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## THE IMPACT OF DIRECT DATING ON PALAEOLITHIC CAVE ART: LASCAUX REVISITED

**ABSTRACT:** *The "orthodox" view of the art in the cave of Lascaux is that of a homogeneous composition, spanning a few centuries at most, and dating to about 17,000 years ago. This paper undertakes a thorough and critical review of the surprisingly small number of original texts concerning the cave, and of the very limited and imperfect evidence that has led to this establishment view, and arrives at some very different conclusions regarding the alleged homogeneity and the dating. It argues instead for a multi-phase decoration spanning a long period, and involving two separate caves.*

**KEY WORDS:** *Palaeolithic – Cave art – Radiocarbon – Lascaux – Leroi-Gourhan – Chauvet*

### INTRODUCTION

The application of direct dating methods to Palaeolithic cave art has only just begun, and so far has produced results at nine sites – Cougnac, Niaux, Altamira, El Castillo, Cosquer, Chauvet, Le Portel, Pech Merle and La Covaciella (see Bahn 1996). As with radiocarbon estimates obtained from any other category of archaeological remains, there are certainly many uncertainties involved in these results, particularly those where only enough charcoal was present in a figure to provide one date (Bednarik 1994).

Most caves have produced results that are roughly compatible with what had traditionally been supposed from their style; others (notably Cougnac and Pech Merle) have produced dates that were somewhat earlier than expected, but they require only some fine-tuning of traditional sequences. The big shock has come with the very early dates from Grotte Chauvet (Clottes *et al.* 1995), where some highly sophisticated paintings, initially estimated at around 20,000 years ago, have produced dates of 30 to 32,000. To some, this has seemed not only revolutionary but also a proof that traditional ways of estimating the age of cave art are useless. To most specialists, however, the Chauvet results indicate simply that Leroi-Gourhan's sequence of four styles was fatally flawed from the start, especially in

its definition of Style I and in its supposition that Palaeolithic art progressed from something crude and primitive in the Aurignacian to the glories of the Magdalenian. He had seen an overall development from simple, archaic forms to complex, detailed, accurate figures of animals, and he treated Palaeolithic art as an essentially uniform phenomenon. Diversity was played down in favour of standardization, and the development was greatly oversimplified.

It is easy to be wise with hindsight, and to criticize such schemes now that we have more and better evidence at our disposal. Nevertheless, long before the first results from direct dating of cave art became available, many specialists had already grown dissatisfied with Leroi-Gourhan's scheme, and independently reached the conclusion that Palaeolithic art did not have a single beginning and a single climax. There must have been many of both, varying from region to region and from period to period. Within those 30,000 years or more, there must obviously have been periods of stagnation, improvement, and even regression, with different influences, innovations, experiments and discoveries coming into play. The development of Palaeolithic art was probably akin to evolution itself – not a straight line or a ladder, but a much more circuitous path, a complex growth like a bush, with occasional flashes of brilliance. Art is, after all, produced by individual art-

ists, and the sporadic appearance of genius during this timespan cannot really be fitted into a general scheme. Each period of the Palaeolithic almost certainly saw the co-existence and fluctuating importance of a number of styles and techniques (both realistic and schematic), as well as a wide range of talent and ability (not forgetting the different styles and degrees of skill through which any Palaeolithic Picasso will have passed in a lifetime). There must have been different developments at different times in different regions, and similar styles in two separate regions are not necessarily contemporaneous.

Leroi-Gourhan fully admitted that not every apparently "primitive" or "archaic" figure is necessarily old, and, conversely, that some of the earliest art would probably look quite sophisticated. Nevertheless, he failed to take full advantage of the data already available to him. As I have pointed out elsewhere (Bahn & Vertut 1988: 66, Bahn 1996), he neglected the hundreds of pieces of stratified portable art from the eastern Spanish cave of Parpalló, perhaps because they displayed a number of features that contradicted his scheme; and in particular, he was perplexed by the sophisticated ivory carvings from the South-West German Aurignacian, such as the Vogelherd animals, and placed them in his Style II, thus denying their actual provenance. But it is the very presence of sophisticated carvings like these in Germany, together with the astonishing "Dancing Venus" of Galgenberg in Austria, all of them more than 30,000 years old, which should have prepared us for the very early date and the tremendous sophistication of the Grotte Chauvet's wall art. Far from representing the early, crude fumbings of the first artists, the Aurignacian clearly displays a phenomenon that had already been in place for a very long time.

