in 1995 while excavations were being conducted at the current entrance to the cave system, La Garma A (Ontañón, García De Castro & San Miguel Llamosas 2008: 105-106). These excavations were being carried out under the direction of Pablo Arias and Roberto Ontañón. The Lower Gallery is accessed by dropping 8m at the end of the first gallery and following a 14m descending shaft (Ontañón, García De Castro & San Miguel Llamosas 2008: 106). The floor within this part of the cave is covered in food remains, lithic and bone workings, objects of adornment, and pieces of portable art (Ontañón, García De Castro & San Miguel Llamosas 2008: 106-107). The 'Integral Study of La Garma Archaeological Complex' project began in 1996. It is a full archaeological investigation of the site, materials, and Palaeolithic context (Ontañón, García De Castro & San Miguel Llamosas 2008: 106-107). The cave is filled with over 500 Palaeolithic paintings and engravings. The study of the representations found within the cave is currently under the direction of César González Sainz and Alfonso Moure Romanillo (Ontañón, García De Castro & San Miguel Llamosas 2008: 107).

There are a total of seventeen non-figurative motifs documented within the cave site. There are seven motifs comprised of lines (41.2%), five patterns of dots (29.4%), three negative hand stencils (17.6%), and single blotched and barbed motifs (5.9%) (Figure 31). All of the non-figurative forms documented here are paintings that have been

produced with a red pigment. Each of the non-figurative forms are found within the deep cave. Thirteen of the motifs are directly associated with other non-figurative designs, while the other four non-figurative motifs contain no direct associations. Sixteen of the motifs are indirectly associated with other non-figurative forms (94%), six are indirectly associated with both figurative and non-figurative motifs (37.5%), and one image contains no indirect associations (5.9%). The motifs found within the cave have been attributed to all Upper Palaeolithic cultural periods.

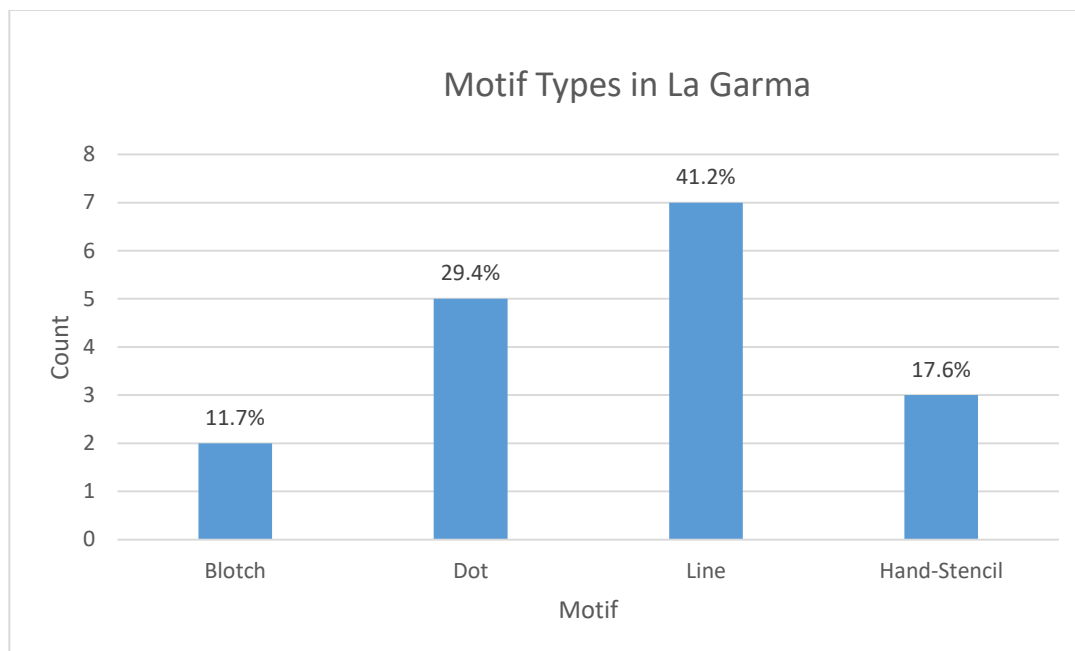


Figure 31. Motif types in La Garma

La Haza

La Haza is found in the municipality of Ramales de la Victoria and was discovered in 1903 (Alcalde Del Río, Breuil, & Sierra 1912: 14-22; González Morales & Moure Romanillo 1988; Moure Romanillo, González Sainz, & González Morales 1987; Moure Romanillo, González Sainz, & González Morales 1991) . The cave contains a

variety of figurative forms and limited examples of non-figurative representations. All of the images are located within the deep cave. In total there are just two non-figurative motifs. One image is a quadrangle and the other image is a blotch. The quadrangle is only documented as an archaeological sketch and the blotch is a painting. Both images are coloured red. The quadrangle is directly associated with a figurative representation and the blotch is isolated. The Upper Palaeolithic culture that these images belong to is unclear.

La Lastrilla

La Lastrilla was discovered in 1950 and is located in Sámano, Castro Urdiales (Díaz Casado 1988; Molinero Arroyabe & Arozamena Vizcaya 1993; Rincón Vila 1975). The various complex chambers and passage ways of the cave feature a limited number of representations placed sporadically throughout the cave. There are a low number of figurative and non-figurative motifs. One of the figurative motifs is depicted in frontal view of an auroch. There are four non-figurative representations within the cave. There are three positive hand stencils and a triangle. All the non-figurative motifs appear on the same panel and are thus directly associated with each other. They have no indirect associations and are in no way associated with any figurative motif. All of the images are paintings that were produced with red pigment and are found within the deep cave. The non-figurative representations are dated to the Solutrean period.

La Meaza

La Meaza is located in the municipality of Comillas. The site was discovered in 1907 but was not classified as a rock art site until 1997. The number of representations in the cave is underwhelming. There is only one non-figurative motif and no figurative representations. The non-figurative motif resembles the sexual organ the vulva. The image is comprised of three columns of small dots that take various bends and curves to form an interesting motif. Beginning from the left, these dots curve to form an 'S' like formation. The top of the 'S' then sharply curves downwards and quickly upwards forming a narrow 'U'. The open narrow interior created by the three sequences of dots makes this 'U' look like a vulva. The dots of the image were made using a red paint. The image is in complete isolation in the deep cave. It is uncertain as to which cultural group the motif belongs to.

La Pasiega

La Pasiega (Balbín Behrmann & González Sainz 1992, 1993, 1995, 1996; Breuil, Obermaier, & Alcalde del Río 1913; González García 1987; González Echegaray 1964; González Echegaray & Moure Romanillo 1971; González Echegaray & Ripoll Perelló 1953-54; González Sainz 1999) is part of the Castillo cave complex. Monte Castillo is located in the small town Puente Viesgo. The site was discovered in 1911 by Hugo Obermaier, Wernert, and Alcalde del Río while conducting excavations at the El Castillo cave (Ontañón, García De Castro & San Miguel Llamosas 2008: 78). Along with Breuil, these scholars were the first to excavate the cave site between 1911 and 1913. Since its discover the cave has undergone multiple excavations and studies and has been

systematically studied by González Sainz and Rodrigo de Balbín since 1983 (Balbín Behrmann & González Sainz 1992, 1993, 1994, 1995, 1996; Ontañón, García De Castro & San Miguel Llamosas 2008: 77-78). The cave has a number of entrances that lead into a complex system of chambers and passages that head in a variety of directions and levels. The majority of the images are contained in several large galleries from A to D (Ontañón, García De Castro & San Miguel Llamosas 2008: 77-78). Gallery A is the densest and best-preserved ensemble of images in found in the cave. Gallery B contains several isolated groups of images. Gallery C is filled with images of different style and techniques. Gallery D contains a variety of engravings that are heterogeneous in style and technique (Ontañón, García De Castro & San Miguel Llamosas 2008: 78-83). The images in the caves are in a variety of colours and date from the Solutrean, Magdalenian, and possibly older Palaeolithic periods.

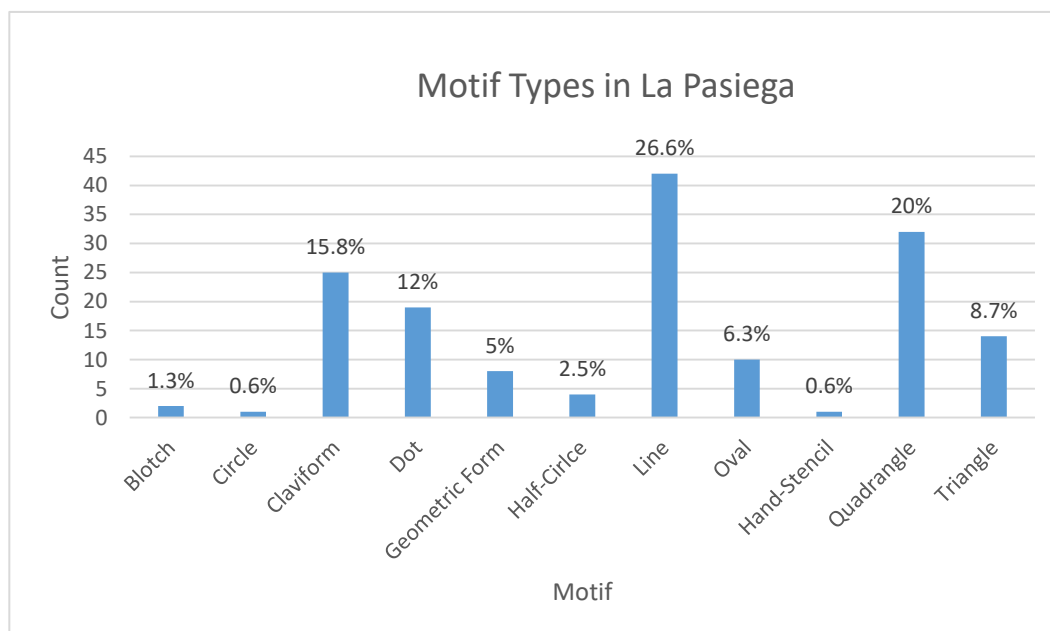


Figure 32. Motif types in La Pasiega

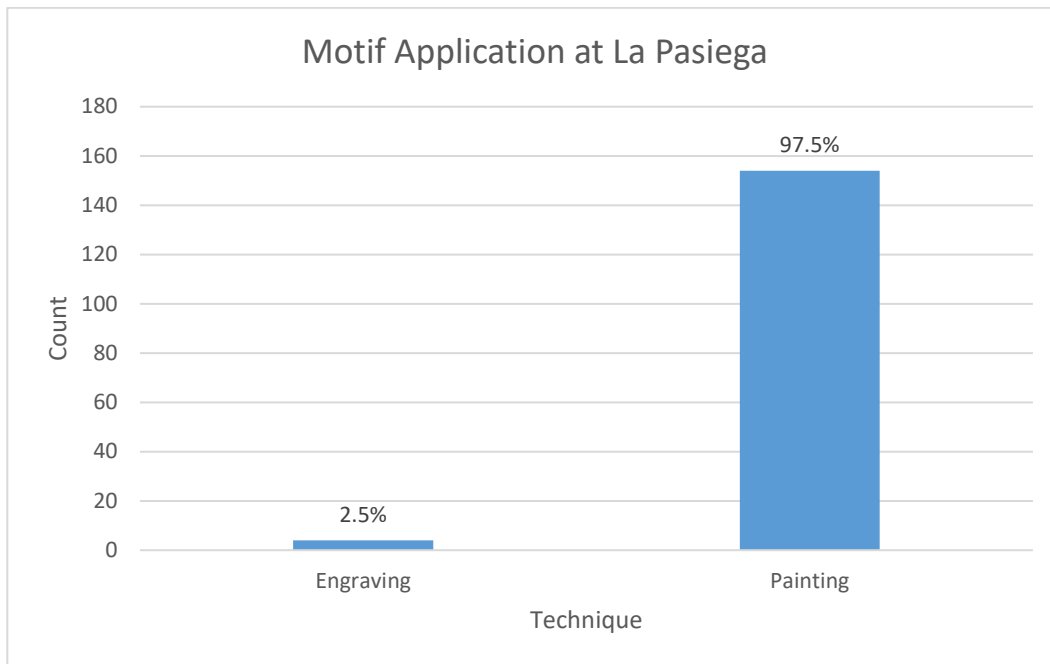


Figure 33. Application of motifs in La Pasiega

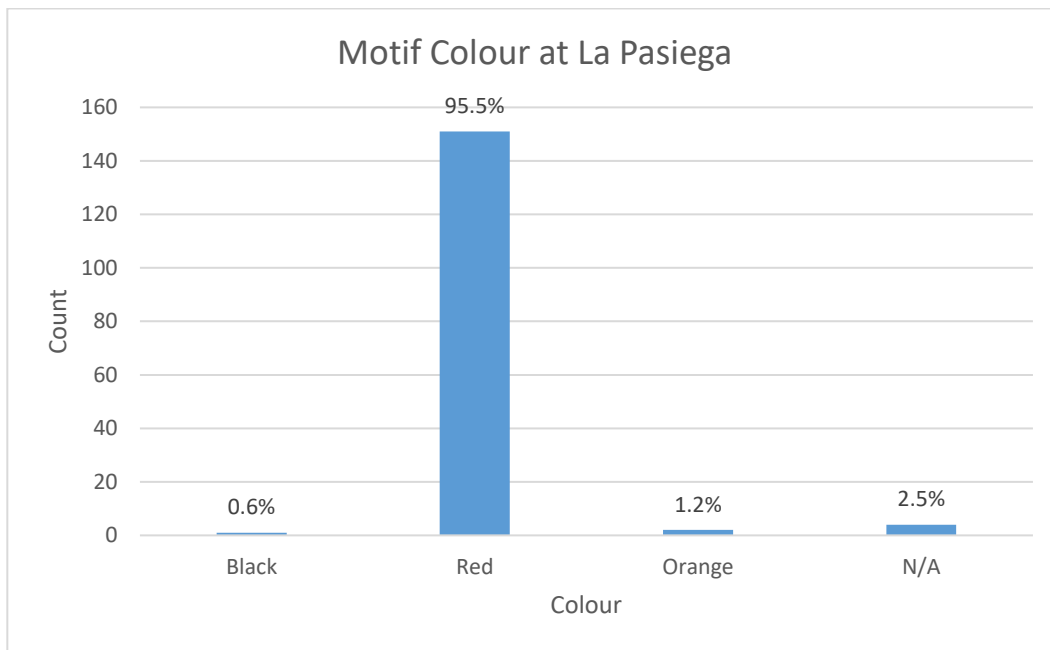


Figure 34. Colour of motifs at La Pasiega

There are over 800 figures, signs, and lines within the chambers. There are a total of 158 non-figurative images detected inside the cave (Figure 32). Two of the images are blotches (1.3%), one image is a circle (.6%), twenty five of the representations are claviforms (15.8%), nineteen images are dots (12%), nine of the images are geometric forms (5.7%), three of the images are half circles (1.9%), forty-two of the images are lines (26.7%), ten images are ovals (6.3%), there is one positive hand stencil (.6%), thirty-two of the images are quadrangles (20.2%), and there are a total of fourteen triangles (8.9%). All of the non-figurative representations are located in deep passages and chambers. Ninety-one of the non-figurative images are either directly or indirectly associated with other non-figurative forms (57%), while sixty-four of the non-figurative forms are directly or indirectly associated with non-figurative forms (40%). Ninety-nine of the non-figurative images appear on isolated panels of non-figurative forms (62%). Painting is the dominant technique of decoration of the non-figurative forms as it comprises 154 of the 158 images (Figure 33). The other four images are engravings. The most popular colour used to depict the non-figurative forms is red (95%) with seldom use of black and orange (Figure 34).

Las Aguas de Novales

Las Aguas de Novales is located in Alfoz de Lloredo and was discovered in 1909 (Alcalde Del Río, Breuil, & Sierra 1912: 46-49; González Morales & González Sainz 1985). González Morales and González Sainz studied Parietal images from this site art in 1985 (1985). The site contains a limited number of figurative and non-figurative motifs. All of the representations are located in caverns at the deep end of the cave. There are

three non-figurative motifs found inside of the caverns. Two are quadrangular designs and the other image is a scattered patch of small dots. These small dots may possibly be the interior decoration of a shell depiction. All the paintings are made with red pigment. All the non-figurative representations are directly and indirectly associated with both figurative and non-figurative forms. The exception is one of the quadrangles which is only directly associated with a figurative motif. All the representations within this cave have been dated to the Magdalenian

Las Brujas

Las Brujas (González Sainz & Muñoz Fernández, & San Miguel Llamosas 1987) is located in Suances and was established as a rock art site in 1980. The site contains a small number of simple non-figurative motifs and contemporary graffiti. There are no figurative representations identified. The cave contains just six non-figurative motifs. There is an acute and an open triangle, a circle, two sequences of lines, and one geometric form. The geometric form takes the shape of a crucifix. It is the result of modern graffiti. There are no paintings in the cave. Four of the motifs were the result of engraving, while the other two images were the result of finger fluting. The spacing of the images is divided. Three forms appear in the interior cave, while the other three motifs are in the deep cave. It is uncertain what period of the Upper Palaeolithic these images were produced and to which cultural group they belong.

Las Chimeneas

Las Chimeneas (González Echegaray 1974; González Morales & Moure Romanillo 1984; Moure Romanillo, González Sainz, Bernaldo De Quirós, & Cabrera Valdés 1996) is part of the Castillo complex of caves. It is located in Monte Castillo near the small town Puente Viesgo. At 798m it is the longest cave of the Castillo complex (Ontañón, García De Castro & San Miguel Llamosas 2008: 95). Alfredo García Lorenzo discovered this particular cave in September of 1953. J. González Echegaray conducted archaeological excavations at the site in the 1960s. Unfortunately, the material evidence was sparse with just a few remains of mammals and lithic implements (Ontañón, García De Castro & San Miguel Llamosas 2008: 95). The original entrance to the cave has been blocked by fallen debris.

The cave site contains a variety of parietal representations. Both non-figurative and figurative images are depicted in either paintings or engravings. There are a total of eleven non-figurative motifs in the cave. Six of the motifs are quadrangular designs, three are triangles, and two are lines (Figure 35). All non-figurative motifs are located on a large panel in a chamber of the deep cave. The engravings are on the right side of the panel. Other engraved lines are associated with figurative motifs on the other side of the chamber. Two are quadrangle designs. One of these designs contains a blank interior while the other is modestly decorated. The painted images occupy the focal point of the rock wall. There are four quadrangle designs, two of which contain interior decoration. The other two quadrangles are left blank. One is haphazardly drawn as its lines are not straight and its overall shape is clumsy. There are also three opened triangles directly associated with paired lines. These four quadrangles and three triangles are directly

associated with each other. They have preserved in excellent condition. While the non-figurative motifs seem to occupy their own canvas in the cave, they are indirectly associated with figurative animal representations. The painted images are composed of a black pigment and were likely produced with a brush or fingers. The engraved images would have required the use of a bone or rock tool. The images inside the cave have been assigned to the late Magdalenian (Ontañón, García De Castro & San Miguel Llamosas 2008: 96).

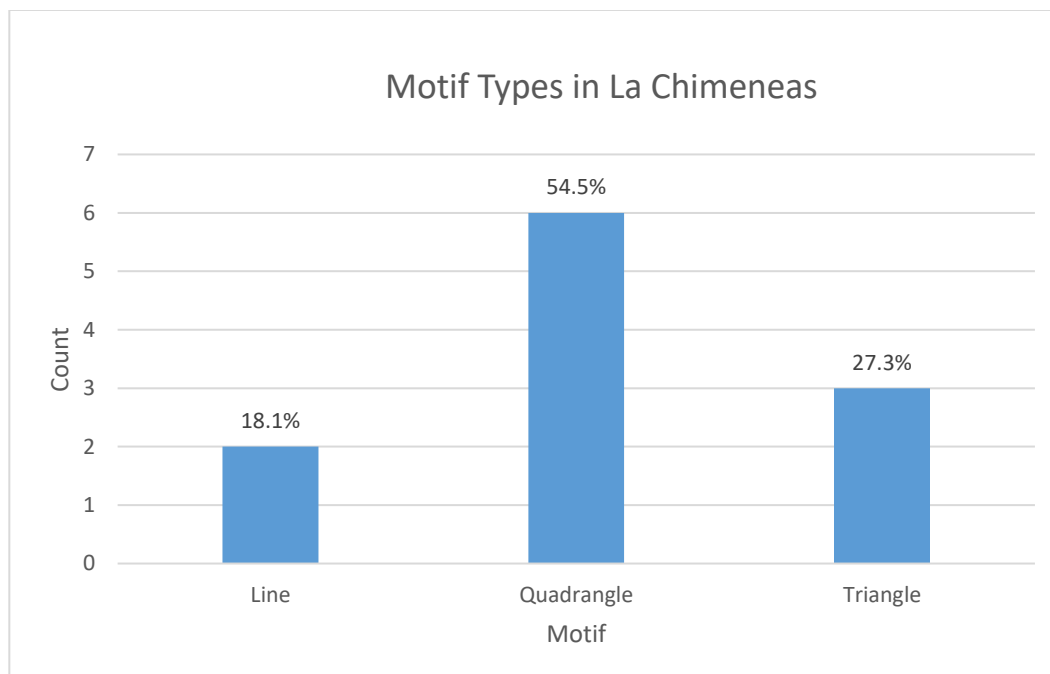


Figure 35. Types of motifs in La Chimeneas

Las Monedas

Las Monedas (Carvallo 1953; González Morales & Moure Romanillo 1984; Moure Romanillo, González Sainz, Bernaldo De Quirós, & Cabrera Valdés 1996; Ripoll Perelló 1951-52, 1952, 1956, 1972) is also part of the Castillo complex of caves. It is

located in Monte Castillo, in the small town Puente Viesgo. The cave had been known of since the 1920s. However, it was not until 1952, when work was being done to improve the access to the prehistoric caves on Monte Castillo, that the entrance was found. Soon after Alfredo García Lorenzo, a civil engineer with the Provincial Deputation of Santander, visited the cave and took the necessary action to develop accommodating access to the cave and gate the entrance (Ontañón, García de Castro & San Miguel Llamosas 2008: 72). Eduardo Ripoll Perelló conducted archaeological excavation at the cave site in 1952. Inside one of the shafts of the cave were 23 coins dating to the time of the Catholic Monarchs. Other material discovered was from the Bronze Age (Ontañón, García De Castro & San Miguel Llamosas 2008: 72). These finds show that the caves are not limited to Palaeolithic use but have served as functional environments to members of our species from all periods.

The cave contains a variety of parietal art. Both figurative and non-figurative motifs are present with the figurative images outnumber the non-figurative designs. There are a total of nine non-figurative forms documented in the cave. Three are barbed images, three are lines, one is a circle, and the other image is a geometric form. The majority of the designs are clustered in the interior of the cave just beyond the entrance. One of the barbed images is located in the cave entrance, the preservation of this image is excellent and was likely made with a brush or finger. The other two barbed images are in different chambers but located in the interior cave in two pathways beyond the main chamber. Both of these images are in excellent condition and are directly associated with various lines and figurative paintings. Just beyond the early boundaries of the deep cave is a large cluster of images. There are numerous lines, circles, and geometric forms. However, due

to overlapping and the clustered nature of the images it is impossible to detect specific images in the clump of paintings. All the images in the cave, both figurative and non-figurative, are made from black pigment. The images were created roughly 12,000 B.P., near the end of the Magdalenian.

Los Marranos

Los Marranos (Torres & Moratinos 1988) is located in La Venta de Fresnedo. The cave was identified as a rock art site in 1978. The cave site contains a small number of non-figurative motifs and some possibly incomplete figurative representations. There are six non-figurative motifs within the cave. Three of the motifs are blotches, two of the motifs are dotted patterns, and there is a single barbed image. It should be noted that the blotched images were potentially once dotted patterns that have smeared and degraded over time. All of the images were created with red pigment and are found in the deep cave. Four of the images are indirectly associated with other non-figurative representations while two images are isolated. None of the representations has any direct associations. It is unclear as to which cultural period these representations belong.

Micolón

Micolón was discovered in 1976 and is located on the verge of the Palombera reservoir in Rionansa (García Guinea & Puente 1982). The cave contains a variety of figurative and non-figurative representations found within the deep cave. In total there are sixteen non-figurative motifs documented within the cave. Eight of the non-figurative motifs are vulva-like designs (50%), three of the motifs are lines (18.8%), two of the

motifs are triangles (12.5%), and there is a single circle, oval, and quadrangle (6.3%) (Figure 36). Painting and engraving techniques were used to create these images while some of the images analysed in this project were only available as archaeological sketches (Figure 37). Six of the representations are engravings (37.5%) and four of the images are paintings (25%). Unfortunately the other six motifs are only documented as an archaeological sketch (37.5%). All of the painted images make use of red pigment. The archaeological sketches also use the colour red to capture the reality of the images. Seven of the images are directly associated with other non-figurative forms (44%), seven are directly associated with figurative motifs (44%), and two images are isolated on individual panels (12.5%). All of the motifs are indirectly associated with figurative and non-figurative motifs. The representations within this cave have been dated to the Solutrean period.

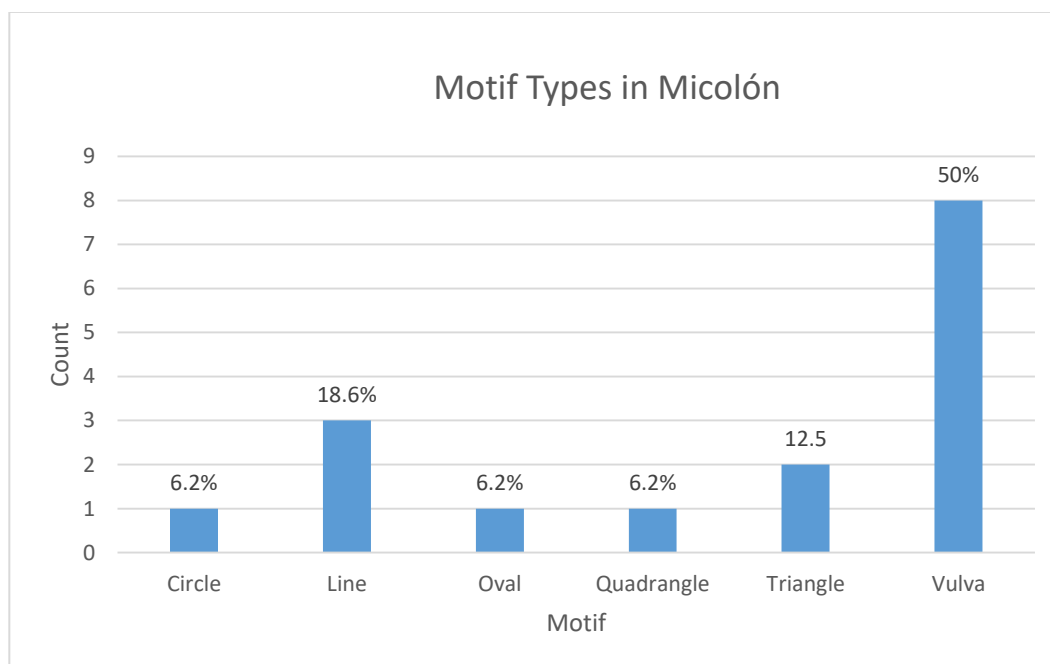


Figure 36. Motif types in Micolón

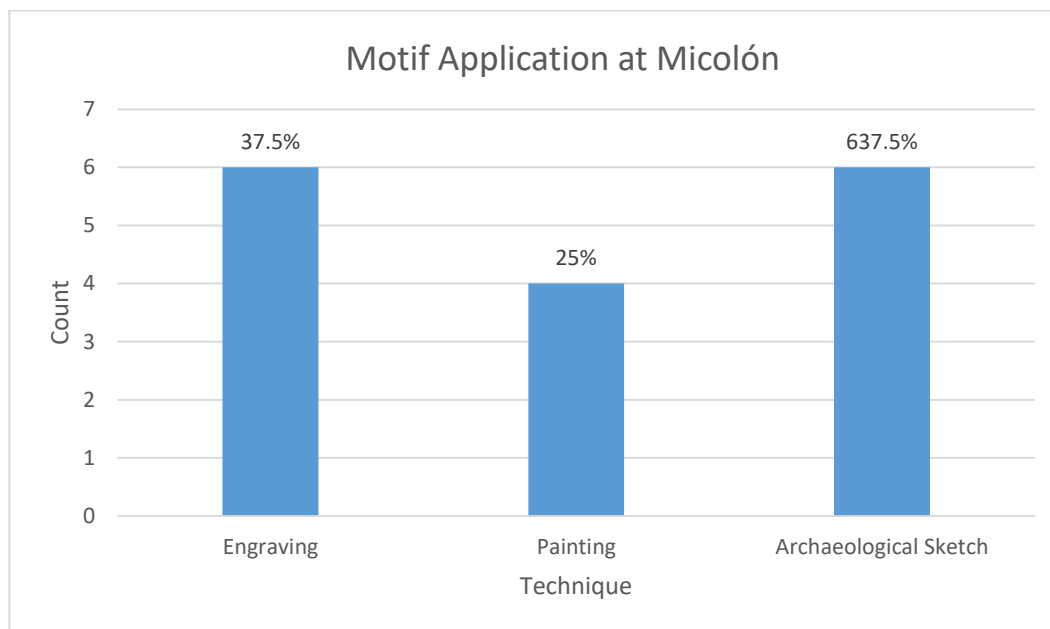


Figure 37. Application of motifs in Micolón

Peñajorao

Peñajorao (Serna 2002) is located in Camargo. Evidence of representation in this particular cave is sparse. Only one non-figurative motif has been documented. This project has classified the image as a triangle. It is an obtuse triangle without a base line. The image thus resembles a boomerang. The representation has been produced with a red pigment. The image appears in isolation and it is unclear what area of the cave it appears in. This cave and corresponding image present great difficulty in analysis for this project.

La Pondra

La Pondra was discovered in 1997 and is located in Ramales de la Victoria (González Sainz & San Miguel Llamosas 1996, 1997, 2001: 225; San Miguel Llamosas

& Gómez Arozamena (1992). There are limited examples of figurative and non-figurative motifs near the end of the cave. There are a total of five non-figurative motifs within the cave. Two triangles and a line are painted within the caverns and two lines are engraved into the walls. All of the painted images were created with the use of red pigment. All of the non-figurative motifs are located in the deep cave. The painted images within the cave are directly associated with both figurative and non-figurative motifs. The engraved images are only directly associated with figurative forms. All of the non-figurative representations within the cave are indirectly associated with both figurative and non-figurative forms. The Palaeolithic cultural group that these images belong to is unclear.

San Carlos

San Carlos (Moure Romanillo & González Morales 1986) is located in Santoña. The cave was discovered in 1985. Representations are sparse. There are no figurative representations documented and just two non-figurative forms. The non-figurative motifs are two separate sequences of parallel lines. One sequence contains two vertical lines and the other sequence contains four vertical lines. The lines are deeply engraved into the rock wall. Both non-figurative forms appear near the entrance of the cave and are directly associated with each other. The Palaeolithic cultural group that these images belong to is unclear.

Santían

The cave of Santían (Moure Romanillo 1991, 2009) is located in Piélagos, just a few kilometres from Altamira. The cave was originally discovered in 1903 and

archaeological excavations took place in 1953 (Alcalde Del Río, Breuil, & Sierra 1911: Figure 31; Breuil 1952: 349; Giedion 1962: 110, 115) The cave itself is mostly comprised of long narrow chambers with various curves and passage ways and is roughly 210 meters in distance and can be entered through an opening southeast. Although seldom visited, the Santian cave contains some of the most intriguing artwork in Upper Palaeolithic Europe. Roughly 135 meters deep into the cave, after taking a sharp turn into a narrow hallway, are fifteen naturalistic and uncommon images. Painted upon a strongly curved shoulder of rock within a remote part of a small and low cavern just below the ceiling are fifteen long and narrow pronged images painted with red pigment (Giedion 1962: 110). The images are organized in two rows, five images on the top row and ten images on the bottom row. All the images are either slanted to the left or right and the prongs are in all cases facing upwards. The number and shape of prongs vary from image to image, in some cases a prong extends from the side like a distorted thumb. No two images are exactly alike but all contain the two characteristics of a long narrow stalk containing a number of prongs. The images have been interpreted as a number of things including claws, hoofs, boomerangs, and hands (Giedion 1962: 110). Due to the long extended nature of these images they have here been, perhaps inadequately, classified as lines.

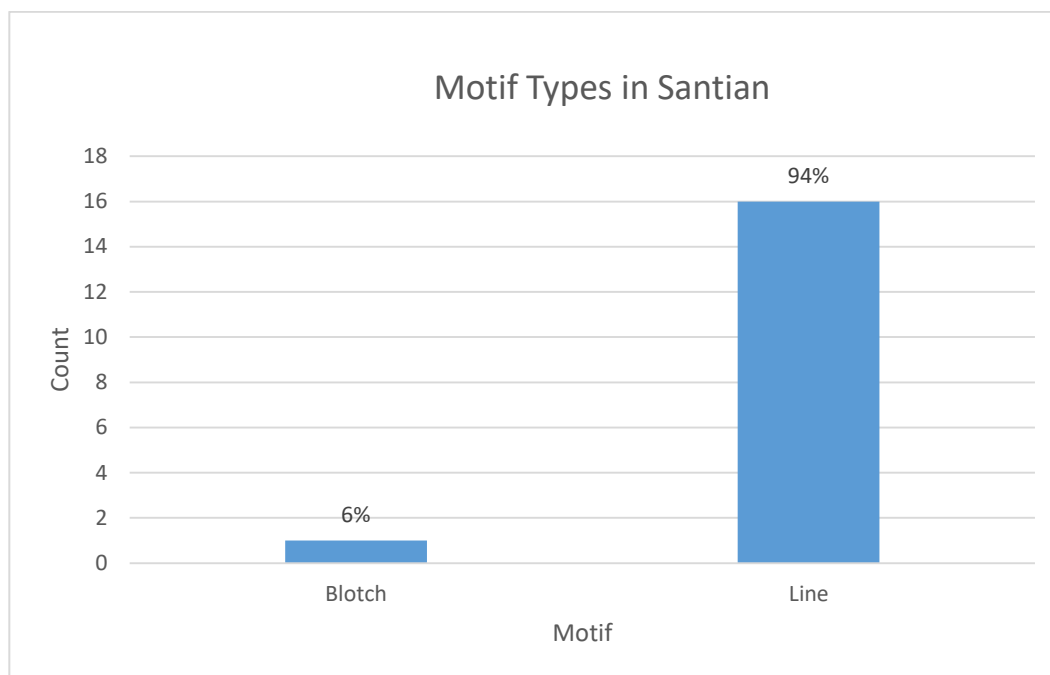


Figure 38. Motif types at Santian

The cave contains just seventeen images in total. All but one image, a blotch, are lines (Figure 38). One image is directly associated with a figurative form, one image has no direct associations, and the remaining forms are all directly associated with non-figurative motifs. All but one image is indirectly associated with non-figurative forms. The image that is not indirectly associated with a figurative motif is isolated. All of the images are paintings. Sixteen of the images were created with red paint and the remaining image was crafted with black pigment (Figure 39).

