IBERIAN PALAEOLITHIC ROCK ART

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Geography

Geographically speaking, the boundaries of European Pleistocene rock art are marked by a series of occidental and southern coordinates. The recent discovery of Church Hole, in the south of England, is one of the rare sites located to the north of 48th parallel. The latitudinal stain of this kind of art is located between the 46th parallel and the southern European border, i.e. Strait of Gibraltar.

Longitudinally this stain spreads from Portugal to the Ural mountain chain, but in an uneven way, as 96% of the stations where this kind of art can be found are located in Iberia and France: the 1984 official French computation, partially updated by us, registers 150 stations; there are 6 Italian sites, and only 3 or 4 are scattered within the rest of this immense territory to the Ural mountains.

Iberia is full of testimonies of this kind of art. Their locations are scattered all over its peninsular geography, both in its current Atlantic climatic environment and in its coastal and interior Mediterranean variants. The lines that provide essential structure to their distribution adapt both to the rivers, which connect Atlantic and Mediterranean coasts to the massifs of the borders of the great interior Plateau, and to the major waterways and their tributary rivers, which cross the Peninsula longitudinally.

In Figure 1 the distribution of the 150 Iberian sites, which have been attributed without any doubt, to this kind of art is shown. The computation is restrictive, as it could be slightly increased if we had followed less strict criteria and furthermore, nº 142 of the Côa river has been counted as only one unit, when actually we are talking about a group formed by 24 different rocks placed in the open air, distributed along 13 kilometres of the downstream course of this river and the Duero river; slightly less numerous are those rocks of the Siega Verde group (nº 144), in river Agueda, or those of Domingo García (nº 136) in the Eresma.

Thus, once we have a look at our inventory, our attention is attracted to the fact that two thirds of the Iberian total is located in the Atlantic area, essentially to the north of the main massif, the Cantabrian Chain, from its foot to the coast. Partly, this concentration could be explained by the biomass diversity and the variety of resources that could be exploited within a small area, which could favour human establishment and population sustainability. Until a few decades ago, the rest of the peninsular map appeared much emptier, with fewer locations. Regions such as País Valenciano or Murcia start to provide their first testimonies and in Andalucía, a relatively large number of new ones are added to the veteran caves of La Pileta (nº 126) or Trinidad de Ardales (nº 125). But it is in the large basins of the Duero, Tajo and Guadiana rivers where, apart from the findings in caves, other examples have been found, which have increased the insight that we had of this artistic phenomenon. To sum up, the peninsular map starts to fill, though it does not seem likely that it will become as full as in its most northern area.

Topography, technique and themes

Topography

This kind of art has four topographic emplacements: in the darkness of caves, sometimes at the very back, as in the case of Cullalvera (nº 79-90), after a one kilometre walk with many difficult passageways; at the cave’s entrance up to the penumbra area, as in La Lluera I (nº 6-13) or Los Torneiros (nº 2-4); on the walls of rock shelters, as in La Viña or Cueva Ambrosio (nº 6-13 and 114); finally, on open air rocks, found in a completely open landscape. This is the case of Sampaio, Pousadouro, Fraga Escravida, Ribeira de Sardinha (nº 137-139 and 140), Mazouco (nº 141), rocks from the middle and lower Côa river (nº 142 and 143), Siega Verde (nº 144) and Domingo García (nº 136) in the basins of the Duero river and its tributaries; it is also the case of the sites in the rivers Ocreza and Zêzere (nº 145 and 146) in the Tajo basin; of Molino Manzánez (nº 149) in that of the Guadiana river or Piedras Blancas (nº 116) in Andalucía. These large open-air areas with palaeolithic art are specifically Iberian, this uniqueness would not be refuted by the only open-air station, which up to the date, has been found in France, Fornols Haut, in the Mediterranean region of Aude. On the other hand, the unexpected discovery of these new areas, whose number will increase after the new approach to our analysis that they have caused, will allow us to say that Palaeolithic art is not a synonym of cave art.

