

## **The Distribution of Franco-Cantabrian Rock Art**

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**Abstract:** *In reviewing the geographical distribution of European rock art attributed to the Pleistocene, the “heartland” of the Franco-Cantabrian cave art can be contrasted with rock arts of numerous other regions of Europe. Most of the “external” sites are of percussion petroglyphs, and the attribution of many of them to the Pleistocene is controversial. This paper reviews all of the purported Pleistocene rock art sites listed by one specialist, and reviews each candidate. It emerges that nearly all the sites outside the traditional distribution of Franco-Cantabrian palaeoart have either been dated to the Holocene, or they remain controversial and the likelihood that they are of the Pleistocene is not very great. Therefore it is necessary to review all European attributions of rock art to the Ice Age.*

### **Introduction**

Rock art of Pleistocene antiquity has been proposed to exist at up to 400 sites across Europe, over 300 of which have been listed by Bahn & Vertut (1997). Until about twenty-five years ago, the only sites admitted to this list were almost exclusively limestone cave sites in France and Spain, but then began efforts to admit other types of sites to this list (Bahn 1985, 1995a, 1995b). This included especially a series of open schist sites on the Iberian Peninsula, eventually leading to the controversy over the Côa sites in northern Portugal in the mid-1990s. Since then, more sites have been added, sometimes under controversial circumstances, often without critical assessment of the claims made, and always without credible dating evidence. It has therefore become necessary to review this growing list sceptically, and to remind researchers that in proposing a specific age for rock art, credible supporting data should be provided.

The following review is far from comprehensive, as I will only consider sites that I have either examined myself, or whose circumstances I have considered in adequate detail to comment on them. Nevertheless, the high rate of rejections I can demonstrate should prompt restraint on the part of the finders of Palaeolithic rock art, and convey the need to be more circumspect in this area. Once mythologies establish themselves in the folklore of archaeology, they are hard to eradicate, and they become embedded in numerous ways in the “knowledge base”.

The tendency of describing Holocene rock art as Pleistocene is certainly not limited to Europe; there are literally hundreds of false or very tenuous claims from much of Eurasia. They are, however, largely unknown from the remaining continents, especially Africa and Australia. Here we focus on European claims and their basis.

### **Eastern and central Europe**

At the eastern boundary of Europe, the Ural Mountains form the watershed between two continents. Two caves in them contain paintings that are widely regarded as Palaeolithic, supposedly depicting a fauna that includes mammoth and woolly

rhinoceros. They are Kapova and Ignatiev Caves (Shchelinski 1989; Petrin & Shirokov 1991). However, their identifications of the diffuse red paintings are not certain, and an attempt to extract carbon isotope dating from the second cave has resulted in Holocene dating (Steelman *et al.* 2002). The next site further west listed by Bahn is Cuciulat in Romania. There is no evidence in favour of Pleistocene antiquity of the figures in that cave. On the other hand, the cave art discovered only this year in Coliboaia, in the Apuseni Natural Park of Romania, is certainly of the Pleistocene (J. Clottes, pers. comm.).

Bahn's listing of several sites in central Europe is either mistaken or very doubtful. There have been numerous cases of central European cave art falsely attributed to the Palaeolithic period, including that of Kleines Schulerloch (Birkner 1938: Pl. 13) and Kastlgänghöhle (Bohmers 1939: 40), debunked by Bosinski (1982: 6) and Freund (1957: 55); Hohle Fels (Hahn 1991; Conard & Uerpman 2000) and Geissenklösterle (Hahn 1988), both refuted by Bednarik (2002); Mladeč Cave (Oliva 1989), refuted by Bednarik (2006); and Bycí Skála, refuted by Svoboda *et al.* (2005). Four of these sites are listed by Bahn: Hohle Fels, Geissenklösterle, Mladeč and Bycí Skála.