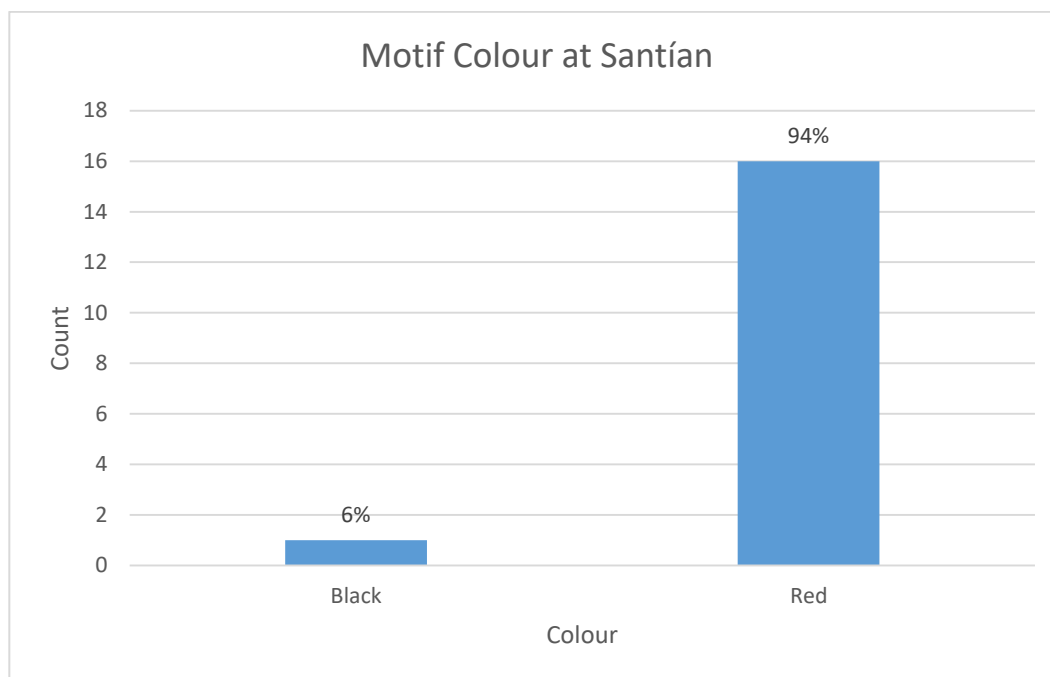


Figure 39. Graph Colour of motifs at Santían

Venta De La Perra

Venta De La Perra (Arias Cabal et al. 1998-1999; Beltrán 1971; Ruiz Idarraga & Apellániz 1998-1999) is located in Carranza. It was discovered and classified as a rock art site in 1904. The cave contains limited number of figurative and non-figurative motifs. There is only one figurative representation in the cave. It is a series of deeply engraved lines near the caves entrance. The image is neither directly or indirectly associated with any other motifs. The Palaeolithic cultural period that these engravings belong to us unclear.

Chapter 4

The Theoretical Framework:

Cognitive Archaeology

4.1 The Theoretical Approach: Cognitive Archaeology

After having exposed the main criteria for constructing a database of non-figurative images in Cantabria, I examine in this chapter some possible interpretive frameworks to make sense of these representations. In particular, I consider cognitive archaeology as a useful theoretical approach to examine non-figurative representations. The objective of archaeology is to develop convincing interpretations of cultural remnants. Archaeologists use material remains and records to develop insights into various aspects of culture. Prehistoric cultures, especially those lacking of a rich ethnographic and ethnohistorical record such as Palaeolithic Europe (Conkey 1987: 425; Laming-Emperaire 1962), present a unique hurdle for the archaeologist. Unlike the historic archaeologists that benefit from surviving written records of the past cultures, prehistoric archaeologists have no direct channel into the thought processes of their prehistoric ancestors. The result is often an interpretive model with overarching conclusions that cannot be objectively tested (Renfrew 1994, 1998: 2). The caves of France and Spain have often been the setting for academic literature implementing such models (Breuil 1952; Leroi-Gourhan 1965; Lewis-Williams & Dowson 1988; Raphael

1945). While interpretations, based on ingenuity and ethnography, are often convincing, intriguing, and have been instrumental in advancing our knowledge, understanding, and documentation of Palaeolithic representation and culture, it is certainly impossible to truly test the theories. The problem with interpretive theory is that it attempts to reconstruct exact thoughts of the prehistoric mind. This project hopes to modestly contribute to a better understanding certain Paleolithic representations from the theoretical framework of cognitive archaeology. Cognitive archaeology offers exciting possibilities in furthering our understandings of Palaeolithic people.

Cognitive archaeology is a relatively new approach in theoretical thought. Cognitive archaeology attempts to draw insights into past modes of thought by considering the structures, knowledge, behaviours and cognitive processes that underlie the material culture expressed (Renfrew 1994: 5, 2005: 41; Malafouris 2013; Segal 1994: 22; Wynn 1993, 2002, 2009). Broadly speaking, cognitive archaeology has generated two different approaches to the material culture from the past. On the one hand, a number of archaeologists focus on various neural and cognitive advances along our evolutionary lineage. These scholars seek to determine significant evolutionary advances in the brain from the earliest members of our genus to *Homo sapiens* (Belfer-Cohen & Goren-Inbar 1994; Dor & Jablonka 2004; Haidle 2009; McBrearty & Brooks 2000; Renfrew 1982: 14-15; Uomini 2009; Wynn 2002). On the other hand, some archaeologists have focused on varying cognitive capacities associated with cultural development and they assume that all humans from all time periods have the same brain and similar cognitive potentialities (Renfrew 1994: 5-9, 2005: 32, 2008; Marshack 1972, 1972a; Mithen 1996: 42-45). This project is inspired by this approach. The thematic notion of a consistent brain since the

species emergence is that if any human child were to be displaced in time and space to another human culture, they would develop the neural *zeitgeist* of that culture (Renfrew 2007: 108). As many authors have pointed out, from a genetic perspective there are no significant differences between the first humans and ourselves (Forster 2004: 257; Li & Durbin 2011; Mellars 2006: 696-797; Renfrew 2008: 2041-2043; Stoneking & Krause 2011). This means that while we have no direct link into the exact thoughts of prehistoric people, we are cognitively linked in that we are capable of the same thought processes (Renfrew 1994, 2006, 2008, 2014). In this way archaeology is able to become a cognitive science as material remains can be used to make insights into our shared cognitive potentialities such as intelligence, logic, behaviour, thought processes, knowledge, skill, and social organization (Mahaney 2014; Mauss & Schlanger 2006; Renfrew 1994; Segal 1994: 22; Stout, Hecht, Khreisheh, Bradley & Chaminade 2015; Wynn 1993, 2002; Wynn & Coolidge 2009).

Cognitive potentialities should not be equated with cognitive reasoning and functioning. While we may possess the same cognitive capabilities of Palaeolithic people, reasoning aptitude is largely dependent on cultural factors (Renfrew 1994: 5-9, 2006, 2005, 2008). Research in cross-cultural studies has demonstrated through problem solving tests that despite having similar brains and cognitive potentials (Renfrew 1994: 5, 2008: 2042), culture drastically affects cognitive reasoning (Chen, Mo & Honomichl 2004; Greenfield 1997). This is because the cultural teachings and contexts physically shape the brain and its development (Nelson 1999) as a result of the brain's neural plasticity (Malafouris 2013: 3-4; Renfrew 1982: 15-17, 2008). In this setting, cultural difference between Palaeolithic people and us needs to be emphasized. We certainly cannot place

ourselves in their minds to determine the way they thought. Nor can we assume that their cognitive reasoning would be similar to any contemporary culture. In fact, our main link to the Palaeolithic mind is our shared cognitive capabilities. If we accept this link with the prehistoric mind then we can hope to attribute cognitive processes known in modern humans that may have been used and developed by Palaeolithic people to produce the known material evidence. Cognitive processualism may develop the framework needed for this task.

The New Archaeology of the 1960s and 1970s heavily influences cognitive processualism. Before its development in the 1960s, many archaeologists had implemented what Colin Renfrew refers to as the interpretive approach to talk about the beliefs and thoughts of past people (Renfrew 1994: 3, 1998: 1-2). The conclusions reached by scholars using this interpretive approach are highly speculative. Processualism recognized that the fundamental problem with the interpretive approach was its inability for theories of the mind to be objectively tested (Binford 1964, 1987). Binford himself defined any consideration of the ideas or thought processes of ancient cultures as 'palaeopsychology' (Binford 1987; Renfrew 1994: 11). New archaeology was thus built on the premise that all that could be said about a culture was directly present in the archaeological record (Binford 1964, 1987; Binford & Binford 1968). It would develop an understanding of past cultures using the scientific method to explicitly investigate remains (Binford 1964; Binford & Binford 1968). Despite the sweeping scientific notions in the processual school of thought, processual literature concerning human reasoning and symbolic structures is sparse (Renfrew 1994: 3). This was largely related to the fact that processualism focused on immediate material and adaptive aspects of culture and was

strongly influenced by environmental determinism (Binford 1962; Binford 1965; Trigger 1989: 780-786). Cognitive processualism takes the next step in the processual process by applying the explicit and objective ideals of New Archaeology to past ways of thought.

Developed from the scientific overtones of processualism, **cognitive processualism** aims to apply the same objective rigor to the study of the ancient mind. The goal of cognitive processualism is to develop inferences of how ancient cultures formulated and utilized cognitive processes in an explicit and scientific manner (Renfrew 1994: 5-11, 1998: 1-2; Wynn & Coolidge 2009). The fundamental difference between cognitive processualism and traditional approaches to understanding the ancient mind is that, while traditional theories attempted to get into the minds of past people and assert 'what' they thought, cognitive processualism changes the focus and attempts to infer 'how' past people thought (Abramiuk 2012: 143; Malafouris 2013: 3; Renfrew 1994: 6). Specifically, cognitive archaeologists focus on what can be learned about perception, reasoning, attention, learning, and memory from material culture (Marshack 1991; Mithen 1995, 1996: 115-146; Renfrew 1994, 2006, 2008; Uomini 2009; Wynn 2002; Wynn & Coolidge 2009). They believe that material evidence does not only represent behaviours but can also reflect patterns of human cognition (Frey 2009; Haidle 2009; Renfrew 1994; Wynn 1993, 2002; Wynn & Coolidge 2009, 2010: 12, 2011: 3; Zubrow 1994: 187).

Archaeological arguments dealing with the cognitive capabilities of past people can be made persuasive by following a strict methodology that ensures that evidence conclusions are based on is made explicit (Renfrew 1994), archaeological and cognitive validity are achieved, and by offering the simplest explanation available for cognitive

processes (Abramiuk 2012: 143-152; Wynn & Coolidge 2009, 2010:12, 2011: 3-4). Such an inferential methodology has been sometimes coined as the conditional approach (Abramiuk 2012: 141-152). The conditional approach has been developed to investigate cultural cognitions in a fashion that makes interpretation explicit. The conditional approach back tracks from the cultural remains being investigated, to the behaviours responsible for the archaeological record, to the cognitive capacities required for those behaviours (Abramiuk 2012: 144; Wynn & Coolidge 2009, 2010: 12, 2011: 3-4). It is essential for the validity of claims made by the cognitive processualist. The conditional approach is based on the strength of the antecedent and consequent conditions. The idea is that in order for the consequent (B) to exist the antecedent (A) must be in operation. That is, without the A condition the B condition cannot be present (Abramiuk 2012: 141-147). Thus if B, then A. A simple example to demonstrate how a cognitive archaeologist would use the conditional approach can be provided by the analysis of the pyramids in Egypt. The pyramids function as the consequent condition. In order for such large and accurate monuments to exist there must have been many people working in an organized fashion. Therefore the society must have used the cognitive capacities for planning and social organization. Planning and social organization are therefore the antecedent condition. Thus, the ancient Egyptians developed and used the cognitive capacities for developing structure and organization. In other words, without them the pyramids could never have been constructed. This is a simple example but it demonstrates how the conditional approach operates within the scheme of cognitive processualism. As this example illustrates, the conditional approach allows archaeologists to determine the

thought processes that engendered the behaviours involved in the making of the material remains under investigation (Abramiuk 2012: 143-144).

For arguments to be persuasive within this framework evidence must contain both cognitive and archaeological validity (Wynn & Coolidge 2009: 119, 2010: 12, 2011: 3-4). For an argument to achieve cognitive validity, the material record under investigation cannot exist without implementation of the cognitive processes or behaviours that have been attributed to the development of the material record (Wynn & Coolidge 2009: 119, 2010: 12, 2011: 3-4). Cognitive validity thus adheres to the parsimony principal. The parsimony principal states that when there are multiple explanations for a phenomenon, the simplest explanation must be favoured (Wynn & Coolidge 2010: 12). In the case of cognitive processualism and the conditional approach, if multiple behaviours or cognitive strategies can explain the archaeological record, then the simplest explanation must be selected (Wynn & Coolidge 2009: 118-121, 2010: 12, 2011: 4). Archaeological validity is obtained only when the materials are credibly placed in time and space (Wynn & Coolidge 2009: 119, 2010: 12; 2011:4). The social networks of the Upper Palaeolithic people provide a challenging and exciting obstacle for cognitive archaeologists. The lack of written language has resulted in cognitive archaeologists focusing on tools and symbols when making inferences into the prehistoric mind.

The investigation of symbols and the ways in which symbols were used is a fundamental concern of the cognitive-processual framework (Abramiuk 2012: 145; d'Errico 1998; Hayden 1993: 121-131; Lowe 1998; Renfrew 1994: 5-9, 1998). Symbols are a material trace that can represent something other than what it is (Danesi & Santeramo 1999: 3-4; Eco 1976: 16; Halle 1998: 52; Lowe 1998: 91; Renfrew 1994: 5-8).

By investigating symbolic behaviour it is possible to establish some of the many interrelationships between cognitive processes and social contexts (Donald 1998; Dowson 1998; Halle 1998; Hayden 1993: 121-131; Mithen 1998; Renfrew 1994: 5, 1998). For instance, symbols have the potential to tell us about cognitive functions such as structured behaviour, planning, measurement, memory, social relations, and how symbols can be used to structure and regulate inter-personal behaviour (d'Errico 1998; Conkey 1978, 1984; Donald 1998, 1998a; Hayden 1993: 128-131; Renfrew 1994: 6; Malafouris 2007; Mithen 1998; Wobst 1977; Zubrow & Daly 1998). When exploring symbols, it is less important for cognitive archaeologists to deduce what the symbols stood for and more important to attempt to understand the ways in which symbols were used (Abramiuk 2012: 145; Renfrew 1994: 6). From here cognitive archaeologists seek to make suggestions about the cognitive processes that must have been used by the culture for symbolic patterns to exist (Abramiuk 2012: 145; Renfrew 1994: 5-9). With the absence of written language, inferences about cognition from symbols must only be made from observable patterns and trends in the symbolic culture. This will ensure explicit inference. Cognitive archaeologists are not specifically interested in establishing individual instances of thought but, rather, they are concerned with the cognitive processes working within an entire culture (Abramiuk 2012: 143). Repeated symbols can be assumed to have widespread cultural meaning (Conkey 1984; 1985; Rowntree & Conkey 1980: 465-147) and will thus be the focus of this projects analysis.

4.2 The Cognitive Approach and the Interpretation of non-figurative images

Cognitive archaeology is not an unexplored theoretical position in prehistoric studies. Various cognitive archaeological investigations have shown that the Upper Palaeolithic people were capable of planning, symbolic thought, designing, and organized social behaviour (Bloch 2008; Malafouris 2007; Mithen 1998; Read & van der Leeuw 2008; Renfrew 1994; Roepstorff 2009; Zubrow & Daly 1998). This project does not aim to detect unfounded cognitive capacities of the Upper Palaeolithic people. Instead, it looks to determine what established cognitive processes were likely present in the creation of non-figurative images. We seek to identify what behaviours and thought processes were associated with the images in order to determine what non-figurative forms were conventional. Determining what images are conventions can inform us exactly about what non-figurative forms played a role in shaping social actions and understandings.

Conventional images are external symbols containing a particular or specific knowledge that is recognized by the culture producing it and potentially understood cross culturally and temporally (Conkey 1984: 268; Moro Abadía, González Morales & Palacio Pérez 2012: 231; Summers 1981; Trilling 2001: 146-184). Symbols have the ability to compress complicated meanings into a specific form or behaviour and can act as a medium for conception (d'Errico 1998; Donald 1991, 1998; Langer 1957: 60-61; Rowntree & Conkey 1980: 460; Renfrew 1998; Wanger 1972: 42). Palaeolithic representations have been interpreted as forms of external symbolic storage (d'Errico 1998; Pfeiffer 1982; Malafouris 2007; Marshack 1972, 1972b). External representations

are material signs or sign systems that are openly available to the members of a particular community (Donald 1991; Malafouris 2007: 289; Rowntree & Conkey 1980).

Reoccurring images or symbols would have been culturally or symbolically relevant (Conkey 1985: 308-312; Lewis-Williams 2009: 144-145; Rowntree & Conkey 1980: 465-147). Storing ideas externally gives humans access to memory properties that expand on biological capabilities of their mental software (Donald 1991, 1998, 2001). Some of the advantages of storing information or memory externally include expanding the possibilities of saving information beyond human limited physical capacities, information stored externally can be more permanent than the information that is stored in the mind, accessing the information is unconstrained by the retrieval paths needed to mentally access memories or information, there is an unlimited perceptual access, and spatial structure can be used as an organizational principal (Donald 1998: 15). Cultures using different forms of external symbolic storage are actively altering how information is processed beyond biological capabilities. The Upper Palaeolithic is not the first period where there is evidence of potential external storage of information through the use of symbolic behaviour (Henshilwood et al. 2002; Henshilwood, D'Errico, Vanhaeren, Niekerk & Jacobs 2004: 404). However, the Upper Paleolithic constitutes the first instance where there is evidence of a widespread symbolic cultural tradition (Mithen 1998: 98-100; Pfeiffer 1982; Renfrew 2009). Analysis of lithic manufacturing and etching and figurative images has provided strong evidence that Upper Palaeolithic people were actively creating and using artificial memory systems (d'Errico 1994, 1995, 1998; Malafouris 2007; Mithen 1998; Zubrow & Daly 1998). A systematic analysis of non-

figurative images may reveal which non-figurative motifs were part of such symbolic systems that actively influenced the cultures that produced them.

The environments and artifacts created by a culture are not passive entities awaiting human persuasion. Material culture does not just reflect social relations and cultural behaviour but, instead, it plays a role in determining them (Dobres & Robb 2005; Hodder 1982, 1986; Ingold 2000; Latour 1999: 174-215; Olsen 2003). Material objects and symbols can thus play an active role in influencing behaviour (Hayden 1993: 128-131; Hinde 1998: 78-79; Latour 1999: 174-215; Miller 1998; Pickering 1995; Rowntree & Conkey 1980; Pickering 1995; Yarrow 2008). This is usually referred to as material agency (Alison 2014; Knappett 2008; Knappett & Malafouris 2008; Malafouris 2008; Sutton 2008). Agency theory asserts that objects and material culture are active agents in human-object interaction (Appadurai 1986; Ashmore, Wooffitt & Haring 1994; Dobres & Robb 2005; Fuller 1994; Hodder 2012; Ingold 2000; Latour 1999: 174-215; Lee & Brown 1994; Malafouris 2008; Miller 1987; Munn 1973: 284; Olsen 2003). As many authors have pointed out, objects can determine the frequency of their use, the degree of difficulty in an individual's learning process, the ability to stimulate working strategies, contribute to the flow and control of movements in the population, and coordinate attention, perception, action, and spatial awareness (e.g. Arnold & Mettwa, 2006; Hayden 1993: 128-131; Latour 1999: 174-215; Malafouris 2008; Munn 1973; Roepstorff 2009; Rosenberger 2014; Zubrow & Daly 1998). The cultures of the Upper Palaeolithic altered their living spaces in a unique and complex way. Rather than just designing and adapting the environment for survival, the Upper Palaeolithic cultures adorned their surroundings with lively and realistic images. While Paleolithic people certainly modified their living

spaces, the altered and decorated environment would have acted upon the creators and shaped the lives of the individual by a mutual interaction between individual and image (Donald 1998: 181). With the help of concepts such as ‘signifier’, ‘signified’, and other significant terms from semiotic literature (Bal & Bryson 1991; Danesi & Santeramo 1999; Eco 1976; Jamani 2011; Pierce 1999; Saussure 1999), we can understand Palaeolithic imagery as symbolic systems representing knowledge and value systems that, at the same time, are influenced by physical reality and influence the physical world. (Pooke & Newall 2008: 96-101). The dynamic interaction between image and individual is a symbiotic relationship in which new cognitive capacities are developed (Donald 1998; Malafouris 2007; Renfrew 1998: 2). It is evident that these images would have directly acted upon the cultures and shaped cultural behaviour. It is generally accepted that the realistic and grandiose images that appear near the entrances of caves would have been an active force in the lives of the Upper Palaeolithic people (Bahn & Vertut 1997; Hayden 1993: 128-131; Lawson 2012; Ucko & Rosenfeld 1967). However, many other representations are found in the deep recesses of cave environments and would have seldom been seen (Bahn & Vertut 1997: 10; Hayden 1993: 125; Ucko & Rosenfeld 1967: 166). The agency embedded within a number of symbols and signs makes it important to establish conventionality.

4.3 Cognitive archaeology in action: The problem of inference

As I mentioned in the previous section, I will refer to cognitive archaeology in this project to make inferences about the cognitive processes used by Palaeolithic people in

the creation, use, and development of non-figurative conventional motifs. This project does not have the ambition to establish and attribute novel cognitive processes embedded within Palaeolithic culture. Instead, I seek to determine what well-established cognitive processes may be attributed to the non-figurative conventional forms. In particular, I focus on a number of cognitive processes that may be of particular interest for understanding Paleolithic images, including structure, symbolic thought, and design.

The concept of ‘**structure**’ has been successfully applied to the analysis of different aspects of the organization of hunter-gatherer societies (see, for instance, Clottes 2009; Leroi-Gourhan 1965; Sauvet & Włodarczyk 1995; Strauss 1987). This project will attempt to identify if such an idea may be used to promote a better understanding of non-figurative images. Following the conditional approach of cognitive processualism (see above), this project will inquire about the so-called structural analysis of prehistoric art. Structuralism was applied to the analysis of cave images in order to look for particular systematic communication elements or symbolism in an image or a canvas that is consistent in a variety of contexts (Laming-Emperaire 1962; Leroi-Gourhan 1958, 1965: 111, 1993: 372-298) because such symbols only have meaning within their contextual relationships (Conkey 1989; Ucko & Rosenfeld 1967: 139-149). Important insights in structuralism have been gained by the statistical analysis of the figurative cave images by Georges Sauvet and André Włodarczyk (Sauvet & Włodarczyk 1992, 1995, 2000-2001, 2009). Their analysis looked to document changes in society based on changes in the structured scheme of the artwork. Their work suggests a formal grammar in the artwork and a variety of structured themes (Sauvet & Włodarczyk 1995). This project will look for structural relationships that may be inferred from the analysis of non-figurative

images. There will be two key elements to explore. The first is the location of the images in the cave. If a particular representation often occurs in the same section of different caves we can infer that location of this representation within the cave is relevant.

The second element to inspect is the associations with different kinds of images. If a particular non-figurative form systematically appears with other specific forms then we can infer that there is a particular and significant relationship between these two images.

Few scholars would argue that the cultures of the Upper Palaeolithic, and even their predecessors in Africa, were capable and utilized **symbolic thought** as a cultural means of life. There is evidence suggesting that a number of hominins before *Homo sapiens* probably used some kind of symbolic thought in a number of different ways (Bahn & Vertut 1997: 23-24; Bordes 1952, 1961, 1972; Freeman 1983; Hayden 1993: 124; Moro Abadía & González Morales 2010: 232; Schmandt-Besserat 1980: 127-128). This project will look to identify which particular non-figurative images may express significant symbolic thought. It will do so by delving into the area of semiotics. Semiotics is the study of meaning making through anything that can be considered a sign (Bal & Bryson 1991: 174; Danesi & Santeramo 1999; Eco 1976: 7; Jamani 2011: 93, 2014: 802; Lawson 2012: 206). In semiotic literature signs have been assumed to have three primary factors. The first factor is the signifier. The signifier is simply the element that signifies an object, event, concept, or being (Danesi & Santeramo 1999: 5-6; Pierce 1999; Saussure 1999). Possible signifiers include words, gestures, physical objects, or pictures (Danesi & Santeramo 1999: 5-6; Jamani 2011: 193). In our case the signifier is, of course, the non-figurative image. The second primary factor is the signified. The signified refers to the process in which a concept or idea is organized or coded in some way by the signifier

(Danesi & Santeramo 1999: 6; Jamani 2011: 193). In our case the exact meaning of the non-figurative image cannot be determined. The third primary factor is the interpretation of the signifier. It has been suggested that signs do not encode exact meanings but instead they suggest meanings (Danesi & Santeramo 1999: 6; Danesi 2007: 73). When an individual sees a sign they will interpret it in a way that may not be related to the creator's original intention (Pierce 1999). Thus the internal representational content, such as ideas, emotions, and feelings (Jamani 2011: 193), provoked by an external reality (Malafouris 2007: 289; Frith 1966: 13) may not reflect the original intent of the signifier (Pierce 1999). This factor is of particular relevance because the meaning of an image is not static throughout time or between people (Conkey 1983, 1985; Holman 1997) and the motifs of the Upper Palaeolithic were not confined to one culture but many cultures spread across space and time. In this setting, it is important to stress that the conditional approach will allow us to detect evidence of symbolic thought but not what the symbols actually meant (Abramiuk 2012: 145). Following the ideas of semiotics it would be possible to infer what kind of symbols meet the requirements of a semiotic signifier. Detecting repetitive, formalized, and culturally standardized symbols will help us to determine evidence for symbolic thought and conventionality (Conkey 1978, 1984, 1988: 308-312). Repeated images can be assumed to represent a form of symbolic communicative text and can be therefore considered conventional images (Conkey 2009: 184; Jamani 2014: 802).

Designing is a cognitive capacity that involves having a mental template of an object before actually producing the object or representation (Abramiuk 2012: 145; Harris 1989: 61-62; Hodgson 2008; Malafouris 2007; Renfrew 1994: 6-7; for discussion on the formation and format of mental images, please see Anderson & Bower 1973; Kosslyn

1980, 1994; Pylyshyn 1973, 2002; Thompson, Kosslyn, Hoffman & Van Der Kooij 2008). The semiotic approach will stimulate the search of conventional images. Similar representations that appear in the same cave will be less significant with this mental capacity than similar images that appear in a variety of caves separated geographically. If a group of similar images are repeated in one cave context a possible explanation is that the cave painters were either mimicking each other or that one painter had continued to make a similar design. However, if we see the same painting in a variety of caves then we can suppose some important information about the cultural and social value of this image. Although it is possible for similar images with no relation to appear across spatial contexts, the presence of comparable motifs separated by significant geographical space suggests wide spread cultural significance (Conkey 1985). Similar images in different contexts will allow us to infer that the painters knew what they were going to paint and had a template of the image in their minds before executing it on the rock canvas.

4.4 Problems with interpretation

This project seeks to provide an explicit theoretical framework for analysing the non-figurative images. Cognitive archaeology has been taken as the framework that can provide us with an adequate strategy to make valid and overt inferences about prehistoric cultures. However, even with the objective methodology of cognitive processualism there are inherent subjectivities that determine our understanding of Palaeolithic cave images. Among others, these subjectivities are related to dating, cave contexts, and personal perceptual biases.

Following a well-established methodology, this project considers that caves are spaces usually structured into three sections: the cave entrance, the interior, and the deep cave. These distinctions are problematic. While looking at a cave map it is possible to define these sections. In many cases it may even be evident what parts of the caves belong to each section. However, there are no specific or objective criteria for defining each section (Ucko & Rosenfeld 1967: 195-199). Specific criteria marking cave sections cannot be developed and applied to every cave. This is due (A) to the fact that it is often difficult to define the limits of concepts such ‘entrance’ or ‘interior’ (Leroi-Gourhan 1964: 97), and (B) to the dynamic nature of each cave (Ucko & Rosenfeld 1967: 195-199). Caves are a natural occurring phenomena and their construction is in most cases unpredictable. Due to the great differences in geography from cave site to cave site it is impossible to determine sections in an objective and systematic way (Ucko & Rosenfeld 1967: 195-199). Instead each cave must be looked at individually and each section determined from the individual context of the cave (Vialou 1981, 1983). Moreover, due to such variations between cave sites it has been argued that similarities between cave constructions are minimal and that each cave needs to be considered its own symbolic construction (Vialou 1981, 1983). This creates a subjectivity when analysing cave sections. The cave maps that have been analysed in this project are also problematic. Maps usually fail to indicate the difficulty in accessing particular areas and usually show no signs of levels within the cave. Due to the cave dynamics it is possible that an area of one cave that is 20m deep may be much more difficult to access than an area that is 50m deep in a separate cave. In other words, a number of relationships between representation and accessibility will not be detected from the maps used. Another problem with cave

maps is that they only depict the primary entrance point. Some caves, such as Altamira, Villars, Pech-Merle, and Cougnac among others, are currently entered through different pathways than what our Upper Palaeolithic counterparts would have used (Lawson 2012: 254; Ucko & Rosenfeld 1967: 103). Thus if the entrance to the cave is different than the contemporary entrance, the section labels that are used based on the maps would be different for the actual cultures utilizing the caves. Although these problems and subjectivities do exist within this analysis, their presence is only minor. Dividing the cave into three primary sections is obvious enough by glancing at each cave map. Moreover, any analysis of the relationship between difficulty to access and representation would inherently be subjective.

Perhaps the most important criticism that may be addressed to this project is related to the perception and interpretation of Paleolithic non-figurative images. Here interpretation does not deal with ontology but how a contemporary viewer visualizes the images on the cave wall (for discussion on the problems of perception, please see Bloomer 1976; Granrud 2004; Most, Scholl, Clifford E. R. & Simons 2005; Pylyshyn 2003). As many authors have pointed out, image perception is culturally and historically conditioned, therefore when viewing images different cultural groups will perceive the visual stimuli in different ways (Baxandall 1985: 105-137; Bloomer 1976; Forge 1970, Gombirch 1982; White 2003: 20-31). The phenomena of perceptual differences can even be seen with people of the same cultural grouping (Lafer-Sousa, Hermann & Conway 2015; McManus, Freegard, Moore & Rawles 2010). Discrepancies in visual perception are not only true to for contemporary cultures but is likely true for all historic and prehistoric cultures. What we define as Paleolithic ‘representations’ were probably

conceptualized otherwise by the people that created them (Malafouris 2007). The problem of visual perception is amplified by how the non-figurative images are analyzed. Unlike an image of a lithic tool with a scale, the properties of cave images cannot be easily replicated through an image. This is because there are many factors that will affect how the image is perceived such as lighting, angle of observation, and the dynamics of the wall surface. Moreover, few of the documented images contain a scale. Thus each image that was analysed contains the perceptual bias of the photographer and is missing many of the perceptual elements that would be noted or seen differently by direct observation. This problem is even more relevant in the cave images analyzed that were not actual pictures but were artistic sketches, most made by Henri Breuil (problems with such archaeological sketches are discussed in chapter 1). In these instances the researcher's interpretation of the cave representations is being analysed and not the actual images. The problems in recording these images in the database are evident. In short, the images under analysis are the representations of a representations.

An important problem when dealing with Upper Palaeolithic representations is dating. The development of radiocarbon dating and Accelerated Mass Spectrometry has enabled researchers to directly date the paint itself (Clottes 2008: 38; Clottes et al. 1995; Pettitt & Pike 2007: 29; Sadier et al. 2012: 8002; Valladas et al. 2001: 479; Valladas et al. 2006). However this technique is not without problems (Bahn & Lorblanchet 1993; Clottes 1993a; Guilderson, Paula & Brown 2005; Lawson 2012: 112-113; Pettitt & Pike 2007; Rainer 2006; Valladas et al. 2001). Significant troubles include that only limited amounts of pigment can be taken for analysis to avoid damage to the artwork (Bahn & Lorblanchet 1993; Clottes 1993a: 21; Pettitt & Pike 2007: 31), the risk of contamination

is high (Bahn & Lorblanchet 1993; Pettitt & Pike 2007: 31; Valladas et al. 2001), a degree of systematic error resulting in inconsistent radiocarbon dates (Guilderson, Paula & Brown 2005; Pettitt & Pike 2007: 37; Rainer 2006: 3-6; Valladas et al. 2001: 985), the accuracy of radiocarbon dating decreases with age (Rainer 2006; Ucko & Rosenfeld 1967: 310), the charcoal used to produce paintings does not have to be freshly produced and thus the charcoal pigments may be much older than the paintings (Pettitt & Pike 2007: 38; Rowe 2001; Valladas et al. 1992), and a lack of a universal standard methodology for the direct dating of cave art and the reporting of data (Pettitt & Pike 2007: 37; Rowe 2001; Watchman 1999). The problems are no less when indirect dating methods are applied (Pettitt & Pike 2007). It has often been assumed that remains of charcoal or artifacts found associated with the artwork can provide a reliable date (Aubert 2012; Lawson 2012: 111; Pettitt & Pike 2007: 29, 41-42). However, no matter how convincing the association may be, the paintings and the artifacts are physically separated and there will always be a degree of uncertainty about their temporal relationship (Lawson 2012: 112; Pettitt & Pike 2007: 41-42). This problem is exemplified in the first indirect radiocarbon dated charcoal found in Lascaux cave in 1951. The charcoal was dated to 15,515 years ago. This was immediately contested by Laming-Emperaire whom had studied the cave and believed the date to be too young (Laming-Emperaire 1962). These problems reduce the confidence we can have in the dates provided for the artwork. Moreover, in many instances of the documented representations, no conclusive dates are provided. This will reduce the validity in temporal relationships and make such relationships difficult to establish.

Chapter 5

Discussion

The primary objective of this project is to analysis, organize, and classify the non-figurative motifs found within Cantabria. The data gathered has generally shown that the preferred non-figurative motif is the line (Figure 40), the favoured pigment used is red (Figure 41), and that images are usually found within the interior caves (Figure 42). The rest of this chapter will explore the relationship between figurative and non-figurative motifs, investigate the characteristics of each type of image by searching for cognitive elements that might help establish conventionality, and to offer some concluding thoughts on the importance of this work.