Regarding light, these topographic locations are grouped into two categories: interior ones, in darkness, and exterior ones, more or less illuminated by the sun. According to this division, the first category would reach two thirds of the total as a result of the Cantabrian weight. But this simple calculus is perhaps biased as, among the exterior category ones, open-air site discovery is more problematic and hazardous than that of panels sheltered by cave shades, and rock shelter or cave entrances. From our point of view, there are two reasons for this: the approach which has lead the research lately, which did not presume the existence of open air palaeolithic rock art sites, and the lithographic characteristics of the rocks: under these conditions, we cannot expect the same success as regards conservation if the testimony is engraved in strong Palaeozoic non-calcareous rocks, or even, though to a
lesser extent, in limestone from the same period, versus Mesozoic and subsequent periods carbonated rocks. Surprises have arisen from the first kind of rocks of the Iberian interior, but it is possible that artistic expression may have been developed on any other type of rock formations and lithography imposed its conditions.

Techniques
The techniques employed in this kind of art are engraving and painting. The first has fine lines, mainly inside the cave, or deep ones in naturally illuminated sites. In the latter, rabbets and curved edges in the groove lips may cause three-dimensional effects like those of a relief (deep engraving leads to relief), as in La Lluera I, but in Iberia there are no bas and mid reliefs as in France, carved in the rock to represent human figures or animals, sometimes in a scale close to the natural one of the model. Paint was used for linear strokes or, more accurately, to give movement to the coloured mass. Figures are monochrome or bichrome, but in more complex testimonies, as for example in Altamira (no 53-60), paint was mixed, washed and smoothed to give polychrome effects, masterly achieved with only a two basic colour palette: black from vegetal coal, burnt bone or manganese, and different shades of iron oxides, which they knew how to modify by heat. Inside the caves, depending on the epoch, engraving was associated with painting to delimitate the contours or to outline the internal minimal details of the represented subject. Colour was applied following different methods, including aerography.

Themes
The themes of this kind of art are reduced into four categories: animal figures, human figures, signs and unfinished shapes or undetermined lines. During the Palaeolithic period two expressive branches coexist: the naturalistic animal figure, and the geometrical abstraction of signs, classified as the most impressive example from an intellectual approach to Palaeolithic art.

Interior and exterior art themes do not vary in their substance. If their inspiration sources and the intellectual background, which support both kinds of art, had been different from one another, the themes would have been the best ground to express such differences, but this is not the case. Thematic coincidence exists because, supporting palaeolithic art there is a thought which is sufficiently unified and shared so that it involves, to classify and explain them, both interior and exterior geographies. It is not surprising, as other kinds of art, such as the Australian Aboriginal Art, whose tradition was maintained up to the late 19th century, was the expression of a country.

This does not mean that open-air art, that illuminated in shelter or cave entrances and that of interior darkness are interchangeable. One is visible because of its actual location; another coincides with dwelling areas, it was part of daily routine and, as time went by it lost its meaning: in fact, in some places, as successive occupation levels were used, they came to cover up what was represented on the walls, as happens in La Viña or Cueva Ambrosio. The last one is interior, sometimes voluntarily hidden, though in large sites it is
enormous, made to be seen and in no way meant to be secret. Even though we perceive a global thought interested in both the exterior and interior worlds, it does not mean their arts functions were the same.

Figure 4. Lluera I cave

Chronology and styles

**Chronology**

Until the use of the direct dating technique, which provides absolute dates (numeric could be a better qualifying adjective), mobile or rock art chronology was based on the different indirect dating methods, which constitute relative chronology.

