

## SOME NEW DEVELOPMENTS IN ICE AGE ART

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*ABSTRACT.*- Recent research has considerably changed our knowledge about Cave Art. Entirely new sites have been discovered, as well as new decorated walls on previously well known caves. Modern techniques related with chronology and pigment analysis are transforming classical schemes and offer new perspectives about this subject.

*RESUMEN.*- Los estudios recientes han transformado nuestro conocimiento sobre el Arte Paleolítico. Se han descubierto nuevos yacimientos, así como paneles en cuevas ya conocidas. Las nuevas tecnologías relacionadas con la cronología y el análisis de pigmentos están cambiando los esquemas clásicos, y abren nuevas perspectivas sobre este tipo de arte.

*KEYWORDS:* Cave Art. Palaeolithic. Chronology. Pigment Analysis. Distribution. New trends.

*PALABRAS CLAVE:* Arte Rupestre. Paleolítico. Cronología. Análisis de Pigmentos. Distribución. Nuevas tendencias.

### 1. INTRODUCTION

It is now some years since I wrote a review of Ice Age imagery (Bahn & Vertut 1988), and inevitably in that time a great deal has been learned, and some major new discoveries have been made. Indeed, thanks to the introduction of detailed analysis of pigments and of direct dating, the last few years can arguably be described as the most exciting and most important phase in Ice Age art studies since the phenomenon was first discovered and authenticated. This paper will examine a few of these new developments and look at the future directions of the discipline.

### 2. NEW DISCOVERIES

New decorated caves and rock-shelters continue to be found, at a rate of about one per year. Most comprise previously unnoticed marks on the walls of well-known sites—such as Gourdan or Le Placard—while entirely new decorated sites such as the Grotte Cosquer (see Clottes, this volume) remain major exceptions. At the same time, new occurrences

of probable Palaeolithic engravings on rocks in the open air have been found in Spain (see Martínez 1992; Bahn 1992; Balbín and Alcolea, this volume).

The apparent dominance of decorated caves in the Upper Palaeolithic record is almost certainly illusory (Bahn 1993a). Just as cave-mouths and rock-shelters were merely the sites where early archaeologists could most easily discover the accumulated residues of Ice Age occupation, so these were also the places where parietal art of the period had merely survived successfully. Neither cave-dwelling nor cave-decoration is truly characteristic of the Upper Palaeolithic.

Conversely it seems probable that decoration of rock-shelters was far commoner than we suppose, even in the earliest phases of the Upper Palaeolithic, but that most of the evidence has weathered away over the millennia: this is exemplified by the abri Pataud (Dordogne) where every layer of occupation contains fallen fragments of what seems to have been a permanently painted and engraved wall and ceiling (Delluc & Delluc 1991: 206, 211). Together with the recently discovered early engravings fallen from cave walls in south-west Germany (Hahn 1991), this evidence shows that it is primarily geo-

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morphological selection rather than "cultural refugia" that determined the surviving example of cave art.

Hahn has also found a block in the Aurignacian levels of Geissenklösterle cave bearing traces of red and yellow paint (Kozłowski 1992: 41). Other possible remnants of Central European cave art have also been found in former Czechoslovakia, where Oliva encountered some "V" signs in red ochre covered by calcite on the wall of Mladec Cave, and in Hungary where some possibly Palaeolithic engraved motifs have been found on the wall of the cave of Jenő Hillebrand (*ibid.*: 41/2). The Russian cave of Ignatiev, in the Urals, has now been published more fully and contains far more images than had been first reported, including a remarkable stylised bovid and a stylised human female with 28 dots between her legs (Petrin & Sirokov 1991; Petrin 1992); if these figures can be proved to be Palaeolithic (some Ice Age occupation has been found in the cave, but that does not necessarily date these figures) they will be a remarkable addition to our knowledge of the period.