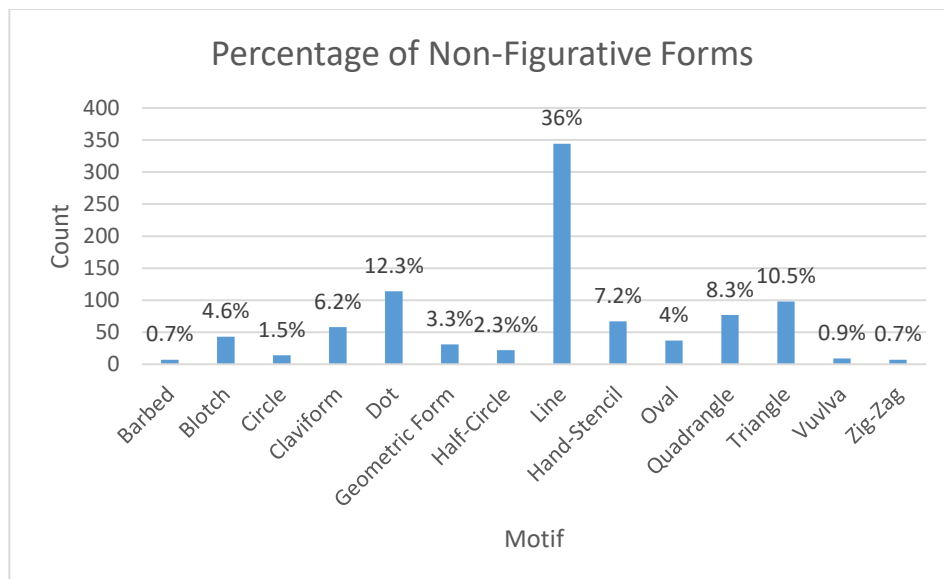


Figure 40. Graph Percentage of Non-figurative motifs in Cantabria

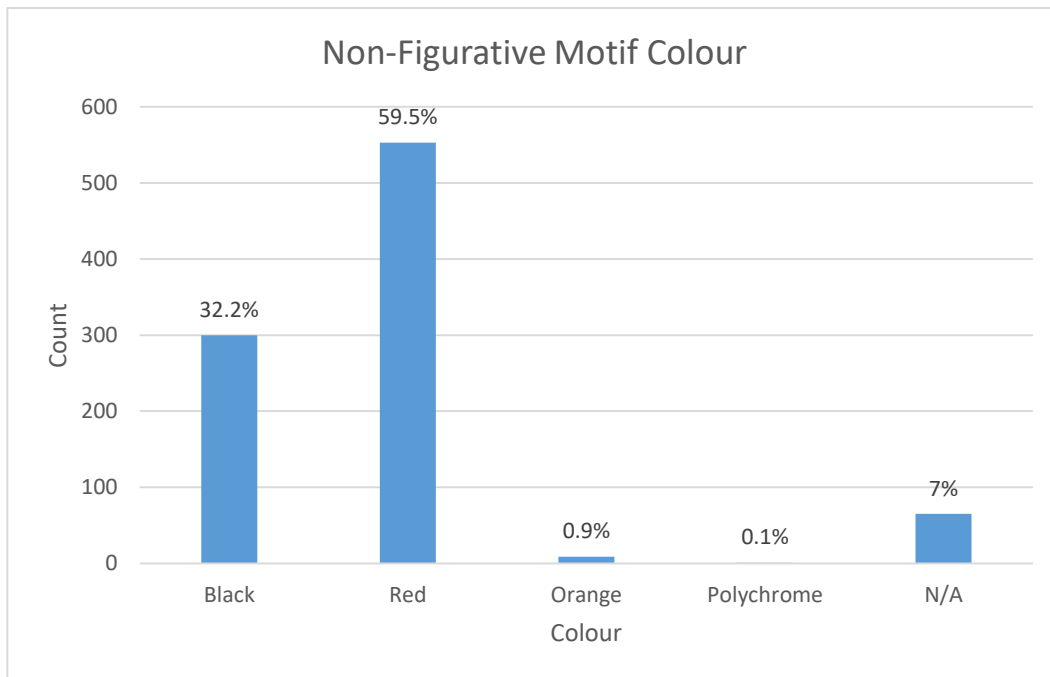


Figure 41. Graph motif colour of non-figurative images in Cantabria

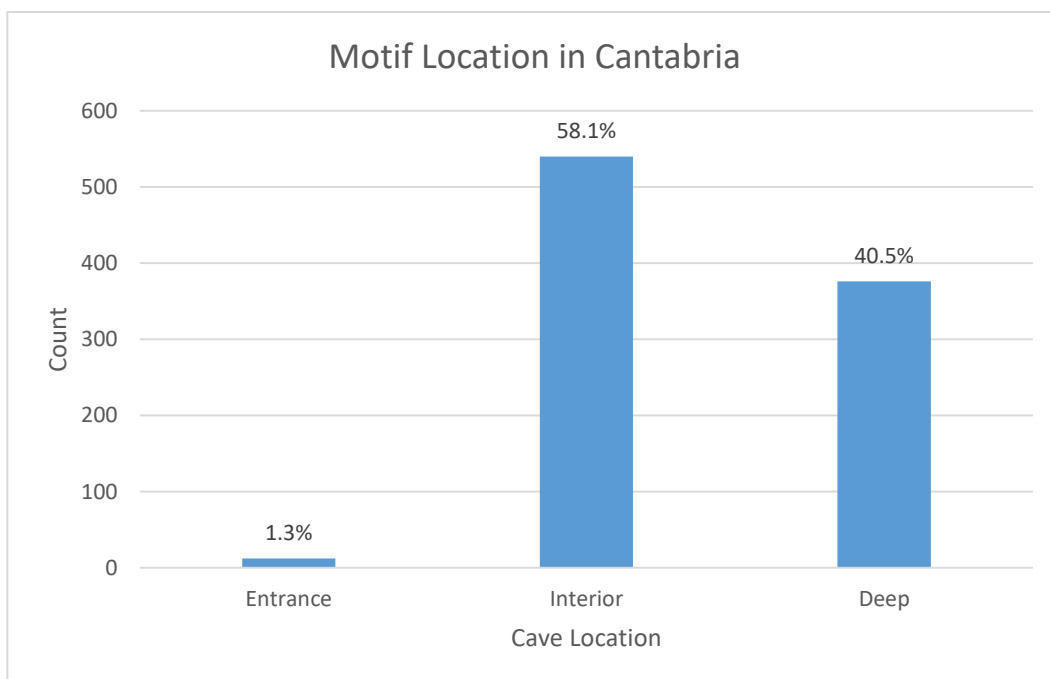


Figure 42. Graph Cave location of motifs in Cantabria

5.1 Inferring cognitive processes

An analysis of the various formal elements of the conventional non-figurative images can allow us to suggest some cognitive processes at work in the making of such motifs. This project does not carry the ambition to suggest new modes of cognitive functioning that must have been pivotal in Upper Palaeolithic culture. Instead, it looks to attribute accepted cognitive patterns of the prehistoric cultures to the production of non-figurative conventional images. In other words, the main question is: what cognitive elements must have been used to produce these conventional images? More specifically, this project will focus on the cognitive processes of structure/organization, internal design, and symbolic thought.

Structure and **organization** are cognitive pillars that all civilizations stand upon, including nomadic peoples and hunter-gatherers. The lifestyle of hunter-gatherers would have required particular degrees of structure and organization in life practices such as tool construction, hunting, and social organization (Banks et al. 2009; Clark & Straus 1983; Jochim 1987; Mellars 1989; Menéndez de la Hoz, Straus & Clark, 1986; Pike-Tay & Bricker 1993; Straus 1977, 1981, 1987, 1992; Straus, González Morales, Martínez & María Paz 2001; Wojtal & Wilczynski 2015). Structural and organizational patterns can also be detected in the placement of non-figurative motifs. Some examples can illustrate this point. In the case of Cantabria, non-figurative representations are rarely located near the entrance of the cave or areas exposed to natural light. Of the 929 non-figurative images documented in this project, only twelve are found near the cave entrance (Figure 42). In this setting, it is important to point out that Palaeolithic designers did not choose

their rock canvases haphazardly. Rock walls were often chosen for their natural features and it was not uncommon for the designer to emphasize the rock walls before painting (Altuna & Apellániz 1976; Bahn & Vertut 1997: 122-123; Chauvet, Brunel Deschamps & Hillaire 1995; Ucko & Resenfeld 1967: 48-50). The evidence gathered in this project shows that the Palaeolithic cultures had consciously selected the caverns to place their work. A total of 540 images are found in the interior cave, 376 motifs are located in deep cave caverns, and just 12 of the non-figurative forms are located near the cave entrance. While the distinction between ‘interior’ and ‘deep’ cave is not without problems, these numbers show that Paleolithic non-figurative images were rarely executed in the entrance of the cave. The difficulty in suggesting intricacies of how these caves were structured has not been a deterrent in academic attempts. Here it is enough to say that the darkness and cave depths played a role in the projection of symbolic significance to the rock walls. The placement of each non-figurative image within their caves and each images associations with figurative and non-figurative motifs will be analysed to try to determine whether the cognitive processes of structure and organization can be applied to each form. This will help us determine if a motif can be considered conventional.

Design is an element that is important in the portrayal of conventional images. Here design refers to the act of creating a mental model of an image before projecting it onto a canvas (see chapter 4). In other words, designing refers to the process producing a coherent and recognizable image from a mental template as opposed to a physical one (Abramiuk 2012: 145; (Harris 1989: 61-62; Hodgson 2008; Malafouris 2007; Renfrew 1994: 6-7). Some of the cognitive processes involved in the making of images are evident in the case of some figurative motifs. For instance, particular figurative representations

consistently dominate the Upper Palaeolithic representational record through space and time (Altuna 1983; Rice & Paterson 1985, 1986; Sieveking 1979: 43). The consistency of particular representational forms suggests a cultural symbolic system or text (Conkey 1985, 1988: 308-312, 2009: 184; Layton 1985). The application of this cognitive process is more difficult to ascribe to non-figurative motifs. Non-figurative motifs such as individual lines, blotches, circles, dots, half-circles, ovals, and zig-zags can be argued to be basic enough that no mental template is required for their production and that the forms developed in many cultures around the world independently (Grosse 1928: 15-17; Haddon 1895; Riegl 1992: 15-40). However, other non-figurative forms such as barbed images, claviforms, geometric motifs, and quadrangles are complex and contain a large degree of similarity in a variety of different caves. Due to their complex nature and similarity across space it is here suggested that these specific forms were created involving the cognitive process of design. I think it is beyond question that these particular non-figurative motifs were meaningful to their producers and were recognized, remembered, and re-produced from a mental template by Palaeolithic people. It should be noted here that many of the images that may be considered the basic motifs of the geometric style, lines, blotches, circles, dots, half-circles, ovals, and zig-zags, have been associated with significant meanings in a variety of cultures (Bier 2008; D'Altroy 2003: 87-310; Grosse 1928; Haddon 1895; Meece 2006; Morris 1991, 1995). This suggests that while no mental template is necessarily needed for their production of these simple motifs, the cognitive process of design may be present in their implementation.

Symbolic thought is the fundamental cognitive process explored in this project. By definition, any image that acts as a symbol that is culturally recognized must be

conventional. Additionally, attributing symbolic thought to a sign will signify a conventional motif. To assert symbolic thought to a particular image the frequency of the image across time and space will be analysed. Detecting similar images in a variety of caves can help us ascribe conventionality and cultural meaning to the forms (Conkey 1988: 308-312; Conkey 2009: 184; Conkey 1985; Layton 1985). While this will likely result in overlooking images that may contain conventional meaning to a culture, the images that are labeled as conventional here will be certain. I will illustrate this question with an example from the cave of Santián. Located within the caverns of the Santián cave, there is a single panel with a variety of pronged images. These forms have been interpreted in a variety of ways including animal feet and grotesque hands/arms (Giedion 1962: 110-113). These images may have been conventional to the Palaeolithic people. It is possible that they contained a specific meaning and, for this reason, they are only produced in one place. However, we cannot say with any degree of certainty that this image is culturally conventional because there is no evidence for it. It is a one off and cannot be assumed to be recognized by the wider culture. Images that appear in a variety of sites can be assumed to have been frequently used and recognized by a culture and may be conventional.

The categories of symbolic thought explored in this paper will help us determine what images are conventional. In the following pages, each image will be analyzed individually. I will specifically focus on those images involving the cognitive process of design, containing principals of structure and organization, and are thought to be a medium for symbolic thought interpreted as culturally conventional. Specifically, the design process will be determined by the complexity of the image. If the complexity of an

image goes beyond the basic motifs of the geometric style that have developed independently in a variety of cultures (Grosse 1928: 15-17; Haddon 1895; Riegl 1992: 15-40), then it is likely that a mental template was required and used when producing the images, especially if the motif is repeated in multiple caves. To establish that the motifs are placed with structural and organizational principals in mind, we will analyse what other figurative and non-figurative images each representation is directly and indirectly associated with. In this project, direct associations refer to images that appear on the same panel and indirect associations refer to images that appear in the same cavern. If we see that any particular image is repeatedly placed in the same cave areas and is generally found associated with the same types of images in separate caves then we may attribute structural and organizational components to the image. Finally we will look to establish whether or not a motif is culturally symbolic. To establish symbolic thought we will examine the frequency of an image across the region. If an image is present in a variety of caves then it is likely that the motif is part of a symbolic text. Images that do not meet all of the criteria will be said to be either convention, uncertain, or not conventional.

Barbed Images

Barbed images are relatively rare and appear in just four cave sites in Upper Palaeolithic Cantabria. We have counted seven images spread across Las Monedas (3), La Clotilde (2), Los Marranos (1), and El Salitre (1) (Figure 43). The greatest distance between cave sites containing the barbed motif in Cantabria is 31.8 kilometers between Las Monedas and El Salitre. All of the motifs are painted. The preferred colour of the barbed images is black (Figure 44). The spread of these images suggests that they were

recognized and utilized over a wide geographical area. Six of the images appearing in Las Monedas, La Clotilde, Los Marranos, and El Salitre are found in cave areas beyond natural light (four in the interior, two in the deep) and one barbed image from Las Monedas is found in the entrance of the cave (Figure 45). All but one of the images, from Los Marranos, are associated with both figurative and non-figurative forms (Figure 46). The barbed motifs from Los Monedas are directly associated with a geometric form, lines, a cave bear, and ibex. They are indirectly associated with horses, lines, and a reindeer. The barbed motifs from La Clotilde are directly associated with lines, a triangle, bison, and aurochs and have no indirect associations. The barbed motif from Los Marranos has no direct associations but is indirectly associated with a blotch and a dot. The motif from El Salitre is directly associated with bison and deer and is indirectly associated with lines. While these numbers suggest that the barbed motifs are generally associated with both figurative and non-figurative forms and are found within areas devoid of natural light, the numbers are not high enough to say with certainty that this structure or organization principals were intentionally applied to this motif. Concerning the conventional nature of this representation, the barbed motif is a complex design that is similar in all cases. The arrow-like-motif resembles no natural entities in the real world and is complex enough that the image is not likely reproduced at random. It can therefore be assumed that the cognitive process of design was used when creating this image. Despite the ambiguity of the structural and organization principals that can be associated with the barbed image, elements of design and cultural recognition appear to be present. Therefore the barbed images can be classified as conventional motifs.

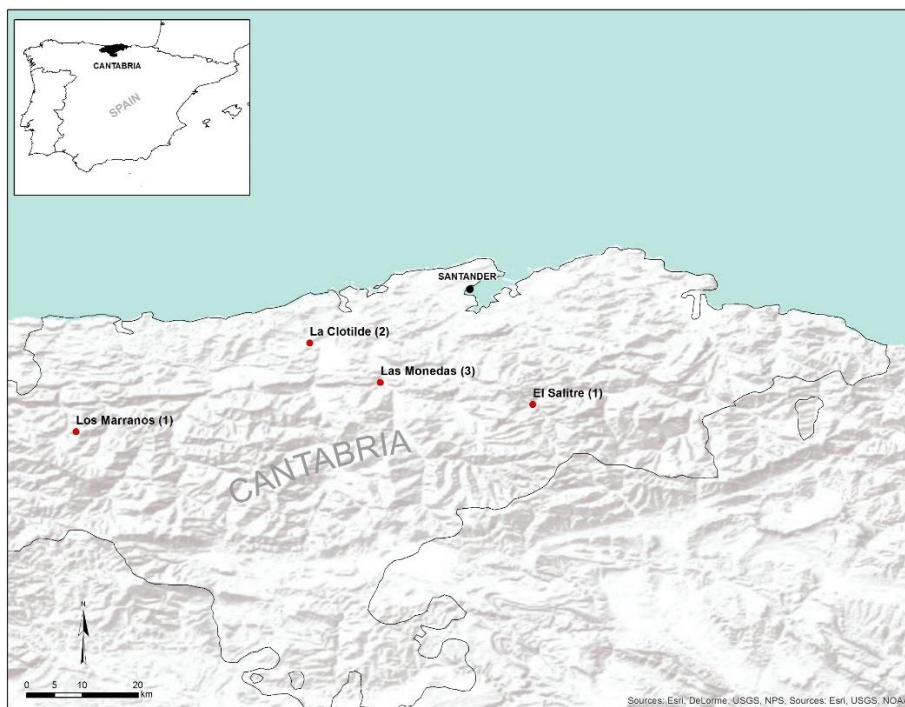


Figure 43. Distribution of barbed motifs

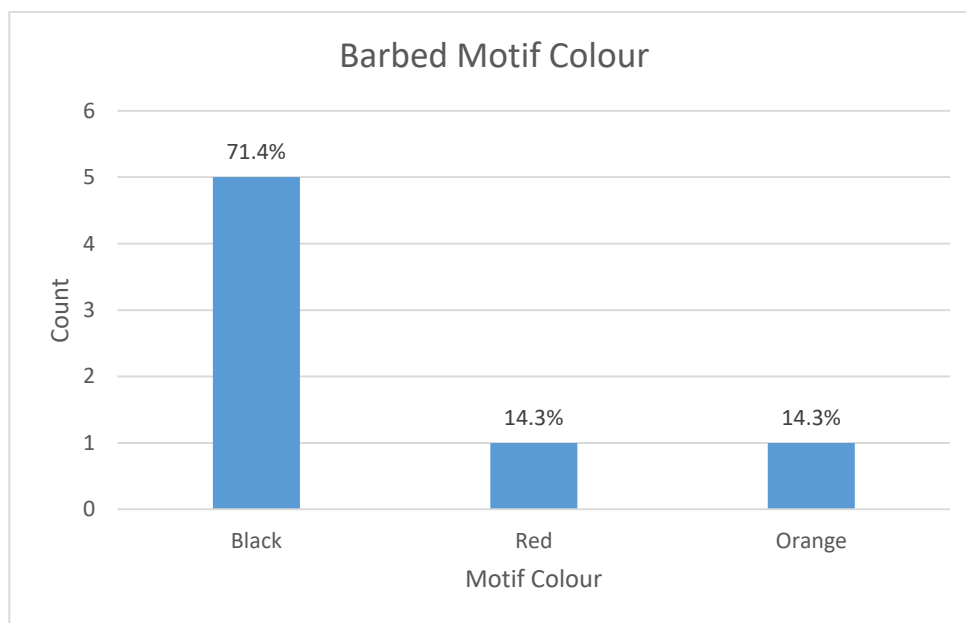


Figure 44. Colour of barbed images in Cantabria

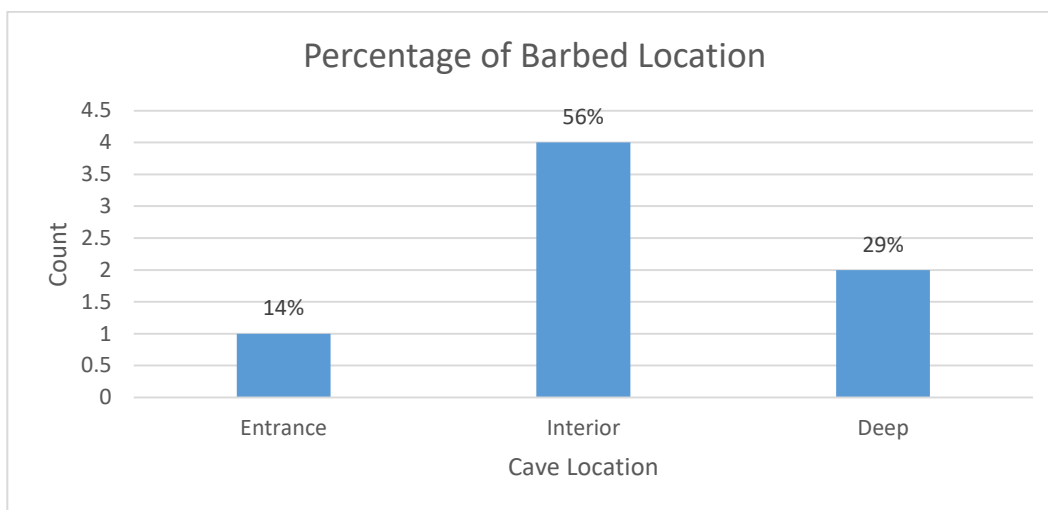


Figure 45. Location percentage of barbed motifs

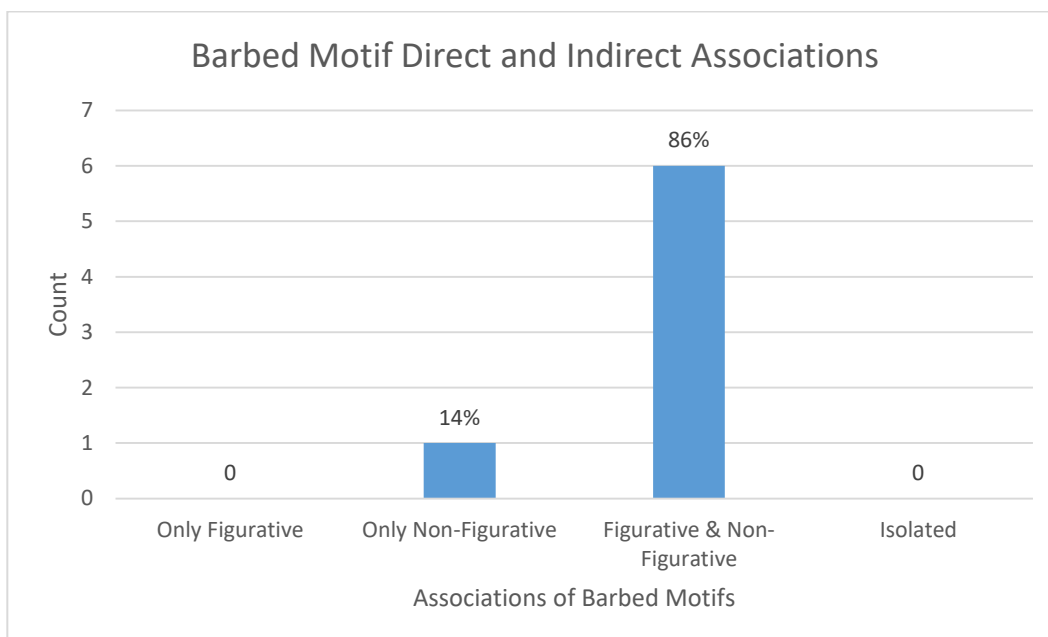


Figure 46. Barbed associations in Cantabria

Blotch

Blotch motifs are common in Upper Palaeolithic Cantabria and appear in fifteen different cave sites in the region. In total, there are forty-three images spread across the

caves of Altamira (13), El Castillo (6), Cofresnedo (6), Los Marranos (3), La Pasiega (2), La Garma (2), Cueva Grande (2), Hornos De La Peña (1), Santián (1), Fuente Del Salín (1), Chufín (1), El Morro Del Horidillo (1), El Arco (1), Covalanas (1), La Haza (1), and La Cullalvera (1) (Figure 47). The blotch motif is spread an approximate distance of 147km between Los Marranos and Cueva Grande. The large geographic distribution suggests that they would have been recognized throughout Palaeolithic cultures. All blotch motifs are, by definition, made with paint and the preferred colour is red (Figure 48). The motifs generally appear in cave areas absent of natural light. Fifteen images from the sites of La Pasiega, Hornos De La Peña, Chufín, La Garma, Cofresnedo, Cueva Grande, El Arco, Covalanas, and La Haza are in the deep cave. Twenty-six motifs from the caves of El Castillo, Santián, Fuente Del Salín, Los Marranos, El Morro Del Horidillo, La Cullalvera, and Altamira are in the interior (Figure 49). Two of the blotch motifs are found near the entrance of Cofresnedo. The majority of the images, twenty-three from the caves of El Castillo, Hornos De La Peña, Chufín, La Garma, Cofresnedo, El Arco, Covalanas, and Altamira, are found associated with both figurative and non-figurative motifs (Figure 50). The blotches from these caves are directly associated with dots, claviforms, other blotches, negative and positive hand stencils, circles, zig-zags, quadrangles, triangles, ovals, geometric designs, ibex, deer, auroch, and bison and are indirectly associated with triangles, geometric forms, negative hand stencils, lines, quadrangles, circles, horses, ibex, and auroch. Fourteen of the blotches from the caves of El Castillo, La Pasiega, Fuente Del Salín, Los Marranos, La Garma, Cofresnedo, La Cullalvera, and Altamira are associated with just non-figurative motifs. These motifs are directly associated with dots, claviforms, ovals, blotches triangles, positive hand stencils,

lines, and geometric motifs and are indirectly associated with triangles, geometric forms, negative hand stencils, blotches, claviforms, triangles, and barbed motifs. Five of the blotches from Los Marranos, Cofresnedo, El Morro Del Horidillo, and La Haza are isolated. One blotch image from the cave of Santián is associated with only figurative forms. The Santián blotch is directly associated with horse motifs. Structural and organizational principals can be applied to the blotch forms. Blotches generally appear in cave areas lacking natural light and are often found accompanied by both figurative and non-figurative motifs together. The blotch does not contain the design element typically associated to cognitive processes. It is simply smeared or blown pigment. Blotch images not only do not require a mental template for production and can be produced by accident. The blotch appears to contain structural and organizational elements and is produced in a wide variety of caves across the region. Therefore, it would be careless to assume it is not potentially a convention. However, its simplicity and the lack of a design element required to produce the image prevents the ability to definitively say that the image is conventional. In this interpretation, the conventionality of the blotch is uncertain.

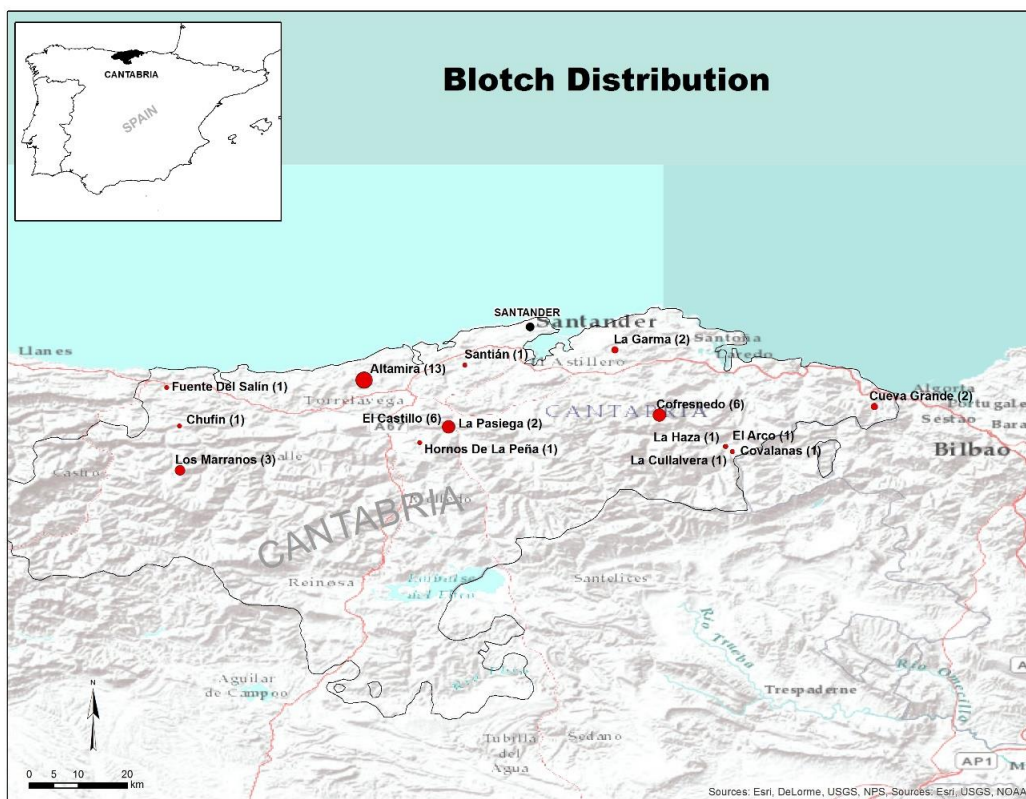


Figure 47. Distribution of blotch images in Cantabria

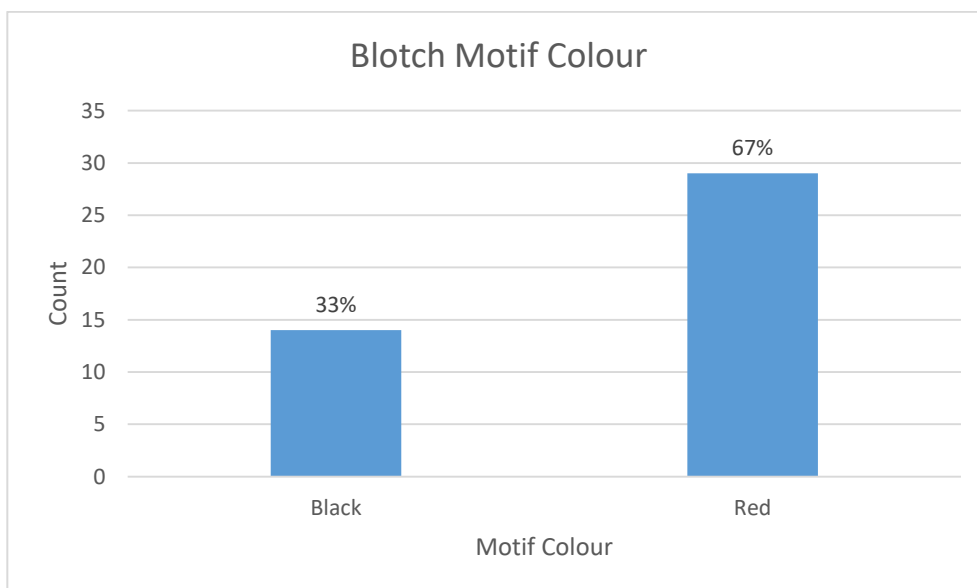


Figure 48. Blotch motif colour in Cantabria

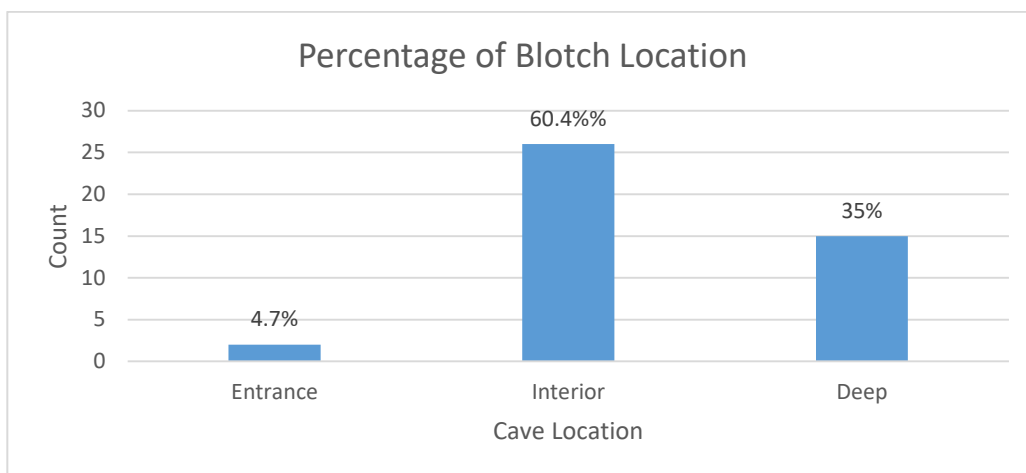


Figure 49. Cave location percentage of blotch motifs in Cantabria

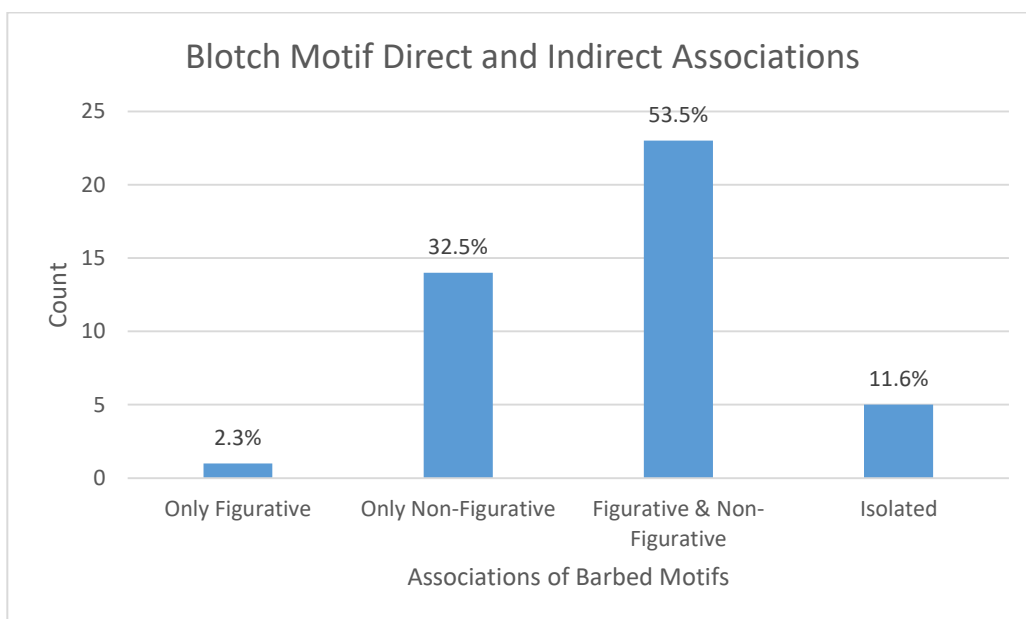


Figure 50. Blotch associations in Cantabria

Circle

Circle motifs are relatively sparse images in Upper Palaeolithic Cantabria and are found in eight caves within the region. In total there are fourteen images found in the caves of El Arco (4), Altamira (4), Las Monedas (1), La Pasiega (1), Cudón (1), Las

Brujas (1), La Clotilde (1), Micolón (1) (Figure 51). The greatest distance between cave sites containing the image, El Arco and Micolón, is roughly 106km. The wide distribution of circles suggests that these motifs had some kind of cultural meaning. Painting is the most popular mode of producing circles in Cantabria (Figure 52) and red is the most common colour used (Figure 53). The majority of the circles are found in cave areas absent of natural light (Figure 54). Nine circles are found in the deep cave recesses of Las Monedas, La Pasiega, Cudón, La Clotilde, Micolón, and El Arco. The cave of Altamira contains four circles within its interior. The cave of Las Brujas contains the only circle in a cave entrance in this region. The majority of the circles, eleven in total in the caves of Las Monedas, La Pasiega, La Clotilde, Micolón, El Arco, and Altamira are associated with both figurative and non-figurative motifs (Figure 55). Combined the circles from these caves are directly associated with claviforms, geometric motifs, ovals, lines, blotches, circles, quadrangles, triangles, deer, bison, auroch, and horse and are indirectly associated with claviforms, quadrangles, geometric motifs, triangles, vulvas, half-circles, ovals, lines, ibex, auroch, a cave bear, and deer. One circle from the cave of Las Monedas is only directly associated with a non-figurative motif, a line. Two circles from the caves of Cudón and Las Brujas contain no direct or indirect associations. These numbers suggest that structural and organization processes were used to position circles in areas lacking natural lighting accompanied by both figurative and non-figurative forms. Despite the appearance of circles across a large region, it is difficult to attribute the design process to them. The circle is such a particular basic geometric form that it is unclear whether a mental template is required to produce it. Circles are found in a variety of cave sites and

were potentially placed with the use of structural and organization elements. However, the lack of evidence for the design process makes the conventionality of circles uncertain.