Another message which has already emerged loud and clear from the dating results (albeit sparse, preliminary and sometimes doubtful) obtained in some caves is that the execution of their decoration was probably 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 Cougnac – whose famous *Megaloceros* panel was confidently thought to belong to a single phase – may have at least three or four episodes spanning many millennia, with even its adjacent *Megaloceros* figures producing markedly different ages (Lorblanchet 1993, 1994).

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

I therefore found it worthwhile recently to take a closer look at the evidence and reasoning that lie behind the currently orthodox view, derived from Leroi-Gourhan and his school, that all of Lascaux's immense and complex decoration forms a homogeneous composition that spans a maximum of five centuries around 17,000 BP (Leroi-Gourhan & Allain 1979). This view, which had been questioned by only a handful of scholars (de Saint Mathurin 1980, Bahn & Vertut 1988: 60, Lorblanchet 1990, 1993, 1994), has had far-reaching consequences for the study of cave art as a whole, since Lascaux was one of the caves which originally inspired the important new approach adopted by Laming-Emperaire (1962: 11) and Leroi-Gourhan (1965), which suggested that works should not be studied one by one but had to be seen as compositions. My reappraisal of the available evidence has led me to somewhat different conclusions about Lascaux (Bahn 1994).

### THE QUESTION OF HOMOGENEITY

It is noteworthy that the few scholars who have actually traced Lascaux figures, thereby studying them extremely closely and at great length, all agreed that there have been multiple phases of artistic activity. Breuil was prevented by age and circumstances from undertaking the work, but despite his relatively limited close contact with the figures he variously proposed that 13, 14 or even 22 successive episodes could be discerned (e.g. Breuil 1952: 114/5). Maurice Thaon, whom Breuil initially entrusted with the task of tracing the figures, saw 9 stages (Félix 1990: 34); while the abbé Glory, who carried out a mammoth task of decipherment and study that was cut short by his death in a car crash, claimed six phases in the Hall of Bulls alone, some of them of considerable duration. He published an important paper with transparent overlays to illustrate how the decoration in the Hall was built up in different episodes (Glory 1964).

When one comes to the work of Laming-Emperaire and of Leroi-Gourhan, on the other hand, their assumption of homogeneity seems to rest on little more than subjective impressions: "Nulle part encore l'art paléolithique n'avait donné le sentiment de composition qui se dégage de cette frise de taureaux géants, de ces troupeaux errant sur les voûtes.." (Leroi-Gourhan 1948: 9). They were certainly aware of superimpositions in some parts of the cave – for example in the Apse, where the profusion of engravings lies on top of ancient paintings – but dismissed the possibility of a long span of time. Laming-Emperaire explained many of the superimpositions as preliminary sketches which had been followed by finished figures (1962: 55, 250), and in other cases – such as a superimposition of bovids over smaller horses – as a victory of the bovid clan over the horse clan (*ibid.*: 119).

She speculated (1959) that the cave's art might span perhaps 1,000 years, but Leroi-Gourhan decided from the start that only a few centuries were involved: "Entre le

début et la fin de Lascaux, quelques siècles ont pu s'écouler" (1948: 10), and this position gradually became dogma. The Sieveking, for example, stated that Lascaux "may almost be regarded as a single artistic creation" (1962: 89) with little overpainting or superposition, and "it is obvious that the decoration of the main hall, for instance, was conceived as a single unit" (1979: 118). But is it?

There is certainly what Graziosi (1960: 29, 160) called a "rhythmic distribution of masses of colour" and especially a "rhythmic sequence of enormous black bulls" facing each other in the Hall which tends to dominate what one sees there, but this does not necessarily have the slightest bearing on the other figures, their timespan or the number of artistic episodes involved. Laming-Emperaire, for example, drew attention to the symmetry of the horse head between the heads of two great bulls, and she assumed that it had been placed there after the bulls were drawn (1962: 45) – but in fact it is just as likely that the bulls were drawn to form a symmetrical composition around an already existing horse-head, a possibility that Laming-Emperaire simply dismisses. It is undeniable that the Hall and other parts of Lascaux display a decorative plan and the careful filling of empty spaces with harmonious forms, but this tells one nothing about the timespan involved. There is also a certain homogeneity of style (Leroi-Gourhan 1984: 197) with some continuity in the ways of depicting ears, hoofs, horns and so forth, but any artists intending to add to the walls would not have been blind to the figures drawn by their predecessors, and might well have learned from or been influenced by their work.