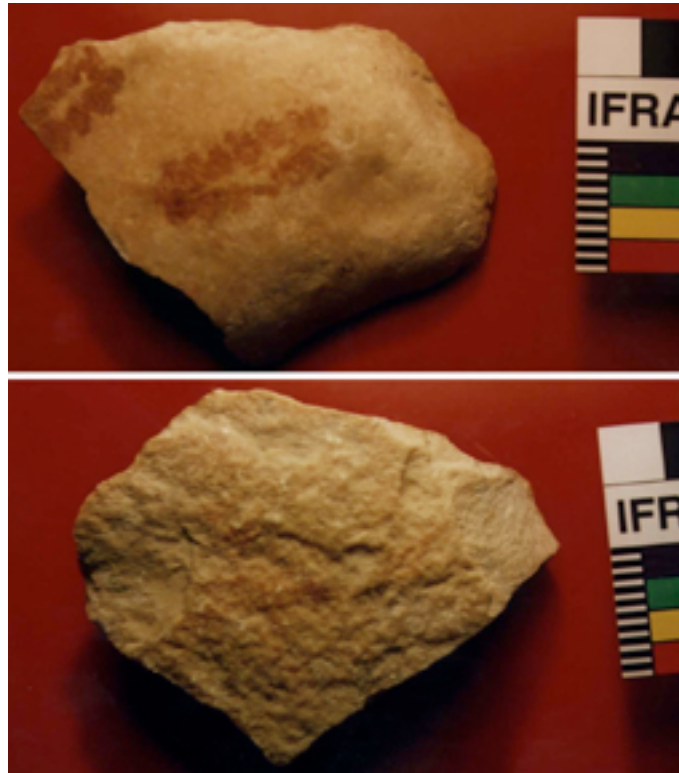
At the Hohle Fels, a series of more than ten exfoliated fragments of the cave wall bearing incised markings had been recovered by Hahn (1991, 1994; also Scheer 1994; Conard & Uerpman 2000; Holdermann 2001) and interpreted as engravings made before frost action caused the detachment of these slabs. However, a microscopic study of the corpus demonstrated that the lattice of random lines occurred on *Bärenschliffe* (polished areas of cave walls where vast numbers of cave bears had, over tens of millennia, been rubbing against the soft rock), and that the incisions were the tracks of quartz grains embedded in the shaggy furs of these animals (Fig. 1). Indeed, such incisions occur commonly on such rock-polishes, especially where they are well preserved and the sediment is coarse grained (Bednarik 2002).



**Fig. 1.** Fragment of cave bear wall polish with tracks of sand grains, mistakenly interpreted as Palaeolithic engravings, Hohle Fels, Germany.

Conard and Uerpman (1999, 2000; see also Conard & Floss 1999) reported another exfoliated rock fragment from this site, excavated in 1998. This bears some series of red paint dot patterns and was defined as the only known Pleistocene rock paintings of Germany. Again, detailed examination refuted this claim. The rock slab was found to bear numerous microscopic traces of the same red pigment on the inside, i.e. the fracture surface, clearly caused by handling the object with paint-covered hands

(Fig. 2). Therefore the intentional paint application must postdate the exfoliation event, and this is in fact a portable stone plaque (Bednarik 2002). Indeed, the Magdalenian of the region has yielded several such stone plaques with double rows of red paint dots, including those from Kleine Scheuer (Hahn & von Koenigswald 1977; Müller-Beck *et al.* 2001: Pl. 23) and Obere Klause (Obermaier 1914; Bosinski 1982), but these are all portable rather than rock art.



**Fig. 2.** Exfoliated cryoclast wall fragment, decorated with finger dots after its exfoliation, i.e. a mobiliary palaeoart object, Hohle Fels, Germany.

