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Palaeolithic Cave Art at Creswell Crags in European Context

Edited by
Paul Pettitt,
Paul Bahn, &
Sergio Ripoll

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EUROPEAN CONTEXT

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PAUL PETTITT, PAUL BAHN & SERGIO RIPOLL

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Prologue

Paul Pettitt

When I organized the first brief survey of selected British caves for possible art, I and the other members of the team had no idea that we would actually find any. While I agreed with Paul Bahn that it was certainly worth a try, if I were a gambling man I'd have wagered money on the fact that nothing would be found. Thankfully I am not, and I have never been so pleased to have been so wrong. Creswell was, in fact, the first port of call on an itinerary that would take us on to Cheddar Gorge, the Gower Peninsula, and Devon. My strategy involved concentrating on caves and gorges that seemed to attract relatively large amounts of activity in the Late Upper Palaeolithic. There is, of course, no compelling reason why art, if it was to be found, should be found at such places, but in the absence of any other guiding principles it seemed logical that if we stood a chance of finding any it would be maximized at places which Upper Palaeolithic hunter-gatherers knew well and appeared to return to over long stretches of time. To be honest I also fancied spending some time on the Devon coast, on Gower, and at Cheddar, and of course returning to Creswell which I had not seen for several years. At Creswell I had suggested that we concentrate our efforts in Robin Hood Cave and Mother Grundy's Parlour. These caves seem to have attracted the majority of activity of all the Creswell caves during the late Upper Palaeolithic, and it seemed a sensible enough proposition that if any of the caves were to contain art from this period it would be they. It was Brian Chambers who suggested that we also look in Church Hole while we were there, and we therefore owe our discovery to him. His enthusiasm, knowledge, and friendship subsequent to the discovery are cherished by us all. It is therefore with great pleasure that we dedicate this volume to Brian, with our gratitude and best wishes for a long and enjoyable retirement.

After the initial publication of the discovery in *Antiquity* and in the popular press, it was clear to us that two critical things need be done. First, we needed, if we could, to demonstrate the antiquity of the art independently of our stylistic arguments that it was Palaeolithic. Secondly, we needed to show the art to British and international specialists in cave art and Palaeolithic archaeology and gain their critical insights into its authenticity, antiquity, and, particularly, wider context. Thus was conceived the 'Creswell Art in European Context' conference. Our colleagues Ian Wall from Creswell Heritage Trust and Andrew Chamberlain from the University of Sheffield joined us in the

organization of the conference and were of invaluable assistance. We all agreed that this should be held in the heart of Creswell village, and that it should involve a series of evening lectures open to the public, so as to maximize local exposure and participation. These were delivered by Andrew Chamberlain, Paul Bahn, and Clive Gamble, to swelled audiences.

Contributions to the academic programme of the conference, almost all of which are represented in the papers that follow, were wide-ranging, and I refer the reader to the summary by Claire Fisher and Robert Dinnis at the end of this volume for a summary of the variegated, subtle, intricate, and at times spicy flavour of the conference. It was a shame that Michel Lorblanchet was unable to attend the conference, but Paul Bahn presented his paper and he was finally able to visit Creswell a few weeks later and spend a good deal of time on the art. We are pleased that he has contributed to the volume. Other rock art specialists attended the conference and made lively and valuable contributions to the discussions both formal and informal, and we particularly thank Andrew Lawson and John Clegg for their enthusiasm.

The conference would not have been possible were it not for a conference grant from the British Academy, funding from English Heritage and English Nature, and sponsorship from Stickynewmedia Design, Portsmouth. John Humble, English Heritage Inspector of Ancient Monuments for the East Midlands, a great friend of the Palaeolithic, has been tremendously supportive from the word go. John Barrett, head of the Department of Archaeology at Sheffield University, was greatly encouraging and Naomi Nathan provided crucial assistance in the nitty-gritty of grant administration. We warmly thank Lord Renfrew for acting as referee for the conference and Lady Renfrew for her continuing enthusiasm for Creswell.

We hoped that the conference would see not only some general consensus emerging for the nature of the art and its importance, but also lively controversy. With the subject of cave art there will always be the latter, and opinions certainly vary as to exactly how many images we have at Creswell and how best to interpret them. We were particularly struck by the friendly buzz of the conference (the all-day bar with vantage of the stage possibly helped here) and this gave speakers confidence to float ideas in an informal atmosphere. The papers in this volume, I hope, give something of a feel for what we experienced in April 2004. Above all, we hoped that other specialists might now be inspired to survey caves elsewhere in the UK for similar art, and we were pleased to hear at the conference that others had indeed taken up the challenge. This is perhaps the greatest statement one can make of the Creswell art and the conference this volume represents. It is merely the beginning.

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The Historical Background to the Discovery of Cave Art at Creswell Crags

Paul G. Bahn

INTRODUCTION: PREVIOUS CLAIMS FOR BRITISH CAVE ART

On 14 April 2003, we made the first discovery of Palaeolithic cave art in Britain. Since portable art of the period had long been known in this country (Sieveking 1972; Campbell 1977: vol. 2, figs. 102, 105, 143), it had always seemed probable that parietal art must also have existed. It was fairly obvious that paintings were unlikely to be discovered—barring the finding of a totally unknown cave or a new chamber within a known cave—since paintings tend to be quite visible, and somebody (whether owner, speleologist, or tourist) would probably have reported them by now. Engravings, in contrast, can be extraordinarily difficult to see without a practised eye, oblique lighting, and, often, a great deal of luck. Such was the purpose of our initial survey and, sure enough, we rapidly encountered engraved marks in a number of caves, which we will be investigating more fully and systematically in the near future. At the well-known sites of Creswell Crags, on the Derbyshire/Nottinghamshire border, we found both figurative and non-figurative engravings of the period.

This was third time lucky for British cave art, following two false alarms. In the first, in 1912 the abbé Henri Breuil and W. J. Sollas claimed that ten wide red parallel horizontal painted stripes under calcite in the Welsh coastal cave of Bacon Hole (east of Paviland) were ‘the first example in Great Britain of prehistoric cave painting’ (see *The Times*, 14 Oct. 1912, p. 10; Sollas 1924: 530–1; Garrod 1926: 70; Grigson 1957: 43–4); but Breuil later stated (1952: 25)

I am most grateful to Brian Chambers, Andrew Chamberlain, Nigel Larkin and Gillian Vardell for help with the documentation for this article, and to Carole Watkin for the source of Gascoyne’s phrase.

that their age could not be fixed. Subsequently, these marks rapidly faded, and are now thought to have been natural or to have been left by a nineteenth-century sailor cleaning his paint brush (Morgan 1913; Garrod 1926; Houlder 1974: 159; Daniel 1981: 81) In 1981, the *Illustrated London News* rashly published—without verification of any kind—an ‘exclusive’ claiming the discovery of Palaeolithic animal engravings in the small cave of Symonds Yat in the Wye Valley (Rogers *et al.* 1981; Rogers 1981). Subsequent investigation showed that the marks were entirely natural, and that the claim was utterly groundless (Daniel 1981: 81–2; Sieveking 1982; Sieveking and Sieveking 1981; and, for a grudging retraction, *Illustrated London News*, May 1981, p. 24).

The discovery

It had been a long-standing ambition of one of us (PB) to seek Palaeolithic cave art in Britain, since he could see no reason why it should not exist. As time passed, the project changed from the dream of one into a team of three when the other two members were invited to join: SR for his huge experience in detecting and recording Palaeolithic art, and PP for his expertise in the British Palaeolithic and familiarity with British caves. It was decided to carry out a very preliminary three-day survey in April 2003, visiting a number of the best-known caves in southern and central Britain; pure chance led the team to begin at Creswell Crags on 14 April, and through a mixture of luck and skill a number of figurative engravings were discovered that first morning, primarily in Church Hole cave, on the Nottinghamshire side of the valley.

These first figures were initially thought to be two birds and a large ibex, and were published as such (Bahn *et al.* 2003; Bahn 2003); however, these interpretations, as well as the initial sketches, were based on poor photos taken hurriedly and with inadequate lighting. It was always obvious that the situation would change with improved lighting and better access to the walls. The principal problem was that, like the other inhabited caves of Creswell Crags, Church Hole had been crudely emptied of its sediments over the course of a few weeks in the 1870s. Hence the Upper Palaeolithic floor level in the entrance chamber was about 2 metres higher than the present floor. By chance, the Victorians had left a small ledge of the palaeolithic floor sticking out on the left side as one enters, and it is quite easy to climb up onto it. This explains why so many visitors over the next century (until the cave was closed in the 1970s) climbed onto this ledge and, in their flush of triumph at such a ‘feat’, felt the need to inscribe their names or the date on the rock in front of them, not realizing that it bore ancient engravings. It was also the presence of this very ledge which enabled us to make our major discovery; for without it,

SR would not have been able to climb up to investigate the vertical line which had struck him from below as being interesting. The stag figure (originally thought to be an ibex) is only visible from the present floor level if one knows where to look and how to light it—otherwise it is quite undetectable, which of course explains why it had not been spotted before.

Some people in the recent past, however, certainly saw it. In the 1870s, when there were no graffiti on it, the figure must have been quite visible to those standing in its vicinity, even just with natural daylight. Opposite the stag is a fine graffito by J. Gascoyne (a ubiquitous presence in the Creswell caves), marked 'April 12 1870. And of such is the Kingdom of God' (a quotation from Mark 10: 14). Visitors like Gascoyne, and of course the workers who cleared out the sediments, must have seen the large stag at their eye-level, but at that time cave art had not yet been discovered—the first strong claim for its existence came in 1880, with Altamira (see Bahn and Vertut 1997: 17)—so a drawing of this kind in a cave had no significance whatsoever for anyone in the 1870s.

The incised and scraped modern graffiti on the stag, although disfiguring and annoying, nevertheless played a useful role in that some of them are dated (1948, 1957), and their brightness and sharpness form a complete contrast with the lines of the stag, which have the same patination as the rock, and hence must be considerably older. However, it seems that one visitor at least did see and identify the figure as a male goat (as we ourselves did, initially), because at some point—we estimate in the 1960s or even 1970s, going by the brightness and sharpness of the incisions—a 'beard', comprising a series of long parallel lines, was carefully engraved from its chin downwards. Had this person reported the figure, he or she could have made a great contribution to British archaeology, instead of simply vandalizing a beautiful image.