Everybody acknowledges that there are superimpositions and retouching at Lascaux – Leroi-Gourhan (1984: 190, 195) refers to their abundance, while Glory (1964: 450) specifies that there are 56 cases of superimposition in the Hall and the Axial Gallery alone which correspond to six successive layers – and the recent analysis of paint samples from various figures on the walls has confirmed the complex stratigraphy of successive applications of pigments on some depictions (Demailly 1990). But this again tells one nothing about the timeframe involved.

As will be explained below, Glory thought Lascaux was occupied for at least 4,500 years, between c. 20,000 and 15,000 years ago (Delluc & Delluc 1990: 99). But, as we have seen, the currently orthodox view is that Lascaux's decoration spans no more than a few centuries – Ruspoli (1987: 97) suggests two or three hundred years, or even just two or three generations, during which the sanctuary was decorated, frequented and abandoned. The Dellucs' conclusion (1984: 54) is: "Quelques décennies peut-être. Quelques siècles tout au plus." Leroi-Gourhan thought the occupation lasted from one to five centuries, and was followed by a swift and definitive closure of the cave, whereas Glory believed that the cave was *not* closed at the end of the Palaeolithic, but remained open until c. 8,000 years ago, when its entrance collapsed because of a temperature change or, perhaps, a volcanic eruption in the Massif Central (Félix 1990: 48/9).

Both scholars were basing their views on essentially the same scanty evidence from the cave, and it is therefore worth taking a closer look at the different types of data that provide clues to the cave's chronology. But first, one needs to examine the likely role of the *puits*, or shaft, where so much of Lascaux's material was found.

## TWO CAVES OR ONE?

In popular accounts and in references to Lascaux in the media, the site is often described as the Lascaux caves. This is wrong, since there is only one Lascaux (the modern copy, Lascaux II, being an artificial cavity). But there may, after all, be some truth in the error: one of the most intriguing features of Lascaux is the 5 m deep shaft at the end of the Apse, leading down to a small chamber containing the famous scene of the wounded bison, the bird-headed man and the rhinoceros. Many of the shaft's enigmas are resolved if it can be considered *a separate cave* and not a part of Lascaux itself. This is by no means a new idea: Ruspoli (1987: 152) mentions that "some have thought that Palaeolithic people might have entered [the shaft] from below, through another entrance which has now vanished without trace". Although some maps of Lascaux depict the shaft as no more than the end of the Apse (e.g. see Sieveking 1962: 90), more accurate and complete plans reveal the true situation (e.g. Ruspoli 1987: 98): i.e. when one is standing in the shaft one can see a passage of considerable size leading away from it. In other words, it is entirely plausible that the shaft is the far end of a different cave whose galleries and entrance are now blocked with clay and rubble.

The shaft scene was always difficult to reconcile with the main body of Lascaux: for example, the main cave does not contain a single other human or rhinoceros among its many hundreds of figures (claims for a possible rhinoceros engraving in the Cabinet des Félins are extremely dubious – see Leroi-Gourhan 1979: 338/9). Many researchers have pointed to the completely different style of the shaft's figures: in fact there are two clearly separate styles there. The rhinoceros and a horse on the opposite wall were probably done by the same hand, while the bison, the stiffly-drawn man, the "bird on a stick" and other motifs that form a scene are a separate group, having probably no connection with the rhinoceros. The Sieveking (1962: 98) somewhat idiosyncratically linked the rhino's style with that of the great bulls, but in fact the only stylistic link between the shaft and the main cave is the treatment of the bison's hoofs – though in every other respect the figure is very different to Lascaux's bison depictions (e.g. Graziosi [1960: 163] describes it as "clumsy, rigid, poorly executed with regard to proportion and volume" with a "stilted, naive manner, stylistically isolated from and opposed to the other art at Lascaux"). One further link is the three pairs of dots behind the rhino which are identical to a set of six at the far end of the Cabinet des Félins (Leroi-Gourhan 1979: 366, 1984: 195). Since the

latter seem to mark the very end of Lascaux cave, it could be argued that those in the shaft do the same for the lower cave.