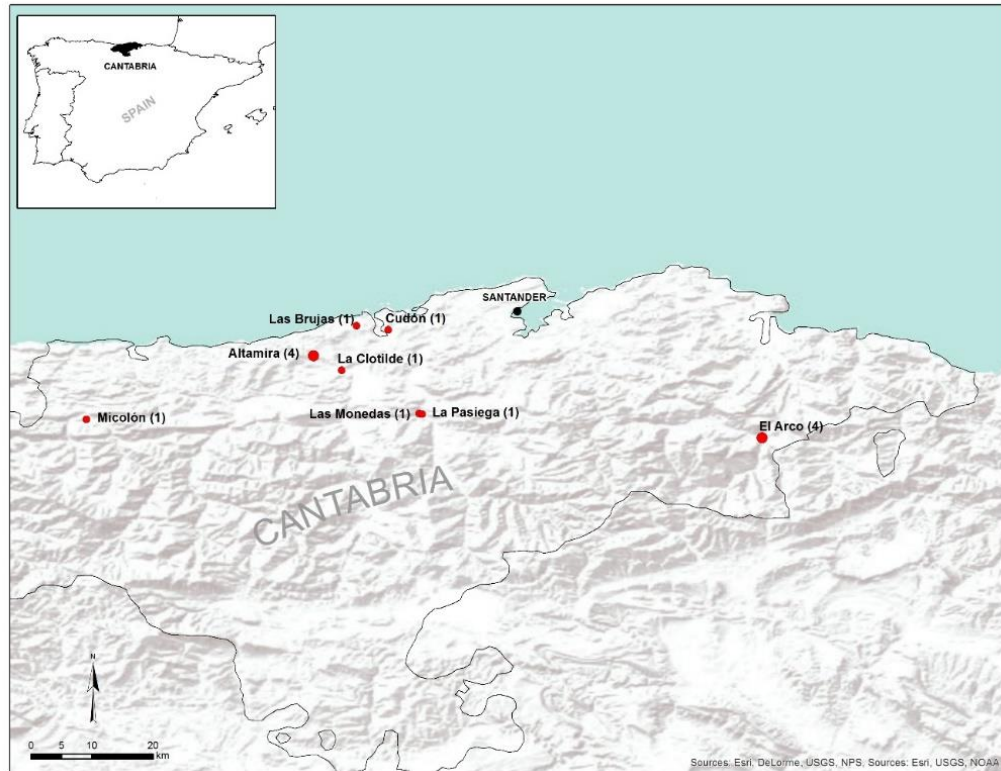


Figure 51. Circle distribution in Cantabria

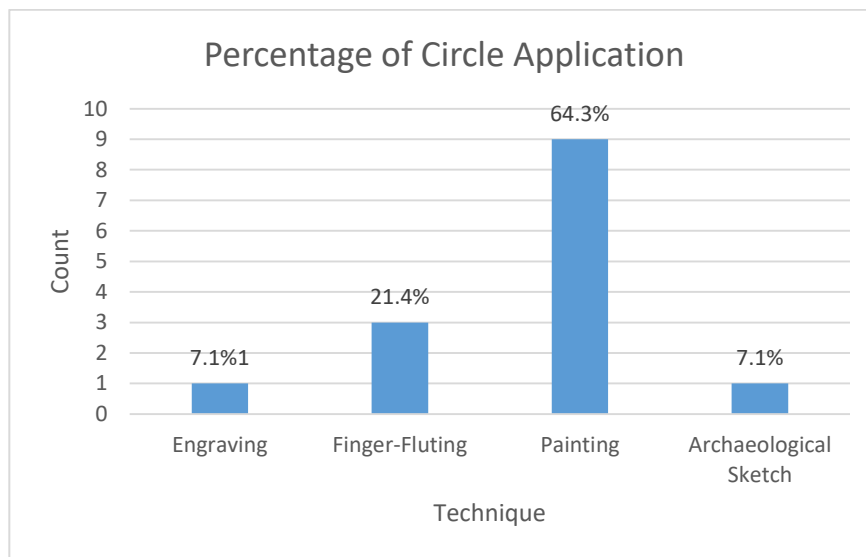


Figure 52. Percentage of circle application technique in Cantabria

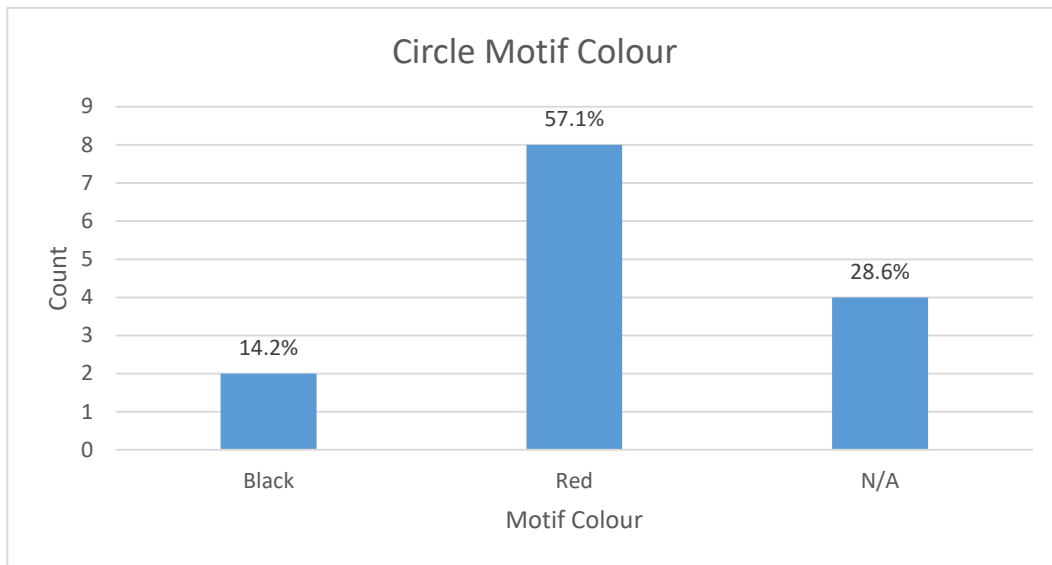


Figure 53. Colour of circle motifs in Cantabria

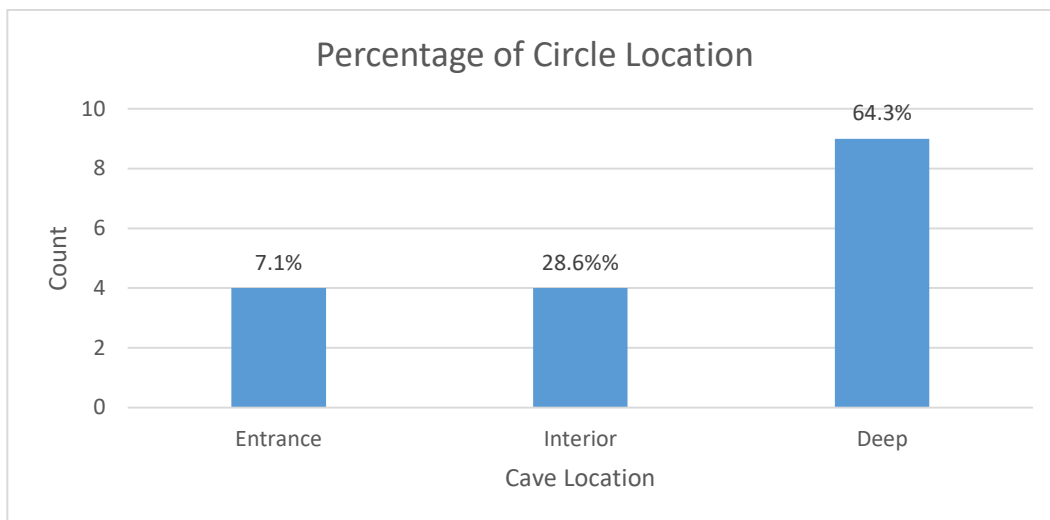


Figure 54. Cave location of circles in Cantabria

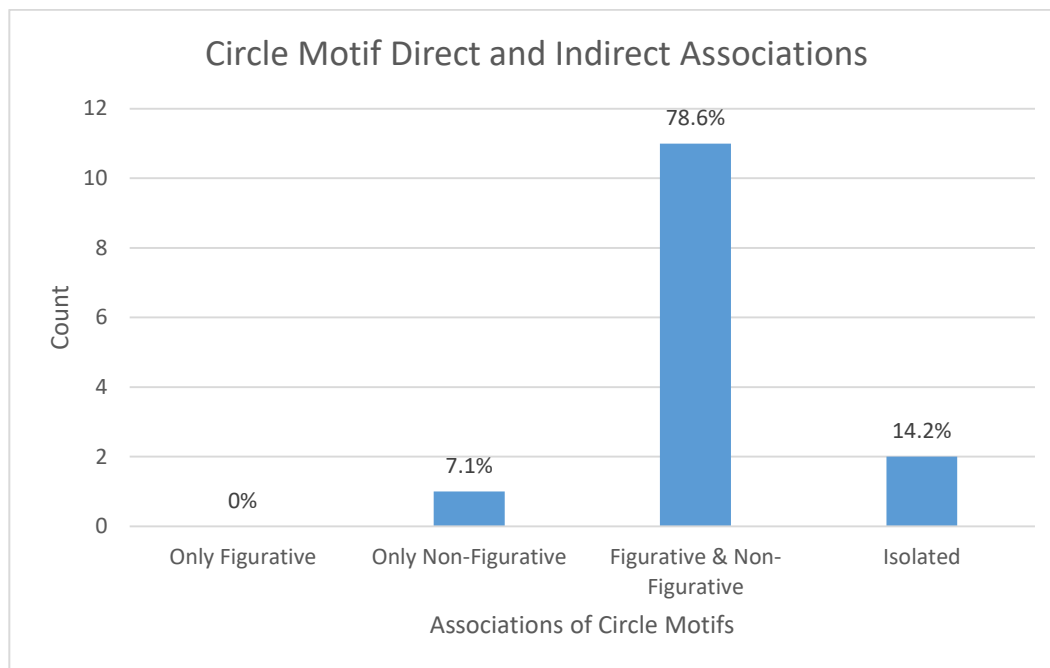


Figure 55. Associations of circle motifs in Cantabria

Claviform

The claviform is a popular design in the Upper-Palaeolithic and appears in three caves in Cantabria. In total there are fifty-eight claviforms spread across the caves of Altamira (24), La Pasiega (25), and El Castillo (9) (Figure 56). The distance from Altamira to the Castillo cave complex is approximately 22.8km. All the claviform motifs are paintings with the preferred colour being red (Figure 57). Although two caves are part of the El Castillo complex, there is enough distance between these caves and Altamira to suggest some form of cultural recognition. All of the claviforms are located in cave areas absent of natural lighting (Figure 58). Twenty-six of the claviforms are found in the deep caves of Altamira, La Pasiega, and El Castillo, while the remaining thirty two claviforms are found in the interior sections of each of the caves. The majority of the claviforms,

fifty from the three cave sites, are associated with both figurative and non-figurative motifs (Figure 59). Combined these claviforms are directly associated with lines, negative hand stencils, triangles, geometric motifs, dots, blotches, other claviforms, ovals, quadrangles, bison, horse, ibex, and auroch and are indirectly associated with geometric motifs, negative hand stencils, other claviforms, quadrangles, lines, bison, ibex, hinds, and horses. Three of the motifs from the caves of El Castillo and La Pasiega are associated with only non-figurative motifs. These claviforms are directly associated with other claviforms, dots, and ovals and are indirectly associated with geometric motifs, lines, dots, other claviforms, and quadrangles. Three of the claviforms from the cave of La Pasiega are isolated. These data seem to suggest that the placement of claviforms followed structural principals that kept them away from areas of natural lighting and associated with both figurative and non-figurative motifs. The cognitive process of design is evident in the claviform. The claviform motifs from cave to cave are strikingly similar and not likely unrelated. Although outside the scope of this project, it can be noted here that the claviform motif has been documented in several caves more than 500km away including Niaux, Trois Frères, Tuc d'Audoubert, Le Portel, Fontanet, Le Mas and d'Azil (Bahn & Vertut 1997: 168). The designs complexity and consistency across regions suggest that the image was repeatedly created from a mental template. Because the motif appears across the region, potentially contains elements of structure and organization, and was produced from a mental template, the claviform appears to be conventional.

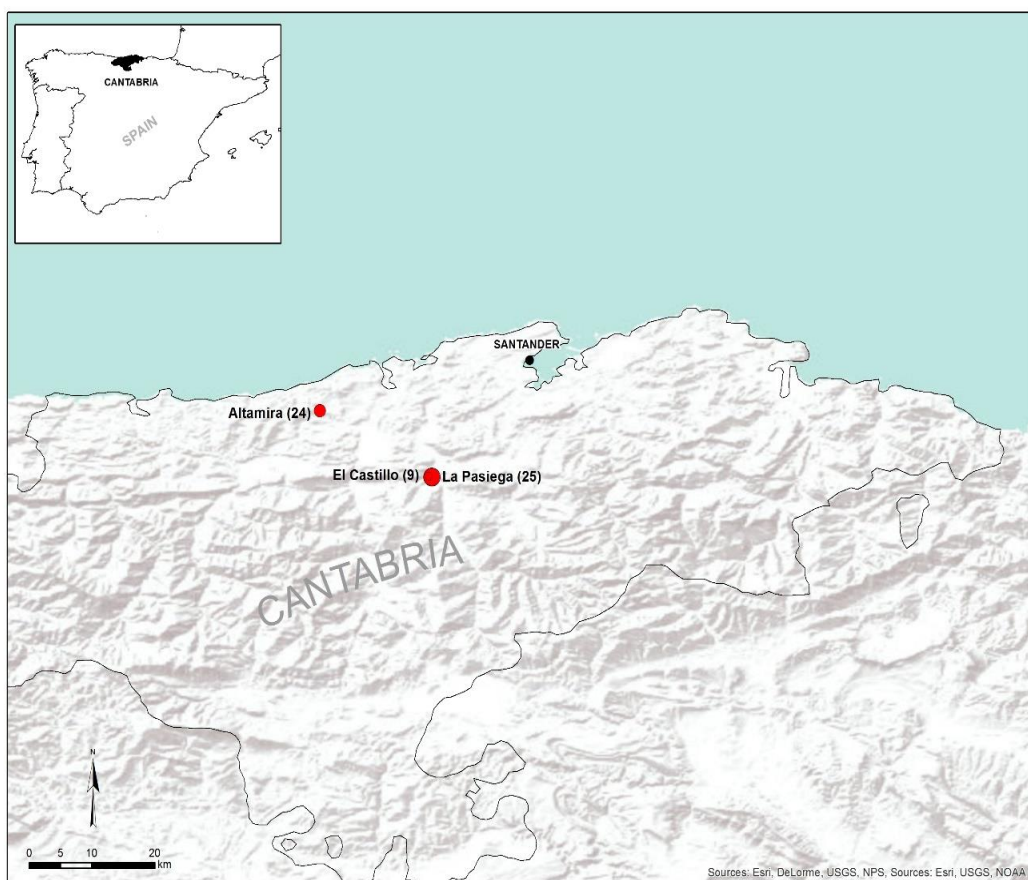


Figure 56. Distribution map of Claviforms in Cantabria

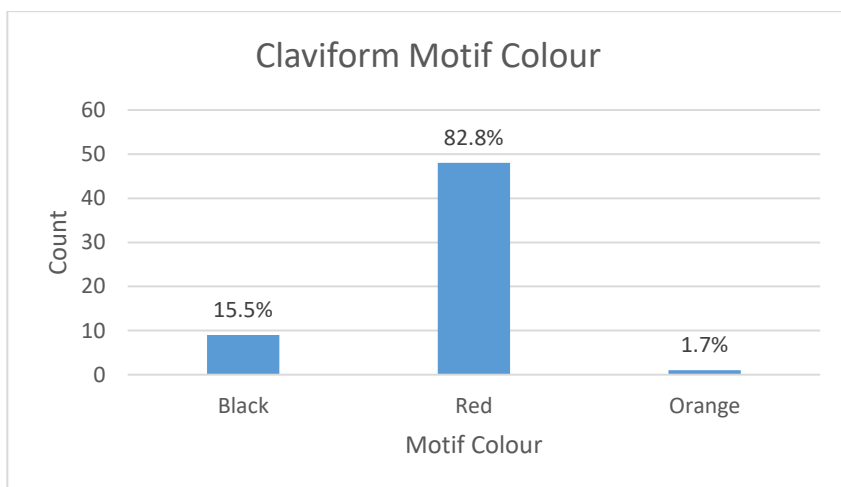


Figure 57. Colour percentage of Claviform motifs in Cantabria

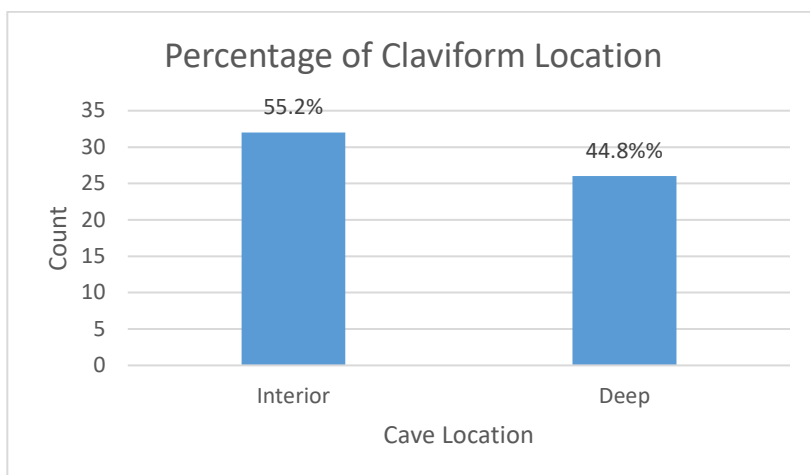


Figure 58. Cave location of claviform motifs in Cantabria

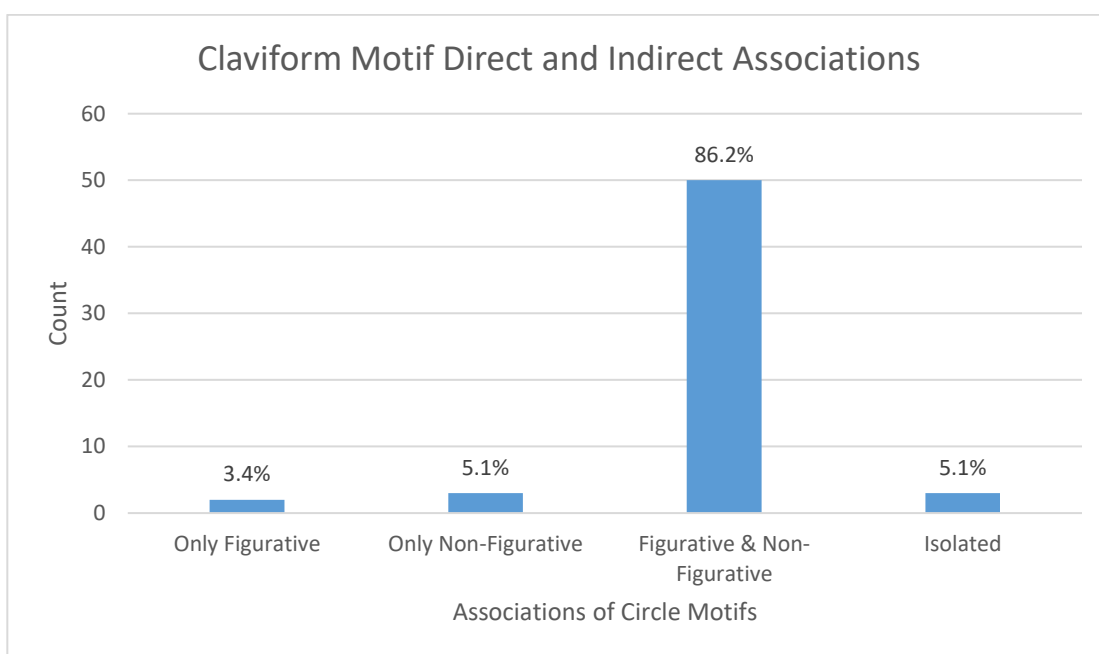


Figure 59. Claviform associations in Cantabria

Dot

Dots are a popular motif in Upper Palaeolithic and appear in fourteen caves across Cantabria. In total a hundred-fourteen dots can be found in the cave sites of El Castillo (37), Altamira (22), La Pasiega, La Cullalvera (9), Chufín (8), La Garma (5), El Pendo

(1), El Calero-II (3), Cudón (2), Cofresnedo (2), Los Marranos (2), Las Aguas De Novales (1), Porquerizo (1), El Pendo (1), and Cueva Grande (1) (Figure 60). The greatest distance between cave sites containing dots roughly 147km between the sites of Los Marranos and Cueva Grande. The large spread of this motif suggests that it has some kind of cultural meaning. One hundred-seven of the dots are paintings with the seven archaeological sketches assumed to be paintings. The favoured colour of dots is red (Figure 61). With forty-five images from the caves of El Castillo, La Pasiega, El Calero-II, Cudón, Las Aguas De Novales, Chufín, La Garma, Cofresnedo, and Cueva Grande appearing in the deep cave and sixty-five appearing in the interior caves of El Castillo, El Pendo, El Calero-II, Cudón, Los Marranos, La Cullalvera, and Altamira, the dots seem to be organized in areas that lack natural lightning (Figure 62). Just one dot from the cave of Porquerizo is found near the cave entrance. The majority of dots, sixty-six from the caves of El Calero-II, El Castillo, La Pasiega, El Pendo, Las Aguas De Novales, Chufín, Cofresnedo, Altamira, and La Garma are associated with both figurative and non-figurative representations (Figure 63). These dots are directly associated with dots, lines, claviforms, quadrangles, geometric motifs, negative hand stencils, triangles, blotches, circles, ovals, auroch, bison, ibex, and horses and are indirectly associated with lines, claviforms, other dots, quadrangles, triangles, negative hand stencils, hinds, ibex, horses, and bison. Thirty-nine of the dots from El Castillo, La Pasiega, Cudón, Los Marranos, Chufín, La Garma, Cofresnedo, Cueva Grande, La Cullalvera, and Altamira are associated with just non-figurative motifs. Combined these dots are directly associated with blotches, claviforms, ovals, geometric motifs, dots, and positive hand stencils and are indirectly associated with triangles, geometric motifs, dots, lines, negative hand

stencils, blotches, claviforms, and a barbed motif. Just two of the dots from the sites of El Castillo and La Pasiega are associated only with figurative motifs. These dots are directly associated with horses and stags and are indirectly associated with reindeer and stags. The final seven dots are from the caves of La Pasiega, El Calero-II, Cudón, Porquerizo, Los Marranos, and La Garma. These seven dots appear in isolation. This data suggests that dots were structured and organized in areas deprived of naturally lighting and represented with both figurative and non-figurative designs. The design cognitive process cannot be shown with the appearance of dots. Pressing fingers or palms unto the rock wall were the main techniques involved in the creation of dots. It is unclear whether this form requires a mental template. Because dots seem to contain structural and organizational elements, are found in a variety of cave sites, but are not necessarily produced with the design process, the conventionality of dots is uncertain.

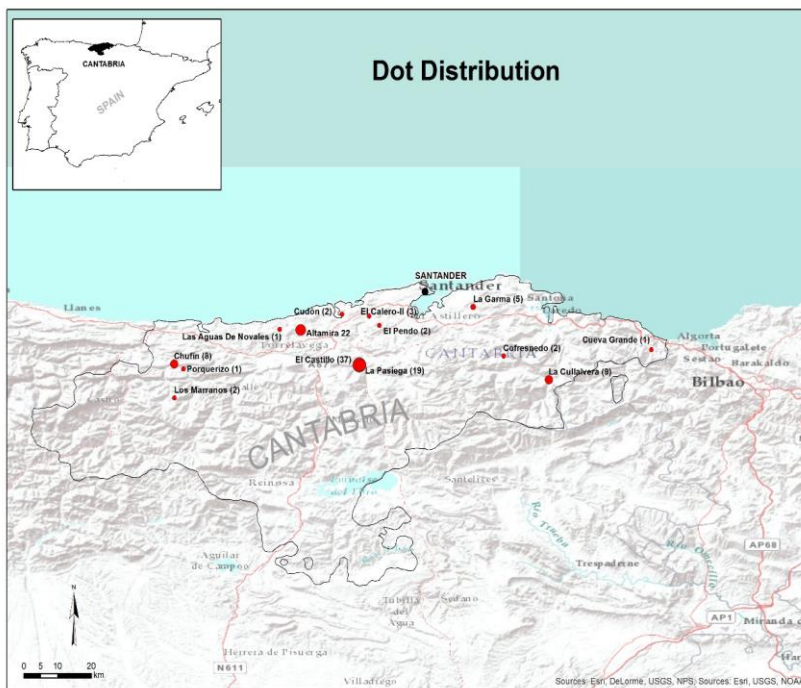


Figure 60. Distribution of dots in Cantabria

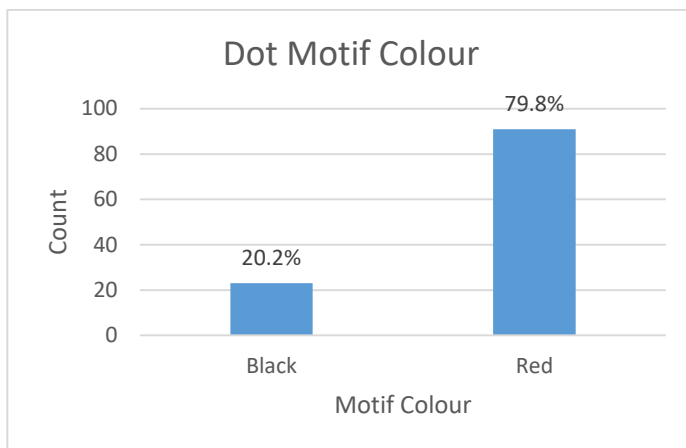


Figure 61. Colour percentage of dots in Cantabria

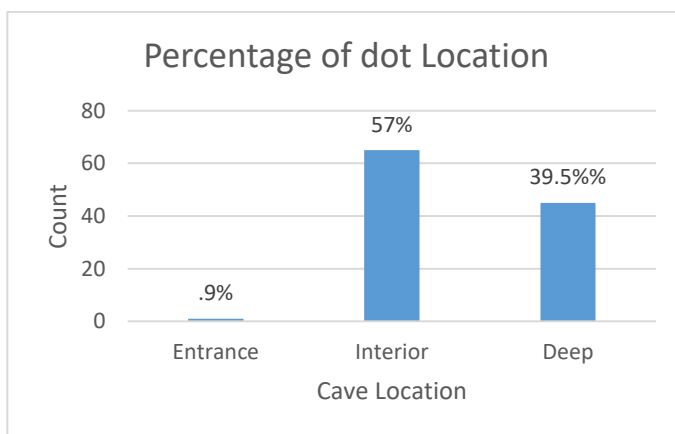


Figure 62. Cave location of dot motifs in Cantabria

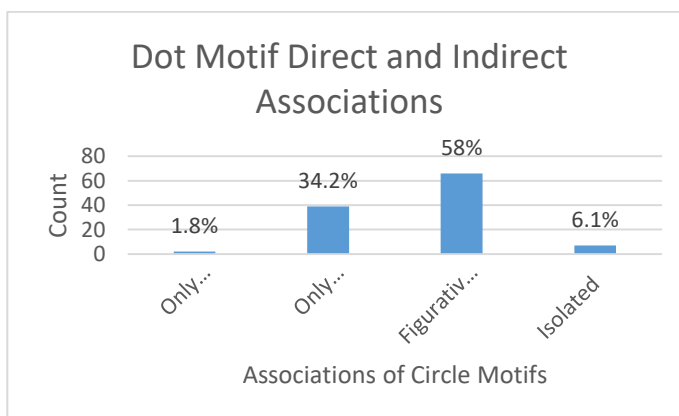


Figure 63. Dot associations in Cantabria

Geometric Forms

Most geometric forms documented in this project are not conventional. The general category describes forms that only appear once and cannot adequately be placed in any of the other categories. There is no similarity between any motifs in this category. Because of this any motif placed into this category cannot be objectively said to be a conventional representation.

Half-Circles

Half-circles are relatively common in the Upper Palaeolithic and appear in five caves in Cantabria. In sum, there are twenty-two half circle spread out in the cave sites El Arco (8), Altamira (7), La Pasiega (4), El Calero-II (2), Hornos De La Peña (1) (Figure 64). The extreme distance of these motifs is roughly 71.2k from Altamira to El Arco. The distribution across the region suggests that half-circles were culturally recognizable. The majority of the half circles are painted (Figure 65) and the most habitual colour used is red (Figure 66). All of the half-circles are located in areas lacking natural light (Figure 67). Fourteen are found in the deep caves of El Arco, El Calero-II, Hornos De La Peña, and La Pasiega, while eight are placed in the interior cave of Altamira. Seventeen of the motifs from the caves of La Pasiega, Hornos De La Peña, El Arco, and Altamira are associated with both figurative and non-figurative motifs (Figure 68). Combined these half-circles are directly associated with claviforms, geometric motifs, quadrangles, other half-circles, lines, zig-zags, ovals, blotches, circles, triangles, horses, auroch, and bison and are indirectly associated with claviforms, ovals, quadrangles, blotches, circles, bison, horse, and deer. One half-circle from the cave of La Pasiega is associated with just

figurative motifs. This motif is directly associated with a horse and an auroch. One half-circle, also from La Pasiega, is associated with just non-figurative motifs. It is directly associated with dots, lines, and a triangle. Three of the half-circles from the caves of La Pasiega and El Calero-II are isolated. This suggests that structural and organization processes were involved in the location of these images in areas lacking natural light and to be accompanied by both figurative and non-figurative representations. The design process is not apparent in the depiction of the half-circle. Structural and organizational elements appear to be present, but a mental template is not necessarily required to develop the image. Therefore conventionality of the half-circle is uncertain.

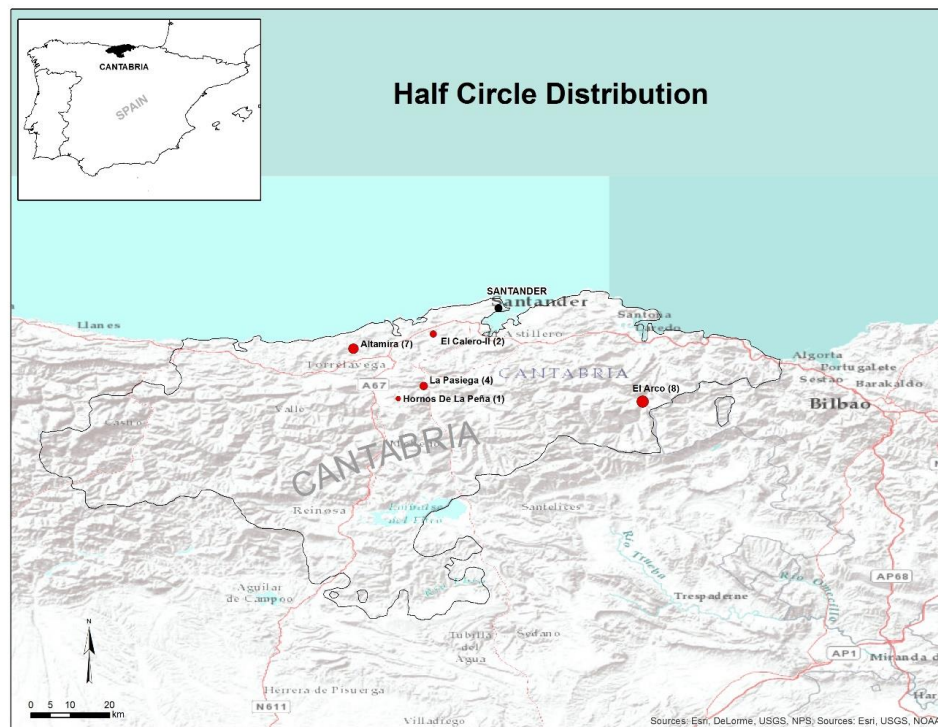


Figure 64. Distribution map of half-circles in Cantabria

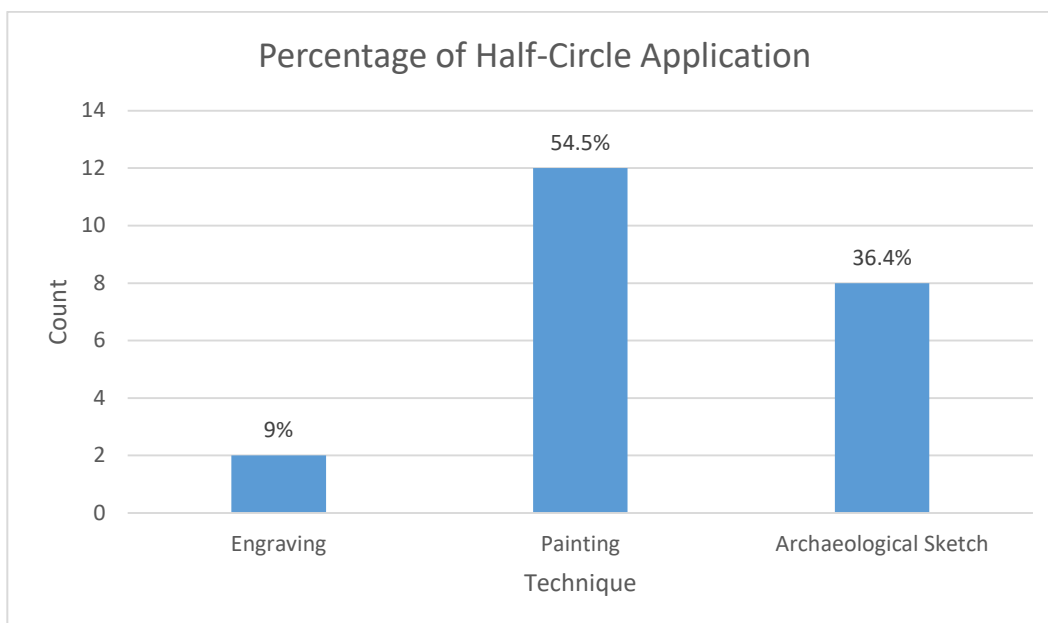


Figure 65. Technique used to create Half-Circles in Cantabria

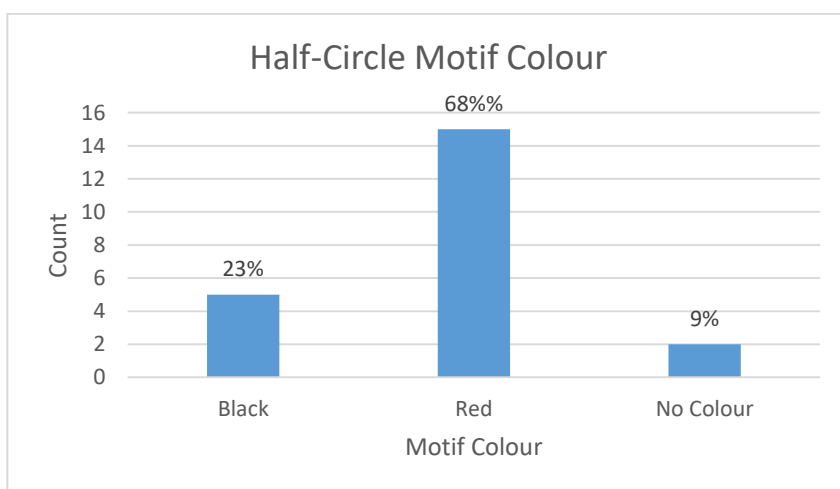


Figure 66. Colour percentage of half-circles in Cantabria

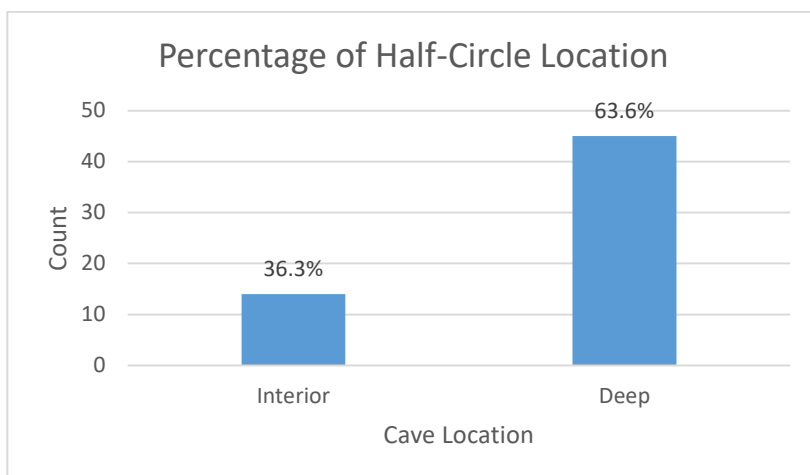


Figure 67. Cave location of Half-Circle motifs in Cantabria

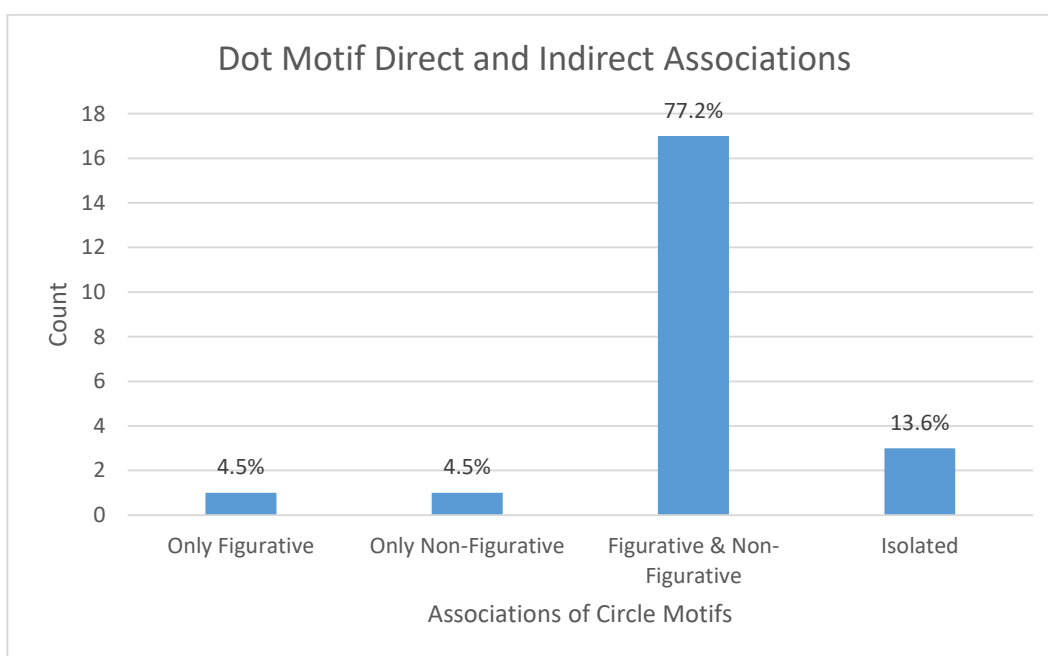


Figure 68. Associations with Half-Circle motifs in Cantabria

Lines

Appearing in twenty-seven caves within the region, the line is the most abundant motif in Upper Palaeolithic Cantabria. In total there are three hundred-fourty-four motifs spread found in the caves of Altamira (176), La Pasiega (42), Santián (16), El Castillo