The next time in the year when all three of our team were free to resume the work at Creswell was from 25 June onwards. Immediately before our arrival on that day—now with a fourth member of the team, Francisco Muñoz—English Heritage had installed scaffolding in Church Hole, with a platform at the Upper Palaeolithic floor level. This transformed the situation, since it not only allowed us to stand back from the stag panel and view it properly (instead of clinging precariously to the rock while trying not to slip off the narrow ledge) but also gave us access to the rest of the walls and the ceiling. Immediately on arrival that day, our second major discovery was made: the bovid engraving to the right of the large stag. Today this stands over a void, but is so easily visible that we would certainly have found it on 14 April had the ledge extended to it. From the present floor level, however, the bovid, like all the other images subsequently found in the entrance chamber, is virtually invisible unless one knows it is there and can light it appropriately. As will be

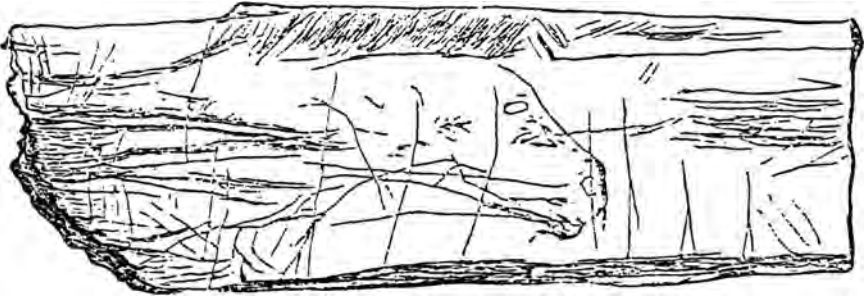


Fig. 1.1. The Robin Hood Cave horse engraving

seen below (Ripoll and Muñoz, this volume), a total of thirteen engravings were found in 2003.

Why Creswell?

One of the reasons why we included Creswell Crags on our list of caves to investigate was not only the presence there of several occupation sites of the Late Upper Palaeolithic, but also and especially the fact that Creswell caves had yielded the only known figurative portable art of the British Palaeolithic.

The first piece, the famous horse-head engraving (e.g. Dawkins 1880: 185), was found by the Revd J. M. Mello in Robin Hood Cave in July 1876, and is now housed in the British Museum. Dawkins described it (1877: 592) as

the head and fore quarters of a horse incised on a smoothed and rounded fragment of rib, cut short off at one end and broken at the other. On the flat side the head is represented with the nostrils and mouth and neck carefully drawn. A series of fine oblique lines show that the animal was hog-maned. They stop at the bend of the back which is very correctly drawn . . .

(See Fig. 1.1.). He felt that comparison with the known portable Palaeolithic horse depictions from the caves of Perigord and Kesslerloch (Switzerland) made it 'tolerably certain' that the Creswell hunters were the same as those of the continent.

However, its discovery and authenticity were seriously challenged at the time: in particular Thomas Heath, the curator of Derby Museum, published a number of pamphlets (e.g. 1880) in which he cast severe doubt on the piece as well as on a *Machairodus* tooth supposedly found by Dawkins in the same cave. A furious exchange of letters and articles in the press ensued. Heath had insinuated that the engraved bone was placed in the Creswell Crags cave by someone, having been brought from some other place. Dawkins (in Heath

1880: 5) stressed that he, unlike Heath, had been present in Robin Hood Cave when Mello made the discovery. In the course of a protracted discussion in the *Manchester City News*, a certain John Plant, FGS, of Manchester (who had visited the caves, but played no part in the excavations) stated the following:

We have now heard from both sides their versions of the incidents attending the finding of the incised 'bonelet' and of the Machairodus tooth. It appears these objects were found within four days of each other, in July, 1876. The incised bonelet was the first to be found; it was picked up in the dark Cave by Mr Mello himself, Mr Tiddiman and Professor Dawkins being present. There is no dispute about this object on either side. It is admitted to be identical in colour, style, and feature with similar engraved pieces of bone common to Cave deposits in France and Italy, and is probably a contribution of an etching of a horse from a Palaeolithic School of Art in the Caves at Perigord, to the Pre-historic Exhibition at Creswell Caves. I have seen and studied this early artistic effort of Pre-historic man, and am satisfied that it comes from a French Cave. There is no such thing yet known as a piece of bone bearing marks of intelligible ideas or natural forms from any Pleistocene deposit in the isles of Britain. The broken Machairodus tooth was next to be found by Professor Dawkins, in the presence of Mr. Heath, Mr. Hartley, and a workman. One can gather from the several reports upon these Caves . . . that, from April, 1875, to the end of the Explorations, in 1878, not less than eight thousand separate bones and Pre-historic objects were dug out of the floor deposits by the workmen at Creswell Caves—an enormous quantity it will be admitted. Yet these two specimens—the bone and tooth—are more extraordinary in every point than the whole of the eight thousand other specimens put together. Yet it fell to the happy lot, during a cursory visit to the Caves, of the Rev. J. M. Mello and Professor Dawkins, to pick them up for themselves, almost in the same spot, and within so short a time of each other. The doctrine of chances is acknowledged to be inexplicable; but to my mind this is an instance of coincidences and lucky chances beyond all precedent . . . (in Heath 1880: 22)

In short, the engraved horse came under suspicion first because no such object had been found in Britain before—but why should it not be the first?—and secondly because of its association in space and time with the even more suspicious tooth. Plant's conclusion (in Heath 1880: 24) was that 'both the tooth and the incised bone were buried in the Creswell Cave not very long before they were found, in 1876'.

In addition, Frederic Stubbs (who had worked in the cave), in a letter to the *Manchester Guardian* (Heath 1880: 33), wrote that:

Both Professor Dawkins and Mr Mello affirm that the Machairodus tooth, and the thin white bone with the scratched outline of the horse, came out of the dark cave earth, pretty near the modern surface of the Cave floor; and if so, like the other bones and objects obtained from the Cave, they ought to have been brown, much discoloured, and

stained by ages of contact with the damp earth. Instead of this, the tooth and incised bone are very pallid, dry, and white—the two exceptions out of thousands of bones.

It should be noted, however, that a later analysis of the *Machairodus* tooth strongly supported its authenticity (Oakley 1969: 42–3)—its chemical composition agreed with that of local Upper Pleistocene cave mammals, while its tiny fluorine content was markedly different from that of specimens on the continent. It may simply have been a local fossil picked up by Palaeolithic people.

Subsequently, in Dawkins's words (1925),

the Creswell horse was the first proof of the range into Britain of the wonderful art of the French Caves, and the discovery made in the seventies by myself [*sic*] was published, after a careful scrutiny by Sir John Evans, Sir Augustus Franks, Lord Avebury, General Pitt-Rivers and other leaders, in the quarterly *Journal of the Geological Society of London*. It has remained unchallenged for more than 40 years, and has passed into the literature of anthropology.

However, these words were prompted by the reappearance of the controversy, when, in an edition of his famous book *Ancient Hunters*, W. J. Sollas (1924: 530) wrote that 'There is a singular absence of any attempt at art in all the paleolithic Stations of England. The horse figured here is, I am assured, a forgery introduced into the cave by a mischievous person.'

Dawkins's reaction was swift and severe (1925), stressing that

The charge of forgery is now to be made without clear evidence. In answer to a letter asking for this, Professor Sollas writes to me that it is based on what he was told 'some years ago, I think 1919' by a clergyman since dead, who declined to give names or other particulars. This means that the charge of forgery is founded on gossip without a shred of evidence and unworthy of further notice.

Sollas (1925) himself then explained that he obtained his information from a 'conversation with the Rev. A. A. Mullins, Rector of Langwith-Basset, well known by his exploration of the Langwith Cavern, which is situated within easy reach of Cresswell Crags'. Mullins had told him that the horse engraving had been surreptitiously introduced into the cave, with more than one person having been concerned in 'this nefarious proceeding'. He had refused to name names, but assured Sollas that he spoke of his own personal knowledge. However, in the light of Dawkins's response, Sollas withdrew the statement in his book, and said he would delete the footnote at the earliest opportunity.

One of the factors which seemed to add weight to the authenticity of the horse-head at this time, and which was cited by both Dawkins and Sollas in their exchange, was the new discovery by Leslie Armstrong and G. A. Garfitt of 'incised figures of bison and reindeer' (Dawkins 1925) at Cresswell Crags,

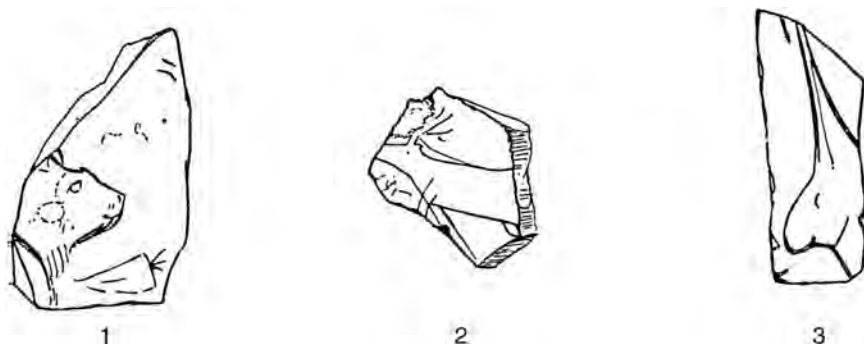


Fig. 1.2. The Mother Grundy's Parlour 'engravings'

'especially as they relieve the Aurignacian inhabitants of these islands from the unmerited reproach of an indifference to art' (Sollas 1925). The new finds, made during work carried out between June and October 1924 and first reported in *The Times* of 22 December that year, came from an excavation in front of Mother Grundy's Parlour: here, amid Palaeolithic stone and bone tools and numerous bones of Pleistocene animals, there had been found engraved bones bearing 'a spirited drawing of a reindeer, another a part of a bison with the head, and a third fragment too small for identification' (see *Nature*, 115/2879 (3 Jan. 1925), 24) (Fig. 1.2).