The orthodox view is that the shaft was a special sanctuary for Lascaux's occupants, the most sacred part of their cave, and that they went down into it for ceremonies: hence the accumulation of archaeological material there, to which we shall return below. The problem is: how did they get there? According to Leroi-Gourhan (1984: 194) we do not know how they climbed down or how they climbed out. Laming-Emperaire (1959: 177; 1962: 262) emphasised a polished and blackened stone at the shaft's lip which, she claimed, indicated frequent passages by people. However, she also added that there was no trace of such passages on the vertical wall, and that no animal could climb that wall.

Glory's famous discovery of a 30 cm fragment of rope, only 7 or 8 mm in diameter (see Leroi-Gourhan & Allain 1979: 183), is often seen as the answer to this dilemma, and many people believe the fragment was actually found in the shaft: e.g. "It is often suggested that this rope was used by early Magdalenian people to descend to the bottom of the shaft, where they painted a hunting scene", and "found in the *puits* or well, in Lascaux Cave, the rope may have been used to descend the 10 [*sic*] feet to the bottom of the shaft" (White 1986: 47, 49). Unfortunately, the rope fragment – if that is indeed what it is – was discovered not in the shaft but in the Cabinet des Félins; it has no connection whatsoever with the shaft.

In fact, as Arlette Leroi-Gourhan (1990: 28/9) has stressed, it would have been extremely difficult for Palaeolithic people to go from the Apse into the shaft. The opening was originally very different from its present configuration, with a big plug of compact red clay at the top: the first explorers in 1940 were faced with a 2 m crawl under a 50 cm vault before descending 5 m on a rope, and they found that they dislodged lumps of clay every time. She concludes that "il est probable que fort peu de descentes se firent à l'époque magdalénienne"; and although it was possible to descend and climb out by rope – as the 1940 explorers did – it was so difficult that she feels a ladder would have been required to return from the shaft to the Apse (Leroi-Gourhan 1979: 64). One can therefore compare Lascaux and the shaft with the situation at Niaux, where the Réseau Clastres is physically joined to the main cave, and was decorated by Palaeolithic visitors. However, they did not reach it via Niaux (access was blocked by a series of lakes) but through a now vanished entrance at the other end.

In short, far from being an intensively visited sanctuary for the occupants of Lascaux, it is much more likely that the shaft formed the far end of an essentially separate cave into which Lascaux's occupants may very sporadically have descended from the Apse, but which was more usually entered horizontally from a now collapsed entrance. The two caves may overlap slightly in their utilisation – as shown by the bison hoofs and the six dots, as well as in some simple motifs engraved on portable objects found in the shaft (see below) – but their differences out-

weigh their links. This must be borne in mind when considering the archaeological evidence for Lascaux's chronology, much of which comes from the shaft rather than from Lascaux itself.

## CHRONOLOGICAL DATA

### Style

The Breuil - Thaon - Glory view of a long occupation comprising many artistic episodes was derived in large measure from Breuil's deep conviction that Lascaux's art was Perigordian in date. He based this view primarily on the hoofs of a horse engraved on a pebble from the Gravettian site of Labattut, which seemed to resemble those at Lascaux, and on the presence of twisted perspective in hoofs, antlers and horns (i.e. they are seen from the front instead of in profile like the rest of the body). However, his reasoning was not consistent, since there is wide variety in the treatment of horns at Lascaux, and in any case, as is well known, twisted perspective is found in Magdalenian depictions, such as the bison hoofs at Altamira.

Breuil did, however, believe that the two bison painted with overlapping rumps were Early Magdalenian (Delluc 1990: 96); and Séverin Blanc thought that, while some figures were Perigordian, most were Solutrean and Magdalenian. Thaon saw two red ochre drawings as being Aurignacian, and one bison engraving as pure Magdalenian, with all the rest somewhere inbetween (Félix 1990: 34). Glory believed that some traces he had found in clay – a bear-head, a fish, a hand and other marks – were very old, probably Aurignacian and certainly pre-dating 20,000 BP (1964: 451), and were followed by his six phases of painting; since the last phases were classic Magdalenian in his eyes, he concluded that the utilisation of Lascaux had lasted at least 4,500 years.