(14), El Arco (11), Hornos De La Peña (9), Chufín (8), La Cullalvera (8), La Garma (7), El Calero-II (7), La Clotilde (6), Covalanas (6), Cobrantes (4), Cudón (4), Las Monedas (3), Micolón (3), Pondra (3), San Carlos (2), Las Brujas (2), Las Chimeneas (2), Cueva Grande (2), El Pendo (2), EL Linar (1), Juan Gómez (1), Venta De La Perra (1), El Perro (1), El Salitre (1), El Mirón (1), and El Otero (1) (Figure 69). Lines are found in almost every cave documented in this project. The greatest distance between cave sites containing lines is approximately 145km from Cueva Grande to Chufín. The majority of the lines are painted (Figure 70) in red (Figure 71). A hundred-nine appear in the deep caves of Las Monedas, El Castillo, Las Chimeneas, La Pasiega, Hornos De La Peña, El Calero-II, Cudón, EL Linar, La Clotilde, Micolón, Chufín, El Otero, La Garma, Cueva Grande, Pondra, El Arco, Covalanas, Altamira, and Hornos De La Peña, two-hundred-twenty-five appear in the interior caves of Las Monedas, El Castillo, El Pendo, El Calero-II, Santián, Cudón, Las Brujas, El Salitre, Cobrantes, El Perro, Juan Gómez, Cullalvera, and Altamira, and six appear near the cave entrances of entrance Las Brujas, Chufín, San Carlos, Venta De La Perra, and El Miron (Figure 72). The majority of the lines, two-hundred-forty-eight from the caves of Las Monedas, El Castillo, La Pasiega, Hornos De La Peña, Micolón, Chufín, La Garma, Pondra, El Arco, Covalanas, Altamira, and Hornos De La Peña, are associated with both figurative and non-figurative motifs (Figure 73). Combined these lines are directly associated with barbed motifs, lines, claviforms, dots, quadrangles, negative hand stencils, geometric motifs, triangles, ovals, an anthropomorphic motif, zig-zags, circles, half-circles, blotches, bison, ibex, horses, reindeer, deer, and auroch and are indirectly associated with lines, negative hand stencils, quadrangles, claviforms, ovals, triangles, geometric motifs, vulvas, blotches, horses,

reindeer, bison, hinds, auroch, a cave bear, deer, and ibex. Sixty-nine of the lines from the caves of Las Monedas, El Castillo, Las Chimeneas, La Pasiega, El Calero-II, Santián, Cudón, La Garma, San Carlos, Cueva Grande, El Arco, Covalanas, and La Cullalvera, with only non-figurative designs. Combined these lines are directly associated with ovals, triangles, geometric motifs, dots, lines, quadrangles, blotches, and positive hand stencils and are indirectly associated with claviforms, dots, lines, quadrangles, blotches, triangles, and ovals. Fifteen of the lines from the caves of El Castillo, Las Chimeneas, La Pasiega, Hornos De La Peña, El Pendo, EL Linar, Chufín, El Otero, and El Arco with just figurative motifs. Combined they are directly associated with auroch, horses, reindeer, a goat in frontal perspective, and a mammoth, and are indirectly associated with auroch, horses, bison, and ibex. Twelve of the lines from the caves of El Pendo, El Calero-II, Cudón, Las Brujas, El Perro, Juan Gómez, Venta De La Perra, Covalanas, El Miron, and Hornos De La Peña in isolation. This suggests that processes of structure and organization were involved to place the lines in cave areas void of natural lightning and to be accompanied by both figurative and non-figurative forms. The process of design is not apparent in the depiction a line. Lines are simplistic forms or motifs and no mental template is required to produce one (Riegl 1992). It can even be argued that lines are the most basic element of design. The line is such a simple element that it can be argued that it was haphazardly scrawled along many caves walls without thought. However, lines have also been associated with ritual (Clottes 2009; Eastwood 1999; Lewis-Williams & Dowson 1988). Despite not necessarily being produced with the design process, processes of structure, organization, and cultural recognition appear present. The widespread use and ritual association of lines suggests that many of the lines in the Upper Palaeolithic

served conventional functions. However, due to the simplicity of the motif it is uncertain whether all lines share such conventional functionalities.

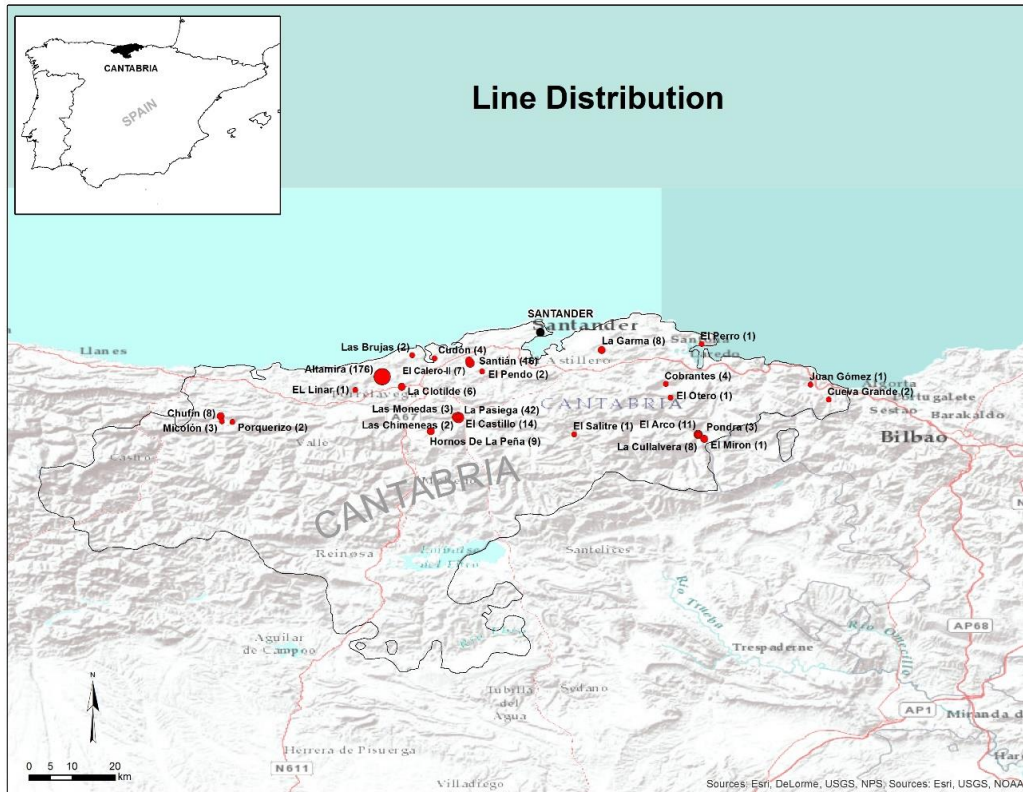


Figure 69. Line distribution in Cantabria

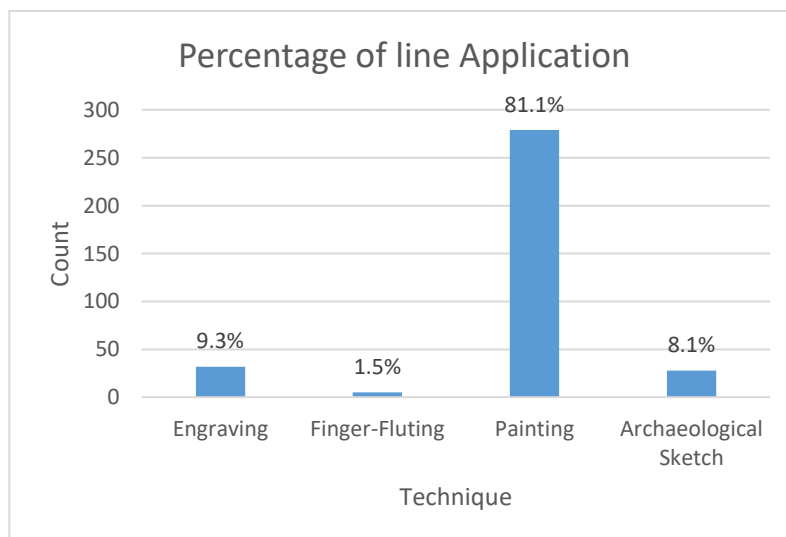


Figure 70. Line motif technique in Cantabria

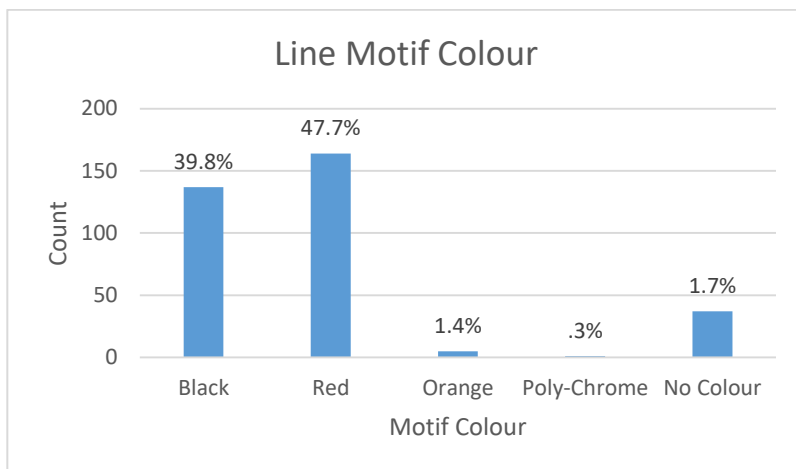


Figure 71. Line colour in Cantabria

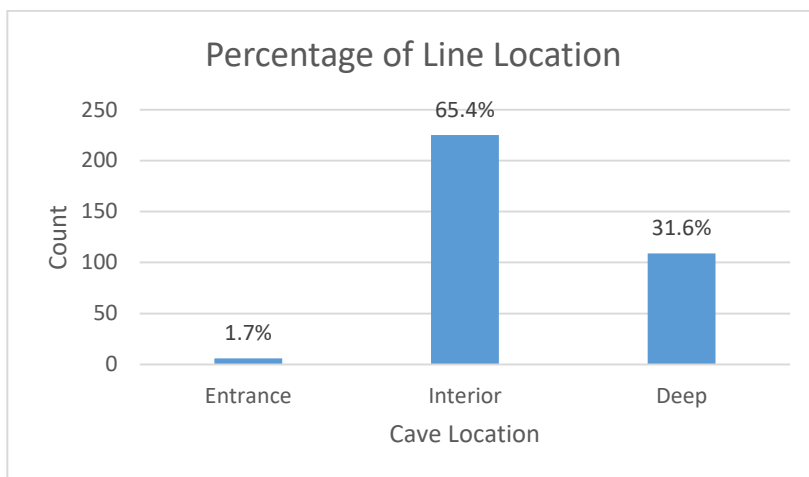


Figure 72. Cave location of line motifs in Cantabria

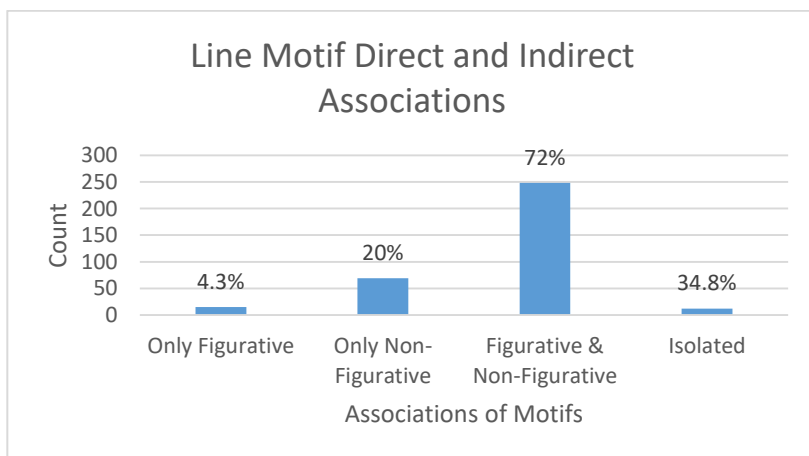


Figure 73. Line associations in Cantabria

Hand Stencil

Hand stencils are a relatively popular motif in Upper Paleolithic and appear in eight caves in Cantabria. In total there are sixty-seven images spread throughout the cave sites of El Castillo (44), Fuente Del Salín (9), Altamira (5), La Lastrilla (3), La Garma (3), La Pasiega (1), Cudón (1), La Cullalvera (1) (Figure 74). The greatest range between hand stencils in Cantabria, from Fuente Del Salín to La Lastrilla, is approximately 129km. The wide distribution suggests cultural recognition of the motif. All the hand stencils are paintings with an almost even divide in black and red paintings (Figure 75). Fifty-eight of the stencils from the caves of El Castillo, Fuente Del Salín, La Cullalvera, and Altamira are located in the interior cave and the remaining nine from the caves of El Castillo, La Pasiega, Cudón, La Garma, and La Lastrilla are found in deep cave contexts (Figure 76). Fifty-five of the hand stencils from the caves of El Castillo, La Pasiega, La Garma and Altamira are associated with both figurative and non-figurative designs (Figure 77). Combined these hand stencils are directly associated with blotches, negative hand stencils, zig-zags, claviforms, dots, geometric motifs, lines, quadrangles, triangles, ovals, circles, bison, ibex, and auroch and are indirectly associated with negative hand stencils, claviforms, dots, lines, triangles, quadrangles, horses, hinds, bison, and ibex. Eleven of the motifs from the caves of El Castillo, Cudón, Fuente Del Salín, La Lastrilla, and La Cullalvera are associated with non-figurative forms. Combined these motifs are directly associated with blotches, claviforms, ovals, dots, lines, and positive and negative hand stencils and are indirectly associated with blotches, dots, ovals, geometric motifs, negative hand stencils, and lines. One image from the cave of El Castillo is associated

with just a figurative motif, a horse. This suggests that the hand stencils were structured in cave areas void of natural light and organized with accompanying figurative and non-figurative designs. The element of design is apparent in the hand stencil. Although a mental template is not required to produce the image, the process of creating the negative hand stencil is complex enough that mental planning must have been used to create it. Negative hand stencils, spread throughout the caves of El Castillo, Cudón, Fuente Del Salín, La Garma, and Altamira, outnumber positive hand stencils, detected in the caves of La Pasiega, Fuente Del Salín, La Lastrilla, La Cullalvera, and Altamira, by a count of fifty-four to eight. Because of the wide distribution, potential organizational and structural principals, and the mental process required to produce the motif, the conventionality of the hand stencil is certain.

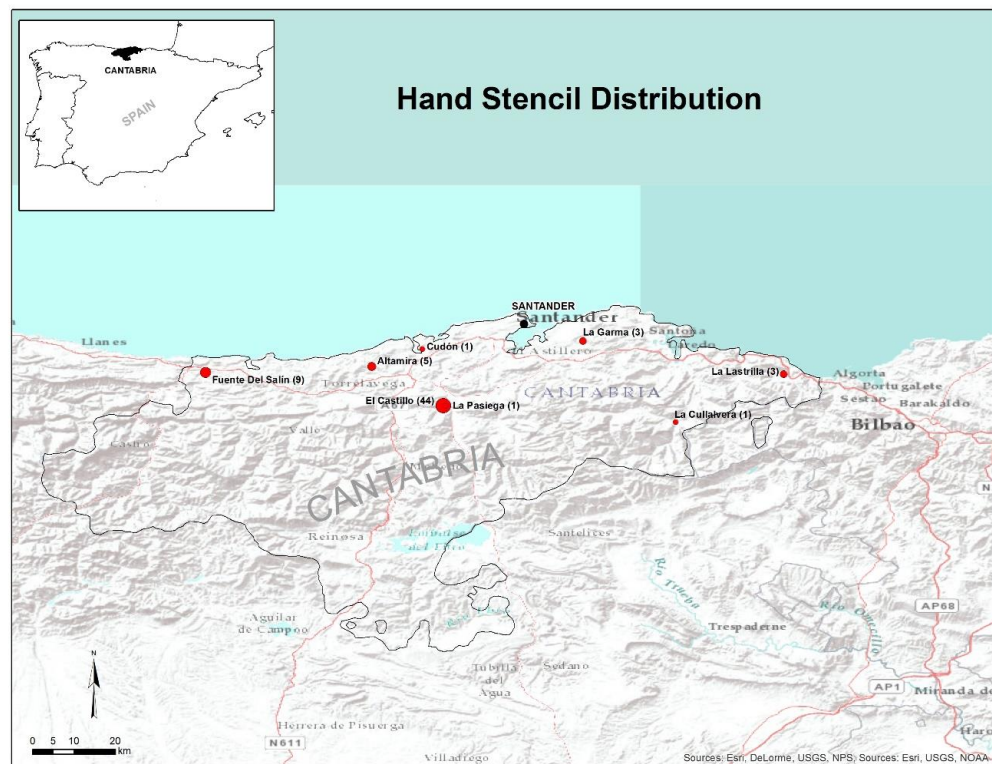


Figure 74. Hand-stencil distribution in Cantabria

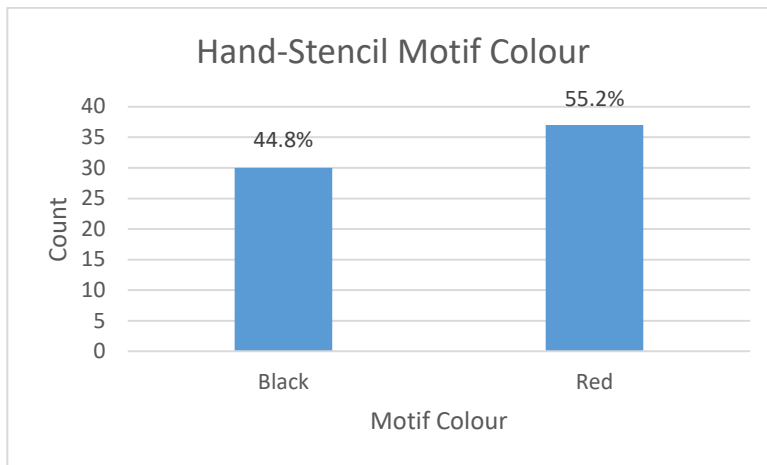


Figure 75. Color of hand-stencils in Cantabria

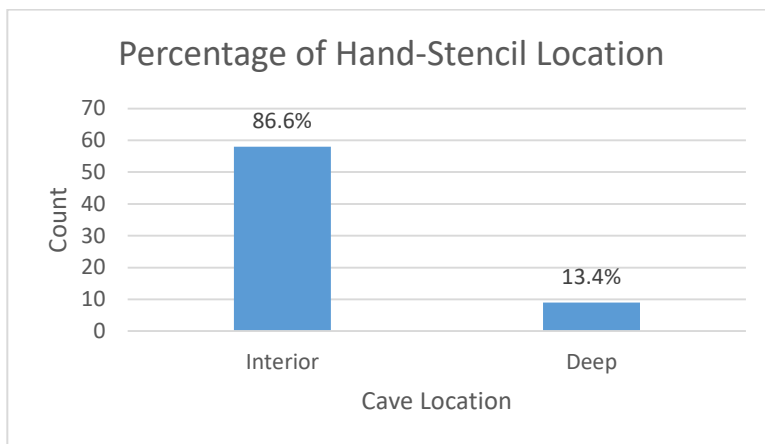


Figure 76. Cave location of hand-stencils in Cantabria

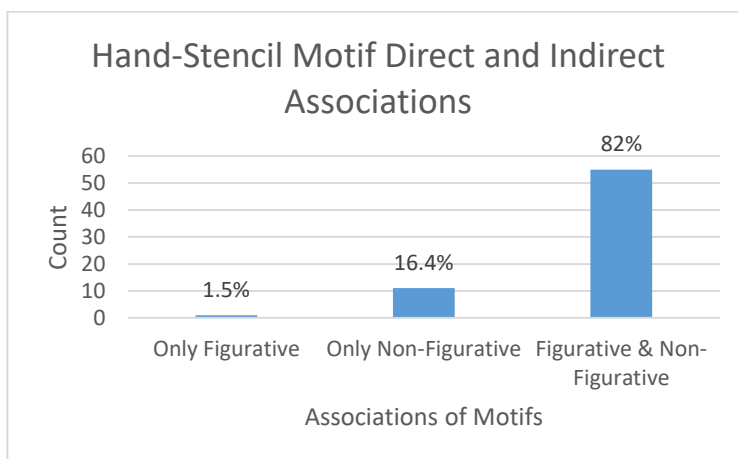


Figure 77. Associations with hand-stencils in Cantabria

Palaeolithic handprints are intriguing images. The hand-stencils documented in this work could constitute an independent thesis as a focal point. Here it is enough to make a few generalizations about the hand-stencils in which interpretations will be avoided.

The hand-stencils in Cantabria generally appear in a negative print (Figure 78). It seems in Palaeolithic society the technique of blowing paint was preferred of dipping the hand in pigment and placing it on the canvas. Of the negative prints, the majority are created with the left hand (Figure 79), while the left hand is only slightly dominant with positive prints (Figure 80).

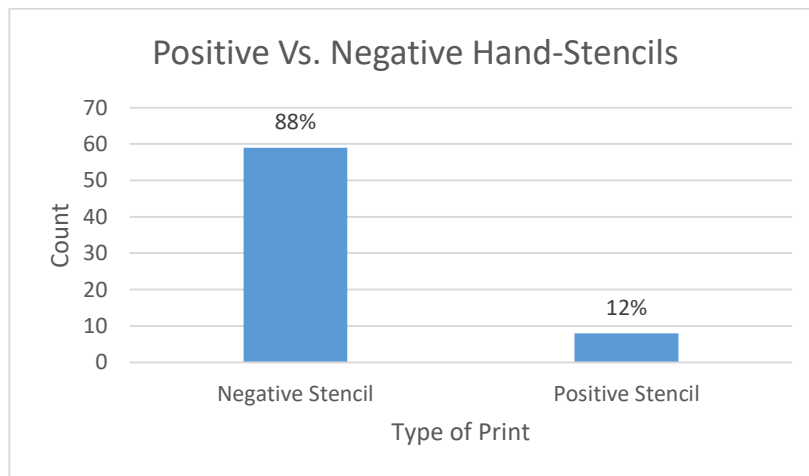


Figure 78. Type of hand-stencils in Cantabria

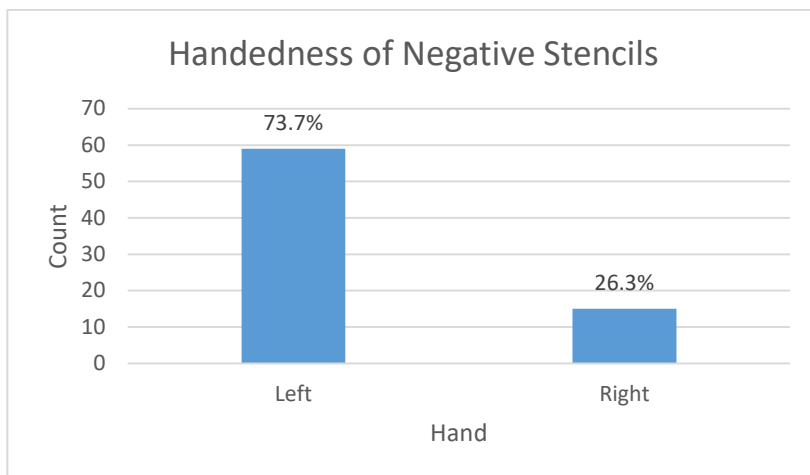


Figure 79. Sidedness of negative hand-stencils

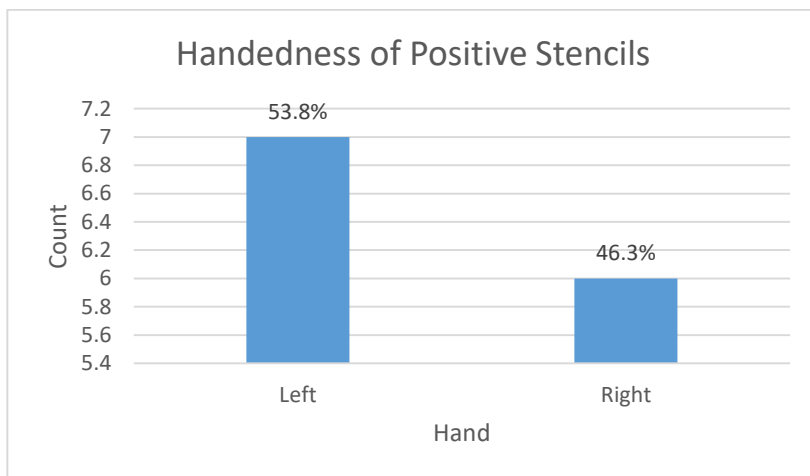


Figure 80 Sidedness of positive hand-stencils

Oval signs

Oval signs are a relatively common image in the Upper Paleolithic and appear in five cave sites in Cantabria. In total there are thirty-seven ovals spread across the sites of El Arco (14), La Pasiega (10), El Castillo (7), Altamira (5), and Micolón (1) (Figure 81). The greatest distance between sites, Micolón and El Arco, is roughly 106km. The wide distribution suggests ovals were recognized culturally. Sixty-five percent of the ovals

documented in this project are definitive paintings while the rest are analysed from archaeological sketches assumed to be paintings (Figure 82). The majority of these paintings are made with red pigment red (Figure 83). Twenty-seven are located in the deep cave recesses of El Castillo, La Pasiega, Micolón, and El Arco. Ten of the ovals are located in the interior caves of El Castillo, and Altamira (Figure 84). The majority of the forms, twenty-nine from the caves of El Castillo, La Pasiega, Micolón, El Arco, and Altamira are associated with both figurative and non-figurative designs (Figure 85). Combined these motifs are directly associated with claviforms, ovals, quadrangles, lines, half-circles, geometric motifs, vulvas, blotches, triangles, bison, horses, auroch, and deer and are indirectly associated with blotches, circles, ovals, quadrangles, half-circles, lines, claviforms, negative hand stencils, geometric motifs, deer, horses, bison, and ibex. Six of the ovals from the caves of El Castillo and La Pasiega are associated with just non-figurative forms. These ovals combined are directly associated with claviforms, dots, ovals, lines, triangles, quadrangles, and geometric motifs and are indirectly associated with geometric motifs, blotches, dots, negative hand stencils, claviforms, and triangles. Two of the motifs from the caves of El Castillo and La Pasiega are associated with just figurative motifs. Combined these ovals are directly and indirectly associated with auroch. This suggests that ovals were structured and organized into cave environments lacking natural light and accompanied by both figurative and non-figurative designs. The design processes is not apparent in the depiction of an oval. The image is relatively basic and would not require a mental template to create. Because ovals seem to contain structural and organizational elements, are found in a verity of caves, but are not

necessarily created with a mental template, the conventionality of the oval motif is uncertain.