Armstrong's account of the excavation (1925) provided drawings and photographs of these three objects (p. 169 and pl. XXII). The reindeer is clear enough, albeit badly drawn, with its outline highlighted in Chinese white for the photograph, an unfortunate and distracting habit of Armstrong's. The 'bison head' looks extremely implausible. As for the lines on the third fragment, Armstrong has by now decided that they depict a rhino head, and he compares it with three known rhino heads from French caves. However, it looks far less plausible than even the highly dubious bison head. Interestingly, an account in *Nature* (115/2896 (2 May 1925), 658–9) revealed that, after Armstrong's paper was read to the Royal Anthropological Institute in April, a letter from Dawkins was read 'in which he entered a caveat against acceptance of the engravings on bone from Mother Grundy's Parlour as of human origin. In his opinion they were due to the action of roots.' In the ensuing discussion, Sollas had said that he had no doubt they were of human origin, while Garrod stated that 'she was authorised to say that the abbé Breuil, who had examined the fragments that day, was convinced that the reindeer, and some at least of the lines forming the figure which was thought to be a rhinoceros, had undoubtedly been engraved by man. The bison, however, was more doubtful and might possibly be due to root action.' In a later

publication, Armstrong (1927: 11) notes that Burkitt agrees fully with his own judgement of the two doubtful pieces, while Dawkins considers that the bison and the rhino muzzle are rootmarks, while everyone admits the 'rhino horn' to be the work of man.

At this point, one must state that the reindeer seems to be of human origin, albeit extremely crude; Garrod (1926: 145) says of it: 'on one [fragment] the lines are undoubtedly made by man, and may represent a cervine animal, drawn on a very small scale, with a fine, rather uncertain line.' The photograph in the British Museum's catalogue (Sieveking 1987: pl. 129) is unclear, but in the description (*ibid.* 102) it is stated that the bone bears a 'group of lightly engraved lines that can be interpreted as an animal figure (head, neck and trunk of a cervid?) facing left. The engraving is minimal, however, and the perceived animal may owe its existence to a fortuitous grouping of lines'.

Even if the 'rhino' lines were of human origin, their interpretation by Armstrong seems highly tenuous. As Garrod says, 'Mr Armstrong has deciphered a rhinoceros, but although the lines of the supposed horn are clearly and deeply incised, the line which forms the muzzle is due to the action of roots on the bone' (Garrod 1926: 145). As for the 'bison', the opinions of both Dawkins and Breuil seem very sound, and are supported by Sandra Olsen (cited in Sieveking 1987: 102). Garrod says that 'the third engraving, interpreted by Mr Armstrong as the head of a bison, is so much mixed up with lines undoubtedly caused by roots that it is difficult to decide whether it is the work of man at all' (1926: 145).

In short, therefore, Armstrong appears to have been prone to wishful thinking and overinterpretation of largely natural marks, although his deer image may possibly be acceptable. Shortly afterwards, in 1928, during excavations in Creswell's Pin Hole Cave, he discovered the famous 'Pin Hole Cave man', an engraving on a rib bone which he interpreted as 'a masked human figure in the act of dancing a ceremonial dance' (1928: 28) (Fig. 1.3). He stated that the image was discovered after the bone had its stalagmitic film removed with a solution.

At first sight, all seems well here but, as J. Cook has shown (*pers. comm.*), the Pin Hole man in fact belongs at least in part to the same category of wishful thinking, reinforced by excessive and inaccurate application of pigment. Exactly the same phenomenon had already occurred with other similar finds by Armstrong elsewhere in England before this period. The flint mines of Grimes Graves are now well established as being neolithic, but in the 1920s and 1930s some researchers believed passionately—and tried to prove—that they dated back to the Palaeolithic. In 1915, an enigmatic piece of 'flint crust', with lines cut directly into the cortex, was found by Armstrong, who was a firm believer in the site's Palaeolithic age. Another such piece was found,

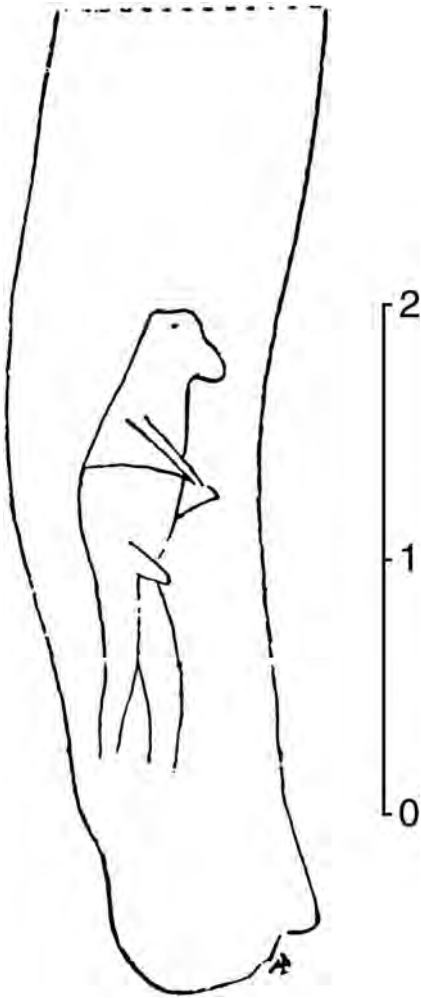


Fig. 1.3. The Pin Hole Cave anthropomorph

apparently by Peake, in 1920' Following this discovery Armstrong made sure that 'every fragment of flint crust' unearthed during the course of his excavations was duly carefully examined. Sure enough, in the days that followed, more startling discoveries were made 'a second cortex engraving . . . portrayed the head and upper torso of a horse with an "impaling arrow or lance" apparently penetrating its neck. The depictions were crude' (Russell 2000: 37–8; Armstrong 1922*a*, 1922*b*).

'Favourable comparisons were immediately made between the new discoveries and examples of Old Stone Age art from the south of France. Those who



Fig. 1.4. The Grimes Graves deer

had long argued that the British flint mines predated the Neolithic now had just the evidence they needed' (Russell 2000: 38). In 1921, Armstrong, with his colleague Dr Favell, found four more blocks of floorstone with incised representational depictions—two found by Armstrong himself featured an 'elk or hind', and 'three animal heads, two with horns, seen as deer or ox'. The other two, found by Favell, comprised an unidentified animal, and three parallel lines. Armstrong, in his report, stressed that, since the art of engraving on bone and stone has long been looked upon as a distinctive feature of late Palaeolithic times, then the finding of such items at Grimes Graves was 'of more than ordinary importance' (*ibid.*).

The pieces of engraved cortex were shown to many eminent scholars: Smith believed in them and regarded them as Palaeolithic; Reinach saw the deer as a likely forgery, while the abbé Breuil ascribed them 'to the time of the dolmens of Portugal' (Varndell 2004). One can only assume that their examination was perfunctory, since the drawings as published bore scant resemblance to true prehistoric imagery. This is especially true of the appalling deer found by Armstrong (1922*a*; see also Russell 2000: 40) (Fig. 1.4). According to Armstrong, authorities at the Natural History Museum believed this to be an elk, but Breuil was 'equally satisfied' that it was a red deer.

It is also worth stressing that Armstrong (1922*a*, 1922*b*) apparently saw no problem or contradiction in the fact that his engravings were closely

associated with what he considered to be Mousterian tools, in particular 'large Levallois flakes'.

Russell (2000) wonders who was responsible for these clumsily fabricated engravings, and he notes that only one person seems to have been present every time, over a five-year period, that such finds were made: Armstrong. He also underlines the 'urgency with which Armstrong later defended the Palaeolithic origins for the Norfolk site, and the passion with which he attacked those . . . who doubted him' (Russell 2000: 41). It is even possible that one final piece of evidence, a 'venus figurine' was planted at the site in 1939 amid increased criticism of the Palaeolithic theory—this was the famous 'chalk goddess' of Grimes Graves, found in the last shaft to be dug by Armstrong there. If this is indeed a modern fake, it is by no means clear whether Armstrong made the piece himself (especially as, by this time, he himself was starting to doubt the Palaeolithic age of the site) or was the victim of a hoax.

A new analysis by Varndell (2004) of the Grimes Graves flint crust figures has revealed that, once the Chinese white has been removed, the engraved lines are either barely visible or do not exist—Armstrong selectively joined up a variety of natural marks and scratches to produce animal figures. Such figurative engravings were only found at Grimes Graves during the Armstrong years—none has been found since.

It is unpleasant, of course, to cast aspersions on the reputation of an archaeologist who can no longer defend himself. And while Russell (2000) clearly implies that Armstrong was involved in fakery in one way or another, it is doubtless fairer and more accurate to deduce with Varndell (2004) that, where portable engravings were concerned—whether at Grimes Graves or Creswell—he was the victim of an overactive imagination, of wishful thinking, and of simply seeing things which were illusory.

Finally, it is worth noting that a further flurry of argument about the Robin Hood Cave horse head arose in 1956, when Geoffrey Grigson published an article in which he accepted the Pin Hole engraving, but resurrected the old arguments against both the *Machairodus* tooth and the horse-head engraving, declaring that the latter was clean, white, and dry, unlike the thousands of other, grubby, brown and damp bones in Robin Hood Cave (see also Grigson 1957: 33–5). He declared that the horse was genuine Upper Palaeolithic art, probably from France, and possibly bought from a continental dealer, and planted in the cave by either Mello or Dawkins. A ferocious reply from Armstrong (1956) stressed that Grigson's accusation was libellous and unsupported by a shred of evidence. But he failed to come up with any fresh insights into the problem horse. Indeed, the situation regarding that object has not changed since Garrod's astute assessment of it (1926: 129), that is, certainly not a forgery, but a possible plant:

has every appearance of being ancient. The lines are very fine, but they are not fresh, and there is no trace of the flaking of the surface which would be produced in drawing on a bone already partly fossilized. Moreover, on the opposite side of the rib there are a number of wavy lines, evidently drawn with a slightly blunted instrument, which in every way resemble those left by a flint point on fresh bone. The more general view appears to be that it is a genuine palaeolithic drawing, imported from a French site, but this seems very improbable.