Chronological potentiality of these methods is incomparably bigger for mobile art, as items are commonly found in stratigraphies contextually associated to different products of technical activity, whose dating can be found out relatively easily, and transferred to the mobile item. But, these methods are difficult to apply to rock art due to its nature. It is very rare to find cases where a correlation (of diverse nature) between rock art examples and their immediate or close archaeological context has been established. Normally, context is merely reduced to figuration and wall support. The order of the different superimposed figures establishes a basic chronological scheme: obviously, most recent examples are on top of older ones. To face all these deficiencies, traditional chronology looked for the homologies that could be established between rock figuration samples and other mobile art samples whose date was known: examples of these are the engraved scapula found in some levels occupied in Altamira or El Castillo (nº 63-66), which were reproduced in the engraved figures on panels in both caves and, exactly reproduced in Llónín (nº 32-43). This is also the case of the characteristic forms and representation conventions we can see in objects from the Magdalenian period, and which we can easily recognise on many French and Iberian rock walls.

$^{14}$C method has been rendering its services to archaeological dating since the middle of the 20th Century, but it could not be applied to rock art, because it caused inadmissible destruction, as so much material is needed for this dating method. A technical novelty, the accelerated mass spectrometry (AMS), produced acceptable damage as a result of taking a few milligrams of the picture sample, to obtain, after the depuration of gangue, few micrograms of datable carbon. The direct dating world was open. The title of a symposium published in 1993: *Rock Art Studies: the Post-Stylistic Era or Where do we go from here?* was expressive enough about the old dating methods becoming obsolete and the new expectations that were opened. At the same time, laboratories made an effort to purify the samples more and more, so that pollution due to different causes could be avoided. Engraving dating remained outside of $^{14}$C method, but other methods could provide more precise numeric dates than those of relative chronology: among them, thermoluminescence (TL), electronic spin resonance (ESR) or uranium series (U/Th) were applied in Iberia, and other methods which we do not summarise here due to their mere tentative essay nature. According to the physic principles they are based on, their chronological scales are different from those of the $^{14}$C method, so the conversion of all of them to the same referential scale expressed in solar years is necessary. This represents a problem for $^{14}$C method as it cannot be calibrated by dendrochronology. Among all different dating methods, the most common ones are those based on $^{14}$C disintegration: their results have coincided or slightly revised the estimations deduced from relative chronology but other results are irreconcilable. According to the experts, other techniques bring about doubts and have to be regarded as provisional.


Stiles

Change is a temporal marker for form. To place the variations of the representative forms in their corresponding date leads us to the history of style and to ask ourselves about its evolution.

Until the last decades of the 20th century, the most favoured style classification was that of A. Leroi-Gourhan, based on the relationship that could be established between mobile art and most reliably dated wall panels. According to him, four styles have followed one another along Upper Palaeolithic that could be interpreted as four stages in a linear course. This course could have commenced during the first modern human culture in Europe, the Aurignacian period, and could have continued along the following cultures: Gravetian, Solutrean and Magdalenian cultures. The characteristics of each of these styles were described, as well as their chronological frame. This chronological and stylistic organisation was considered a paradigm for the interpretation of the findings that were to come, but in the history of knowledge every paradigm is born to be revised: that is the essence of its greatness.

The finding of the French Chauvet cave meant a great impact because of its exceptionality in every aspect. AMS dating of some of its impressive figures between 32.410 and 30.340 years BP questioned directly the chronological value of style: nobody had ever dated so sophisticated an art in such an early date, that contradicted the idea of a continuous and linear evolution with regional particularities; on the contrary, anticipations, peaks, extinctions and recurrences should have been found within a diversified geographical frame. Other AMS dating of simple figures from the cave of San Román de Candamo in Asturias were found to be even older: 32.310 and 33.910 years BP; but, after a more complex study, their date was found to be much more recent. Direct dating methods, that measure time with numeric results, have not solved all the problems; but they are welcomed for the weighted exercise of the method.