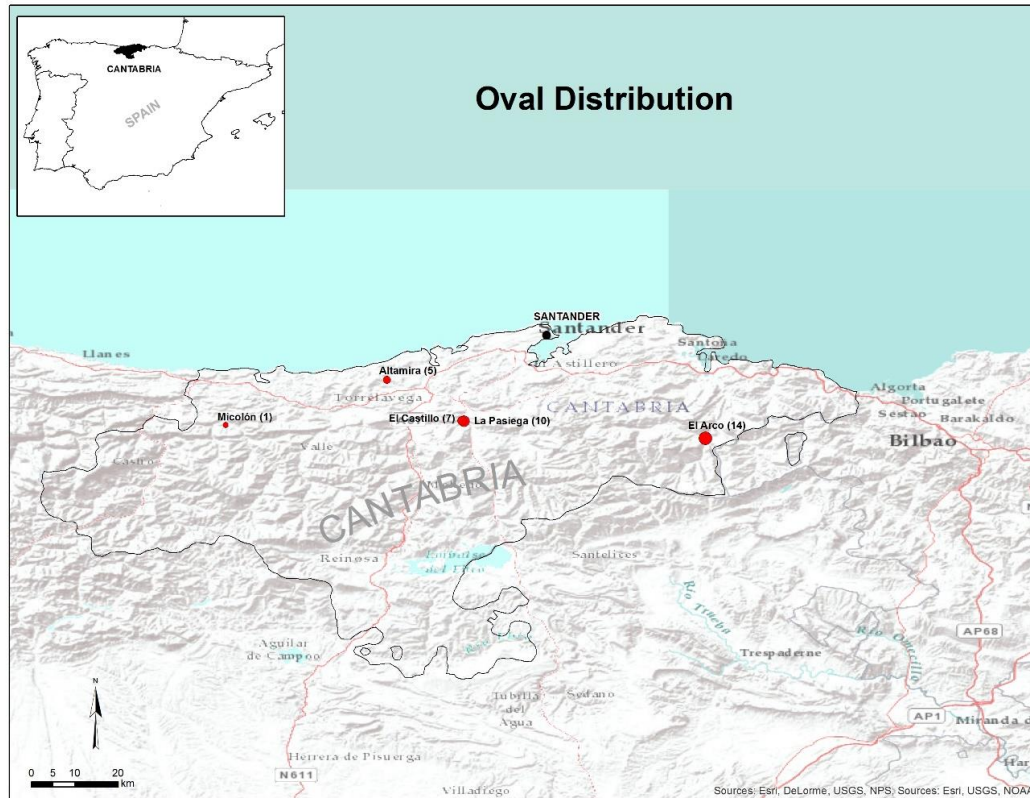


Figure 81. Oval distribution in Cantabria

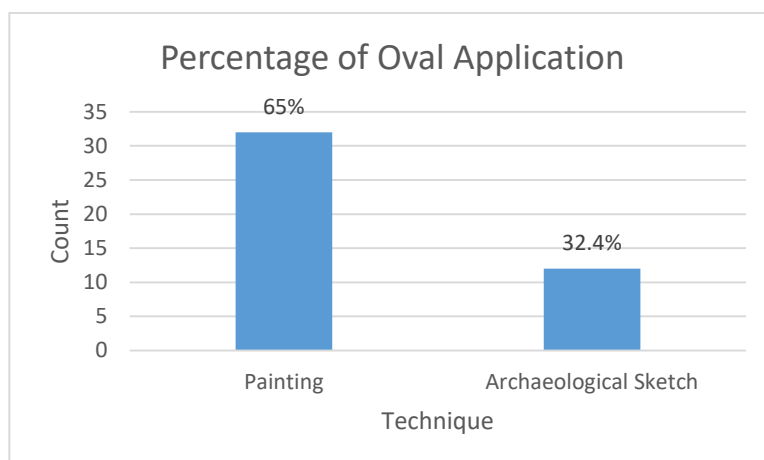


Figure 82. Oval motif technique in Cantabria

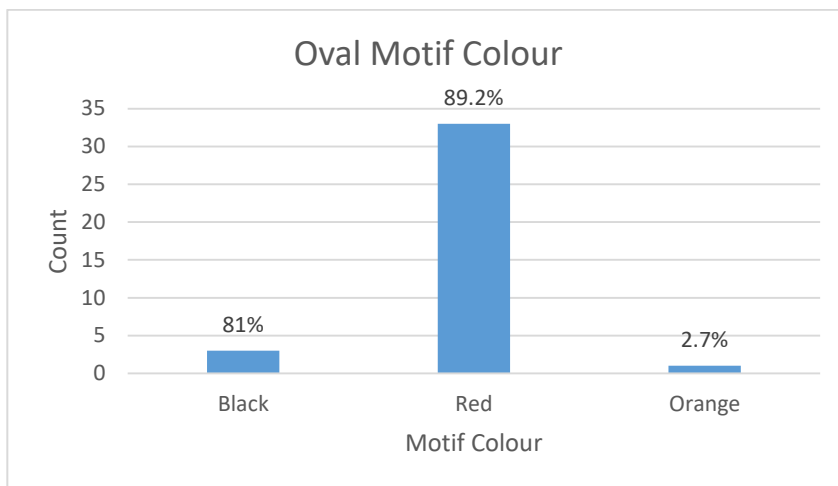


Figure 83. Colour of oval motifs in Cantabria

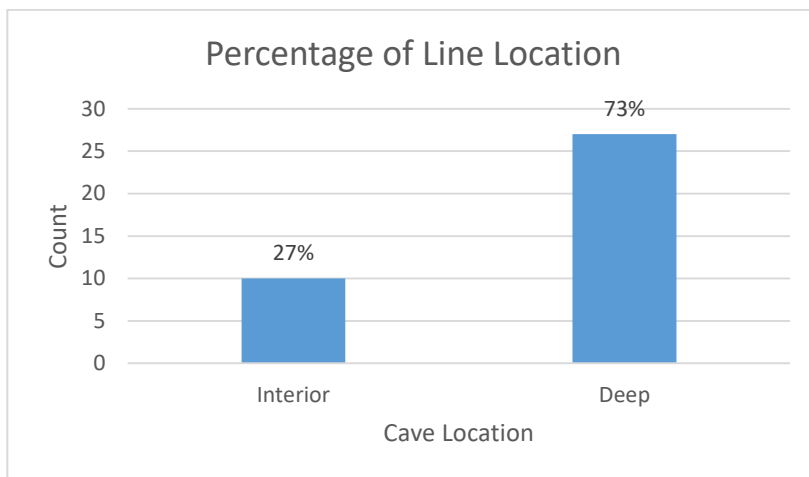


Figure 84. Cave location of line motifs in Cantabria

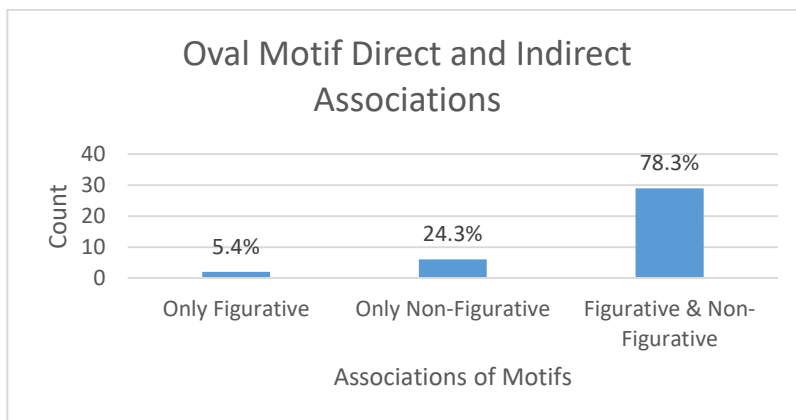


Figure 85. Associations of oval motifs in Cantabria

Quadrangle

The quadrangle design is relatively common in Upper Palaeolithic Cantabria and it can be found in ten caves within the region. In total there are seventy-seven examples spread throughout the cave sites of La Pasiega (22), El Castillo (16), Las Chimeneas (6), El Arco (5), Altamira (5), Covalanas (3), Las Aguas De Novales (2), La Haza (1), El Pendo (1), and Micolón (1) (Figure 86). The greatest distance between sites, Covalanas and Micolón, is roughly 108km. The wide distribution and design consistency suggest that this image was culturally recognized. The majority of the quadrangles are painted (Figure 87) with red pigment (Figure 88). Fifty-six of the images are located in the deep cave recesses of Las Chimeneas, La Pasiega, Las Aguas De Novales, Micolón, El Arco, Covalanas, La Haza, and Altamira, while the other twenty-one images are found in the interior caves of El Castillo and Altamira (Figure 89). The majority of the images, fifty-nine from the caves of El Castillo, La Pasiega, El Pendo, Las Aguas De Novales, Micolón, El Arco, Covalanas, and Altamira are associated with both figurative and non-figurative motifs (Figure 90). These motifs combined are directly associated with claviforms, dots, quadrangles, geometric motifs, lines, negative and positive hand stencils, ovals, triangles, blotches, bison, ibex, horses, a reindeer, auroch, and deer and are indirectly associated with negative hand stencils, claviforms, quadrangles, lines, triangles, ovals, dots, vulvas, half-circles, geometric motifs, an anthropomorphic motif, bison, hinds, a cave bear, horse, ibex, reindeer, and auroch. Fifteen of the quadrangles from the caves of Las Chimeneas, La Pasiega, and Altamira are just associated with non-figurative forms. These quadrangles combined are directly associated with lines, quadrangles,

triangles, ovals, dots, and geometric forms and are indirectly associated with quadrangles, lines, triangles, claviforms, and blotches. Three of the quadrangles from the caves of El Castillo, La Pasiega, and La Haza are associated with figurative representations. Combined they are directly associated with auroch and horses and are indirectly associated with horses and ibex. This suggests that the quadrangle was typically located in cave areas lacking natural lighting and associated to figurative and non-figurative motifs. A number of cognitive processes are involved in the making of quadrangles. The Palaeolithic quadrangle is a highly complex and stylized motif. The consistency of the interior design across the cave sites suggests that a mental template was used to create this particular motif. The quadrangle appears across the Cantabrian region in a variety of caves, appears to contain elements of structure and organization, and was produced from a mental template. The conventionality of the quadrangle is certain.

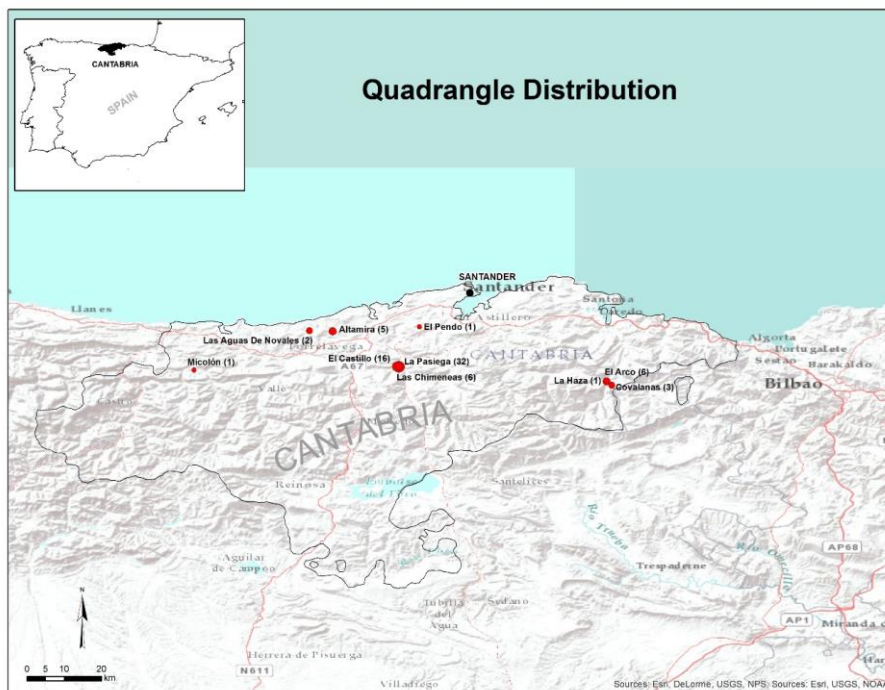


Figure 86. Quadrangle distribution in Cantabria

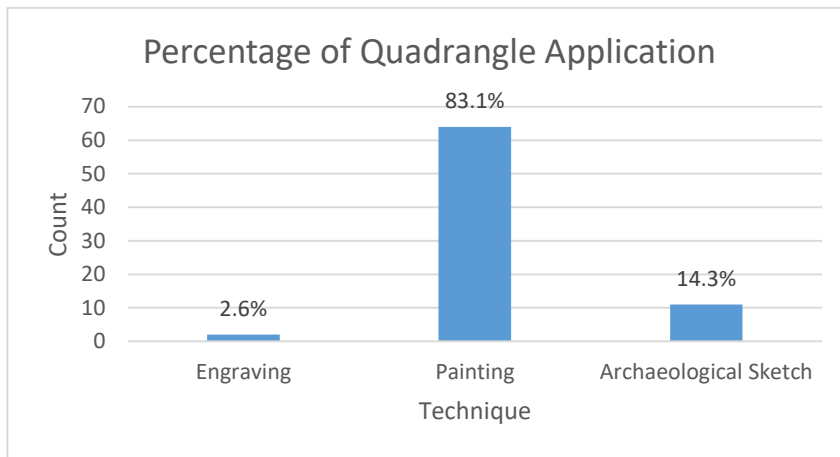


Figure 87. Application of quadrangle motifs in Cantabria

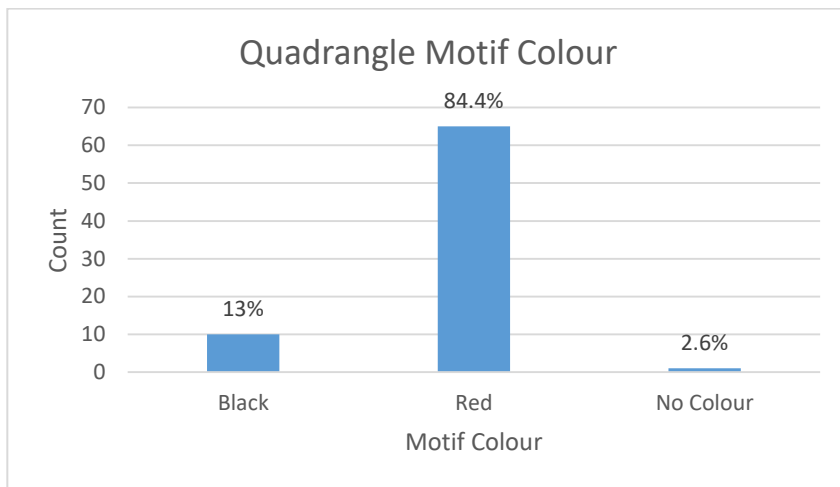


Figure 88. Colour of quadrangle motifs in Cantabria

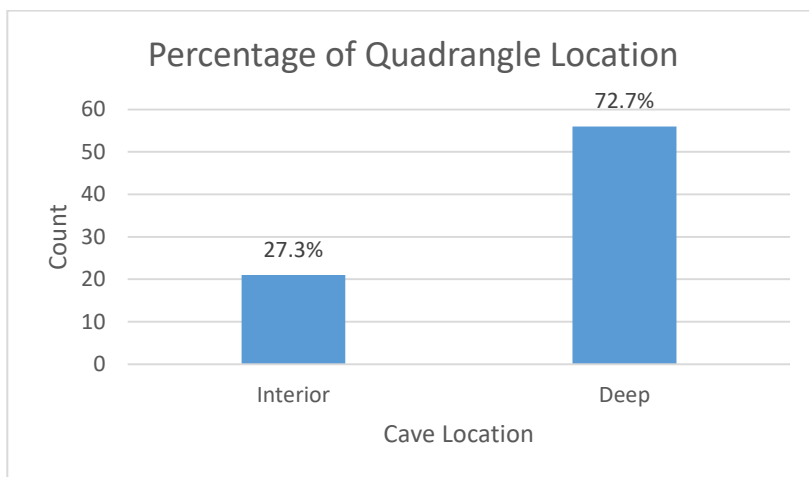


Figure 89. Cave location of quadrangle motifs in Cantabria

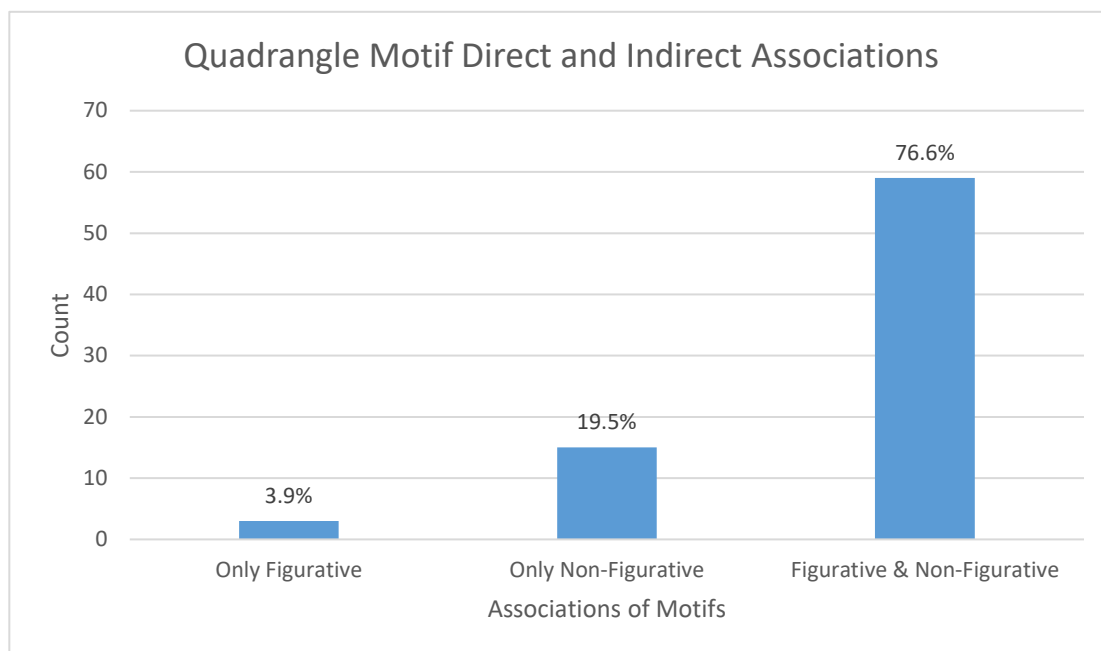


Figure 90. Associations of quadrangle motifs in Cantabria

Triangle

Triangular motifs are common images in Upper Paleolithic that are represented in fourteen caves in Cantabria. In total there are ninety-eight examples spread across the sites of Altamira (61), La Pasiega (14), El Castillo (3), Las Chimeneas (3), El Salitre (3), Micolón (2), Pandra (2), La Clotilde (2), Las Brujas (2), Covalanas (2), Peñajorao (1), La Lastrilla (1), Cudón (1), and El Calero-II (1) (Figure 91). The greatest distance between cave sites, Micolón and La Lastrilla, is roughly 131km. The widespread distribution of triangles suggests that these images were culturally recognized. The majority of the triangles are painted (Figure 92) with black pigment or charcoal (Figure 93). Twenty-six of the images appear in the deep caves of Las Chimeneas, La Pasiega, Peñajorao, La Clotilde, Micolón, La Lastrilla, Pandra, and Covalanas, sixty-eight in the interior caves of

El Castillo, El Calero-II, Cudón, Las Brujas, Covalanas, Altamira, and El Salitre, and just one in the cave entrance of Las Brujas (Figure 94). The majority of the triangles, seventy-eight from the cave sites of El Castillo, La Pasiega, La Clotilde, Micolón, Pondra, and Altamira, are associated with both figurative and non-figurative forms (Figure 95). These triangles combined are directly associated with claviforms, dots, geometric motifs, lines, negative hand stencils, quadrangles, other triangles, lines, a barbed motif, circles, blotches, ovals, bison, ibex, horses, reindeer, auroch, and deer and are indirectly associated with negative hand stencils, claviforms, dots, triangles, lines, circles, ovals, vulvas, a cave bear, hinds, stags, bison, horses, auroch, and deer. Thirteen triangles from the caves of El Castillo, Las Chimeneas, La Pasiega, El Calero-II, La Lastrilla, and Covalanas are associated with just non-figurative motifs. Combined they are directly associated with lines, ovals, triangles, quadrangles, dots, and positive hand stencils and are indirectly associated with blotches, dots, quadrangles, claviforms, lines, ovals, and other triangles. Two of the triangles from the caves of La Pasiega and Covalanas are associated with just figurative representations. Combined they are directly associated with reindeer and ibex and are indirectly associated with horses, ibex, and reindeer, and five triangles appear in isolation. This suggests that the triangles were generally located in cave areas lacking natural lighting and organized by accompanying figurative and non-figurative motifs. It is difficult to attribute the element of design to the triangle. Because the triangles in this project are generally comprised of two or three straight lines, their production may not require a mental template. However, the consistency and degree of complexity of the triangular motifs suggests a commonality in its production. Because the triangle appears across the entire region, appears to have elements of structure and

organization, and does not necessarily require a mental template but has a large degree of consistency across space, the conventionality of the triangle is uncertain but probable.

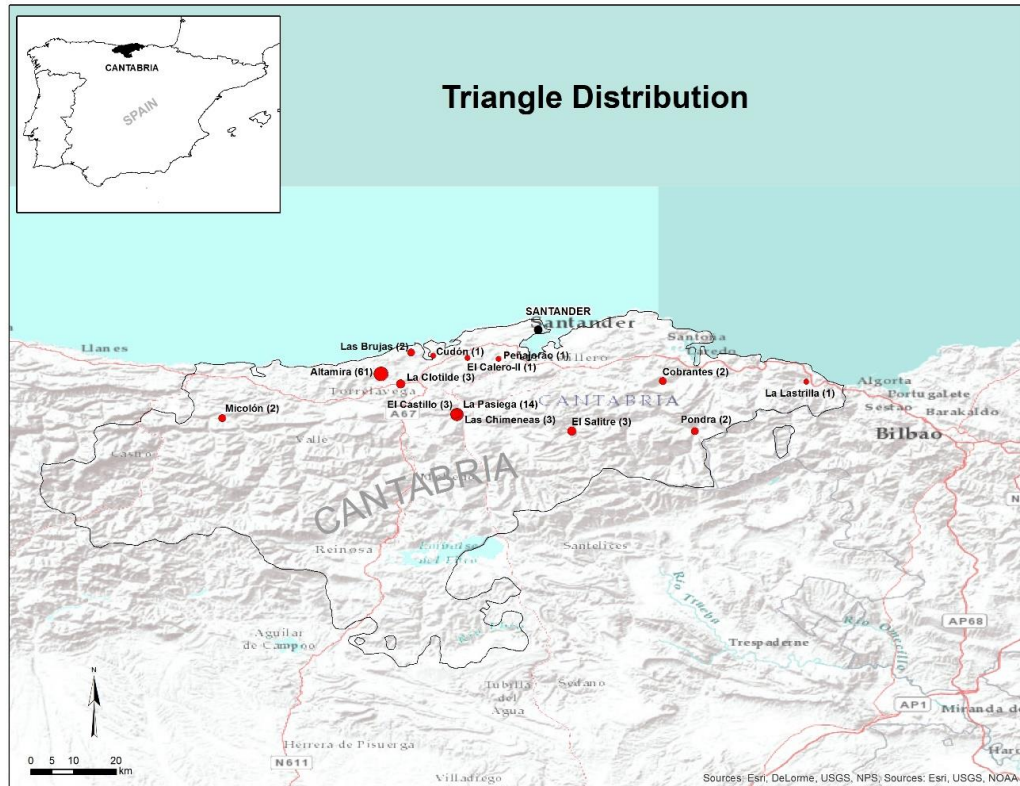


Figure 91. Distribution of triangle motifs in Cantabria

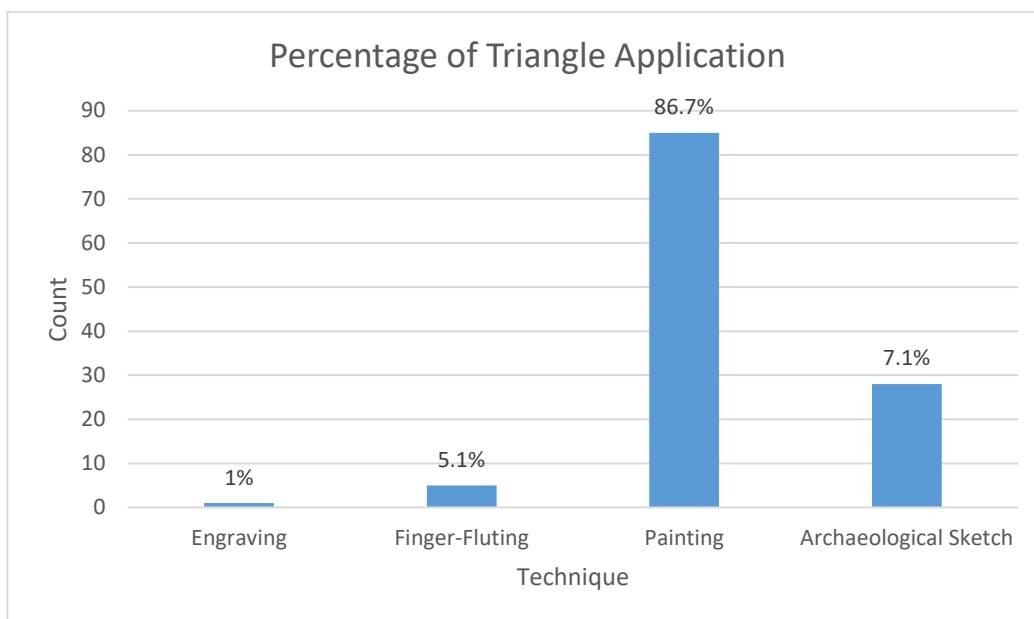


Figure 92. Triangle application in Cantabria

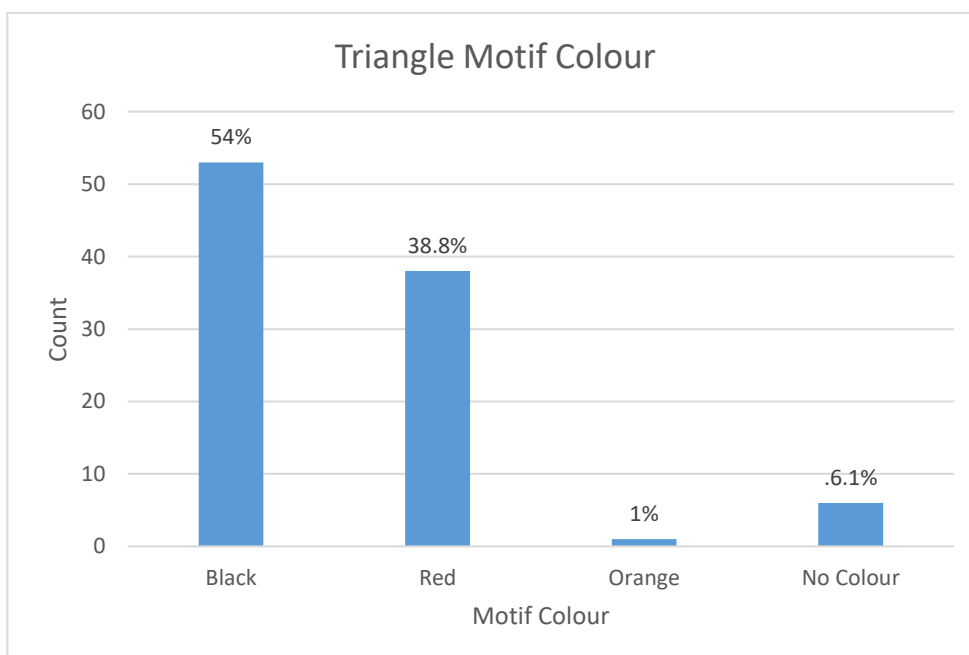


Figure 93. Colour of triangle motifs in Cantabria

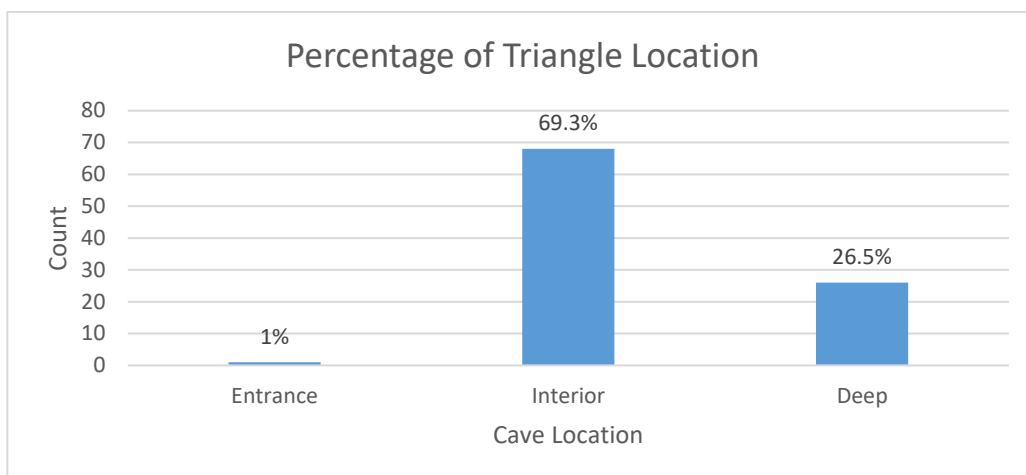


Figure 94. Cave location of triangle motifs in Cantabria

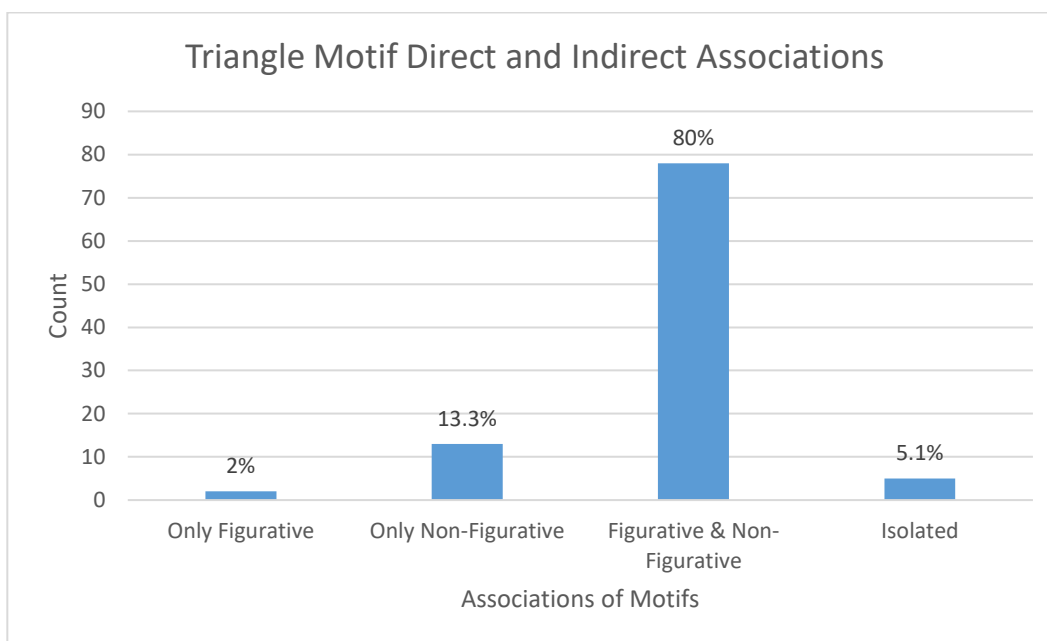


Figure 95. Associations with triangle motifs in Cantabria

Vulva

There is a particular kind of triangular images that have been usually interpreted as ‘vulvas’ (Bahn & Vertut 1997: 187, 193; Breuil 1952: 331; Leroi-Gourhan 1965; Pales & St Péreuse, 1981: 128-131; de Sonneville Bordes 1986: 633; Ucko & Rosenfeld 1967:

98). This image consist of a triangular form with a line through its centre. Vulvas are relatively rare in Upper Palaeolithic Cantabria. In total there are nine images that appear in the caves of Micolón (8) and La Meaza (1). The motifs in Micolón are engravings restricted to one panel and the single image found in La Meaza is developed using a painted dot pattern. While all the images are found in deep cave contexts and are generally associated with both figurative and non-figurative forms, the numbers and occurrences are not high enough to assume any structural or organizational principals. The vulva motif is stylistic and complex enough that a mental template may have been used when constructing the motif. For this reason, a number of cognitive processes could have been involved in the making of this motif. This being said, the distribution of this motifs within and between caves is limited, no structural or organizational principals can be assumed, and a mental template may not have been necessary to create the image. For these reasons the conventionality of the vulva is questionable.

Zig-Zag

The zig-zag is an obscure image in the Upper Paleolithic. In total there are seven images spread across the caves of Hornos De La Peña (4), El Castillo (2), and Altamira (1) (Figure 96). The caves are in relative close proximity. The distance is roughly 21km from Altamira to Hornos De La Peña, and the total numbers are too low to assume any structural or organizational principals. Design is also not needed to produce this type of motif. Because of the low range of distribution, the rare occurrence of the image, the uncertainty of structural or organizational elements, and the lack of a mental template needed to produce the image, the zig-zag is not conventional.

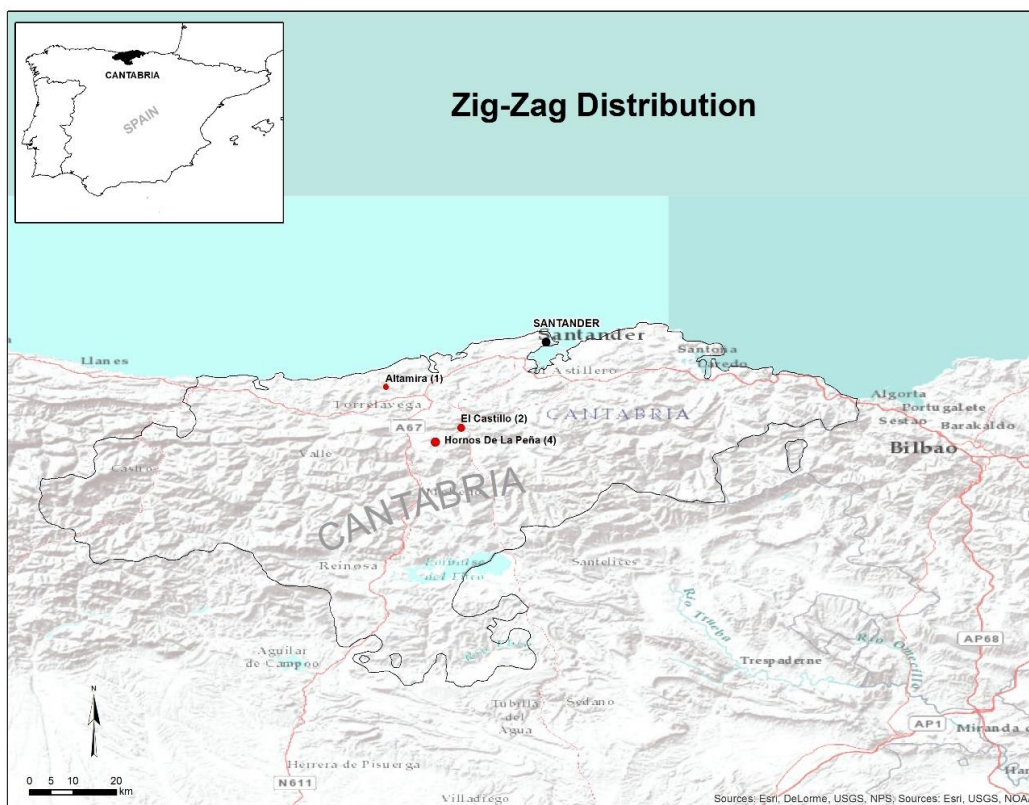


Figure 96. Distribution of zig-zag motifs in Cantabria

Chapter 6

Conclusions

This project has attempted to attribute conventionality to the non-figurative images by exploring what cognitive processes were at play in the production of the images. In the previous chapter, we assessed the conventionality of each image by analysing its complexity, its location within each cave, its associations, and its frequency within the region. Unfortunately the conventionality of many of the images is uncertain. This problem will hopefully be rectified with further research that would expand the geographical region and attribute absolute dates.

The Upper Paleolithic of Western Europe has generally been understood as the succession of four human cultural groupings until the Holocene. However, the timeslots attributed to each culture are not consistent throughout Europe (Strauss 1992: 66-89; Ucko & Rosenfeld 1967: 9-13; Valoch 1968; White 2003:67). The overarching cultural divisions has promoted a monolithic view of Paleolithic cultures, but, in reality, many heterogeneous sub-cultures and sub-groups existed under the large cultural banners (Straus 2003; Teyssandier 2008; Ucko & Rosenfeld 1967: 12-13; Valoch 1968). By applying some ideas borrowed from the fields of semiotics it is possible to suggest that similar symbols over space and time would have been conventional to different cultures but the exact meanings and feelings derived from viewing, creating, and living with such images would have varied for various cultures. This may be particularly true for images

that do not necessarily need a mental template to produce them such as the triangle, circle, or line.

6.1. The relationships between figurative and non-figurative images

One of the main objectives of this project was to explore the relationships between figurative and non-figurative categories of symbolic representation. Early cave art researchers mainly considered non-figurative motifs either as the result of the degradation of figurative motifs or the lack of experience (please, see chapter 2). In a context in which naturalism played a fundamental role in the interpretation of rock art, Paleolithic art researchers often overlooked the importance of non-figurative representations (Breuil 1905; Capitan & Bouyssonie 1924; Moro Abadía 2015; Moro Abadía, González Morales & Palacio Pérez 2012; Moro Abadía & González Morales 2013: 175; Peyrony 1914). The interpretive mindset of Upper Palaeolithic imagery changed in the last decades of the 20th century and it is now generally accepted that non-figurative images have as much symbolic value as figurative forms (for further references, please, see chapter 2). With the acceptance of the equivalent importance of both figurative and non-figurative forms, one might suggest that we need to move beyond these categorical distinctions, as both figurative and non-figurative motifs are equally important in the symbolic text. These divisions of symbolic form are modern constructions and were probably not relevant for their creators.

The distinction between figurative and non-figurative images, however, offers useful short hands for discussing distinctions in the motifs physical, but not symbolic,

forms. Some representations are real world entities and others are not. This fact combined with the distinction between figurative and non-figurative motifs in academic literature makes the broad categories useful and even necessary in the discussion of prehistoric symbolism. While these categories are convenient in our systematic analysis of Upper Palaeolithic symbolism, it is important to keep in mind that they are distinctly *our* categories and they have no reality in Upper Palaeolithic culture. The categories were coined in a culture that promoted naturalism in art and understood other forms of representation as primitive (see chapter 2). Academic literature further promoted the distinction between the types by assigning value to the realistic animal motifs and overlooking geometric forms (see chapter 2). These categories are modern constructions developed through a particular historical context and as a method of creating systematic cultural divisions. These divisions are contemporary and have strong and understood connotations in our culture and are problematic when projected backwards in a time period where they do not belong. Due to the widespread use in academic literature and the convenience of these categories it is unreasonable to suggest abandoning such terms. Instead, awareness that these categories of figurative and non-figurative representation are modern cultural constructs and do not represent Paleolithic symbolic distinctions is necessary for researchers. When we accept the significance of non-figurative motifs we need to accept that they are part of the same symbolic continuum as the figurative forms.