Very improbable indeed, but not impossible. In short it is supremely ironic that the very objects which drew us to search Creswell Crags for cave art and to discover it there, that is, its examples of figurative Ice Age engravings, the only ones in Britain—may perhaps be a planted intrusion in one case, and illusory and non-existent in the others.

Further relevant evidence will come, of course, from the future excavation and careful sieving of the mounds of sediments lying in front of Church Hole, Pin Hole, and Robin Hood Caves at Creswell—if they are found to contain quantities of portable art missed in the 1870s, it will be very interesting; if, on the other hand, modern excavation techniques fail to find any further examples of portable art, that will be equally interesting, for very different reasons!

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The Palaeolithic Rock Art of Creswell Crags: Prelude to a Systematic Study

Sergio Ripoll and Francisco J. Muñoz

INTRODUCTION

On 14 April 2003 the sensational discovery of a series of undoubtedly Palaeolithic figures in Church Hole Cave, Creswell Crags, certainly constituted a milestone in prehistoric investigations in the United Kingdom. For various reasons, the discovery team, comprising Sergio Ripoll, Paul G. Bahn, and Paul B. Pettitt was not able to reconvene to continue the work until the end of June. At that time we incorporated Francisco J. Muñoz into the team to help us in the work of documentation and prospection. At the time of writing, we have carried out two systematic campaigns of documentation, the first in June/July 2003, and the second in March 2004. With the financial support of English Heritage, and the technical support of the Creswell Crags Interpretation Centre, we undertook the detailed examination of all the wall surfaces of the various caves in the complex of the River Meadow where it passes through Creswell Crags (Fig. 2.1; Pl. 10). In some of them, arrangements had been made for scaffolding to be installed to provide access to the highest parts of the caves, given the lowering of their floor levels over more than a century, either through more or less systematic excavations or to facilitate visits by tourists in the Victorian period.

CHURCH HOLE

Since the most spectacular figure, discovered at the start, was in Church Hole (Pl. 11), we decided to begin our systematic prospecting in that cave—from its mouth, along the left wall to the interior, as far as the far end over 75 metres

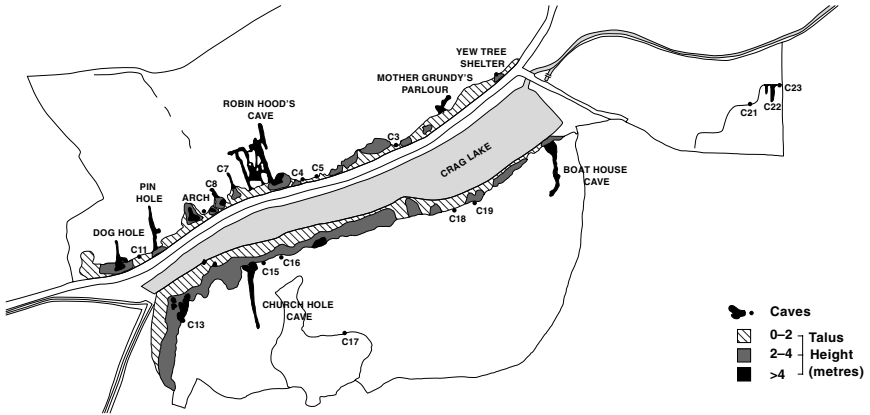


Fig. 2.1. Plan of Creswell Crags gorge showing major caves and fissures

depth, and then back again towards the exterior along the right wall. During the systematic campaign of documentation of spring 2004 we discovered new figures which have potentially increased, in our opinion, the iconographic corpus of British Palaeolithic rock art to fifty-six figures in Church Hole, one in Robin Hood Cave, and one in Mother Grundy's Parlour.

Our work centred on Church Hole Cave, making the most of the scaffolding installed for that purpose. The methodology of the study was that which we routinely employ in various caves; as mentioned above, taking a detailed look from the entrance to the back along the left wall, and then returning to the exterior along the right wall. Each of the incised elements was recorded on a plan of the cave, and physically with pieces of coloured tape to mark their location in the cavity. Later we began the systematic documentation of each of the panels. So far, we have identified a total of twelve decorated surfaces, five of them on the eastern (left) wall, and seven on the western (right) (Fig. 2.2).

Panel I

This surface is practically on the threshold of the cave, very close to the metal gate, at a height of 4.25 m above the present floor. In this zone we have identified the head of a bovid (probably aurochs, but believed to be natural by PP), facing left, which is 22 cm long by 7.5 cm wide (and a maximum between parallels of 22 cm). It has an orientation of 325° relative to the north, and a positive inclination of 57° west. Basically it seems to be a highly schematized head, but within it one can clearly distinguish the horn pointing forward, and a very elongated muzzle. It has a 'Creswell eye', and the artist also seems to have

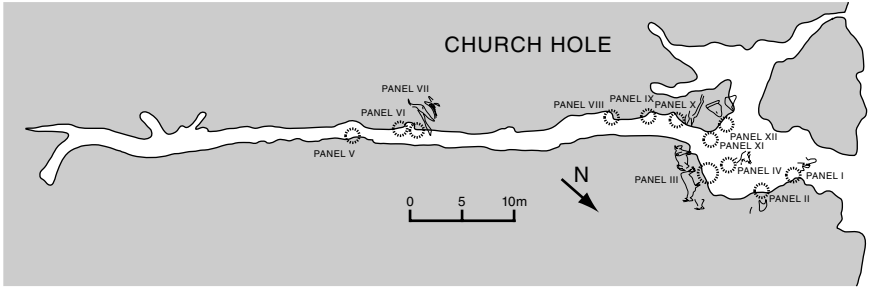


Fig. 2.2. Plan of Church Hole showing location of the engraved panels

used this technique to make the nostril. Behind the horn is the rounded ear, made with a broader incision than the rest. The dorsal line leaves from there. The groove is patinated and relatively broad (>0.8 mm) with a U-shaped section. In the area behind and above the head one can see a series of zigzag incisions with the same morphology as the zoomorphic figure, which form two clear angles.

Panel II

The second panel is also located on the left wall, about 10 m from the cave mouth, in a small niche that is 3.8 m above the present floor. The figure discovered here comprises an oval with a curved base that is 6.5 cm long by 3 cm wide with an orientation of 355° relative to the north and a positive inclination of 14° west. The groove is very superficial (<0.5 mm) with a V-shaped section, and is totally patinated. To the right of this ideomorph we have identified a series of unconnected lines.

Panel III

This is the discovery panel, which is located about 12 m from the cave mouth, and at a height of 3.7 m relative to the present floor. During our initial visit on 14 April we identified three figures here, which comprised what we thought were a large caprid and two birds. The identification and initial sketches of these three figures were based on photographs taken in something of a hurry, and for that reason they subsequently had to be revised and reinterpreted.

When we were at work on tracing this figure, we noticed the hiatus in the front of the caprid's horn and its slight inflection forwards. This fact, together with the general morphology of the head which did not conform to reality

since its jaw is far more gracile than in a caprid, led us to consider the possibility that it was not a caprid but was actually a cervid, but this needed to be proved *in situ*.

During the Creswell conference, we carried out the work of checking the tracings of the various figures that we had studied, among which is found the one that concerns us here. Up to that time, we had always illuminated it from the left, since this brought out the incised lines of the head with maximum clarity. But when we lit the horn area with a weaker light from the right we discovered that it had the point of a tine projecting forward, and which we had not spotted before because of the existence of a natural crack. Consequently, we were not dealing with two horns drawn with single lines, but the front and back lines of a stag's antler. In the closing stages of the conference we presented this discovery which was endorsed during the visit that the conference participants made to the cave.

Scientific investigation does not follow strict rules, and is subject to revisions and rectifications. The ability to rectify and recognize errors is one of the pillars that allows progress in our discipline.

Figure 1

In the left-hand zone of this third panel, we identified a small incomplete depiction of a quadruped, possibly a young stag. It faces left, and the dimensions of this figure barely attain 9 cm in length by 12 cm in width, with an orientation of 20° relative to the north and a negative inclination of 49° east. The groove, totally patinated, has a fine U-shaped section, and its width and depth are less than 1 mm.

The clearest line is that of the chest and jaw, while the groove that corresponds to the head is now covered by a superficial flow of whitish calcite, shaped like a tiny banner. It is possible that the incision of the engraving served as a duct to the fluid loaded with calcite, and that, as time passed, the spelaeothem formed this way. The horn is depicted in simple perspective; it seems to be curved backwards, and is slightly covered by the calcite flow. The ear, located behind the horn, has the shape of an open ellipse, and the cervico-dorsal line starts in the middle part of this appendage, instead of from its base. The general appearance of this small figure is quite distinct from the large stag next to it, being much more synthetic and schematic.

Therefore, and bearing in mind that the figure in question is partially hidden, and that we only have the head and foreparts (*protomos*) depicted, we think that it is more prudent to classify it as a quadruped. However, because of the horn that curves back slightly, it may perhaps be a young stag, an animal which in general until the age of four only has a straight antler without tines.



Fig. 2.3. Church Hole Panel III, the ‘stag’

Figure 2

Large cervid, previously described as a caprid (Fig. 2.3 and Pl. 12). The circumstances of this interpretation have been explained above, and here we will concentrate on its new description. It faces left, and occupies almost the whole surface available. As we have indicated before, there are specific pieces of evidence that it may have consisted in part of low bas-relief, which suggests a previous preparation of the surface, although only its state of preservation allows us to make this assumption. The figure is 58 cm long by 60 cm wide (with a maximum between parallels of 58 cm), with an orientation of 30° relative to absolute north, and a positive inclination of 6° west. It seems that the whole figure was conceived around a natural hollow which was slightly modified to make the eye. Above is the antler, in which the tines can be made out, projecting horizontally forwards with a curved point at the distal extremity—the first tine curves upwards, and on the oblique rock surface can be seen the second point which also curved upwards. The antler continues as parallel lines with some traces of rectification, and for the moment we have not been able to find the end of the antlers.