Two rock fragments from the Geissenklösterle have also been described as evidence of exfoliated cave art and are the basis of Bahn's listing of this site. However, the "black, yellow and red" limestone clast from the Aurignacian IIb (Hahn 1986; Müller-Beck und Albrecht 1987) bears purely natural surface deposits, as does the black-brown rock fragment from the Aurignacian IIIa stratum (Hahn 1988a, 1988b, 1988c, 1989, 1991; Richter *et al.* 2000; but see Conard und Uerpman's 2000 sceptical review). The second object bears a film of plant resin, apparently a residue of incomplete combustion, and was detached by a heat fracture (Bednarik 2002).

In Mladeč Cave, twelve red pigment markings of a total of sixteen have been suggested to be of the Upper Palaeolithic period (Oliva 1989). The cave's only anthropic evidence of the Pleistocene is attributed to the Aurignacian or Gravettian (Wild *et al.* 2005), but opinions remain divided over whether humans ever entered the cave. Some have proposed that the human skeletal remains and very sparse artefacts fell into the cave through a chimney in its roof, as did most of the Pleistocene fauna (Fig. 3). As the cave has long been fully excavated, after the main deposits were removed in the 1880s and there was extensive quarrying of the sediment to use as fertiliser, there is little certainty about its archaeological status.

Four of the red marks are inscriptions clearly dating from the early excavation history; the others consist of very simple designs that may well be location markers (four apparently coincide with the find spots of human remains). They were subjected to colorimetric and chemical analyses, suggesting they are all related to the diggings (Bednarik 2006).



**Fig. 3.** One of the red pigment marks in Mladeč Cave, Czech Republic, assumed to be Palaeolithic, but probably made in the late 19<sup>th</sup> Century to mark a find spot of human remains.



**Fig. 4.** Some of the petroglyphs in the Kienbachklamm, Upper Austria, of the Middle Ages or later.

The cave art of Bycí Skála, another Czech cave Bahn has attributed to the Upper Palaeolithic, has recently been dated to the Middle Ages by Svoboda *et al.* (2005). Other central European rock art sites falsely attributed to the Pleistocene include two occurrences in Austria (Kohl & Burgstaller 1992). They are Stubwieswipfel on the

Warscheneck mountain, and Kienbachklamm, a canyon near Bad Ischl. Both are open sites on rapidly eroding limestone. The first offers a few naturalistic animal head images, closely resembling those of Fornols-Haut (see below), while at the second, a reclining human figure, two mammoths and some stags are said to occur. Examination of the latter site reveals a typical Alpine petroglyph site of the Middle Ages or more recent times (Fig. 4) (Mandl 1996), and the described motifs consist of purely natural features (Bednarik 2009a).

## The Iberian Peninsula

The first open air rock art site assigned a Pleistocene antiquity was Fornols-Haut, Campôme, in the French Pyrenees (Bahn 1985). The reason for this attribution appears to be the style of a few animal heads, resembling chamois, as no archaeometric evidence is cited. However, in view of the high elevation of the site, which during the Final Pleistocene would have been within the periglacial zone of the Pyrenean glaciers, it seems odd that people would have even visited the site during that time.

Since then, a whole series of open petroglyph sites, in various parts of the Peninsula, have been attributed to the Upper Palaeolithic. In all cases this was initially on purely stylistic hunches, which in some cases it was later sought to reinforce with occupation evidence. Nearly all these sites have several common features that justify considering them together. Firstly, they are of percussion petroglyphs, i.e. of a technique that has typically not been used in the Franco-Cantabrian cave art. Second, these sites all occur on schist, usually in deeply cut, geologically recent valleys. Third, with a few exceptions, the animals that appear to be depicted are horses and cattle. Fourth, the fluid, accomplished artwork that is the usual hallmark of the cave art is absent in most of these depictions. There are some exceptions, but the majority of the animal figures are clumsily made, are shown in styles that are not characteristic of Franco-Cantabrian art, and in many cases the zoomorphs' identification is not possible because the images are so rudimentary. Fifth, the dominant motif type in the Franco-Cantabrian cave art are the so-called signs, geometric images of unknown significance, outnumbering the zoomorphs several times. They are completely absent at all of the open sites. Finally, these many sites are controversial because those who advocate the Pleistocene age of their contents tend to be rather emotive when their claims are subjected to testing.