Nowadays, it is not believed that Palaeolithic art can be enclosed in a unified block produced during more than 20,000 years according to a characteristic pattern, recognisable on a general scale above regional particularities. For its dating we apply the best part of indirect methods (its context and a thorough morpho-technical analysis) and direct ones, but after a rigorous confrontation and evaluation of both results: if one of them is rejected, the reasons have to be explained very well. Style markers are looked for in figure deformation and in the expressive conventions of modelling, their inner planes and movement. Thus, the styles of Covalanas, Castillo, Altamira, Parpalló, etc, are described and their geographical frame is defined, outlining vast chrono-stylistic classifications for the future. Actually, the method is the same as before, but with more limited expectations. Nevertheless, the most important chronological frame is already established, and it covers a time immensity, which goes from 33,000 to 11,000 years BP. Independently of the surprise of a site being older or more recent than thought, and oversimplifying, the enigmatic body deformations, many representative conventions and a greater “expressionist” touch in lines are characteristics of older times; to sum up, we are facing a great stylistic and territorial variety. A more “academic” and naturalistic unification in the vast Franco-Iberian areas corresponded to the peak of the Magdalenian period.

The meanings

During the first half of the 20th century the hypothesis that Palaeolithic art was the result of magic motivation within a totemic social context was extended. S. Reinach, H. Breuil and H. Bégouen were its main supporters. This conclusion was reached after comparing this type of art to that of primitive peoples studied by Ethnology, particularly that of Australian aboriginal culture. Ethnographical comparisons became abusive, so by the
middle of the century this hypothesis became to be severely criticised. It was then when the structuralist point of view of A. Laming-Empériaire and, above all that of A. Leroi-Gourhan, rejected ethnographic comparisons and pointed out the need to go back to art itself; that is, to the cave or the shelter, to the panels and their figurations, to see whether they responded to a previous iconographic plan. Leroi-Gourhan concluded that there was actually such a plan, that both, animals and symbols, were classified in sexual character categories, and that Palaeolithic art was the expression of a dualistic view of the universe, present in the opposition of two principles, masculine and feminine, and a third one: animals. Important aspects in Leroi-Gourhan’s literature were deservedly criticised; the mildest but most extended ones were centred on the adjective: sexual, forgetting its basis was dualism but also that this dualism was not present without a third one: according to the basic formula A-B+C. On the positive side we have to highlight his notion of bestiary, the scarce potential of magic as a global explanation; his criticism towards ethnographic comparisons; his regarding the cave as a whole where an iconographic programme was adapted to the possibilities offered by an already finished architecture; and furthermore, that the election of the themes was not made at random, but it was the result of a series of rules that were already becoming present.

Sauvet and Wlodarzyk have deepened this research through the application of statistical and algorithmic analyses to 416 poli-thematic panels and they have underlined that only few associations were made, though the combinatory possibilities were immense. Motives are classified into five categories: 1, horse, bison and goat; 2, anthropomorphic figures; 3, mammoth, rhinoceros, reindeer and bear; 4, fish, lion and “others”; 5, deer, hind and aurochs. But the first group plays the dominant hierarchic role (this group is not very far from Leroi-Gourhan’s formula A-B+C) and it is the pivotal point of the associations. Group 2 has a very close placement to the central one and the rest show a peripheral independence. These regularities allow the construction of formal models that explain three quarters of the panels and also show that their thematic constitution was the result of some election, probably regulated by semantic considerations, and which was relatively stable during the Upper Palaeolithic. Though the individual properties of the themes and associative classes contradict Leroi-Gourhan’s literature in some aspects, it is none the less true that his approach is nowadays validated and has many possibilities: the establishment of the elements of a formal grammar for rock art.

Recently, the shamanic hypothesis of J. Lewis Williams and J. Clottes has been popularised, based on neuro-scientific aspects, and again, in ethnographic comparisons. The cave walls could be like a veil between the real world from this other world inhabited by spiritual animals, whose favours could be asked by the shaman in a trance.