The proponents of homogeneity stressed the undeniable stylistic similarities between many Lascaux figures and the Solutrean depictions of Roc de Sers and Bourdeilles in proportions, perspective, movement and the position of limbs, and therefore placed Lascaux unequivocally in Leroi-Gourhan's Style III – i.e. the Late Solutrean/Early Magdalenian – although, significantly, Leroi-Gourhan assigned the very different shaft figures to early style IV (1965: 141). He was also aware of the existence, above the shaft's entrance, of what seem to be engraved claviform signs like those of the Tuc d'Audoubert. This posed a problem, since the claviform is thought to be a classic Magdalenian feature of caves in the Pyrenees and Cantabria. Leroi-Gourhan therefore had to suppose that Lascaux's few centuries of use ended in early style IV – i.e. creeping towards the Middle Magdalenian (1965: 257/8). It is difficult to reconcile the image of extreme homogeneity and unity of composition with figures that span a period from the Solutrean to the Middle Magdalenian! One might add that Lascaux contains other features that are usually considered characteristic of the Middle Magda-

lenian and of Leroi-Gourhan's style IV – notably the use of polychrome, and the ventral "M" mark and the double shoulder-stripe on some figures such as the famous "Chinese" horses (though the "M" mark also occurs in the Cosquer Cave, which certainly predates Lascaux's accepted age, so cannot be taken as a reliable chronological indicator).

On the basis of these features, Michel Lorblanchet (1990) has attributed Lascaux to both the Early *and* the Middle Magdalenian, and pointed out (1994) that its frontal engraving of a horse is most likely Late Magdalenian. He has also argued that hoof-shape, which has been used to ascribe Lascaux to both the Perigordian and the Magdalenian, is a poor chronological guide, since essentially identical hoof-shapes can be found in the Dordogne at abri Blanchard and at Solvieux, sites which are 10,000 years apart!

In short, style can suggest some possible dates for Lascaux – and indeed, as will be shown below, could point to an even later date for some figures – but more concrete evidence is required for a specific attribution.

### **Fauna and Flora**

The fauna depicted on the walls of Lascaux is a temperate one: horses, aurochs, bison, red deer. Even if some of the deer figures are actually reindeer, as some specialists have claimed (see Bahn & Vertut 1988: 124), the art is clearly dominated by more temperate species. Similarly, the analysis of pollen from the cave points to a temperate phase, which has been dubbed the "Lascaux Interstadial" (Leroi-Gourhan & Girard 1979), although it is admitted that the attribution of particular phases to the pollen diagram is very hypothetical (*ibid.*: 77); and in any case the validity of this Interstadial has recently been severely criticised (Sánchez Goñi 1994).

There are two major problems with the faunal data. First, the animal bones found in various places in the cave are very heavily dominated by reindeer (Bouchud 1979). One might suppose that the depictions and pollen represent the summer, and the bones the winter, but the two are difficult to reconcile: Breuil, for example, had suggested (1948) that the depictions of temperate fauna meant that Lascaux was a summer site, uninhabitable in winter, but that was before the bones had been identified! Likewise Leroi-Gourhan (1948: 11) had originally claimed that the temperate fauna pointed to either the Mid-Aurignacian or the Final Magdalenian, since there were no depictions of reindeer or mammoth; but if one supposed that it was a summer site, when the reindeer were absent, it could be attributed to somewhere between the Upper Aurignacian and the start of the Magdalenian. Since we now know that reindeer were present in the Dordogne primarily during the winter (Bahn 1977), the extreme dominance of Lascaux's fauna by their bones does not suggest that it was a summer occupation site.

The second problem is even greater: Lascaux is dominated, at least visually, by its score of great aurochs figures. But in South-West France, bones of the aurochs are

not found between the Gravettian and the Final Magdalenian (Delpech 1992: 131), so how could artists of the Early Magdalenian depict so forcefully an animal they had never seen? The art, the fauna and the pollen therefore seem very difficult, if not impossible, to fit into a single "package". Yet the orthodox view is that all of Lascaux must be assigned archaeologically to the Early Magdalenian. On what basis?

### **Archaeological evidence**

The discovery of Lascaux was marred by its terrible timing (in 1940) and by the lack of care taken in preserving any archaeological traces either on the surface or below it. The hurried postwar work to transform the cave into a tourist attraction led to the breaking of the stalagmite floor with pneumatic hammers, the clearance of all the clay along the cave's rock ledges, and the removal and dumping of 350 cubic metres of unsieved sediment from the entrance area. Glory did his best to monitor the work and extract some stratigraphic information; and he himself excavated in several places, following an early dig by Breuil and Blanc at the bottom of the shaft. However, the available evidence, so painstakingly pieced together from many sources by Arlette Leroi-Gourhan and her team (Leroi-Gourhan and Allain 1979), is sparse and of poor quality. For example, of 158 pieces of mineral pigments, only 7 have a known provenance (Couraud & Laming-Emperaire 1979).