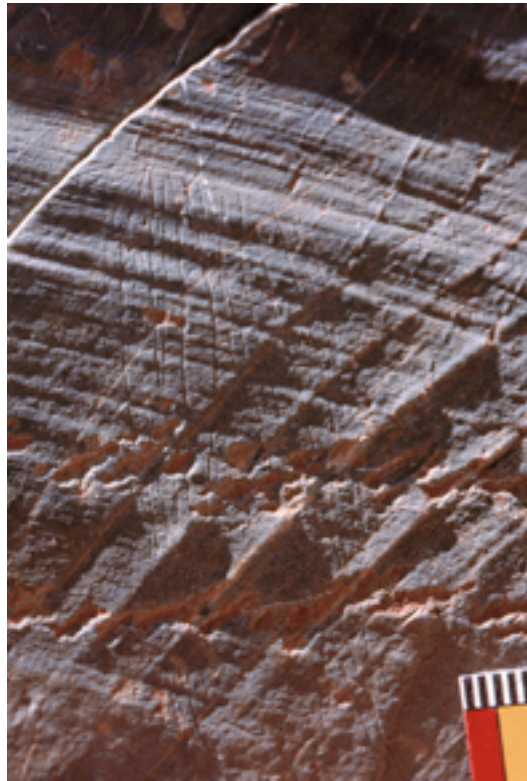
To illustrate the issues, one of the better-studied and typical sites is selected, Siega Verde near Ciudad Rodrigo in western Spain. Its several hundred petroglyphs were described as Pleistocene on the basis of perceived style alone (Balbín *et al.* 1991; Balbín & Alcolea 1994; Bahn & Vertut 1997). There is no relevant occupation evidence from the site, but it was heavily promoted for local tourism and a small museum / interpretation centre was erected on site. The location consists of a narrow valley, which the rock art shares with hundreds of inscriptions. The river, which floods regularly to a depth of 6–8 m, carries almost pure quartz sediment of all size fractions through the channel of low-grade metamorphics (schist and phyllite). The valley is spanned by a soaring stone bridge erected in 1925, amidst the petroglyphs, and it is evident that most of the rock surface modifications, including the inscriptions, were made at the time of its construction. Some of the "Palaeolithic" images were actually made of rock surfaces exposed by the bridge builders. Dated features, such as

inscriptions (Fig. 5), were used in an attempt to calibrate the Degree of Erasure within the site's flood-zone relative to time, and the findings were then applied to the similarly affected petroglyphs (Bednarik 2009b). Accordingly some of the supposedly Upper Palaeolithic petroglyphs are of the middle and even late 20<sup>th</sup> Century, and few if any should be assumed to be >200 years old. Ages of 400 years or so are probably out of the question, even for those few that are between 5m and 8m above the thalweg.



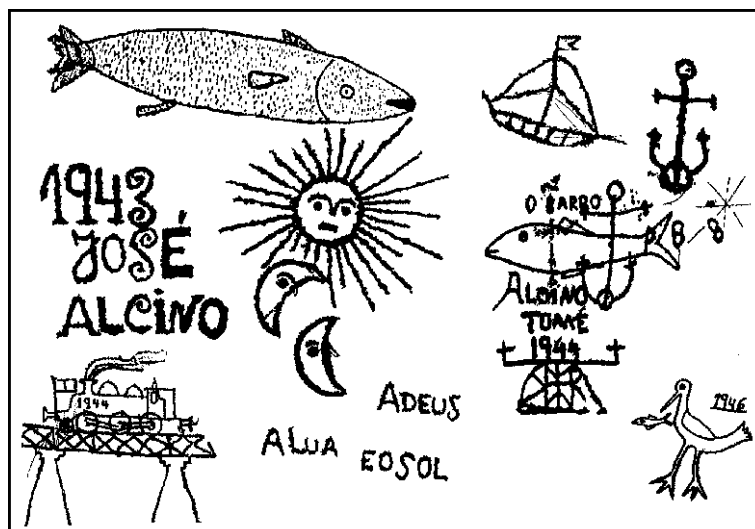
**Fig. 5.** A set of very recent inscriptions that was included in a sample to estimate the Degree of Erasure occasioned by suspended fluvial load, Siega Verde, western Spain.