The head begins with a profoundly curved line that links it to the antler; at first it is slightly domed. The muzzle ends obliquely to depict the downturned

upper lip. Inside the head and muzzle, connected to the engraved line, one can make out a slight bas-relief, very shallow, which gives the head a certain volume. The nostril is also made with this technique, and is located inside the muzzle. The jaw is slightly inflected towards the interior, and then later returns to bend again at its junction with the chest, but penetrating slightly into the interior of the head. The various lines that make up the head give it great gracility, and also give the figure a certain dynamism.

Starting at the jaw, with a fairly deep groove, we find the line of the chest which at the junction point has a quite pronounced curve which could represent the coat or it may be an adult animal which has this characteristic fold between its front legs. Next to the line of the chest, inside the figure, just like with the head, we can make out a slight bas-relief, of modest depth, which extends down from the jaw to the front leg. As mentioned above, this gives a certain volume to the depiction. In earlier publications we stated that the figure had four limbs, but now we have discovered that the animal is depicted in simple perspective and only has two legs, while the other pair corresponds to another superimposed depiction which we shall describe at a future date. The front leg is made with two lines which converge at the extremity. The upper line penetrates the zone of the chest and is prolonged to the limit of the panel, while the line behind begins a little higher up, and goes right to the middle part of the body. This second incision, very broad (>10 mm) and not very deep (<5 mm), is what one of us (SR) saw on the first day of discovery from down below.

The belly line, sinuous and slightly domed, is complete and connects with the hind leg. In the middle area one can make out a small angle which may represent the animal's sex. The hind leg too is made with two parallel lines, but unlike those of the foreleg, they do not converge. These deep grooves are almost superimposed on the second series of parallel lines (see below). The front part of this hind leg is a sinuous incision, while the other groove is straighter as far as the hip where the group begins, a zone in which it is briefly interrupted by the existence of a natural hole. The hindquarters are difficult to follow, because there is a large scraped graffito which has profoundly damaged the figure; however, we can clearly follow the curve, and make out the small triangular tail in the upper part.

The cervico-dorsal line, which is likewise badly damaged, extends to the neck which is linked to the elliptically shaped ear. The latter element begins and ends in the interior of the neck, while the latter ends at the central rear part of the ear. The groove has an open V-shaped section, with a depth of 2 mm and a width of more than 5 mm. As can be seen, this is an exceptional figure which combines two techniques in its production.



Fig. 2.4. Church Hole Panel III, bovid, line drawing

Figure 3

Within this same panel III, we discovered a medium-sized depiction that we have identified as a bison (but see Yalden, this volume) facing right, that is, towards the interior of the cave; it is 34.5 cm long by 16 cm wide, with an orientation of 15° relative to absolute north and a positive inclination of 4° west (Pl. 4 and Fig. 2.4). The groove is totally patinated, and U-shaped in section, with a width of 3 mm and a depth of less than 1 mm.

It should be stressed again here that it was the installation of scaffolding in the cave which facilitated our access to the higher part of the walls. This bison figure is located in a zone which was simply not accessible from the rock surface during our first visit. The front part of the figure stands out clearly, with a robust, subquadrangular head, inside which one can see the 'Creswell eye', and in the upper part one can easily make out the ear and the curved horn pointing forwards. The inner part of the forequarters contains an oval outline whose function remained unknown until we could see from parallels in other caves, and from ancient illustrations, that this is a method of depicting the thick coat that covers the front part of bison.

The cervico-dorsal line can also be seen clearly, beginning at the double-lined mane, which recalls those depicted on bison at Altamira or Venta de la Perra in Spain. The back forms an angle that descends as far as the rump,

where there is an oval with some vertical lines whose meaning escapes us. In the middle part of this line, on the exterior part, there is another individualized groove which may constitute a rectification. The tail and ventral line are much clearer. The extremities have disappeared, possibly through the rubbing which this rock underwent for many years, as visitors penetrated into the narrowest part of the cave; the rock must also have been rubbed by the cattle which were sometimes kept in the cave in the nineteenth century. However, one can make out the slightly curved belly in the front part, and the beginning of the hind leg.

At the bottom of this panel can be seen a series of much broader and deeper incisions which are grouped in three series, the first of three and the second of nine grooves of distinct morphology and, finally, further to the right, three more incised lines. The length of these marks varies from 3.8 to 6.1 cm, and their width from 3 to 8 mm; they are U-shaped in cross-section, and are 3 to 4 mm deep.

Panel IV

This panel is located on the cave's ceiling, at 3.97 m above the present floor and practically opposite panel III, that is, about 12 metres from the entrance. The three figures provisionally identified here seem to correspond to a bird, a bison and a headless horse. However, a more detailed examination will doubtless reveal further images.

Figure 1

Depiction of a bird facing left (Figs. 2.5, 2.6). This figure, made in low bas-relief, is one of the most enigmatic in the assemblage, and is located on a slightly inclined plane oriented towards the left wall of the cave. This surface has been called the zone of bas-reliefs.

This bird is 34 cm long, and 13 cm high, with a maximum between parallels of 30 cm and an orientation of 180° relative to north. The figure was made with a combination of various techniques, which demonstrates the skill of the artist who made it. As with other depictions, we had already noticed the existence of human activity on this rock surface, but we were unable to discern the type of animal represented. This impossibility was caused by our looking at it from the opposite side, owing to the convenience of the scaffolding, but in reality we needed to look at the whole surface from the other direction, resting our backs on a little portion of the surface surviving from the early excavations and looking towards the right-hand wall

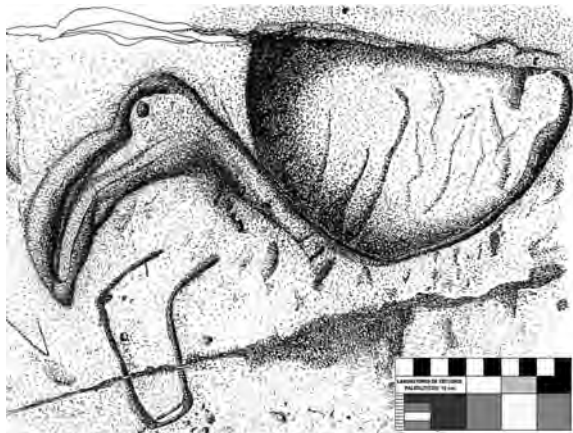


Fig. 2.5. Church Hole Panel IV, line drawing of engraving/low relief of bird



Fig. 2.6. Church Hole Panel IV, engraving/low relief of bird

of the cave. The beak, which curves downwards, stands out clearly, and was made with a low bas-relief; it ends in a point at the distal extremity, growing broader as it approaches the head. The whole surface in the immediate vicinity was clearly worked to make the beak stand out.

In the depiction of the bird, in addition to the bill one can make out the engraved globular head, inside which can be seen the circular 'Creswell eye'. Then there extends the slightly oblique neck, engraved and in slight bas-relief with lines coming together in the lower part. Here there is an element that enhances the complexity of the figure. It comprises an almost hemispherical shape, maximum length about 14 cm, with almost no anthropogenic alteration except for an engraved line which surrounds the whole curved part. The upper side of this semicircle is straight, and coincides with a wide natural crack in the

rock support. Inside this shape, there are various very superficial lines in slight bas-relief which add up to a total of nine, giving it a certain volume. We think that it represents the body of this bird, which would thus be in a seated position, either nesting or swimming. This hypothesis comes from the fact that the neck emerges from the lower part of the body, and moreover no limbs are depicted. The incision of the engraved zones is U-shaped in section, with a reduced width (<2 mm) and shallow depth (<2 mm). In the zones of slight bas-relief, it attains a depth of 12 and 14 mm.

The first impression when we identified this depiction was that it was an ibis (*Comatibis eremita*), through its general morphology with the downwards curving bill, the rounded head and the slightly fusiform body. But immediately there arose the very important question about the possibility of the presence of ibis in the Late Pleistocene of Britain.

Figure 2

A *protomos* of bison in slight bas-relief, facing left (Figs. 2.7, 2.8), but thought to be natural by PP. It is 24 cm long, 23 cm wide, and with a maximum between parallels of 20 cm. Its orientation is 255° north. This figure is apparently easy to describe because it seems clear to us that it is the head of a bison, but there are various lines which confuse and complicate this task enormously. We shall begin its description by the clearest part, that is, the head which begins at the curved brow, which then continues fairly straight into the head which broadens until it reaches the muzzle. This line, made in low bas-relief at the beginning of the head, is barely 4 mm wide and 2 mm thick, whereas in the zone of the muzzle it attains 4 mm in width and a thickness of 10 mm.

The whole front part of the head is slightly curved till it reaches the muzzle where it ends perpendicularly. A series of slight indentations inside this low bas-relief seem to indicate the nostril and nearby areas, very characteristically deep-set as occurs in adult bison. As in other figures of this group, as soon as the muzzle has curved round to begin the jaw, the depiction stops, slightly continuing upwards.

Inside the head, in a very naturalistic position, one can see the more or less triangular eye with rounded sides. The lines that make up this outline are barely 3–4 mm wide and 2–3 mm thick. In the bottom left corner we observe that this elevation is extended another 3 mm, which doubtless represents the pronounced tear-duct which is also very characteristic of bison. One could imagine that the elliptical shape to the right of the eye is the ear, but physically there is no bovid which has the ear at the level of the eye, or even slightly below it.



Fig. 2.7. Church Hole Panel IV, head of bovid (*Bison?*)

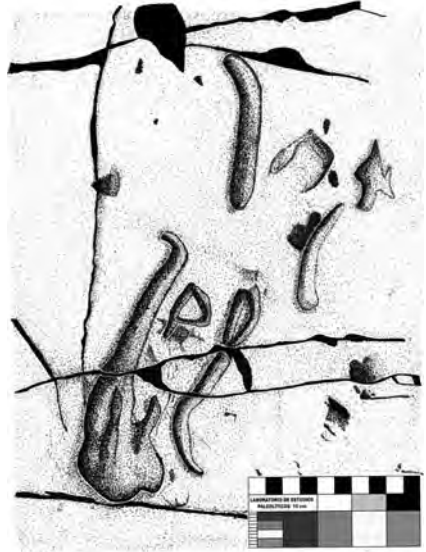


Fig. 2.8. Church Hole Panel IV, head of bovid (line drawing)

A detailed examination of the whole surface, however, showed us that from the brow there emerges a very faint engraved line that projects slightly forwards and then immediately makes a concave bend backwards forming a mane that looks horse-like. But in the culminating part of this curved line, we encounter another low bas-relief that develops vertically from the inside of the mane and projects upwards, with a pronounced curve at its distal extremity. It is the horn, projecting forward at the very top. Next to it, to the right, can be seen the quadrangular ear, open at the bottom and somewhat deformed at the upper left. From there, the engraved mane continues, and is lost beneath a band of calcite. Starting at the line of the mane, perpendicular and towards the interior, there is a series of five vertical lines which seem to give some volume to the upper part of the head. The groove of the engraved zones has an open U-shaped section, 2 mm wide and 2 mm deep.