The loss of oral tradition and the way in which we still understand rock art seriously limit the expectations of a global explanation. There is still a lot we do not know about many of the elements that are involved in figuration. As Leroi-Gourhan said, figuration reflects an ideological situation in which religious, social and aesthetic issues are intimately linked. But, in one way or the other, though always in a simple way, they refer to vision of the universe sustained by myth. This kind of art, as with that of traditional archaism societies, points to a mechanism particular to human beings: the representation of the Universe by means of symbols seen from our point of view.

The legacy of a fragile heritage
Iberia contains 48% of the examples of
European Palaeolithic art, which is one of the main arts produced during human history. Its fragility is great, not only because of the effects of natural agents but mainly because of human interference. It is not enough that these examples have been declared Cultural Interest Goods of Spanish Historic Heritage by article 40.2, Law 13/1985, of June the 25th, and that their conservation is also present in regional legislation of their corresponding heritage; a social pedagogy is necessary. It is very positive that a magazine like Coalition has shown interest in it.

**Conservation of Australian Rock Art**

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**Abstract**

The current state of rock art conservation in Australia is not as robust as in the past. Threats of nearby development now determine the course of rock art conservation and management actions. The reactive and expedient use of resources to investigate potential threats to rock art now replaces proactive research, management and conservation. This paper presents several examples where a threatened crisis in rock art protection results in the conduct of a short-term scientific investigation perhaps followed by conservation action. Also identified are the damages resulting from fire and lichen, and the loss of an international conservation-training course.

**Introduction**

Since the 1980s, Australia has led the world in rock art conservation by carrying out research, undertaking international training courses, and making the public aware of the measures needed to reduce threats and minimize damage. However, over the last few years, interest in rock art has been decreasing and fewer researchers and academics are embarking on new initiatives. It seems that the cultural heritage managers and funding decision makers are able to manage and preserve rock art without conducting research, undertaking monitoring programs or training staff. The public is not particularly interested in rock art unless there is a threat to a major gallery of paintings or an expanse of petroglyphs, and this has happened in several cases recently. Politicians only become enthusiastic about rock art when major issues affect their potential to attract votes. This report focuses on examples of the Jabiluka project and the Burrup Peninsula proposed commercial developments which illustrate the plight of rock art, and provides insights into the status of Australian rock art conservation.

**Jabiluka**

In 1971, the discovery of uranium at Jabiluka in the Northern Territory was one of three major uranium discoveries at that time. Two of the ore bodies have since been mined; Ranger and Nabarlek. In the late 1990s a plan was proposed for the development of the Jabiluka ore deposit, but fierce opposition from traditional owners (Mirrar) and environmental groups forced a senate inquiry. That investigation recommended that the mine not proceed on environmental and cultural grounds, and the project was put on standby mode.

A World Heritage Committee Independent Scientific Panel visited Kakadu National Park (the listed property adjacent to the proposed mine development) and examined Jabiluka’s potential impacts on Kakadu’s natural and cultural values. Their report recommended that further information be gathered on the impacts of the mining project. One of the concerns raised by the committee was the potential impact of dust on the adjacent rock art and in the nearby heritage area from the infrastructure developments, the mining, ore handling and processing, and vehicle routes. Vibrations from blasting were also considered a threat to the stability of the nearby rock art sites.

In 2001 intense lobbying of governments and the mining company, and the prevention of any scientific investigation on Mirrar land, together with a fall in the price of uranium eventually led to a moratorium on the development of Jabiluka for a period of 10 years. The scientific investigation into the potential dust problem was never undertaken. No rock art conservation or management studies have been conducted or are planned. The crisis is over and rock art no longer plays any role in the Jabiluka project.

**Burrup Peninsula**

The Burrup Peninsula (Murujuga) is part of the Dampier Archipelago on the north-western coast of Australia. This vast remote semi-arid region contains great iron ore deposits. In addition, off shore there are the gas and oil reserves of the North West Shelf and Timor...