This is confirmed by the former presence of a massive terrace deposit, a remnant of which has yielded a rolled Roman ceramic shard. Also, some of the "Palaeolithic" animal figures at high level, which are largely unpatinated, are superimposed over very heavily patinated linear bundles of tool marks that form no figurative elements (Fig. 6). All of these factors exclude any realistic expectation of a Pleistocene age, and the overwhelming majority of the site's markings are clearly of the 20<sup>th</sup> Century. Interestingly, when archaeologists first announced the "find", which had always been known to the local residents of nearby Castillejo de Martin Viejo, these villagers "had a good laugh" about the archaeologists: they had long known that the rock art was the work of people of recent times, including shepherds whiling their time away (Hansen 1997). There is good evidence that some of the stonemasons building the bridge may also have contributed to this veritable gallery of modern rock art.



**Fig. 6.** Part of an equine, lightly patinated percussion petroglyph claimed to be Palaeolithic, superimposed over fine linear, fully repatinated and much older engraved marks, Siega Verde, Spain.

Precisely the same geological context applies to the approximately 15 rock art sites on the lower Côa River in eastern Portugal, only about 50km from Siega Verde. Highly abrasive sediment has cut a deep channel several hundred metres into the soft metamorphics of a Pleistocene planation surface (Bednarik 1995a). The result is a very young valley, where remnants of a terrace at 40m above the present river yielded Late Pleistocene evidence (Zilhão *et al.* 1997; Aubry *et al.* 1997). Therefore the rock exposures just above the river did not exist prior to the Holocene. Yet the numerous petroglyphs in this valley have been attributed to the Pleistocene since they were reported, again on the basis of stylistic perceptions (Bahn 1995a; Zilhão 1995). As described from Siega Verde, there are again hundreds of inscriptions, often with dates, and there are numerous petroglyphs of clocks, bridges, locomotives, sailing ships and, especially, Christian motifs (Fig. 7). The dates are of the last three centuries, and often occur within metres of zoomorphs attributed to the Upper Palaeolithic, where they are much more weathered than the nearby horse and bull images. When it was pointed out that many of the supposedly Palaeolithic images dissected lichen thalli, some of the advocates of their great age removed all lichen occurrences at these sites (Jaffe 1996). Three rock art dating specialists subjected some of the sites to analysis in accordance with the conditions of a blind test, and all three produced similar results. Most of the petroglyphs are of very recent ages, a very small number may be up to mid-Holocene, but these oldest are stylistically incompatible with Palaeolithic imagery.



**Fig. 7.** Typical petroglyphs of the lower Côa sites, northern Portugal, occurring next to supposedly Palaeolithic motifs that are often less weathered or patinated.

After four years of intensive search for any Pleistocene occupation evidence in the valley, involving over sixty unsuccessful excavations, it was claimed that some supposedly Gravettian stone tools from a colluvium of one of the Côa sites, Fariseu, indicated that a panel of entirely unpatinated petroglyphs was over 21,000 years old (IPA 1999; Himmelfarb 2000). However, these strata had probably formed only in the previous 17 years, and the contents of any colluvium are obviously unrelated to the age of a sediment, or to the age of any rock art concealed by that sediment (Abreu & Bednarik 2000). Indeed, one of the horse figures on the panel concerned wears a bridle, and no archaeologist shares Bahn's (1990) views on the Pleistocene domestication of the horse and reindeer (Fig. 8).



**Fig. 8.** Petroglyphs at Fariseu, lower Côa valley, including an equine figure with a bridle, claimed to be Gravettian.