Where portable art of the period is concerned, most of the important new finds of recent years have been made in northern Spain (see Fortea, Corchón, this volume), but a special mention must be made of the remarkable female figurine found at Galgenberg, near Krems (Austria), in 1988 (Neugebauer-Maresch 1987); dating to more than 31000 years ago, it is a small, flat stone carving depicting a woman standing with one hand on the hip and the other arm folded back at the elbow. Such a lively design forms a stark contrast with the static, solid, symmetrical "venus" figurines of some millennia later, and proves once again, like the early ivory statuettes from south-west Germany, that the early Upper Palaeolithic contains some of the most startling and sophisticated imagery of the whole Ice Age. More examples of Pre-Upper Palaeolithic "art" are also accumulating, though many of them are still a source of contention. An extensive but by no means exhaustive list of the wide variety of apparently non-functional phenomena present in Middle and even Lower Palaeolithic sites has been compiled by Bednarik (1992), but since then more examples have come to light—most notably at Prolom II Cave in the Crimea (Stepanchuk 1993) where the Middle Palaeolithic layers have yielded a large series of perforated bones as well as a horse canine marked with five parallel engraved lines and a saiga phalange bearing a fan-like engraved motif.

At the same time, the list of examples of Pleistocene art in other continents (Bahn 1991a) has also expanded. In China, the first definite specimen

of Palaeolithic decoration has come to light (Bednarik & You 1991): an engraved piece of antler from Longgu Cave, dating to about 13000 years ago. In North America, AMS and cation-ratio ages have been obtained from the rock varnish covering petroglyphs, some of which are in the late Pleistocene (Whitley & Dorn 1993); a geometric pattern in Arizona gave results around 18000 BP, while a zoomorphic engraving from California was dated to around 14000 years ago. In South America, at Pedra Furada (Brazil), fallen rock paintings have been dated to between 10000 and 12000 years ago, and perhaps even to 17000, on the basis of charcoal in the same layers (Bahn 1991a: 92). Direct dating of organic carbon in a pigment ball, fashioned by humans and apparently worn as an ornament, from the Brazilian shelter of Perna (Chaffee, Hyman & Rowe 1993) gave a result of  $15250 \pm 335$  BP.

In Western Australia, a necklace of 22 small *Conus* shells, deliberately modified as beads, and dating to about 32000 years ago, has been discovered at Mandu Mandu Creek rock-shelter (Morse 1993). Dating of rock varnish covering petroglyphs—by both AMS radiocarbon and by cation-ratio—has produced startling results in South Australia, with an oval at Wharton Hill producing a result of more than 42000 years, and a complex curvilinear motif at Panaramitee North giving  $43140 \pm 3000$  years ago (Nobbs & Dorn 1993), while what may be a painting on the wall of a rockshelter in Queensland has produced a date of 24600 BP (Watchman 1993). In other words, it is becoming ever clearer that Europe was not alone in producing art during the last Ice Age. This does not diminish the importance of Europe's Palaeolithic art in any way, but sets it into a clearer context of worldwide artistic activity, some of which predates the European imagery.

### 3. THE REVOLUTION IN ANALYSIS

The techniques of modern science have recently been brought to bear on Palaeolithic art with profound consequences. Analysis of pigments had been carried out since the turn of the century, but in the past was only done in relatively crude ways which depended on chemical reaction. Today, only a tiny amount of pigment is required, and the new techniques that can be applied to it—such as scanning electron microscopy, X-ray diffraction and proton-induced X-ray emission—produce a highly detailed analysis of the paint's content. Similarly, radiocarbon dating could not be applied to cave art in the past, partly because the pigments were not

thought to contain organic material, and even if they did the amount required to produce a date would have removed entire figures. The scientific advances have not only shown that organic material (notably charcoal) was used far more often than had been thought, but also can obtain a date from a mere pinprick of pigment thanks to Accelerator Mass Spectrometry.

This kind of analysis was pioneered by Michel Lorblanchet in the Quercy and then taken up by Jean Clottes and his team in the Ariège, and subsequently elsewhere (see Clottes, this volume). The application of direct dating methods to Palaeolithic parietal decoration has only just begun, and so far has been achieved at only five sites (Cognac, Niaux, Altamira, El Castillo, Cosquer). Naturally, the technique is in its infancy and each date must be considered only tentative and imperfect. Nevertheless, one message has already emerged loud and clear from the (albeit sparse and preliminary) results obtained: the execution of the decoration in these caves was far more complex and episodic than had hitherto been supposed.