Figure 3

The figure identified here seems to correspond to a headless horse facing right; it is 23 cm long and 9 cm wide, with a maximum between parallels of 23 cm; being on the ceiling, it has no inclination. The groove is superficial,

with a V-section, and less than 0.5 mm deep. The line of the chest is pretty clear, and continues down to the front leg, and the start of the ventral line, which disappears under a calcite concretion. One can also see the cervico-dorsal line, which does not extend as far as the rump. In front of the horse we have discerned other incisions which form the shape of a jaw, but they do not correspond to the figure's outline. The groove is superficial with a V-shaped section, and a width and depth of less than 2 mm. In the zone corresponding to the chest one can see an engraved circular line of greater width which does not seem to be associated with any figure. In this panel, located on the cave's ceiling and of a pretty large size, one can see a great quantity of engraved lines—we cannot rule out the possibility that they may comprise other naturalistic depictions and which should be checked in future surveys.

Panel V

This panel is also located on the left wall, and is the furthest inside the cave, being about 55 m from its mouth. It comprises a group of lines forming a triangle, located about 2.85 m above the present floor. They may possibly form a very schematic vulva, but we have great reservations about its antiquity. This figure is 11 cm long and 10.5 cm wide. The groove of the incision is superficial and not very patinated; it is U-shaped in section, and 3.2 mm wide. Its orientation is 167° relative to magnetic north with an inclination of 12° north. We detected other unconnected lines over the whole surface which are not very patinated, and which do not form any kind of depiction. We explored the gallery to its far end, but no further panels were found on the left wall.

Panel VI

This surface is located on the right wall of the cave, practically opposite panel V, that is, about 50 m from the entrance. One can see only two incised lines, one vertical and the other horizontal, with scant patination, which do not form any explicit depiction.

Panel VII

In the cave's inner zone, about 50 m from the entrance, on the right wall, is panel VII, which was discovered during our first visit in the spring, but our view of it has now been profoundly revised since the sketch circulated in

the press was made from one of the first photographs, and had not been checked against the original. Consequently, the supposed bird of prey has now become two bird heads. The lower one is possibly a crane (*Ardea purpurea*) because of the extended beak and the slightly domed head. The big outline in the middle is currently under study, and we have not reached a definitive conclusion about it, but it could be the head of another bird, facing downwards. We think that the last three figures, located to the right, can be identified as three anatids (geese) of different sizes, facing left. They all seem to be superimposed on each other, and the group is further complicated by another series of apparently unconnected lines. We break Panel VII down as follows (Figs. 2.9, 2.10).

Figure 1

Fusiform figure facing left, located at the extreme left of the panel, which is 17 cm long and 9 cm wide, with an inclination of 4° east and orientation of 21° relative to north. We believe that this does not correspond to any naturalistic depiction, and include it in the inventory as undetermined lines. The groove is U-shaped in section, not very wide (<1 mm) and very shallow (<1 mm).

Figure 2

Unconnected lines located in the upper left part of this Panel VII; 4.5 cm long and 2 cm wide. There are two parallel grooves which converge at the left extremity. They are barely patinated, a fact which leads us to think that they may be modern.

Figure 3

Bird with a broad neck. Fusiform figure facing left, measuring 12.8 cm in length by 2 cm in width with a maximum between parallels of 4.5 cm. The inclination is 6° east and the orientation 61° relative to north. Technically the depiction is very simple as it could be reduced to only two parallel lines that converge at both extremities, but in reality it is much more complicated. The lines of bill, straight on the left and slightly curved on the right, come together at the distal extremity and ends with a slight concavity before beginning the head which has a convex shape. Behind it there develops the broad neck which continues as two more or less symmetrical lines as far as the edge of the rock surface, where a thin calcite flow slightly covers both incisions. The groove is V-shaped in section, and is very fine (<1 mm) and superficial (<1 mm) and is patinated.



Fig. 2.9. Church Hole Panel VII, the 'birds'



Fig. 2.10. Church Hole Panel VII, the 'birds', line drawing

We have shown this panel to various specialists in avifauna (we are grateful to Anne Eastham and Antonio Sánchez Marco for their objective suggestions), and where this figure is concerned there is no unanimity. It is thought that it could be a bittern (*Botaurus stellaris*) or a heron (*Ardea purpurea*) from the family of the Ardeidae, or a crane (*Grus grus*) from the family of the Gruidae.

Figure 4

Schematic depiction of a bird facing right and downwards, which measures 14.5 cm in length, 7 cm in width, and a maximum between parallels of 11.5 cm. It has a negative inclination of 6° east and its orientation is 60° north. This figure is particularly difficult to describe since it is impossible to associate it with any image known to us, or it is depicted in such a way that it cannot be interpreted correctly. Its upper part starts with a sinuous line, convex at first and then concave, the latter being what we think represents the globular head. Inside it there is an elliptical groove which doubtless is intended to depict the eye, and from here there extends the convergent line that forms this bird's broad beak. At left, in some places the line is superimposed on, or is parallel

to the bird's bill described above. Another discontinuous incision, at first convex and then concave, ends the depiction. As we have said, it is complicated to classify this representation taxonomically, but there is no doubt that with such a broad beak it must be a grulliform or a coniform. The groove is V-shaped in section, relatively wide (<3 mm) and deep (<3 mm) and is totally patinated.

Figure 5

Further to the right one can see another series of engravings including this depiction of a bird facing left. It is 10 cm in length, 3 cm in width, with a maximum between parallels of 6 cm, with an inclination of 6° east and 60° in orientation relative to magnetic north.

The morphology of this figure differs from the two described earlier. The beak is much shorter, pointing upwards and with a rounded end, in contrast to the others which are pointed. The head, made up of a concave line, barely curves, and extends into a broad neck, comprising two parallel lines which, without joining, reach the edge of the rock surface. The lower part of the neck, with almost no inflection, again returns to the beak. Apparently it may be an anatid, possibly a swan (*Cygnus olor*), a species that is present in the archaeological record, and which currently nests in the Creswell lake. The specialists in avifauna share our opinion, although they do not favour a particular species. The groove is V-shaped in section, and in some places attains 3 mm in depth, while in others the depth surpasses 4 mm and is totally patinated.

Figure 6

Small bird facing left, superimposed on the one just described. It is 7.2 cm in length and 2 cm in width, with a maximum between parallels of 4 cm. The inclination is 2° positive east. It occupies the same area as the preceding figure, somewhat further to the right. One can make out the short beak, rounded at the end. The head is clearly globular, with a possible rectifying line or a depiction of a feather at the rear. The back part of the neck is fairly short and comprises two parallel lines, the front one being much broader, and it is superimposed over the neck of the previous figure. In this case we think that it is a smaller anatid, probably a teal (*Anas crecca*) or a common pochard (*Aythya ferina*), both species that are present in all parts of the British Isles. The groove is U-shaped in section, and is not very wide (<1 mm) and superficial (<1 mm), and is patinated.

Figure 7

Small depiction of a bird facing left, 7 cm in length and 2.5 cm in width, with a maximum between parallels of 6 cm. It is superimposed on the two previous figures, and is the smallest of the whole group. It is very similar to No. 5, except in its measurements. It is also possible that it depicts a smaller swan or, at any rate, an anatid. The incision is U-shaped in section, not very broad (<1 mm) and fairly superficial (<1 mm), and is patinated. In the upper part of the panel, located at 1.8 m above the present floor, we have identified a fusiform outline (i.e. tapering at both ends), which is 17 cm long by 9 cm wide. To its right there is another series of unconnected lines. The groove is very superficial with a depth less than 0.5 mm.

Panel VIII

This surface is located on the right wall, about 20 m from the cave entrance. It is 1.4 m above the present floor, and is 64 cm long by 143 wide, with a negative inclination of 14° west and an orientation of 301° relative to absolute north. This panel only contains unconnected incisions with a V-section, a depth of less than 1 mm, and scant patination. This is a series of linear grooves which in one case form an angle.

Panel IX

Located about 15 m from the entrance, on the right wall, and at a height of 2.6 m above the present floor. In this panel we have only detected a series of very superficial, unconnected lines with little patination, and a groove with a V-section and a depth of more than 1 mm.

Panel X

This surface is about 12 m from the entrance and quite small, being 30 cm long and 65 cm wide, at a height of 2.83 m above the present floor. It has an inclination of 4° west and an orientation of 343° relative to magnetic north. The clearest figure is an elongated form in a vertical position; it is 17 cm long and 5 cm wide. The groove is very fine, with a depth of less than 1 mm, and it is totally patinated. In the upper zone, it has a slight inflection, as does the lower part too. In the latter area, the lines come together to end as a very narrow angle. The general morphology, albeit inverted, resembles one of the

birds identified in panel VII. In the left-hand zone of the lower part is another outline with similar characteristics, although much shorter and quite small. We think that both motifs may also be bird depictions, bringing the number of birds represented in Church Hole Cave to seven.

Panel XI

In the more spacious entrance zone, about 3.8 m above the present floor, and above the opening of the lateral chamber in the right wall, is this panel on which we have only detected a series of unconnected, shallow lines with scant patina; it includes one curved line.

Panel XII

Very close to panel XI and just opposite the big stag, above the opening to the lateral chamber in the right wall, we located this last surface which contains two more ideomorphs. This surface is 3.4 m above the floor, and has an inclination of 29° north and an orientation of 357° north.