Another nearby site, but in the Douro valley, that had already earlier been claimed to be of the Pleistocene is Mazouco (Jorge *et al.* 1981). The only complete figure at that very minor site is another equine petroglyph, but this was so extensively vandalised that it is of no analytical relevance. The motif has been entirely re-engraved for better



visibility (Fig. 9). The Palaeolithic attribution of this figure had been rejected by another Portuguese researcher soon after it was reported (Baptista 1983).



**Fig. 9.** Equine petroglyph, Mazouco, Douro vally, northern Portugal, claimed to be Palaeolithic, recently re-engraved.

In contrast to the controversies surrounding the Côa and Mazouco claims, the Palaeolithic age of a few engravings in Escoural Cave in southern Portugal were widely accepted until Lejeune (1997) questioned this. Of the cave's two occupation layers, the Middle Palaeolithic is restricted to the former entrance, now collapsed, and evidence of Neolithic and Chalcolithic occupation is also largely limited to outside the cave. The cupule panels on marble exposures above the cave are probably connected with the fortified settlement of the Chalcolithic that existed there. The absence of any Upper Palaeolithic occupation is conspicuous, and the few motifs in the cave bear no stylistic resemblance to securely dated rock art of that period.

There are numerous further open schist sites in the Iberian Peninsula that have been claimed to be Upper Palaeolithic, and most are listed by Bahn (Bahn & Vertut 1997). They include Domingo García (Martín Santamaría & Moure Romanillo 1981) and the nearby sites Carbonero Mayor, Bernardos and Ortigosa (Ripoll Lopez & Muncio Ganzalez 1994); Piedras Blancas near Escullar, and Almería (Martinez 1986/87). Ocreza in Portugal, near Maçao, like some of the other sites, comprises a single image, although a few other petroglyphs in the vicinity are clearly not Palaeolithic. The headless Ocreza zoomorph lacks any indication of being of the Pleistocene and is subjected to rapid weathering and exfoliation (Fig. 10). Schist recedes at rates of between 1mm and 10mm per 1000 years (Schwegler 1995), therefore it is impossible for Pleistocene rock art to survive on exposures subjected to normal rates of weathering. Researchers who think they are finding such early rock art need to bear in mind that Pleistocene rock art can only survive in highly sheltered locations, especially in limestone caves, or at open and partially open sites on extremely weathering-resistant rocks in arid and semi-arid regions.