The forms depicted in the Upper Palaeolithic are certainly not random. As many authors have demonstrated, a static distribution of particular images appears across space and time (Leroi-Gourhan 1964, 1968; Sauvet & Włodarczyk 1992, 1995, 2000-2001, 2009). It can thus be assumed that the representations held a symbolic value before they

were externally stored on cave walls and portable objects. All conventional forms can thus be interpreted as symbols (Laming-Emperaire 1962; Leroi-Gourhan 1964, 1968) without objective difference between types. In semiotic terms, both the association horse-bison and the association horse-claviform are symbolically significant. Moreover the database developed for this project shows that figurative and non-figurative motifs are found in association with each other more often than not (Figure 98). In sum, there are about six-hundred and seventy one non-figurative motifs in Cantabria that are either directly or indirectly associated with figurative and non-figurative motifs. This amounts to 72% of the images documented in this project (Figure 98). Many authors have shown that the figurative and non-figurative motifs often appear together on the cave walls (Bahn & Vertut 1997; Forbes & Crowder 1979; Laming-Emperaire 1959, 1962; Leroi-Gourhan 1964, 1968; Ucko & Rosenfeld 1967). The analysis in this project reinforces this fact. The number of times figurative and non-figurative motifs are associated with each other seems to negate a Palaeolithic culture divide between the two forms. While there is a difference in type of motif, there appears to be little distinction in symbolic value or placement of images. Because such a large percentage of the non-figurative and figurative motifs documented in this project occur together, it is likely that the cultures that produced them did not classify them with any degree of similarity of our general and segregating categories. Instead, it is likely that both figurative and non-figurative motifs were recognized by their symbolic value and depicted to reflect it. The categories of figurative and non-figurative motifs are too relevant and convenient to ever dissipate in Palaeolithic symbolic literature. However, the analysis conducted in this project suggests that the hegemony of figurative images in the Western understanding of Paleolithic art is

unfounded. Instead, we have two different kinds of forms associated to a number of different symbolic values.

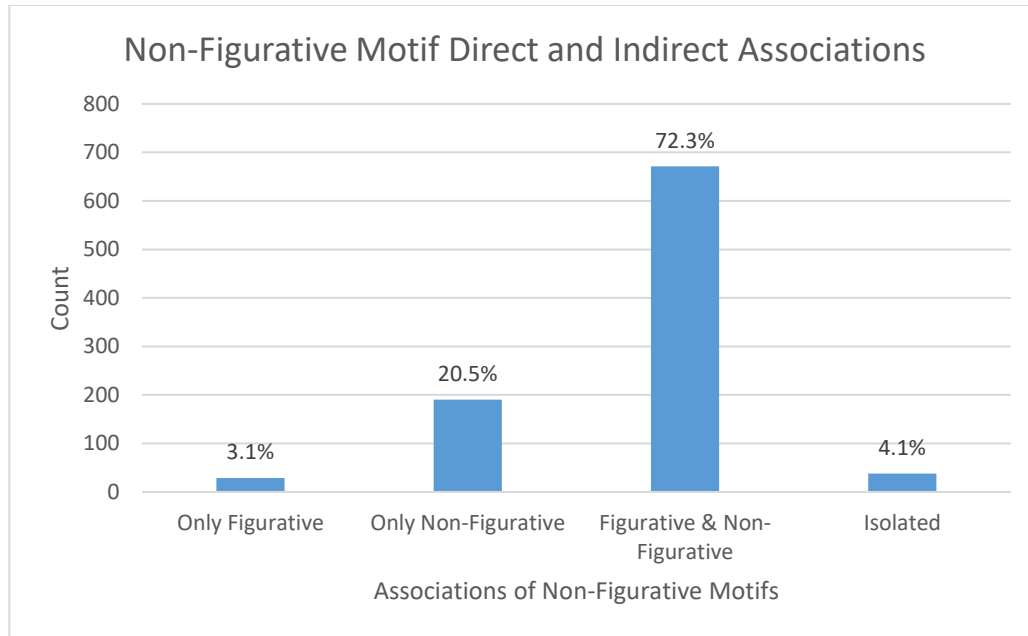


Figure 97. Non-figurative associations in Cantabria

6.2. Further Research

This project has been dedicated to analysing and recording non-figurative images from Cantabria (Spain) and making logical inferences from patterns and correlations revealed by the data. While much work has been done within this specific project, there are many areas where research can be expanded. Specific areas of further research identified through the completion of this project include improved GIS elements, an increased geographic area, a better method of directly dating all documented representation, and archival research. Research and analysis in these particular areas can

certainly strengthen the data and conclusions found within the confines of this project and improve our understandings of Palaeolithic cultures on a more general level.

There are two minor issues within this project that can be improved. The first is that many cave locations, as plotted on distribution maps, are lacking exact coordinates. The second is that there appear to be gaps in bibliographic information pertaining to the discovery and excavations of certain cave sites. Throughout the completion of this project a number of maps have been developed to showcase the approximate coordinates of the caves relevant to this project and to demonstrate geographical patterns relating to the non-figurative motifs. Unfortunately, the majority of the mapped points are only approximations. The UNESCO cave sites Altamira, Cueva de Chufín, Cuevas de Hornos de la Peña, Cuevas del Monte Castillo, Cueva de El Pendo, Cueva de La Garma, and Cueva de Covalanas are plotted on the maps with exact coordinates. However, precise coordinates of the other cave sites documented in this project were not available to me. Instead of plotting the exact location of the cave, the coordinates are taken from the towns or communities where these caves are located. This issue is minor as the caves are often in close proximity to the communities and the cave sites in the maps developed for this project align with other plotted cave maps produced by academics (Ucko & Rosenfeld 1967: 24, 25; Lawson 2012: 166). Obtaining exact coordinates for each cave would be an improvement of the data. The minor problem requires a simple fix. A researcher with funding and a GIS device could easily obtain precise coordinates for each cave site. More accurate maps could be produced from these coordinates and uploaded to a shared and readily accessible Google maps file. Additionally, small fragments of information are also absent from this project. Gaps in the information are usually related to aspects of the cave

discovery such as the discoverer and the date to which a specific cave was detected.

Exploring the archives in Spanish museums could potentially fill these gaps. Although these issues are minor and do not cripple or negatively affect the project, the project would be benefited by further research that could alleviate these issues.

The project has aimed to provide a holistic documentation and analysis of non-figurative cave representations found within the region of Cantabria. The contemporary region of Cantabria was selected to build a better understanding of symbolic relationships associated with particular prehistoric images. The quantity of Palaeolithic cave sites and images identified in Cantabria make analysis within the region sufficient for the scope of this project and an ideal starting point to build an inventory of Palaeolithic imagery.

However, it must be noted that confining analysis to the region of Cantabria limits our understanding of Palaeolithic cultures that must have lived and networked within and outside of the contemporary political borders. The borders of Cantabria are regionally defined and, like many of the categories applied to rock art research, are modern constructs and have no bearing on the Palaeolithic people. The Palaeolithic cultures that produced the representations relevant to this project ventured, networked, and lived in geographic regions outside of contemporary political boundaries (Diez-Martín, Sánchez-Yustos, Gómez-González & Gómez de la Rúa 2008; Hockett & Haws 2002; Rodríguez-Hidalgo, Saladié & Canals 2013; Sánchez de La Torre 2014; Straus, González Morales, Martínez & García-Gelabert 2002). This logical assumption is supported by stylistically similar motifs appearing in Cantabria, Asturias, the Pyrenées, and France. All trends, patterns, correlations discussed in this project are limited. Patterns that are detected are likely more expansive than this project can state and images that lack conventionality

may be discovered to be relevant once the geographical range is expanded. This is a major shortcoming of the project. This project can thus serve as a starting point. While many images have been documented in the region of Cantabria, it is only one sector of a larger Palaeolithic cultural spread. The project clearly demonstrates how relevant information relating to the symbolic aspect of Palaeolithic cultures can be extracted from the archaeological record and used to develop useful conclusions. However, the conclusions through this project will remain incomplete and limited until all of the non-figurative images found within the caves of Western Europe have been analysed in a similar fashion.

One of the main shortcomings of this project is that the chronology of the images is difficult to establish. Noting that the images are of the Upper Palaeolithic is not enough. Rather we need to establish direct dates for a majority of the Upper Palaeolithic images to gain a better understanding of the chronology of the motifs. Traditionally researchers adopted a stylistic approach to dating the cave images (Breuil 1952; Laming-Emperaire 1962; Leroi-Gourhan 1965, 1968). These researchers promoted the idea that different styles of image belonged to different cultural groups. While this practice can still aid us in our understanding of the chronology of Palaeolithic imagery (Combier & Jouve 2012; Lorblanchet 2014; Moro Abadía & González Morales 2007; Pettitt & Bahn 2003, 2014; Pettitt, Bahn & Züchner 2009), it has shown to be problematic in light of radio carbon and accelerator mass spectrometry dating techniques. Direct dating methods have proven, particularly in the case of Chauvet (see chapter 1), that stylistic dating strategies are not consistent in their ability to place representations within their correct time period (Clottes 2008: 38; Clottes et al. 1995; Sadier et al. 2012: 8002; Valladas et al. 2001: 479).

Furthermore, the temporal relationship established with indirect dating methods is always uncertain because these techniques provide only a minimum age for the art (Lawson 2012: 112; Pettitt & Pike 2007: 39-41). A direct date is needed to place a representation in time with certainty. While the number of direct dates for Palaeolithic representations is growing (González-Sainz, Ruiz-Redondo, Garate-Maidagan & Iriarte-Avilés 2013; Lawson 2012: 107-113; Mellars, Bricker, Gowlett & Hedges 1987; Pike et al. 2012; Valladas 2003) the majority of the cave sites remain undated with these modern methods (Clottes 1993; Pettitt & Pike 2007). The majority of the representations investigated in this project have not been assigned direct dates. Moreover, while the pigment of paintings can be given direct dates, engravings can only be assigned indirect dates (Sauvet et al. 2015). Without direct dates the chronology of the images remains uncertain and thus was largely ignored in this project. Once we can be confident of the timelines of each image then the chronology of the representations must be considered in future analysis.

This project attempted to push our understandings of Palaeolithic symbolic culture further and to make access to relevant information regarding non-figurative motifs readily available. However, gaps in information, a limited geographical area, imperfect precision in plotted GIS points, and a lack of accurate dates are hurdles that must be leaped to supplement the conclusions and inferences made through this research.

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Appendix A: Cave Reports

Altamira

Cave		Region				Location	
Altamira		Cantabria				Santillana del Mar	
Date of Discovery		Discoverer					
1878		Marcelino Sanz de Sautuola					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Quadrangle	Painting	Black	Deep	All	Non-figurative	Figurative
2	Line	Painting	Black	Deep	All	Non-figurative	Figurative
3	Line	Painting	Black	Deep	All	Non-figurative	Figurative
4	Quadrangle	Painting	Black	Deep	All	Non-figurative	Figurative
5	Geometric	Painting	Black	Deep	All	Non-figurative	Figurative
6	Quadrangle	Painting	Black	Deep	All	Non-figurative	Figurative
7	Quadrangle	Painting	Black	Deep	All	Non-figurative	Figurative
8	Line	Painting	Black	Deep	All	Non-figurative	Figurative
9	Quadrangle	Painting	Black	Deep	All	Non-figurative	Figurative
10	Geometric	Painting	Black	Deep	All	Non-figurative	Figurative
11	Quadrangle	Painting	Red	Interior	All	Non-figurative	Isolated
12	Quadrangle	Painting	Red	Interior	All	Non-figurative	Isolated
13	Quadrangle	Painting	Red	Interior	All	Non-figurative	Isolated
14	Quadrangle	Painting	Red	Interior	All	Non-figurative	Isolated
15	Blotch	Painting	Red	Interior	All	Non-figurative	Isolated
16	Geometric	Painting	Red	Interior	All	Non-figurative	Isolated
17	Dot (Large)	Painting	Red	Interior	All	Non-figurative	Isolated

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
18	Line	Fluting	N/A	Interior	All	Both	Non-figurative
19	Circle	Fluting	N/A	Interior	All	Isolated	Both
20	Line	Painting	Black	Interior	All	Both	Both
21	Half Circle	Painting	Red	Interior	All	Both	Both
22	Half Circle	Painting	Red	Interior	All	Both	Both
23	Line	Painting	Black	Interior	All	Both	Both
24	Line	Painting	Black	Interior	All	Both	Both
25	Line	Painting	Red	Interior	All	Both	Both
26	Line	Painting	Red	Interior	All	Both	Both
27	Half Circle	Painting	Black	Interior	All	Both	Both
28	Line	Painting	Black	Interior	All	Both	Both
29	Line	Painting	Black	Interior	All	Both	Both
30	Dot (Small)	Painting	Black	Interior	All	Both	Both
31	Line	Painting	Black	Interior	All	Both	Both
32	Line	Painting	Black	Interior	All	Both	Both
33	Line	Painting	Black	Interior	All	Both	Both
34	Line	Painting	Red	Interior	All	Both	Both
35	Line	Painting	Red	Interior	All	Both	Both
36	Geometric	Painting	Red	Interior	All	Both	Both
37	Line	Painting	Red	Interior	All	Both	Both
38	Dot (Small)	Painting	Red	Interior	All	Both	Both
39	Dot (Small)	Painting	Red	Interior	All	Both	Both
40	Dot (Small)	Painting	Red	Interior	All	Both	Both
41	Line	Painting	Red	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
42	Line	Painting	Black	Interior	All	Both	Both
43	Line	Painting	Black	Interior	All	Both	Both
44	Line	Painting	Black	Interior	All	Both	Both
45	Line	Painting	Red	Interior	All	Both	Both
46	Dot (Small)	Painting	Red	Interior	All	Both	Both
47	Dot (Small)	Painting	Red	Interior	All	Both	Both
48	Dot (Small)	Painting	Red	Interior	All	Both	Both
49	Dot (Small)	Painting	Red	Interior	All	Both	Both
50	Line	Painting	Red	Interior	All	Both	Both
51	Line	Painting	Red	Interior	All	Both	Both
52	Line	Painting	Black	Interior	All	Both	Both
53	Line	Painting	Red	Interior	All	Both	Both
54	Line	Painting	Black	Interior	All	Both	Both
55	Line	Painting	Red	Interior	All	Both	Both
56	Line	Painting	Red	Interior	All	Both	Both
57	Line	Painting	Red	Interior	All	Both	Both
58	Line	Painting	Red	Interior	All	Both	Both
59	Line	Painting	Red	Interior	All	Both	Both
60	Line	Painting	Red	Interior	All	Both	Both
61	Blotch	Painting	Red	Interior	All	Both	Both
62	Line	Painting	Red	Interior	All	Both	Both
63	Line	Painting	Red	Interior	All	Both	Both
64	Line	Painting	Red	Interior	All	Both	Both
65	Triangle	Painting	Red	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
66	Line	Painting	Red	Interior	All	Both	Both
67	Geometric	Painting	Red	Interior	All	Both	Both
68	Oval	Painting	Red	Interior	All	Both	Both
69	Line	Painting	Black	Interior	All	Both	Both
70	Line	Painting	Red	Interior	All	Both	Both
71	Line	Painting	Red	Interior	All	Both	Both
72	Dot (Small)	Painting	Red	Interior	All	Both	Both
73	Dot (Small)	Painting	Red	Interior	All	Both	Both
74	Line	Painting	Black	Interior	All	Both	Both
75	Line	Painting	Black	Interior	All	Both	Both
76	Line	Painting	Black	Interior	All	Both	Both
77	Line	Painting	Red	Interior	All	Both	Both
78	Line	Painting	Black	Interior	All	Both	Both
79	Line	Painting	Black	Interior	All	Both	Both
80	Half Circle	Painting	Black	Interior	All	Both	Both
81	Line	Painting	Red	Interior	All	Both	Both
82	Line	Painting	Red	Interior	All	Both	Both
83	Triangle	Painting	Red	Interior	All	Both	Both
84	Line	Painting	Red	Interior	All	Both	Both
85	Line	Painting	Red	Interior	All	Both	Both
86	Line	Painting	Red	Interior	All	Both	Both
87	Blotch	Painting	Red	Interior	All	Both	Both
88	Blotch	Painting	Red	Interior	All	Both	Both
89	Line	Painting	Red	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
90	Line	Painting	Red	Interior	All	Both	Both
91	Triangle	Painting	Red	Interior	All	Both	Both
92	Triangle	Painting	Red	Interior	All	Both	Both
93	Triangle	Painting	Red	Interior	All	Both	Both
94	Line	Painting	Red	Interior	All	Both	Both
95	Line	Painting	Red	Interior	All	Both	Both
96	Triangle	Painting	Red	Interior	All	Both	Both
97	Line	Painting	Red	Interior	All	Both	Both
98	Oval	Painting	Red	Interior	All	Both	Both
99	Zig-zag	Painting	Red	Interior	All	Both	Both
100	Line	Painting	Red	Interior	All	Both	Both
101	Line	Painting	Red	Interior	All	Both	Both
102	Dot (Large)	Painting	Red	Interior	All	Both	Both
103	Half Circle	Painting	Red	Interior	All	Both	Both
104	Dot (Large)	Painting	Red	Interior	All	Both	Both
105	Line	Painting	Red	Interior	All	Both	Both
106	Line	Painting	Red	Interior	All	Both	Both
107	Claviform	Painting	Red	Interior	All	Both	Both
108	Claviform	Painting	Red	Interior	All	Both	Both
109	Claviform	Painting	Red	Interior	All	Both	Both
110	Triangle	Painting	Red	Interior	All	Both	Both
111	Claviform	Painting	Red	Interior	All	Both	Both
112	Claviform	Painting	Red	Interior	All	Both	Both
113	Claviform	Painting	Red	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
114	Triangle	Painting	Red	Interior	All	Both	Both
115	Triangle	Painting	Black	Interior	All	Both	Both
116	Line	Painting	Black	Interior	All	Both	Both
117	Line	Painting	Black	Interior	All	Both	Both
118	Triangle	Painting	Black	Interior	All	Both	Both
119	Line	Painting	Black	Interior	All	Both	Both
120	Triangle	Painting	Black	Interior	All	Both	Both
121	Triangle	Painting	Black	Interior	All	Both	Both
122	Line	Painting	Black	Interior	All	Both	Both
123	Triangle	Painting	Black	Interior	All	Both	Both
124	Triangle	Painting	Black	Interior	All	Both	Both
125	Line	Painting	Black	Interior	All	Both	Both
126	Line	Painting	Black	Interior	All	Both	Both
127	Line	Painting	Black	Interior	All	Both	Both
128	Line	Painting	Black	Interior	All	Both	Both
129	Triangle	Painting	Black	Interior	All	Both	Both
130	Triangle	Painting	Black	Interior	All	Both	Both
131	Triangle	Painting	Black	Interior	All	Both	Both
132	Triangle	Painting	Black	Interior	All	Both	Both
133	Triangle	Painting	Black	Interior	All	Both	Both
134	Triangle	Painting	Black	Interior	All	Both	Both
135	Line	Painting	Black	Interior	All	Both	Both
136	Line	Painting	Black	Interior	All	Both	Both
137	Triangle	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
138	Line	Painting	Black	Interior	All	Both	Both
139	Triangle	Painting	Black	Interior	All	Both	Both
140	Line	Painting	Black	Interior	All	Both	Both
141	Line	Painting	Black	Interior	All	Both	Both
142	Line	Painting	Black	Interior	All	Both	Both
143	Line	Painting	Black	Interior	All	Both	Both
144	Triangle	Painting	Black	Interior	All	Both	Both
145	Triangle	Painting	Black	Interior	All	Both	Both
146	Triangle	Painting	Black	Interior	All	Both	Both
147	Line	Painting	Black	Interior	All	Both	Both
148	Line	Painting	Black	Interior	All	Both	Both
149	Line	Painting	Black	Interior	All	Both	Both
150	Triangle	Painting	Black	Interior	All	Both	Both
151	Triangle	Painting	Black	Interior	All	Both	Both
152	Triangle	Painting	Black	Interior	All	Both	Both
153	Line	Painting	Black	Interior	All	Both	Both
154	Triangle	Painting	Black	Interior	All	Both	Both
155	Triangle	Painting	Black	Interior	All	Both	Both
156	Triangle	Painting	Black	Interior	All	Both	Both
157	Triangle	Painting	Black	Interior	All	Both	Both
158	Triangle	Painting	Black	Interior	All	Both	Both
159	Triangle	Painting	Black	Interior	All	Both	Both
160	Line	Painting	Black	Interior	All	Both	Both
161	Line	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
162	Triangle	Painting	Black	Interior	All	Both	Both
163	Triangle	Painting	Black	Interior	All	Both	Both
164	Triangle	Painting	Black	Interior	All	Both	Both
165	Triangle	Painting	Black	Interior	All	Both	Both
166	Triangle	Painting	Black	Interior	All	Both	Both
167	Triangle	Painting	Black	Interior	All	Both	Both
168	Triangle	Painting	Red	Interior	All	Both	Both
169	Line	Painting	Red	Interior	All	Both	Both
170	Dot (Small)	Painting	Red	Interior	All	Both	Both
171	Dot (Small)	Painting	Red	Interior	All	Both	Both
172	Blotch	Painting	Red	Interior	All	Both	Both
173	Line	Painting	Red	Interior	All	Both	Both
174	Line	Painting	Red	Interior	All	Both	Both
175	Negative	Painting	Red	Interior	All	Both	Both
176	Negative	Painting	Red	Interior	All	Both	Both
177	Negative	Painting	Red	Interior	All	Both	Both
178	Positive	Painting	Red	Interior	All	Both	Both
179	Dot (Small)	Painting	Red	Interior	All	Both	Both
180	Dot (Small)	Painting	Red	Interior	All	Both	Both
181	Dot (Small)	Painting	Red	Interior	All	Both	Both
182	Line	Painting	Black	Interior	All	Both	Both
183	Line	Painting	Black	Interior	All	Both	Both
184	Line	Painting	Black	Interior	All	Both	Both
185	Triangle	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
186	Triangle	Painting	Black	Interior	All	Both	Both
187	Triangle	Painting	Black	Interior	All	Both	Both
188	Line	Painting	Black	Interior	All	Both	Both
189	Triangle	Painting	Black	Interior	All	Both	Both
190	Triangle	Painting	Black	Interior	All	Both	Both
191	Triangle	Painting	Black	Interior	All	Both	Both
192	Triangle	Painting	Black	Interior	All	Both	Both
193	Triangle	Painting	Black	Interior	All	Both	Both
194	Triangle	Painting	Black	Interior	All	Both	Both
195	Line	Painting	Black	Interior	All	Both	Both
196	Line	Painting	Black	Interior	All	Both	Both
197	Line	Painting	Black	Interior	All	Both	Both
198	Triangle	Painting	Black	Interior	All	Both	Both
199	Triangle	Painting	Black	Interior	All	Both	Both
200	Line	Painting	Black	Interior	All	Both	Both
201	Triangle	Painting	Black	Interior	All	Both	Both
202	Triangle	Painting	Black	Interior	All	Both	Both
203	Dot (Small)	Painting	Black	Interior	All	Both	Both
204	Line	Painting	Black	Interior	All	Both	Both
205	Line	Painting	Black	Interior	All	Both	Both
206	Line	Painting	Black	Interior	All	Both	Both
207	Line	Painting	Black	Interior	All	Both	Both
208	Line	Painting	Black	Interior	All	Both	Both
209	Line	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
210	Line	Painting	Black	Interior	All	Both	Both
211	Line	Painting	Black	Interior	All	Both	Both
212	Line	Painting	Black	Interior	All	Both	Both
213	Line	Painting	Black	Interior	All	Both	Both
214	Line	Painting	Black	Interior	All	Both	Both
215	Line	Painting	Black	Interior	All	Both	Both
216	Line	Painting	Black	Interior	All	Both	Both
217	Line	Painting	Black	Interior	All	Both	Both
218	Line	Painting	Black	Interior	All	Both	Both
219	Line	Painting	Black	Interior	All	Both	Both
220	Line	Painting	Black	Interior	All	Both	Both
221	Line	Painting	Black	Interior	All	Both	Both
222	Geometric	Painting	Black	Interior	All	Both	Both
223	Line	Painting	Black	Interior	All	Both	Both
224	Dot (Small)	Painting	Black	Interior	All	Both	Both
225	Dot (Small)	Painting	Black	Interior	All	Both	Both
226	Line	Painting	Black	Interior	All	Both	Both
227	Line	Painting	Black	Interior	All	Both	Both
228	Line	Painting	Black	Interior	All	Both	Both
229	Blotch	Painting	Black	Interior	All	Both	Both
230	Line	Painting	Black	Interior	All	Both	Both
231	Half Circle	Painting	Black	Interior	All	Both	Both
232	Line	Painting	Black	Interior	All	Both	Both
233	Line	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
234	Line	Painting	Black	Interior	All	Both	Both
235	Line	Painting	Black	Interior	All	Both	Both
236	Line	Painting	Black	Interior	All	Both	Both
237	Line	Painting	Black	Interior	All	Both	Both
238	Line	Painting	Black	Interior	All	Both	Both
239	Line	Painting	Black	Interior	All	Both	Both
240	Line	Painting	Black	Interior	All	Both	Both
241	Line	Painting	Black	Interior	All	Both	Both
242	Line	Painting	Black	Interior	All	Both	Both
243	Line	Painting	Black	Interior	All	Both	Both
244	Dot (Small)	Painting	Black	Interior	All	Both	Both
245	Line	Painting	Black	Interior	All	Both	Both
246	Line	Painting	Black	Interior	All	Both	Both
247	Line	Painting	Black	Interior	All	Both	Both
248	Line	Painting	Black	Interior	All	Both	Both
249	NRH	Painting	Black	Interior	All	Both	Both
250	Line	Painting	Black	Interior	All	Both	Both
251	Line	Painting	Black	Interior	All	Both	Both
252	Line	Painting	Black	Interior	All	Both	Both
253	Line	Painting	Black	Interior	All	Both	Both
254	Line	Painting	Black	Interior	All	Both	Both
255	Blotch	Painting	Black	Interior	All	Both	Both
256	Half Circle	Painting	Black	Interior	All	Both	Both
257	Line	Painting	Red	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
258	Line	Painting	Red	Interior	All	Both	Both
259	Oval	Painting	Red	Interior	All	Both	Both
260	Line	Painting	Red	Interior	All	Both	Both
261	Line	Painting	Red	Interior	All	Both	Both
262	Blotch	Painting	Red	Interior	All	Both	Both
263	Circle	Painting	Red	Interior	All	Both	Both
264	Circle	Painting	Red	Interior	All	Both	Both
265	Claviform	Painting	Red	Interior	All	Both	Both
266	Claviform	Painting	Red	Interior	All	Both	Both
267	Line	Painting	Red	Interior	All	Both	Both
268	Line	Painting	Red	Interior	All	Both	Both
269	Claviform	Painting	Red	Interior	All	Both	Both
270	Claviform	Painting	Black	Interior	All	Both	Both
271	Claviform	Painting	Red	Interior	All	Both	Both
272	Line	Painting	Red	Interior	All	Both	Both
273	Triangle	Painting	Red	Interior	All	Both	Both
274	Claviform	Painting	Red	Interior	All	Both	Both
275	Line	Painting	Black	Interior	All	Both	Both
276	Circle	Painting	Black	Interior	All	Both	Both
277	Triangle	Painting	Red	Interior	All	Both	Both
278	Claviform	Painting	Red	Interior	All	Both	Both
279	Line	Painting	Black	Interior	All	Both	Both
280	Triangle	Painting	Black	Interior	All	Both	Both
281	Claviform	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
282	Line	Painting	Black	Interior	All	Both	Both
283	Claviform	Painting	Black	Interior	All	Both	Both
284	Triangle	Painting	Red	Interior	All	Both	Both
285	Geometric	Painting	Black	Interior	All	Both	Both
286	Claviform	Painting	Black	Interior	All	Both	Both
287	Claviform	Painting	Black	Interior	All	Both	Both
288	Blotch	Painting	Black	Interior	All	Both	Both
289	Line	Painting	Black	Interior	All	Both	Both
290	Line	Painting	Black	Interior	All	Both	Both
291	Line	Painting	Black	Interior	All	Both	Both
292	Line	Painting	Black	Interior	All	Both	Both
293	Blotch	Painting	Black	Interior	All	Both	Both
294	Oval	Painting	Black	Interior	All	Both	Both
295	Triangle	Painting	Black	Interior	All	Both	Both
296	Line	Painting	Black	Interior	All	Both	Both
297	Line	Painting	Black	Interior	All	Both	Both
298	Line	Painting	Black	Interior	All	Both	Both
299	Line	Painting	Black	Interior	All	Both	Both
300	Blotch	Painting	Black	Interior	All	Both	Both
301	Line	Painting	Black	Interior	All	Both	Both
302	Claviform	Painting	Black	Interior	All	Both	Both
303	Blotch	Painting	Black	Interior	All	Both	Both
304	Line	Painting	Black	Interior	All	Both	Both
305	Line	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
306	Line	Painting	Black	Interior	All	Both	Both
307	Line	Painting	Black	Interior	All	Both	Both
308	Line	Painting	Black	Interior	All	Both	Both
309	Line	Painting	Black	Interior	All	Both	Both
310	Line	Painting	Black	Interior	All	Both	Both
311	Line	Painting	Black	Interior	All	Both	Both
312	Line	Painting	Black	Interior	All	Both	Both
313	Line	Painting	Black	Interior	All	Both	Both
314	Claviform	Painting	Red	Interior	All	Both	Both
315	Claviform	Painting	Red	Interior	All	Both	Both
316	Claviform	Painting	Red	Interior	All	Both	Both
317	Claviform	Painting	Red	Interior	All	Both	Both
318	Claviform	Painting	Red	Interior	All	Both	Both
319	Line	Painting	Red	Interior	All	Both	Both
320	Blotch	Painting	Red	Interior	All	Both	Both
321	Line	Painting	Red	Interior	All	Both	Both
322	Line	Painting	Red	Interior	All	Both	Both
323	Line	Painting	Red	Interior	All	Both	Both
324	Line	Painting	Red	Interior	All	Both	Both
325	Line	Painting	Red	Interior	All	Both	Both
326	Line	Painting	Red	Interior	All	Both	Both
327	Line	Painting	Red	Interior	All	Both	Both
328	Triangle	Painting	Black	Interior	All	Both	Both
329	Line	Painting	Black	Interior	All	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
330	Oval	Painting	Black	Interior	All	Both	Both
331	Triangle	Painting	Red	Interior	All	Both	Both
332	Line	Painting	Red	Interior	All	Both	Both
333	Line	Painting	Red	Interior	All	Both	Both
334	Claviform	Painting	Red	Interior	All	Both	Both

Chufín

Cave		Region				Location	
Chufín		Cantabria				Riclones	
Date of Discovery		Discoverer					
1972		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Both
2	Blotch	Painting	Red	Deep	Solutrean	Non-figurative	Both
3	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Both
4	Line	Painting	Red	Deep	Solutrean	Non-figurative	Both
5	Line	Painting	Red	Deep	Solutrean	Both	Non-figurative
6	Line	Painting	Red	Deep	Solutrean	Both	Non-figurative
7	Line	Painting	Red	Deep	Solutrean	Both	Non-figurative
8	Line	Painting	Red	Deep	Solutrean	Both	Non-figurative
9	Line	Painting	Red	Deep	Solutrean	Both	Non-figurative
10	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Non-figurative
11	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Non-figurative
12	Dot (Small)	Painting	Black	Deep	Solutrean	Non-figurative	Non-figurative
13	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Both
14	Dot (Small)	Painting	Red	Deep	Solutrean	Both	Both
15	Line	Engraving	N/A	Deep	Solutrean	Figurative	Figurative
16	Dot (Small)	Painting	Red	Deep	Solutrean	Non-figurative	Both
17	Line	Engraving	N/A	Entrance	Solutrean	Both	Isolated

Cobrantes

Cave		Region				Location	
Cobrantes		Cantabria				San Miguel de Aras	
Date of Discovery		Discoverer					
1966		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Sketch	Black	Interior	Solutrean	Both	Isolated
2	Line	Sketch	Black	Interior	Solutrean	Both	Isolated
3	Line	Sketch	Black	Interior	Solutrean	Both	Isolated
4	Line	Sketch	Black	Interior	Solutrean	Both	Isolated

Cofresnedo

Cave		Region				Location	
Cofresnedo		Cantabria				Matienzo	
Date of Discovery		Discoverer					
1997		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Blotch	Painting	Black	Deep	N/A	Both	Isolated
2	Dot (Small)	Sketch	Red	Deep	N/A	Both	Isolated
3	Blotch	Painting	Red	Deep	N/A	Isolated	Isolated
4	Blotch	Painting	Red	Deep	N/A	Isolated	Isolated
5	Blotch	Painting	Red	Deep	N/A	Non-figurative	Isolated
6	Dot (Small)	Painting	Red	Deep	N/A	Non-figurative	Isolated
7	Blotch	Painting	Red	Entrance	N/A	Non-figurative	Figurative
8	Blotch	Painting	Black	Entrance	N/A	Non-figurative	Figurative

Covalanas

Cave			Region		Location		
Covalanas			Cantabria		Ramales de la Victoria		
Date of Discovery			Discoverer				
1903			Hermilio Alcalde del Río and Lorenzo Sierra				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Triangle	Sketch	Red	Interior	Grav./Solut. Figurative		Figurative
2	Quadrangle	Sketch	Red	Deep	Grav./Solut. Both		Both
3	Blotch	Sketch	Red	Deep	Grav./Solut. Both		Both
4	Line	Sketch	Red	Deep	Grav./Solut. Both		Both
5	Quadrangle	Sketch	Red	Deep	Grav./Solut. Both		Both
6	Quadrangle	Sketch	Red	Deep	Grav./Solut. Both		Both
7	Line	Sketch	Red	Deep	Grav./Solut. Both		Both
8	Line	Painting	Red	Deep	Grav./Solut. Isolated		Isolated
9	Line	Sketch	Red	Deep	Grav./Solut. Non-figurative		Isolated
10	Triangle	Sketch	Red	Deep	Grav./Solut. Non-figurative		Isolated
11	Line	Sketch	Red	Deep	Grav./Solut. Non-figurative		Isolated
12	Line	Sketch	Red	Deep	Grav./Solut. Non-figurative		Isolated

Cudón

Cave		Region				Location	
Cudón		Cantabria				Cudón, Miengo	
Date of Discovery		Discoverer					
1932		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Circle	Fluting	N/A	Deep	Magdal.	Isolated	Isolated
2	Dot (Large)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
3	Line	Engraving	N/A	Deep	Magdal.	Non-figurative	Non-figurative
4	Negative	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
5	Line	Fluting	N/A	Deep	Magdal.	Isolated	Non-figurative
6	Line	Sketch	Black	Deep	Magdal.	Isolated	Isolated
7	Dot (Small)	Painting	Red	Interior	Magdal.	Isolated	Isolated
8	Line	Painting	Polychr	Interior	Magdal.	Isolated	Isolated
9	Triangle	Sketch	Red	Interior	Magdal.	Isolated	Isolated

Cueva Grande

Cave		Region			Location		
Cueva Grande		Cantabria			Otañes, Castro Urdiales		
Date of Discovery		Discoverer					
1993		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Blotch	Painting	Black	Deep	N/A	Both	Isolated
2	Blotch	Painting	Black	Deep	N/A	Both	Isolated
3	Line	Engraving	N/A	Deep	N/A	Both	Isolated
4	Dot (Small)	Painting	Red	Deep	N/A	Non-figurative	Isolated
5	Line	Painting	Black	Deep	N/A	Non-figurative	Isolated