Figure 1

The first representation is a closed inverted triangle which is 7 cm long by 6 cm wide. The two lateral sides are fairly straight and converge in the lower part in a curve. The upper part is composed of two parallel lines which come together to the right. Inside it one can see four small vertical incisions. The identification of this figure as a vulva is derived from the existence of a short vertical line inside it, near the convergence of the two sides. The V-shaped groove is very fine (<1 mm), with a depth of less than 1 mm, and is completely patinated.

Figure 2

To the right of this figure, about 15 cm away, is another closed inverted triangle, slightly smaller since it is only 4.5 cm long by 5 cm wide, with a maximum between parallels of 5 cm, an inclination of 44° west and an orientation of 337° relative to north. This triangle is much more irregular than the previous one, with a fairly concave left side. In the lower part, both sides have a short pointed prolongation and, inside, in the central area,

there is an engraved open quadrangle of very small size. The V-shaped groove is very fine (<1 mm) with a depth of less than 1 mm, and it is patinated.

ROBIN HOOD CAVE

Although this is the largest cave in the whole Creswell complex, the systematic checking of all its walls has yielded practically no positively identified engravings. The fact that almost all the walls are covered with modern graffiti and marks of metal tools has posed enormous problems for the task of survey. We have only detected a figure on the right wall of the first chamber, 7.35 m from the entrance and 3.30 m above the present floor. The depiction is 16 cm long by 10 cm wide, with a maximum between parallels of 13 cm, a negative inclination of 14° east and an orientation of 355° relative to absolute north. The engraving is very fine, with a width and depth of less than 1 mm, and a V-shaped section, although in some parts it is wider and U-shaped. We think that this may be a vulva, slightly inclined to the left, and the artist has also drawn the start of the hips and the waist. Moreover, in the right-upper part of the panel we have located a total of five vertical and parallel lines, which do not form any clear depiction. Due to the absence of zoomorphic depictions in the whole cave, we have some reservations about the possible Palaeolithic age of this figure, which we shall check again *in situ*, and correlate with the similar motifs identified in Church Hole.

MOTHER GRUNDY'S PARLOUR

In this cave, in the small gallery that opens to the right of the mouth, we have found a small decorated panel. This gallery was in all probability filled with sediments, deposited after the execution of the art, which were cleared out during the excavations carried out in 1969. The panel is located on the gallery's left wall, about 15 m from the entrance of the cave, and 1.8 m above the present floor. It comprises a fine-line engraving, with a V-shaped section, whose width and depth do not exceed 1 mm. Its maximum length is 15 cm and it is 6 cm wide. Its orientation is 275° relative to absolute north, and a negative inclination of 13° east. This figure was discovered in the first visit carried out in April 2003, and was checked again in the second campaign. At first we had thought that it could be a small horse head, facing left. However, we had reservations about this zoological attribution, given the

panel's poor lighting conditions. In the second campaign of June 2003, this time with suitable equipment, we saw that it is in fact a sign formed by two planes which converge at the top to form an angle. This ideomorph, possibly a tectiform, resembles a boomerang, but the right-hand part is not closed, and is slightly wider than the left, which, in its central inner zone contains two vertical, parallel lines.

SYSTEMATIC SURVEY IN THE CRESWELL REGION

During our work in Creswell Crags we took the opportunity to explore systematically other neighbouring areas, including areas with limestone cliffs. First, we took a detailed look at the area of Markland Grips, in a zone between Clowne and Creswell, to check whether there were any caves here of sufficient size or with suitable surfaces that might contain artistic works. We observed that the base-rock, albeit a Magnesian limestone, was completely different in character from that of Creswell. Here, the limestone is totally cracked and fissured in a horizontal direction, and therefore does not allow the formation of cavities of any size, only that of small shelters of about 2 metres depth, with no flat surfaces. We also visited the limestone outcrop of Anston Stone Gorge in the valley of Lindrik (Anston), where the Palaeolithic site of Dead Man's Cave has been known since the 1930s. In this zone the situation was the same as at Markland Grips, with a base-rock that is totally weathered, and in which only small shallow shelters can be formed.

INTERPRETATION OF THE ARTISTIC COMPLEX

From the beginning we felt that we should take enormous care in interpretation, but the importance of the discovery led to the dissemination of the first images of the caprid and two birds, images which had not yet been checked *in situ*. In any case, we wish, with this paper, to continue the more accurate dissemination of the Creswell Crags engravings. Initially, we made a chronological attribution to the Creswellian, that is, between 12,500 and 12,000 BP (13,000–15,000 cal BP), which is the cultural horizon with which the depictions best fitted stylistically. But, as has been shown recently, the stylistic characteristics of particular figures do not necessarily tie them to a specific period, albeit one that is predominant in the area. The dating results from various samples of calcite flow has enabled us to shed more light on

the art's antiquity. Moreover, some researchers have mentioned the non-existence of *Bison* in the English Late Pleistocene palaeontological record, but we wonder whether this is an erroneous interpretation. In the publication by J. B. Campbell (1970) on the excavations at Creswell Crags, quite apart from the remains found in the Mesolithic level of Mother Grundy's Parlour, he says that in stratum C and D/C *Bos/Bison* sp. is present, while it is abundant in level D. In addition, W. Boyd Dawkins (1876) cites the existence in Robin Hood Cave of thirty remains (four mandibles or teeth and twenty-six bones) of *Bison priscus* in the cave's lower level, which were not introduced by hyenas (since they bear no tooth marks) but perhaps by streams. However, in the intermediate level, the same author reports the presence of six bones of this same species. One needs to take into account the fact that this stratigraphic horizon contains clear evidence of a human presence through the existence of tools. It may be true that these remains of *Bison priscus* bear no defleshing marks, and therefore did not form part of the diet of the cave's occupants, but nevertheless they clearly provide evidence of the animal's existence in this zone, and therefore of the possibility that any artist could have depicted them on the walls of Church Hole Cave. In any case, we believe that a new systematic study of all the faunal remains needs to be undertaken, applying a uniform criterion which will help to distinguish the various species present in the different caves, including, of course, all the material from the early excavations. We hope that in the near future new excavations will be undertaken that will be far more scientific and systematic than those of the nineteenth century, and will collect absolutely all the data which will certainly shed new light on this discovery which is of such importance for British rock art.

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Verification of the Age of the Palaeolithic Cave Art at Creswell Crags

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INTRODUCTION

Upon discovery of the Creswell cave art in April 2003, and a systematic survey and study of known images in June of the same year, it was believed on several grounds that the art was clearly of Pleistocene antiquity (Pettitt 2003). The reasoning was as follows:

- The sharp line and bright colour of engraved graffiti dating to the 1940s stand in clear contrast to the eroded and dulled nature of the genuine art. Clearly, on the grounds of weathering the art is not a modern forgery.
- In several places, thin flowstone crusts clearly overlay engravings, demonstrating a degree of antiquity for the art.
- The location of almost all of the art at heights considerably above the reach of an adult's arm span, given the current level of the floor in Church Hole Cave, indicates that if the engravings were made after 1876 (when the sediments were excavated down to their current levels) a ladder would have been necessary. While this cannot be ruled out, it would imply considerable effort in forging the art, certainly to avoid drawing attention to the perpetrator.
- Several images bear clear resemblances to known Upper Palaeolithic art, particularly that of the Magdalenian, both in terms of style and subject matter. By contrast, none of the art can be said to have Holocene parallels, that is, if it were Mesolithic or later, it would be unique. On the grounds of

A variant of this paper first appeared in the *Journal of Archaeological Science*. We are grateful to Creswell Heritage Trust for their kind assistance in providing access into the caves at Creswell Crags, to Jon Humble and Alex Bayliss of English Heritage for facilitating the scientific study of the Creswell art, and to the staff at the NERC U-series Facility at the Open University.

parsimony it seems that the closest estimate of antiquity therefore was Pleistocene.

- At least one of the images (the large bovid) represents a species known to be extinct in Europe, either since the seventeenth century (if identified as *Bos primigenius*) or the Late Pleistocene (if *Bison priscus*).

The discovery team were therefore confident from the first that genuine Upper Palaeolithic cave art had been discovered. This having been said, a critical reason for the 'Creswell Art in European Context' conference was to expose the art to the scrutiny of international experts in Palaeolithic archaeology and rock art, and the clear consensus of the conference delegates was that the art is genuine. The most appropriate period is that of the Creswellian, which can be dated relatively tightly in the UK to the 13th millennium (uncal) BP (see Jacobi, this volume), that is, contemporary with stylistically similar cave art of the continental Late Magdalenian. One cannot rule out that the art is older, although given the scarcity of human occupation of the UK in the Aurignacian and Gravettian, the lack of convincing stylistic parallels for the Creswell art on sites of these periods on the continent, and the relative abundance of Creswellian occupation in the UK, it was felt that the art was very likely to be of Late Magdalenian age (see Pettitt, this volume for a discussion on terminology).

This having been said, the need for independent verification of these archaeologically and stylistically based arguments was clear. With the support of English Heritage, a programme of dating of the flowstones which clearly overlay some of the engravings was carried out, with the aim of establishing a *terminus ante quem* for the art. The project has been successful in doing so for three separate images and, given this, we feel it is highly likely that all of the identified art is of similar, pre-Holocene, antiquity.

DATING CAVE ART

Establishing the age of rock art is usually considerably more complicated than dating materials from archaeological layers. These complications arise because of the difficulty in confirming the association between the artefact (in this case, the art) and the material being dated. For a well-sealed archaeological layer it is often accepted that dates from one or two bones, or fragments of charcoal, or better still a sequence of dates above and below the relevant deposit provide an age or age-range for the other artefacts in the layer. In exceptional circumstances decorated blocks become detached from

the walls and ceilings of caves and rockshelters, and are incorporated into datable archaeological sediments, such as with the Solutrean sculpted panel from Le Roc de Sers (Tymula 2002). In the vast majority of cases, however, engraved or painted rock art is seldom part of a depositional sequence and thus it is extremely rare that the age can be as well constrained. Dates of 'rock varnish', weathering rinds, or calcite deposits that overlie the art can only provide minimum ages, whereas radiocarbon dating of the pigments can only provide a maximum age, that is, the date of the production of the charcoal. Potentially the time delay between the preparation of a pigment (e.g. the growth of a tree and the preparation of the wood to a charcoal-based pigment) can be assumed to be insignificant, but the use of old charcoal cannot be ruled out (e.g. see Pettitt and Bahn 2003). Furthermore, the dating techniques themselves have potential inaccuracies. With the very small quantities of carbon available from rock art, contamination of radiocarbon samples is a big issue. Other methods for example, cation-ratio dating (e.g. Nobbs and Dorn 1988), are affected by factors such as the average temperature, which at best can only be estimated.