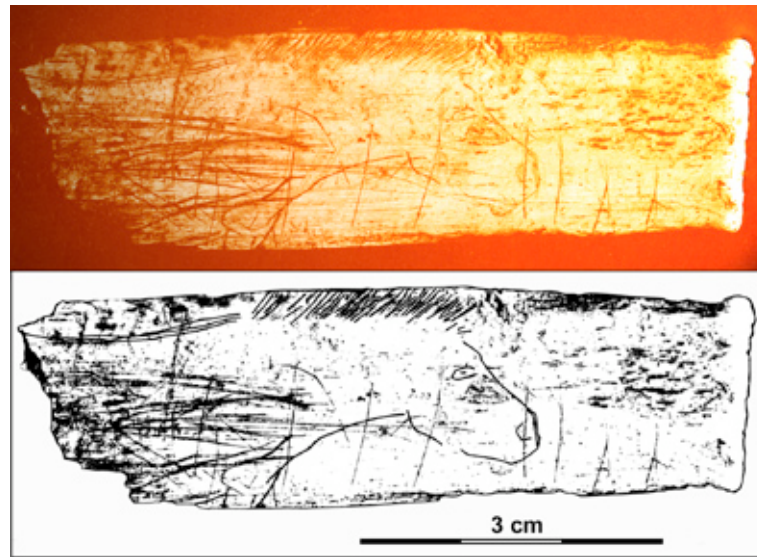


**Fig. 10.** Zoomorphic petroglyph at Ocreza, central Portugal, claimed to be of the Palaeolithic without evidence.

Of historical interest are the persistent claims that the hundreds of sites of Levantine rockshelter art in eastern Spain are Palaeolithic (Breuil 1948 et passim). There is a large corpus of publications available of this major pictogram body, placing it into every single recognised pre-Historic period of the region, ranging from the Perigordian (i.e. Châtelperronian / Gravettian) through the Upper Palaeolithic phases, the Mesolithic, the Neolithic and the Metal Ages. Today it is thought to be either Neolithic or younger, but it remains undated, and a reminder of the European predilection for falsely attributing rock art to the Pleistocene.

## Britain

There have been only a few claims of Ice Age palaeoart from Britain, most of which are surrounded by controversy. The first for rock art, in 1912, was by H. Breuil & W. J. Sollas, who thought they had found red Palaeolithic paintings in Bacon's Hole, in Wales. These turned out to be only eighteen years old. A series of portable finds has been plagued by uncertainties. An equine engraving from Robin Hood's Cave was claimed to have been planted, together with a tooth, and Dawkins (1877) and Mello (1877) disagreed publicly about the matter. The question of the object's authenticity remains unresolved (Fig. 11). A similar piece found near Sherborne and found and accepted by Smith Woodward (who was duped by the Piltdown claims), was later dated to 610 BP and is a fake (Farrar 1979; Sieveking 1980). An engraved horse mandible from Kendrick Cave is also thought to be a fake. Rogers (1981) reported in a prestigious journal the discovery of spectacular Pleistocene petroglyphs in Wye Valley, 'inlaid with green malachite'. The "rock art" was shown to consist of natural markings and the malachite was green algae (Sieveking 1982).

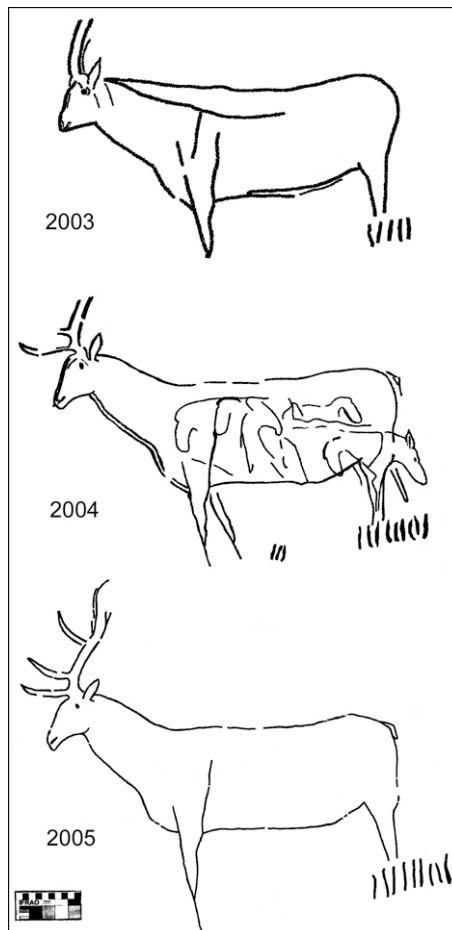


**Fig. 11.** Equine engraving on a rib fragment from Robin Hood's Cave, Creswell Crags, U.K., possibly a fake.

The "Creswellian" is thought to be about 12,000 BP, and whilst contemporary with the very final Magdalenian, its lithic typology seems to be more closely related to the Tjongerian of Holland and Belgium, the Hamburgian and subsequent Ahrensburgian of Holland and adjacent parts of Germany, and the Brommian of Denmark. These traditions are typologically almost Epipalaeolithic and already herald the appearance of the Mesolithic. The portable palaeoart from it that is acceptable, apparent body decoration items from Pin Hole Cave, Mother Grundy's Parlour (Armstrong 1925) and Church Hole Cave (Dawkins 1877), shows no typical Palaeolithic features.