El Arco

Cave			Region			Location	
El Arco			Cantabria			Ramales de la Victoria	
Date of Discovery			Discoverer				
1997			N/A				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Deep	N/A	Figurative	Isolated
2	Line	Engraving	N/A	Deep	N/A	Figurative	Isolated
3	Line	Sketch	Red	Deep	N/A	Non-figurative	Non-figurative
4	Line	Sketch	Red	Deep	N/A	Non-figurative	Non-figurative
5	Line	Sketch	Red	Deep	N/A	Isolated	Non-figurative
6	Circle	Painting	Red	Deep	N/A	Both	Both
7	Circle	Painting	Red	Deep	N/A	Both	Both
8	Circle	Painting	Red	Deep	N/A	Both	Both
9	Oval	Painting	Red	Deep	N/A	Both	Both
10	Oval	Painting	Red	Deep	N/A	Both	Both
11	Circle	Painting	Red	Deep	N/A	Both	Both
12	Quadrangle	Sketch	Red	Deep	N/A	Both	Both
13	Quadrangle	Sketch	Red	Deep	N/A	Both	Both
14	Quadrangle	Sketch	Red	Deep	N/A	Both	Both
15	Blotch	Sketch	Red	Deep	N/A	Both	Both
16	Oval	Sketch	Red	Deep	N/A	Non-figurative	Both
17	Oval	Sketch	Red	Deep	N/A	Non-figurative	Both
18	Quadrangle	Sketch	Red	Deep	N/A	Non-figurative	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
19	Quadrangle	Sketch	Red	Deep	N/A	Both	Both
20	Quadrangle	Sketch	Red	Deep	N/A	Both	Both
21	Half Circle	Sketch	Red	Deep	N/A	Both	Both
22	Oval	Sketch	Red	Deep	N/A	Both	Both
23	Half Circle	Sketch	Red	Deep	N/A	Both	Both
24	Oval	Sketch	Red	Deep	N/A	Both	Both
25	Oval	Sketch	Red	Deep	N/A	Both	Both
26	Half Circle	Sketch	Red	Deep	N/A	Both	Both
27	Oval	Sketch	Red	Deep	N/A	Both	Both
28	Half Circle	Sketch	Red	Deep	N/A	Both	Both
29	Oval	Sketch	Red	Deep	N/A	Both	Both
30	Line	Sketch	Red	Deep	N/A	Both	Both
31	Oval	Sketch	Red	Deep	N/A	Both	Both
32	Oval	Sketch	Red	Deep	N/A	Both	Both
33	Geometric	Sketch	Red	Deep	N/A	Both	Both
34	Line	Sketch	Red	Deep	N/A	Both	Both
35	Half Circle	Sketch	Red	Deep	N/A	Both	Both
36	Half Circle	Sketch	Red	Deep	N/A	Both	Both
37	Line	Sketch	Red	Deep	N/A	Both	Both
38	Oval	Sketch	Red	Deep	N/A	Both	Both
39	Geometric	Sketch	Red	Deep	N/A	Both	Both
40	Half Circle	Sketch	Red	Deep	N/A	Both	Both
41	Line	Sketch	Red	Deep	N/A	Both	Both
42	Half Circle	Sketch	Red	Deep	N/A	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
43	Line	Sketch	Red	Deep	N/A	Both	Both
44	Oval	Sketch	Red	Deep	N/A	Both	Both
45	Oval	Sketch	Red	Deep	N/A	Both	Both
46	Line	Sketch	Red	Deep	N/A	Both	Both

El Calero-II

Cave		Region				Location	
El Calero-II		Cantabria				Puente Arce	
Date of Discovery		Discoverer					
1997		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Half Circle	Engraving	N/A	Interior	N/A	Isolated	Isolated
2	Dot (Small)	Painting	Red	Deep	N/A	Figurative	Non-figurative
3	Line	Painting	Red	Deep	N/A	Isolated	Isolated
4	Half Circle	Painting	Black	Deep	N/A	Isolated	Isolated
5	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
6	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
7	Dot (Small)	Painting	Black	Interior	N/A	Non-figurative	Isolated
8	Line	Painting	Black	Interior	N/A	Non-figurative	Non-figurative
9	Line	Painting	Black	Interior	N/A	Non-figurative	Non-figurative
10	Dot (Small)	Sketch	Black	Interior	N/A	Isolated	Isolated
11	Triangle	Painting	Black	Interior	N/A	Non-figurative	Isolated
12	Line	Painting	Black	Interior	N/A	Non-figurative	Isolated
13	Line	Painting	Black	Interior	N/A	Non-figurative	Isolated

El Castillo

Cave		Region				Location	
El Castillo		Cantabria				Puente Viesgo	
Date of Discovery		Discoverer					
1903		Hermilo Alcalde del Río					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Claviform	Painting	Black	Interior	Magdal.	Figurative	Isolated
2	Dot (Small)	Painting	Red	Interior	Magdal.	Non-figurative	Non-figurative
3	Triangle	Painting	Red	Interior	Magdal.	Isolated	Non-figurative
4	Blotch	Painting	Red	Interior	Magdal.	Non-figurative	Non-figurative
5	Dot (Small)	Painting	Red	Interior	Magdal.	Figurative	Isolated
6	Oval	Painting	Black	Interior	Magdal.	Non-figurative	Non-figurative
7	Claviform	Painting	Black	Interior	Magdal.	Non-figurative	Non-figurative
8	Blotch	Painting	Black	Interior	Magdal.	Non-figurative	Non-figurative
9	Dot (Small)	Painting	Black	Interior	Magdal.	Non-figurative	Non-figurative
10	Geometric	Painting	Black	Interior	Magdal.	Isolated	Non-figurative
11	Blotch	Painting	Black	Interior	Magdal.	Both	Figurative
12	Blotch	Painting	Red	Interior	Magdal.	Both	Figurative
13	Zig-zag	Painting	Black	Interior	Magdal.	Both	Figurative
14	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
15	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
16	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
17	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
18	Negative	Painting	Red	Interior	Magdal.	Both	Figurative

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
19	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
20	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
21	Negative	Painting	Red	Interior	Magdal.	Both	Figurative
22	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
23	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Figurative
24	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
25	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
26	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
27	Line	Painting	Red	Interior	Magdal.	Both	Figurative
28	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
29	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
30	Claviform	Painting	Red	Interior	Magdal.	Both	Figurative
31	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
32	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
33	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
34	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
35	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
36	Claviform	Painting	Red	Interior	Magdal.	Both	Figurative
37	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Figurative
38	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
39	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Figurative
40	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
41	Quadrangle	Painting	Red	Interior	Magdal.	Both	Figurative
42	Claviform	Painting	Red	Interior	Magdal.	Non-figurative	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
43	Oval	Painting	Red	Interior	Magdal.	Non-figurative	Both
44	Blotch	Painting	Black	Interior	Magdal.	Non-figurative	Non-figurative
45	Blotch	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
46	Negative	Painting	Red	Interior	Magdal.	Non-figurative	Non-figurative
47	Oval	Painting	Red	Interior	Magdal.	Non-figurative	Non-figurative
48	Triangle	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
49	Line	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
50	Oval	Painting	Red	Interior	Magdal.	Non-figurative	Both
51	Oval	Painting	Orange	Interior	Magdal.	Non-figurative	Both
52	Negative	Painting	Black	Interior	Magdal.	Both	Both
53	Negative	Painting	Black	Interior	Magdal.	Both	Both
54	Negative	Painting	Black	Interior	Magdal.	Both	Both
55	Negative	Painting	Black	Interior	Magdal.	Both	Both
56	Negative	Painting	Black	Interior	Magdal.	Both	Both
57	Negative	Painting	Black	Interior	Magdal.	Both	Both
58	Negative	Painting	Black	Interior	Magdal.	Both	Both
59	Negative	Painting	Black	Interior	Magdal.	Both	Both
60	Negative	Painting	Black	Interior	Magdal.	Both	Both
61	Negative	Painting	Black	Interior	Magdal.	Both	Both
62	Negative	Painting	Black	Interior	Magdal.	Both	Both
63	Negative	Painting	Black	Interior	Magdal.	Both	Both
64	Negative	Painting	Black	Interior	Magdal.	Both	Both
65	Negative	Painting	Black	Interior	Magdal.	Both	Both
66	Negative	Painting	Black	Interior	Magdal.	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
67	Negative	Painting	Black	Interior	Magdal.	Both	Both
68	Negative	Painting	Black	Interior	Magdal.	Both	Both
69	Negative	Painting	Black	Interior	Magdal.	Both	Both
70	Negative	Painting	Black	Interior	Magdal.	Both	Both
71	Negative	Painting	Black	Interior	Magdal.	Both	Both
72	Negative	Painting	Black	Interior	Magdal.	Both	Both
73	Negative	Painting	Black	Interior	Magdal.	Both	Both
74	Negative	Painting	Black	Interior	Magdal.	Both	Both
75	Negative	Painting	Black	Interior	Magdal.	Both	Both
76	Negative	Painting	Black	Interior	Magdal.	Both	Both
77	Negative	Painting	Black	Interior	Magdal.	Both	Both
78	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Both
79	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Both
80	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Both
81	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Both
82	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Both
83	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Both
84	Dot (Small)	Painting	Red	Interior	Magdal.	Both	Both
85	Dot (Large)	Painting	Black	Interior	Magdal.	Both	Both
86	Dot (Small)	Painting	Black	Interior	Magdal.	Both	Both
87	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Both
88	Dot (Large)	Painting	Black	Interior	Magdal.	Both	Both
89	Dot (Large)	Painting	Black	Interior	Magdal.	Both	Both
90	Zig-zag	Painting	Red	Interior	Magdal.	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
91	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Both
92	Dot (Small)	Painting	Black	Interior	Magdal.	Both	Both
93	Line	Painting	Orange	Interior	Magdal.	Both	Both
94	Line	Painting	Orange	Interior	Magdal.	Both	Both
95	Dot (Small)	Painting	Black	Interior	Magdal.	Both	Both
96	Line	Painting	Red	Interior	Magdal.	Both	Both
97	Line	Painting	Red	Interior	Magdal.	Both	Both
98	Line	Painting	Orange	Interior	Magdal.	Both	Both
99	Claviform	Painting	Orange	Interior	Magdal.	Both	Both
100	Triangle	Painting	Orange	Interior	Magdal.	Both	Both
101	Quadrangle	Painting	Red	Interior	Magdal.	Both	Both
102	Quadrangle	Painting	Red	Interior	Magdal.	Both	Both
103	Quadrangle	Painting	Red	Interior	Magdal.	Both	Both
104	Geometric	Painting	Red	Interior	Magdal.	Both	Both
105	Quadrangle	Painting	Red	Interior	Magdal.	Both	Both
106	Quadrangle	Painting	Black	Interior	Magdal.	Both	Both
107	Quadrangle	Painting	Red	Interior	Magdal.	Both	Both
108	Claviform	Painting	Red	Interior	Magdal.	Both	Both
109	Dot (Large)	Painting	Red	Interior	Magdal.	Both	Both
110	Negative	Painting	Red	Interior	Magdal.	Both	Both
111	Negative	Painting	Red	Interior	Magdal.	Both	Both
112	Negative	Painting	Red	Interior	Magdal.	Both	Both
113	Negative	Painting	Red	Interior	Magdal.	Both	Both
114	Negative	Painting	Red	Interior	Magdal.	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
115	Negative	Painting	Red	Interior	Magdal.	Both	Both
116	Negative	Painting	Red	Interior	Magdal.	Both	Both
117	Quadrangle	Painting	Red	Interior	Magdal.	Isolated	Figurative
118	Negative	Painting	Red	Interior	Magdal.	Isolated	Figurative
119	Line	Painting	Red	Interior	Magdal.	Isolated	Non-figurative
120	Claviform	Painting	Red	Interior	Magdal.	Isolated	Non-figurative
121	Line	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
123	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
124	Line	Painting	Black	Interior	Magdal.	Non-figurative	Isolated
125	Geometric	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
126	Geometric	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
127	Geometric	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
128	Geometric	Painting	Red	Interior	Magdal.	Non-figurative	Isolated
129	Geometric	Painting	Black	Interior	Magdal.	Non-figurative	Isolated
130	Line	Engraving	N/A	Deep	Magdal.	Isolated	Figurative
131	Claviform	Painting	Black	Deep	Magdal.	Figurative	Isolated
132	Dot (Small)	Painting	Black	Deep	Magdal.	Isolated	Non-figurative
133	Dot (Small)	Painting	Black	Deep	Magdal.	Isolated	Non-figurative
134	Dot (Small)	Painting	Black	Deep	Magdal.	Isolated	Non-figurative
135	Oval	Painting	Red	Deep	Magdal.	Isolated	Figurative
136	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
137	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
138	Line	Engraving	N/A	Deep	Magdal.	Non-figurative	Isolated
139	Dot (Large)	Painting	Red	Deep	Magdal.	Non-figurative	Non-figurative

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
140	Negative	Painting	Red	Deep	Magdal.	Non-figurative	Non-figurative
141	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Non-figurative
142	Dot (Large)	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
143	Dot (Large)	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
144	Dot (Large)	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
145	Dot (Large)	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
146	Dot (Large)	Painting	Black	Deep	Magdal.	Non-figurative	Isolated

El Linar

Cave		Region			Location		
EL Linar		Cantabria			Alfoz de Lloredo, basse vallée		
Date of Discovery		Discoverer					
1996		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Deep	Magdal.	Figurative	Isolated

El Miron

Cave		Region			Location		
El Miron		Cantabria			Ramales de la Victoria		
Date of Discovery		Discoverer					
2000		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Entrance	Solutrean	Isolated	Isolated

Morro Del Horidillo

Cave		Region			Location		
Morro Del Horidillo		Cantabria			Ramales de la Victoria		
Date of Discovery		Discoverer					
1983		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Blotch	Painting	Red	Interior	N/A	Isolated	Isolated

EL Otero

Cave		Region				Location	
El Otero		Cantabria				Secadura	
Date of Discovery		Discoverer					
1908		Lorenzo Sierra					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Deep	N/A	Figurative	Isolated

EL Pendo

Cave			Region			Location	
El Pendo			Cantabria			Escobedo, Camargo	
Date of Discovery			Discoverer				
1878			Marcelino Sanz de Sautuola				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Dot (Small)	Painting	Red	Interior	Solutrean	Both	Isolated
2	Dot (Small)	Painting	Red	Interior	Solutrean	Both	Isolated
3	Quadrangle	Painting	Red	Interior	Solutrean	Both	Isolated
4	Line	Painting	Red	Interior	Solutrean	Isolated	Isolated
5	Line	Painting	Red	Interior	Solutrean	Figurative	Isolated

EL Perro

Cave		Region			Location		
El Perro		Cantabria			Santóna		
Date of Discovery		Discoverer					
1984		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Interior	Magdal.	Isolated	Isolated

El Salitre

Cave			Region			Location	
El Salitre			Cantabria			Ajandeo-Miera	
Date of Discovery			Discoverer				
1981			Lorenzo Sierra				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Barbed	Painting	Orange	Interior	Solutrean	Figurative	Non-figurative
2	Line	Fluting	N/A	Interior	Solutrean	Non-figurative	Both
3	Triangle	Fluting	N/A	Interior	Solutrean	Non-figurative	Both
4	Triangle	Fluting	N/A	Interior	Solutrean	Non-figurative	Both
5	Triangle	Fluting	N/A	Interior	Solutrean	Non-figurative	Both

Fuente Del Salín

Cave			Region			Location	
Fuente Del Salín			Cantabria			Val de San Vicente	
Date of Discovery			Discoverer				
1985			N/A				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	PRS Hand	Painting	Black	Interior	Gravettian	Non-figurative	Non-figurative
2	PLS Hand	Painting	Black	Interior	Gravettian	Non-figurative	Non-figurative
3	Blotch	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
4	NLS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
5	NLS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
6	NLS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
7	NRS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
8	NRS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
9	NRS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative
10	NLS Hand	Painting	Red	Interior	Gravettian	Non-figurative	Non-figurative

Hornos De La Peña

Cave		Region			Location		
Hornos De La Peña		Cantabria			San Felices de Beulna		
Date of Discovery		Discoverer					
1903		Hermilo Alcalde del Río					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Deep	Magdal.	Figurative	Figurative
2	Blotch	Painting	Black	Deep	Magdal.	Both	Figurative
3	Zig-zag	Engraving	N/A	Deep	Magdal.	Both	Figurative
4	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
5	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
6	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
7	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
8	Half Circle	Engraving	N/A	Deep	Magdal.	Both	Figurative
9	Line	Engraving	N/A	Deep	Magdal.	Figurative	Isolated
10	Geometric	Engraving	N/A	Deep	Magdal.	Both	Figurative
11	Zig-zag	Engraving	N/A	Deep	Magdal.	Both	Figurative
12	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
13	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
14	Zig-zag	Engraving	N/A	Deep	Magdal.	Both	Figurative
15	Geometric	Engraving	N/A	Deep	Magdal.	Both	Figurative
16	Line	Engraving	N/A	Deep	Magdal.	Both	Figurative
17	Zig-zag	Engraving	N/A	Deep	Magdal.	Both	Figurative
18	Geometric	Engraving	N/A	Deep	Magdal.	Both	Figurative

Juan Gomez

Cave		Region				Location	
Juan Gómez		Cantabria				Sámano, Castro	
Date of Discovery		Discoverer					
1978		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Painting	Red	Interior	N/A	Isolated	Isolated

La Clotilde

Cave			Region			Location	
La Clotilde			Cantabria			Santa Isabel De Quijas	
Date of Discovery			Discoverer				
1906			Hermilio Alcalde del Río				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Sketch	Red	Deep	N/A	Both	Isolated
2	Line	Fluting	N/A	Deep	N/A	Both	Isolated
3	Circle	Fluting	N/A	Deep	N/A	Both	Isolated
4	Triangle	Fluting	N/A	Deep	N/A	Both	Isolated
5	Barbed	Sketch	Black	Deep	N/A	Both	Isolated
6	Triangle	Sketch	Red	Deep	N/A	Both	Isolated
7	Line	Sketch	Red	Deep	N/A	Both	Isolated
8	Line	Sketch	Red	Deep	N/A	Both	Isolated
9	Line	Sketch	Red	Deep	N/A	Both	Isolated
10	Line	Sketch	Red	Deep	N/A	Both	Isolated
11	Geometric	Sketch	Red	Deep	N/A	Both	Isolated
12	Barbed	Sketch	Black	Deep	N/A	Both	Isolated
13	Geometric	Sketch	Black	Deep	N/A	Both	Isolated

La Cullavera

Cave		Region			Location		
La Cullalvera		Cantabria			Ramales de la Victoria		
Date of Discovery		Discoverer					
1954		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Dot (Small)	Sketch	Red	Interior	N/A	Non-figurative	Isolated
2	Dot (Small)	Sketch	Red	Interior	N/A	Non-figurative	Isolated
3	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Isolated
4	Dot (Small)	Sketch	Red	Interior	N/A	Non-figurative	Isolated
5	Blotch	Sketch	Red	Interior	N/A	Non-figurative	Isolated
6	Line	Sketch	Red	Interior	N/A	Non-figurative	Isolated
7	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
8	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
9	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
10	Line	Painting	Black	Interior	N/A	Non-figurative	Non-figurative
11	PLS Hand	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
12	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
13	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
14	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
15	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
16	Dot (Small)	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
17	Line	Painting	Red	Interior	N/A	Non-figurative	Non-figurative
18	Line	Painting	Black	Interior	N/A	Non-figurative	Non-figurative

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
19	Line	Painting	Black	Interior	N/A	Non-figurative	Non-figurative

La Garma

Cave			Region			Location	
La Garma			Cantabria			Omoño	
Date of Discovery			Discoverer				
1995			N/A				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Painting	Red	Deep	All	Non-figurative	Both
2	Dot (Small)	Painting	Red	Deep	All	Non-figurative	Both
3	Dot (Small)	Painting	Red	Deep	All	Non-figurative	Both
4	NRS Hand	Painting	Red	Deep	All	Non-figurative	Both
5	NRS Hand	Painting	Red	Deep	All	Non-figurative	Both
6	NRS Hand	Painting	Red	Deep	All	Non-figurative	Both
7	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
8	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
9	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
10	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
11	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
12	Line	Painting	Red	Deep	All	Non-figurative	Non-figurative
13	Blotch	Painting	Red	Deep	All	Non-figurative	Non-figurative
14	Dot (Small)	Painting	Red	Deep	All	Isolated	Non-figurative
15	Dot (Small)	Painting	Red	Deep	All	Isolated	Isolated
16	Dot (Small)	Painting	Red	Deep	All	Isolated	Non-figurative
17	Blotch	Painting	Red	Deep	All	Isolated	Non-figurative

La Haza

Cave		Region			Location		
La Haza		Cantabria			Ramales de la Victoria		
Date of Discovery		Discoverer					
1903		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Quadrangle	Sketch	Red	Deep	N/A	Figurative	Isolated
2	Blotch	Painting	Red	Deep	N/A	Isolated	Isolated

La Lastrilla

Cave		Region			Location		
La Lastrilla		Cantabria			Sámano, Castro Urdiales		
Date of Discovery		Discoverer					
1950		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	PRS Hand	Sketch	Red	Deep	Solutrean	Non-figurative	Isolated
2	PRS Hand	Painting	Red	Deep	Solutrean	Non-figurative	Isolated
3	PRS Hand	Sketch	Red	Deep	Solutrean	Non-figurative	Isolated
4	Triangle	Sketch	Red	Deep	Solutrean	Non-figurative	Isolated

La Meaza

Cave		Region				Location	
La Measza		Cantabria				Comillas	
Date of Discovery		Discoverer					
1907		Hermilo Alcalde del Río					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Vulva	Painting	Red	Deep	N/A	Isolated	Isolated

La Pasiega

Cave			Region			Location	
La Pasiega			Cantabria			Puente Viesgo	
Date of Discovery			Discoverer				
1911			H. Obermaier, P. Wernert, H.Alcalde del Río				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Painting	Red	Deep	Magdal.	Figurative	Figurative
2	Line	Painting	Orange	Deep	Magdal.	Isolated	Figurative
3	Oval	Painting	Red	Deep	Magdal.	Figurative	Isolated
4	Quadrangle	Painting	Red	Deep	Magdal.	Figurative	Figurative
5	Claviform	Painting	Red	Deep	Magdal.	Both	Isolated
6	Claviform	Painting	Red	Deep	Magdal.	Both	Isolated
7	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
8	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
9	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
10	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
11	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
12	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Both
13	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
14	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
15	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
16	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
17	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
18	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
19	Geometric	Painting	Red	Deep	Magdal.	Non-figurative	Both
20	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
21	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
22	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
23	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
24	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
25	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
26	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
27	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Both
28	Half Circle	Painting	Red	Deep	Magdal.	Non-figurative	Both
29	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
30	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
31	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
32	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
33	Claviform	Painting	Red	Deep	Magdal.	Both	Non-figurative
34	Claviform	Painting	Red	Deep	Magdal.	Both	Non-figurative
35	Triangle	Painting	Red	Deep	Magdal.	Both	Non-figurative
36	Line	Painting	Red	Deep	Magdal.	Both	Non-figurative
37	Oval	Painting	Red	Deep	Magdal.	Both	Non-figurative
38	Circle	Painting	Red	Deep	Magdal.	Both	Non-figurative
39	Triangle	Painting	Red	Deep	Magdal.	Both	Non-figurative
40	Geometric	Painting	Red	Deep	Magdal.	Both	Non-figurative
41	Claviform	Painting	Red	Deep	Magdal.	Both	Non-figurative
42	Dot (Small)	Painting	Red	Deep	Magdal.	Both	Non-figurative

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
43	Geometric	Painting	Red	Deep	Magdal.	Non-figurative	Both
44	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
45	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
46	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
47	Quadrangle	Painting	Red	Deep	Magdal.	Figurative	Both
48	Quadrangle	Painting	Red	Deep	Magdal.	Figurative	Non-figurative
49	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
50	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
51	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
52	Dot (Small)	Painting	Red	Deep	Magdal.	Non-figurative	Both
53	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
54	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
55	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
56	Line	Painting	Red	Deep	Magdal.	Both	Both
57	Quadrangle	Painting	Red	Deep	Magdal.	Figurative	Both
58	Claviform	Painting	Red	Deep	Magdal.	Isolated	Isolated
59	Line	Painting	Red	Deep	Magdal.	Both	Isolated
60	Claviform	Painting	Red	Deep	Magdal.	Both	Isolated
61	Line	Painting	Red	Deep	Magdal.	Both	Isolated
62	Dot (Small)	Painting	Red	Deep	Magdal.	Figurative	Figurative
63	Triangle	Painting	Red	Deep	Magdal.	Figurative	Both
64	Oval	Painting	Red	Deep	Magdal.	Both	Both
65	Line	Painting	Red	Deep	Magdal.	Both	Both
66	Oval	Painting	Red	Deep	Magdal.	Both	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
67	Line	Painting	Orange	Deep	Magdal.	Figurative	Figurative
68	Line	Painting	Red	Deep	Magdal.	Figurative	Isolated
69	Line	Painting	Red	Deep	Magdal.	Figurative	Isolated
70	Half Circle	Painting	Red	Deep	Magdal.	Figurative	Isolated
71	Quadrangle	Painting	Red	Deep	Magdal.	Both	Isolated
72	Quadrangle	Painting	Red	Deep	Magdal.	Both	Isolated
73	PRS Hand	Painting	Red	Deep	Magdal.	Both	Isolated
74	Geometric	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
75	Geometric	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
76	Geometric	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
77	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
78	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
79	Dot (Large)	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
80	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
81	Claviform	Painting	Red	Deep	Magdal.	Isolated	Isolated
82	Triangle	Painting	Red	Deep	Magdal.	Isolated	Isolated
83	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Isolated
84	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Isolated
85	Dot (Small)	Painting	Red	Deep	Magdal.	Both	Non-figurative
86	Dot (Small)	Painting	Red	Deep	Magdal.	Both	Non-figurative
87	Line	Painting	Red	Deep	Magdal.	Both	Non-figurative
88	Line	Painting	Red	Deep	Magdal.	Both	Non-figurative
89	Line	Engraving	N/A	Deep	Magdal.	Both	Isolated
90	Line	Engraving	N/A	Deep	Magdal.	Both	Isolated

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
91	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
92	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
93	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both
94	Oval	Painting	Red	Deep	Magdal.	Non-figurative	Both
95	Triangle	Painting	Red	Deep	Magdal.	Isolated	Both
96	Claviform	Painting	Red	Deep	Magdal.	Isolated	Both
97	Half Circle	Painting	Red	Deep	Magdal.	Isolated	Isolated
98	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
99	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
100	Line	Engraving	N/A	Deep	Magdal.	Non-figurative	Isolated
101	Line	Engraving	N/A	Deep	Magdal.	Non-figurative	Isolated
102	Triangle	Painting	Black	Deep	Magdal.	Figurative	Isolated
103	Claviform	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
104	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
105	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
106	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
107	Line	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
108	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
109	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
110	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
111	Triangle	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
112	Triangle	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
113	Line	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
114	Quadrangle	Painting	Red	Deep	Magdal.	Isolated	Non-figurative

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
115	Blotch	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
116	Oval	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
117	Line	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
118	Dot (Small)	Painting	Red	Deep	Magdal.	Isolated	Both
119	Quadrangle	Painting	Red	Deep	Magdal.	Isolated	Non-figurative
120	Quadrangle	Painting	Red	Deep	Magdal.	Isolated	Both
121	Claviform	Painting	Red	Deep	Magdal.	Isolated	Both
122	Quadrangle	Painting	Red	Deep	Magdal.	Isolated	Both
123	Quadrangle	Painting	Red	Deep	Magdal.	Isolated	Both
124	Line	Painting	Red	Deep	Magdal.	Both	Isolated
125	Line	Painting	Red	Deep	Magdal.	Both	Isolated
126	Line	Painting	Red	Deep	Magdal.	Both	Isolated
127	Quadrangle	Painting	Red	Deep	Magdal.	Both	Isolated
128	Dot (Small)	Painting	Red	Deep	Magdal.	Both	Isolated
129	Triangle	Painting	Red	Deep	Magdal.	Both	Isolated
130	Dot (Large)	Painting	Red	Deep	Magdal.	Both	Isolated
131	Triangle	Painting	Red	Deep	Magdal.	Both	Isolated
132	Geometric	Painting	Red	Deep	Magdal.	Both	Isolated
134	Line	Painting	Red	Deep	Magdal.	Both	Isolated
135	Geometric	Painting	Red	Deep	Magdal.	Both	Isolated
136	Line	Painting	Red	Deep	Magdal.	Both	Isolated
137	Line	Painting	Red	Deep	Magdal.	Both	Isolated
138	Line	Painting	Red	Deep	Magdal.	Figurative	Non-figurative
139	Line	Painting	Red	Deep	Magdal.	Non-figurative	Both

#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
140	Dot (Small)	Painting	Red	Deep	Magdal.	Non-figurative	Both
141	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
142	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
143	Triangle	Painting	Red	Deep	Magdal.	Non-figurative	Both
144	Dot (Large)	Painting	Red	Deep	Magdal.	Non-figurative	Both
145	Claviform	Painting	Red	Deep	Magdal.	Non-figurative	Both
146	Claviform	Painting	Red	Deep	Magdal.	Both	Isolated
147	Claviform	Painting	Red	Deep	Magdal.	Both	Isolated
148	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
149	Half Circle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
150	Triangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
151	Triangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
152	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
153	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
154	Triangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
155	Quadrangle	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
156	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
157	Blotch	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
158	Line	Painting	Red	Deep	Magdal.	Non-figurative	Isolated
159	Claviform	Painting	Red	Deep	Magdal.	Isolated	Isolated

Las Aguas De Novales

Cave			Region			Location	
Las Aguas De Novales			Cantabria			Alfoz de Lloredo	
Date of Discovery			Discoverer				
1909			N/A				
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Dot (Large)	Painting	Red	Deep	Magdal.	Both	Both
2	Quadrangle	Sketch	Red	Deep	Magdal.	Both	Both
3	Quadrangle	Painting	Red	Deep	Magdal.	Figurative	Both

Las Brujas

Cave		Region				Location	
Las Brujas		Cantabria				Suances	
Date of Discovery		Discoverer					
1980		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Triangle	Engraving	N/A	Entrance	N/A	Isolated	Isolated
2	Circle	Engraving	N/A	Entrance	N/A	Isolated	Isolated
3	Line	Engraving	N/A	Entrance	N/A	Isolated	Isolated
4	Line	Fluting	N/A	Interior	N/A	Isolated	Isolated
5	Geometric	Engraving	N/A	Interior	Contempor	Isolated	Isolated
6	Triangle	Fluting	N/A	Interior	N/A	Isolated	Isolated

Las Chimeneas

Cave		Region				Location	
Las Chimeneas		Cantabria				Puente Viesgo	
Date of Discovery		Discoverer					
1953		Alfredo García Lorenzo					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Quadrangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
2	Quadrangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
3	Triangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
4	Quadrangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
5	Triangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
6	Quadrangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
7	Line	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
8	Triangle	Painting	Black	Deep	Magdal.	Non-figurative	Non-figurative
9	Quadrangle	Engraving	N/A	Deep	Magdal.	Non-figurative	Non-figurative
10	Quadrangle	Engraving	N/A	Deep	Magdal.	Non-figurative	Non-figurative
11	Line	Engraving	N/A	Deep	Magdal.	Figurative	Isolated

Las Monedas

Cave		Region				Location	
Las Monedas		Cantabria				Puente Viesgo	
Date of Discovery		Discoverer					
1952-04-08		Isidoro Blanco, Felipe Puente, Alfredo Gracia Lorenzo					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Barbed	Painting	Black	Entrance	Magdal.	Non-figurative	Figurative
2	Barbed	Painting	Black	Interior	Magdal.	Both	Non-figurative
3	Line	Painting	Black	Interior	Magdal.	Non-figurative	Both
4	Line	Painting	Black	Interior	Magdal.	Non-figurative	Both
5	Barbed	Painting	Black	Interior	Magdal.	Non-figurative	Both
6	Line	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
7	Circle	Painting	Black	Deep	Magdal.	Non-figurative	Isolated
8	Geometric	Painting	Black	Deep	Magdal.	Non-figurative	Isolated

Micolon

Cave		Region				Location	
Micolón		Cantabria				Rionansa	
Date of Discovery		Discoverer					
1976		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Quadrangle	Painting	Red	Deep	Solutrean	Non-figurative	Both
2	Triangle	Painting	Red	Deep	Solutrean	Non-figurative	Both
3	Triangle	Painting	Red	Deep	Solutrean	Non-figurative	Both
4	Line	Painting	Red	Deep	Solutrean	Isolated	Both
5	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both
6	Oval	Sketch	Red	Deep	Solutrean	Figurative	Both
7	Vulva	Sketch	Red	Deep	Solutrean	Non-figurative	Both
8	Vulva	Sketch	Red	Deep	Solutrean	Isolated	Both
9	Circle	Sketch	Red	Deep	Solutrean	Non-figurative	Both
10	Line	Sketch	Red	Deep	Solutrean	Non-figurative	Both
11	Line	Sketch	Red	Deep	Solutrean	Non-figurative	Both
12	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both
13	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both
14	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both
15	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both
16	Vulva	Engraving	N/A	Deep	Solutrean	Figurative	Both

Peñajorao

Cave		Region				Location	
Peñajorao		Cantabria				Camargo	
Date of Discovery		Discoverer					
N/A		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Triangle	Painting	Red	Deep	N/A	Isolated	Isolated

Pondra

Cave		Region			Location		
Pondra		Cantabria			Ramales de la Victoria		
Date of Discovery		Discoverer					
1997		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Deep	N/A	Figurative	Both
2	Line	Engraving	N/A	Deep	N/A	Figurative	Both
3	Triangle	Sketch	Red	Deep	N/A	Both	Both
4	Triangle	Sketch	Red	Deep	N/A	Both	Both
5	Line	Sketch	Red	Deep	N/A	Both	Both

Porquerizo

Cave		Region				Location	
Porquerizo		Cantabria				Celis	
Date of Discovery		Discoverer					
1985		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Dot (Small)	Painting	Red	Entrance	Solutrean	Isolated	Isolated

San Carlos

Cave		Region				Location	
San Carlos		Cantabria				Santóna	
Date of Discovery		Discoverer					
1985		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Entrance	N/A	Non-figurative	Isolated
2	Line	Engraving	N/A	Entrance	N/A	Non-figurative	Isolated

Santián

Cave		Region				Location	
Santián		Cantabria				Piélagos	
Date of Discovery		Discoverer					
1903		N/A					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Blotch	Painting	Red	Interior	Aurignacian	Figurative	Isolated
2	Line	Painting	Black	Interior	Aurignacian	Isolated	Non-figurative
3	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
4	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
5	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
6	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
7	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
8	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
9	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
10	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
11	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
12	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
13	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
14	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
15	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
16	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative
17	Line	Painting	Red	Interior	Aurignacian	Non-figurative	Non-figurative

Venta De La Perra

Cave		Region				Location	
Venta De La Perra		Cantabria				Caranza	
Date of Discovery		Discoverer					
1904		L. Sierra					
#	Form	Technique	Colour	Spatiality	Culture	Direct Assoc.	Indirect Assoc.
1	Line	Engraving	N/A	Entrance	N/A	Isolated	Isolated