It seems that neither Breuil, who saw cave art simply as an accumulation of figures, nor Leroi-Gourhan, who saw each cave essentially as a homogeneous composition, was correct: as usual in archaeology, the truth lies somewhere between the two extremes, and the decoration of caves can be seen as an accumulation of different compositions scattered through time. Cosquer, for example, has at least two phases (Clottes *et al.* 1992). The Salon Noir of Niaux, previously thought to be extremely homogeneous, also has at least two (Clottes *et al.* 1992), while Cognac—whose famous *Megaloceros* panel was confidently thought to belong to a single phase—has at least three or four episodes spanning many millennia, with even its adjacent *Megaloceros* figures producing markedly different ages (Lorblanchet 1993).

If apparently "simple" caves like these have yielded such surprising results, it is *a priori* highly probable that the same will be true of caves with more complex decoration. Amongst the most complex is that of Lascaux, and a recent reexamination of all the evidence available about that the cave has led to a radical reinterpretation of the orthodox view (Bahn 1993b). In my opinion, the famous shaft or "Puits" constituted a separate site which was frequented somewhat later than the period of Lascaux's archaeological layer; and contrary to the view that has been accepted for the past few decades, the art of the main

cave is by no means a homogeneous whole, but belongs to a number of different periods, and perhaps even in part to the holocene. The analysis of pigments and, one hopes, direct dating of parietal figures (the huge black aurochs contain wood charcoal) are guaranteed to produce some surprises, as they have in every case so far. One can confidently predict that Lascaux's days as a homogeneous composition are numbered, and it will soon be revealed as a highly complex accumulation of compositions spanning a far longer period of prehistory than has been supposed (Bahn, *ibid.*).

An incidental but nevertheless important contribution of the new scientific techniques is that we are now better able to investigate potential fakes and either expose or authenticate them. The analysis of some pieces of dubious portable art, such as the abri Pataud "venus" or the Brassempouy head (see Bahn 1993c), is still beyond current expertise, but where parietal art is concerned, great progress has been made. It was primarily scientific analysis which confirmed the grave doubts aroused among specialists by newspaper photographs of the figures in Zubialde Cave and proved that most, if not all, its figures were of recent manufacture (Bahn *ibid.*); and equally it was scientific analysis which brought firm and final proof of the authenticity of Cosquer Cave (see Clottes, this volume). Where specific doubts linger—for example, over a handful of figures in the cave of Rouffignac (see Bahn 1993c)—such analyses and/or dating should now be able to settle the issue once and for all and either prove them to be recent or confirm their attribution to the Palaeolithic.

One overall result of the new analyses and dates—even bearing in mind their uncertainties and pitfalls—is that excessively subjective methods of dating by style alone are beginning to beat a retreat, since they are being shown to be hopelessly inadequate (Lorblanchet 1993). This is not to say that style no longer has a place in studies of Palaeolithic art—such a proposition would be absurd (see debate in Lorblanchet & Bahn 1993)—but direct dates have already demonstrated the imprecise nature of stylistic dating. Palaeolithic art is already rapidly moving away from the linear evolutive schemes of the past, as it is being realised that two very different periods or widely separated places can produce very similar styles, a single style can span a very long time and a big area and, conversely, that a single period can produce very different styles side by side, through artistic choice and development, varying function, and differing rock surfaces or location.

#### 4. NEW APPROACHES TO PALAEO-LITHIC ART

The most important development in recent years has been the creation of the "Groupe de Réflexion sur l'Art Pariétal Paléolithique", whose meetings several times per year since 1984 have led to the publication of a volume (Groupe 1993) containing an appraisal of the "state of the art": terms are defined, and the volume constitutes a collective survey of the aims and methods used at present in research on Palaeolithic cave art in France.