There is a layer, some 5 to 10 cm thick, containing charcoal, flints, bones and pigments, which has been encountered in different parts of the cave beneath the stalagmite floor. However, as de Saint Mathurin has pointed out (1980: 242), the stratigraphy leaves one somewhat confused, and the correlations are not easy to follow. The cave floor was never reached, so one knows nothing of possible occupation in earlier periods.

Even allowing the existence of a single "archaeological layer", it should be noted that reindeer bones were sometimes found below it, but were assumed to have slid down from above (Arl. Leroi-Gourhan 1979: 48/9); and charcoal has also been found in a layer 6 cm below the archaeological material in the Passage, the Nave and the shaft. This has led Leroi-Gourhan (*ibid.*: 58, 72) to conclude that people did come to Lascaux, probably with torches, a few years or, at most, a few centuries before the period when the art was produced, but they did not stay in the cave or do any paintings. Allain (1979: 116) sees the occupation level itself as spanning a fairly long period of the Magdalenian since there was minimal contribution of material from the exterior, while Glory considered each centimetre of the layer to represent 10 or 12 occupations with intervening absences (Ruspoli 1987: 96).

Another important point to note is that many finds did *not* come from the cave's "archaeological layer". Leaving aside the material from the shaft for the moment, one can mention the flints said to have been found on the surface at the foot of the "Unicorn" (Delluc 1979: 31) and the

many lamps, pigment fragments and "palette" found on a clay ledge in the Nave (Arl. Leroi-Gourhan 1979: 59). Laming-Empeire reported that in 1947 one could pick up big pieces of red ochre that were emerging from the clay (1962: 265). In fact, by no means all of the pigments came from the occupation layer: some were found in a "cachette", buried deep in clay at the end of the Cabinet des Félins, while others came from the bottom of the chasm in that gallery (Couraud & Laming-Empeire 1979: 154) – the abundance of colouring materials in the latter part of the cave is strange, since it contains so few paintings.

The situation in the shaft was not improved by the fact that a great deal of sediment from the Apse (whose floor was lowered by 5 feet) was tossed down the hole by the workmen in 1947. Breuil and Blanc dug at the bottom, hoping in part to find the grave of the hunter whose unfortunate fate they supposed had been painted on the wall nearby. They found a concentration of archaeological material in a layer 5 to 15 cm thick, including a large collection of concave stones definitely brought in from outside, some of which bore black marks and were interpreted as lamps. The finds also included lots of charcoal (from conifers), flint flakes and tools, and some fine antler spearpoints, some of them decorated with engraved motifs.

Glory later dug in the shaft, and found more of the same, as well as colouring materials, shells, and also the famous sandstone lamp with lines engraved on its handle which seem to correspond to designs on the walls of Lascaux. Most scholars have assumed that the shaft was an extremely sacred place, and that all this material constitutes religious offerings. However, as shown above, it is highly unlikely that people often descended from the Apse. Could the material have simply been dropped down from above, as offerings or as refuse? It seems that its location at the bottom of the shaft, and the apparently careful layout of the lamps, precludes such an explanation (Arl. Leroi-Gourhan 1979: 64). The most plausible hypothesis, therefore, is once again that the shaft formed the far end of a different cave, and that the objects were placed there by people who used a now-concealed entrance.

The shaft contained most of Lascaux's flints and 14 of its 17 bone spear-points. Their cultural attribution is by no means straightforward. It has always been stressed that the flints were mostly run-of-the-mill, common forms – broken blades and bladelets – which made it easy for everyone to use them in support of a pet theory: Peyrony considered all the flints and all the shaft finds to be Perigordian (Leroi-Gourhan & Evin 1979: 81/2); Blanc thought them Perigordian and Early Magdalenian. Breuil said all the shaft finds were Perigordian or a very Early Magdalenian (ibid.: 82; Delluc 1979: 33). De Sonneville Bordes (1965: 177) considered Lascaux's flints to belong to the Magdalenian "sans doute moyen".

More recently, detailed comparisons have been made between the Lascaux material and the sequence from Laugerie Haute; however, when the flint tools seem to correspond, the bonework does not. The motifs on the

bone objects are clearly Magdalenian, but one cannot be more specific (they are, for example, found in the Middle Magdalenian), while the attribution of the flints to the early Magdalenian seems to rest primarily on the presence of three scalene triangles (Allain 1979: 115).