Nevertheless, three petroglyphs in Church Hole were attributed to the Palaeolithic by Bahn *et al.* (2003). At a second visit of the cave they discovered another nine "Palaeolithic" figures, and a year after the first finds, thirty more (Ripoll *et al.* 2004). They objected with great indignation (Ripoll *et al.* 2005) to my observation that most of these motifs seemed to be natural features (Bednarik 2005) and increased the number of images to 90, then to about 125, claiming that Church Hole Cave "possesses the most richly carved and engraved ceiling in the whole of cave art", a veritable 'Sistine Chapel' of Palaeolithic rock art. However, their entire campaign was riddled with mistakes and inconsistencies. There is only one motif in the cave that might reasonably be perceived as "Palaeolithic", but it was incorrectly identified as an ibex (it is clearly a stag) and three totally different recordings of it were published (Fig. 12). The initial claim that Gouy in France was the northernmost Pleistocene rock art site is refuted by Bahn's own map, which shows three of his sites that are further north: Mladeč, Kapova and Ignatiev Caves (Bahn & Vertut 1997: 43). An irrelevant U/Th date of 13,000 BP was presented from speleothem not related to any claimed Palaeolithic art, ignoring that such a formation would have to be younger than the occupation evidence, and that the reliability of this method has been demonstrated to be questionable for such geologically recent features (Bednarik 1998). By 2007, the Church Hole team had split, Bahn & Pettitt (2007) blamed Ripoll for the mistakes (Montelle 2008) and the number of "Palaeolithic" motifs had plummeted to ten, of which only three are figurative. So apparently my objection, that most of the cave's "images" are in fact natural features, is now accepted, but only after great displays of

indignation. There remains, however, a deficit of credible evidence for a Pleistocene antiquity and of a credible recording of the main motif.



**Fig. 12.** Three published recordings by the same authors, Bahn, Pettitt and Ripoll, of one petroglyph in Church Hole, U.K., claimed to be Palaeolithic.

The Church Hole fiasco prompted another claim from Britain, from a cave the Church Hole team had examined without noticing the image in question. Mullan *et al.* (2006) found what they think may be an image of a mammoth, but concede that most of its outline is a natural feature. Judging by their photographs, the entire feature is non-anthropogenic.

## Conclusions

It follows that, of the sites Bahn listed in 1997 as being of Pleistocene rock art, as well as those he has since claimed to be of such age, almost all of those outside of Spain, France and Italy have been shown not to be Palaeolithic art sites, or remain controversial. In addition, all those occurring on schistose rocks and in the open have so far yielded no empirical evidence of being of the Pleistocene, and on the basis of the weathering characteristics of such soft rocks could not be of such age. This includes a series of over twenty sites in the Iberian Peninsula, where a habit has developed of pronouncing every occurrence of bull and horse images as being Palaeolithic. In short, only rock art occurring in caves within the "heartland" of the

Franco-Cantabrian traditions is currently acceptable as being securely attributed to the Pleistocene. Bahn (1993) himself has refuted the reliance on style, yet perplexingly his own attribution of all these sites is based purely on style (see also Bednarik 1995b). It is possible that some other instances, such as the stag image in Church Hole Cave, are also of such antiquity, but at this stage the inadequate and unscientific presentation of such claims and their emotive defence once they are tested render it impossible to judge such cases effectively.

I find it particularly regrettable that no open site has so far been presented that can be accepted as being of the Ice Age, because I believe that the Palaeolithic rock art of Europe is a taphonomic remnant. It survived in caves not because it was an endemic cave art, but because such sites offered adequate preservation conditions with their speleoclimate and shelter. This proposition could be tested by finding at least rare discoveries of open site occurrences of identical palaeoart. The continuing lack of credible open sites renders the taphonomic explanation of the cave art untested, and I wish someone would present a credible instance of open site Pleistocene rock art from Europe. After all, there are open site petroglyph sites of the Pleistocene at least in Africa and Australia.

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