Individual members of the group have also continued to make contributions to specific aspects of Palaeolithic cave art. Michel Lorblanchet, for example, has carried out further experiments in replicating different kinds of figures, most recently by using the spitting technique of the Australian Aborigines to recreate the spotted horse panel of Pech Merle (Lorblanchet 1991) and a Lascaux-type bichrome horse (Johanson *et al.* 1994: 314-323). Michel Dauvois has undertaken detailed studies of several caves in terms of their acoustic properties (Dauvois & Bou-tillon 1990; Reznikoff & Dauvois 1988), finding a frequent correlation between the locations of decoration and the areas of best resonance for men's voices. More recently, Waller (1993 *a/b*) has tried to extend this idea to the content of rock art, claiming that early artists ingeniously used the caves' acoustics and echoes to conjure up the sounds made by moving herds of hoofed animals. He has found —by yelling, clapping or striking stones together— that in deep caves like Lascaux and Font de Gaume echoes in the painted chambers produce sound levels of between 23 and 31 decibels, whereas deep cave walls decorated with stealthy cats (like Lascaux's "Cabinet des Félines") produce sound levels of only 1 to 7 decibels, while undecorated surfaces are often 'totally flat'.

Some of Waller's interpretations, linking the acoustics to thundering ungulate herds or to silent carnivores, are less than convincing and fail to fit the data. Nevertheless, studies of this type are valuable in that they are trying to revive something that one might imagine gone for ever: the sound dimension that accompanied whatever rituals may have been carried out in decorated caves and rock-shelters. Naturally they can prove nothing about something so ephemeral and short-lived: but if a consistent correlation can be found between acoustic quality and 'principal decorated panels' it will certainly provide some indication that sound played an important role. In view of the obvious intelligence of the cave artists, it is extremely likely that, since they took full advantage of the morphology of the cave end especially of

particular rock shapes, they would also have utilised any acoustic peculiarities to the full.

#### 5. CONCLUSION

The immediate future will, I believe, see a concentration on the improvement of our data-base. All early finds of doubtful provenance must be checked and dated where possible; early tracings by methods more subjective than those of today must be checked and redone. The traditional assumptions that have been made, such as those concerning stylistic attribution, or the dominance of cave art, and the distribution of Palaeolithic art in Europe, are already being called into question. New finds, particularly those from pre-Upper Palaeolithic periods and from outside Europe, will increase in number and importance, so that a world-view of Pleistocene art will eventually become dominant. Although it is now 6 years since Bahn & Vertut (1988) appeared, it remains, as far as I am aware, the only book on Ice Age art to accord a chapter to finds outside Europe. Several large books on Palaeolithic art have been published in that time, both in France and Italy, yet finds outside Eurasia are not even mentioned in them.

Since the death of André Leroi-Gourhan, no new all-embracing theory has been put forward for Palaeolithic art, at least none by anyone well acquainted with the data and which therefore can be taken seriously. Attempts to resurrect old ideas of hunting magic, dressed up in the modern guise of "transmitting information about hunting" (see Bahn 1991b), are based on a good deal of wishful thinking —removing figures from their context, and setting out arguments with very poor second- or third-hand copies gleaned highly subjectively from corpses. The few figures which can be made to fit the hypothesis are so rare and unrepresentative of the whole that it is self-evident that the vast majority of Palaeolithic art has nothing whatsoever to do with hunting or teaching in such simple terms.

There is currently a tendency among those with little knowledge of Palaeolithic art to want or assume it to be useful in simple evolutionary terms, to see it as primarily functional —yet its location within the caves, its repeated patterns, and the contrasts between parietal and portable art all cry out against this. One hopes that these ideas represent the last gasp of such simplistic and erroneous views, because over the next few years the rapid accumulation of pigment analyses and of solid direct dates from many caves is going to revolutionise the subject: not only

by revealing the enormous complexity of decoration in each site, but also by enabling us to know better what was drawn in which parts of the cave and in how many episodes. It is when we have more data of that kind that it may be possible to produce the "next

big theory", though one remains sceptical whether a single theory to encompass so many millennia and so many different kinds and contexts of art is either possible or necessary any more.

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