It is therefore not surprising that Hemingway was able to cast some doubt on Lascaux's status as an Initial Magdalenian site (1980: 244), emphasising that the association of the industrial material with the "Lascaux Interstadial" is by no means solid, since it depends on linking the archaeological finds – primarily from the shaft – with the pollen from the cave entrance. His own assessment of Glory's findings is that the occupation level lies above, and therefore postdates, the "Lascaux Interstadial" and that the cave's material should be seen as an "early occurrence of the Later Magdalenian". Similar uncertainties afflict the few radiocarbon dates obtained in Lascaux.

### Radiocarbon Dating

The position with regard to charcoal from Lascaux is much the same as that of its other archaeological material. Little precise information remains about its exact provenance, and boxfuls of samples have disappeared over the years.

There are three Palaeolithic radiocarbon dates from Lascaux, but only one of them comes from the main cave: charcoal from the Passage gave a result of  $17,190 \pm 140$  BP (Leroi-Gourhan & Evin 1979: 83). The two others come from the shaft and, significantly, they are both later: charcoal from among the "lamps" gave  $15,516 \pm 900$  BP, while charcoal from the archaeological layer but also from rock ledges gave  $16,000 \pm 500$  BP (ibid.).

For some reason, the proponents of the orthodox view of a homogeneous Lascaux have taken all three results and worked out a "weighted average date" of  $17,070 \pm 130$  BP for the site (ibid.). This seems an extraordinary thing to do, since the two shaft dates (spanning a period from 16,500 to 14,616 BP) fall well outside the range of the Passage date (17,330 to 17,050 BP), which helps explain the marked differences between the two places and their depictions, and casts great doubt on a total occupation of only 500 years. The Passage date is clearly crucial to those who believe in an Early Magdalenian Lascaux, but, as Hemingway (1980: 244) has pointed out, that date seems, of the three, the least well associated with archaeological material; and even if it does come from the heart of the occupation layer, "one date is no date", as Clottes has remarked in another context (1993: 21)!

It is also important to note that much Lascaux charcoal is post-glacial in date. A sample found near the entrance was dated to  $8,060 \pm 75$  BP, while charcoal found in the Passage has yielded results of  $9,070 \pm 90$  and  $8,510 \pm 100$  BP. At the far end of the Axial Gallery Glory collected a boxful of charcoal from above the Magdalenian layer, while Arlette Leroi-Gourhan found more in 1976. Both sets proved to be oak, of Holocene (Boreal) date: a sample found in the "meander" provided a result of 8,660

$\pm 360$  BP while another found below the "falling horse" gave  $7510 \pm 650$  BP (Leroi-Gourhan & Evin 1979: 83). Leroi-Gourhan believes all this charcoal to have been washed into the cave by water, from fires lit in front of the collapsed entry by Mesolithic people (1979: 70, 72), but Glory, as mentioned above, believed that the cave remained open until c. 8,000 BP. Is it conceivable, therefore, that some of Lascaux's decoration could postdate even the Magdalenian?

#### COULD SOME OF LASCAUX'S FIGURES BE POSTGLACIAL?

At first sight this may seem a heretical question. After all, everyone knows that Palaeolithic art died with the Palaeolithic. But did it? In the immediate post-Palaeolithic period, art is by no means limited to red dots or engraved lines on Azilian pebbles, as so many books have claimed. Roussot, for example, has proposed (1990) that a "style V" be added to the end of Leroi-Gourhan's sequence, to accommodate the growing number of figurative engravings being discovered from the transitional period at the end of the Ice Age; while Beltrán has pointed out (1992: 474) that many parietal figures assumed to belong to the final Magdalenian as a *datum ante quem* could in fact be younger – why should one assume there was a complete hiatus in rock art production between the Magdalenian and the Levantine art of Spain?

It is certainly true that there is very little portable art from this "hiatus period" with which parietal art might be compared, but the same, ironically, is true of the Early Magdalenian, as well as other phases of the Upper Palaeolithic. Similarly, to those who object that Lascaux's art can and should only be linked with the dated archaeological layer, it must be pointed out that some major decorated caves have no known occupation material at all (e.g. Niaux), while many others are very poor in finds, and their meagre contents tell one very little about the art's date. In other words, the presence of an archaeological layer in Lascaux indicates only that people were present in the cave and producing some art at that time – it by no means proves that everything on the walls must belong to that one period. Since the charcoal finds show that people were present in Lascaux before the occupation layer and long after it, there is no reason to exclude the possibility that all these visitors, and others who left no trace at all, might have contributed to the parietal decoration.

From the very start, Breuil stressed similarities between Lascaux's figures and Spanish Levantine art (e.g. 1948), arguing that this proved the latter to be Palaeolithic in date. There are indeed close resemblances between some of Lascaux's deer and those of some Spanish shelters such as Roca de los Moros de Calapata (Almagro 1952: 65), though the latter are much smaller; and between Lascaux's great aurochs figures and those of Levantine art, which often have horns in twisted perspective (Breuil 1952: 149). The Levantine bulls never exceed 1.15 m in size, whereas

those of Lascaux are up to 5 m; however, there are absolutely no equivalents of the Lascaux bulls in Palaeolithic art either – the biggest Rouffignac mammoths are under 2.5 m, while the Labastide horse and the biggest Altamira bison are under 2 m. In other words, contrast in size is of no relevance to this question, and the closest analogies to Lascaux's bulls are undeniably to be found in Spain. As de Saint Mathurin said (1980: 243), "A number...of Lascaux paintings and engravings...are obviously reminiscent of a more southern art."

The great Lascaux bulls are like nothing else in the whole of Palaeolithic art. It was always assumed that they were the work of a single artist, and this has been confirmed by Apellániz's analysis of their technique and shape (1984). He concludes that this artist did not make any other known drawings in Lascaux (other than a bull's head in the Axial Gallery) or indeed in France. And while Sieveking (1979: 118) believes the great bulls to be the first figures to have been drawn in the Hall, studies of superimposition using infra-red photography (Windels 1948) and experimentation with red and black pigments (Couraud & Laming-Emperaire 1979: 166) have proved that the black bulls were probably the *last* figures to be drawn here, since they clearly overlie the red bovid figures.

Could the great bulls therefore be of the same age as Levantine art? This is difficult to judge, since Breuil's derivation of Levantine art from the Palaeolithic had no archaeological basis, and similarly there was never any archaeological justification for the subsequent orthodoxy that Levantine art must be Mesolithic because it featured lots of hunting scenes and conveniently plugged the gap between the Ice Age and Neolithic art. Recent studies (e.g. Hernández Pérez *et al.* 1988) suggest that much Levantine art is actually Neolithic or even post-Neolithic in date, and that it was preceded by other styles of art. Clearly, we have much to learn about the content, styles and dating of art between the final Magdalenian and the Neolithic. However, in view of the later dates from Lascaux charcoal, the undeniable analogies between some of the cave's figures and those of Levantine art, and the utterly unique nature of the giant aurochs figures, one can speculate that a portion of Lascaux's decoration may postdate the Palaeolithic. Since analysis of a pigment sample from the hoof of one of the great bulls in the Hall has revealed the presence of wood charcoal (Demailly 1990: 109), it is to be hoped that direct dating of these enigmatic figures can be carried out in the near future. The results may well prove to be far removed from the 17,000 BP of current orthodoxy.

#### CONCLUSION

The standard view of Lascaux is that it is "a typical one-period cave", and that its "unity of decoration...suggests a short time span" (Sieveking 1979: 118/9). The cave's art and archaeological material are claimed to constitute "un tout parfaitement homogène" (Delluc 1984: 52), owing to

the unity of style in the art and the thinness of the archaeological layer. People used the cave for only a few centuries around 17,000 BP, making occasional short visits during which they produced or retouched parietal figures.

In the above paper I have tried to show that all of these claims rest on extremely shaky evidence. As de Saint Mathurin put it (1980: 243): "Does a broken fragment of the painted wall found in a clay layer of a much disturbed soil, a handful of flints and bone tools, conventional signs on one *brûloir* and one spear-head, constitute cast-iron proof that the whole art of Lascaux belongs...to the Protomagdalenian?... We have no clues to enlighten us on the time spent by the artists. These provocative statements have been forced into an oversimplification of the very few known facts. The dating of Lascaux is not yet known."

While concurring fully with this opinion, I have also suggested that the shaft constituted a separate site which was frequented somewhat later than the period of Lascaux's archaeological layer; and that 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 are guaranteed to produce some surprises, as they have in most caves 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.

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