Even when it can be assumed that the dating methods are chronometrically accurate, the relationship between the material dated and the art itself must be completely secure. The date of a calcite layer only provides a minimum age for the art if it overlies the art and is not in potential contamination with earlier flowstones. In the case where the art was made on already deposited calcite and subsequently covered by further calcite, it may not be possible to remove samples from only those layers above the art, and thus a date for the calcite will not relate to the date of the art. It may seem a trivial assumption that a black charcoal-based pigment comprising part of a figurative depiction has an obvious temporal relationship to the figure, but the possibility of retouching, overdrawing, or later deposition of soot from lamps may complicate the picture. Attempts to date rock art, therefore, must proceed with caution, using only the securest samples and controlling for contamination. They should certainly be regarded as developmental, and not routine, chemistry.

Inaccuracies in dating may go undetected or may be in obvious conflict with the stylistic interpretation or the archaeology in the immediate vicinity. In the case of conflict it would be a circular argument to rely entirely on the stylistic attribution of a date over absolute dating methods, but nor should we ignore stylistic interpretation simply because we have absolute dating methods.

The rock art at Creswell takes the form of engravings directly into the limestone bed-rock, and there is a lack of datable pigment that one might obtain from painted panels. Fortunately, a number of the images were overlain by thin veneers of precipitated calcite (flowstone) which is datable

by uranium-series (U-series) disequilibrium dating. In April 2004 a number of samples were taken with this aim in mind, which should establish a minimum age for the underlying art, given that the flowstone accumulated some time after the art was produced. Here, we present the results of this project.

U-SERIES DATING

The disequilibrium of ^{238}U and its long-lived radioactive decay products ^{234}U and ^{230}Th can be used to date precipitated calcite such as flowstones and stalagmites, back to about 500 ky BP (e.g. Richards and Dorale 2003). A radioactive disequilibrium occurs in aqueous precipitates because of the relative insolubility of Th, whereby U is co-precipitated (e.g. with calcite) in great excess over ^{230}Th . The date since formation of the calcite can be derived from in-growth of radiogenic ^{230}Th as the radioactive equilibrium is slowly re-established, although disequilibrium between ^{234}U and ^{238}U needs to be measured and accounted for. An additional problem is the incorporation of detrital material (e.g. sediments) into the precipitating calcite. Detritus brings with it U and ^{230}Th , usually leading to over-estimated U-series dates. However, measurements of common thorium (^{232}Th) are used to detect the presence of detritus. Where the detrital $^{230}\text{Th}/^{232}\text{Th}$ can be well characterized, usually from the insoluble residues from leached calcite or sediments, a correction can be applied (e.g. Schwarcz and Latham 1989). Alternatively, the measured U-series isotopic ratios on isochronous samples that are contaminated to different degrees can yield a corrected age (e.g. Ludwig 2003).

The interstratification of rock art and flowstone has been used to verify the authenticity of Palaeolithic cave art, for example in the Grande Grotte and Grotte du Cheval at Arcy-sur-Cure, France (Liger 1995). Actual verification of the age of the art by dating of flowstone remains rare, however. One example of such, using U-series dating of calcite, has provided minimum dates for cave paintings at Covalanas, Cantabria, Spain (Bischoff *et al.* 1999). It is imperative that the stratigraphic relationship between the bed-rock, the art, and the calcite deposit is secure for the resulting U-series dates to be meaningful. At Church Hole and Robin Hood Cave there are several motifs that are clearly incised into the bed-rock, with subsequent thin flowstone formation partially covering the engravings. Three areas where this stratigraphic relationship is unambiguously represented were sampled for U-series dating (Fig. 3.1): the vertical 'Notches' below the Stag (Panel III) and the 'bird/female' forms (Panel VII) in Church Hole, and the 'vulva' in Robin Hood cave. Calcite

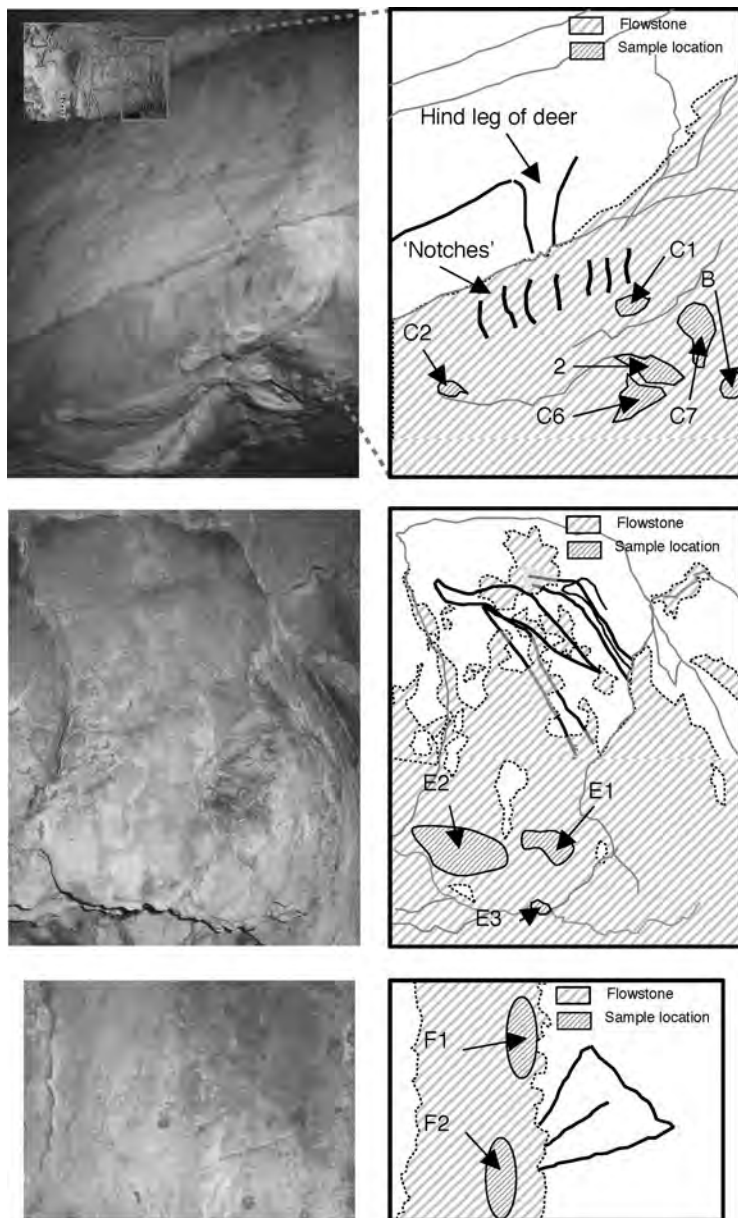


Fig. 3.1. Sketches showing sample locations for the 'notches' and 'birds/females' in Church Hole and for the 'vulva' in Robin Hood Cave

samples were removed by manually scraping the thin (0.5–2 mm) layers of calcite in shallow spits. The calcite–bed-rock junction was clearly represented by their contrast in colours, and the last aliquot, which might contain a mixture of the bed-rock with calcite, was discarded. Thicker samples (>2 mm) and small stalagmites were removed using a coring drill.

U-series measurements were made using a standard total dissolution procedure for carbonates (e.g. Edwards *et al.* 1987). Insoluble residue, usually representing silicate detritus, was decanted and dissolved in hydrofluoric acid before being recombined with the leachate. Thus, the results represent the combined U-series isotopes from the precipitated calcite and exogenous detritus.

All the samples have $^{230}\text{Th}/^{232}\text{Th} < 20$, indicating relatively high levels of detrital thorium, which is not uncommon in young samples. High levels of detrital contamination such as this will result in apparently older ages unless a correction is applied. Isochronous samples could not be guaranteed in such thin calcite, so a detrital correction was applied using the measured ^{232}Th and ^{238}U concentration in leached sediments collected from the cave. We correct using a molar $^{232}\text{Th}/^{238}\text{U}$ value of 3.8 ± 0.5 calculated from the 2-sigma variation in four separate samples from the cave (Table 3.1). This value encompasses the Th/U ratio of the Earth's upper continental crust which has a range of 3.6–3.8 (Taylor and McLennan 1995; Wedepohl 1995). There is a large variation between the four detritus samples, but the errors that arise from this variation are propagated to the corrected dates.

The detritally corrected and uncorrected U-series results are shown in Table 3.2. It can be seen that the effect of detrital correction is very marked when the $^{230}\text{Th}/^{232}\text{Th}$ is low, indicating more detrital contamination. There is considerable variation in the corrected U-series dates between different samples from each location (Table 3.2, Fig. 3.2). This reflects a multi-phase development of the flowstones. In general the thicker flowstones and stalagmites (e.g. samples CHC-B,C1,C7, E3, RHC-F1, F2) gave younger dates which would be consistent with an increase in calcite precipitation in the last few

Table 3.1. U-series results from leached insoluble detritus collected from Church Hole

Detritus	$^{234}\text{U}/^{238}\text{U}$ (activity ratio)	$^{232}\text{Th}/^{238}\text{U}$ (molar ratio)
	0.567 ± 0.0058	4.120 ± 0.10
	0.770 ± 0.0081	3.940 ± 0.11
	1.194 ± 0.012	3.602 ± 0.009
	1.197 ± 0.012	3.667 ± 0.007
<i>Mean</i> $\pm 2\sigma$	0.932 ± 0.631	3.800 ± 0.5

Table 3.2. U-series results from Church Hole and Robin Hood Cave

Sample name	U(ppm)	$^{234}\text{U}/^{238}\text{U}$	$^{230}\text{Th}/^{234}\text{U}$	$^{230}\text{Th}/^{232}\text{Th}$	Uncorrected Age (ky)	Corrected Age (ky) ^a	
<i>Flowstone overlying 'notches', Church Hole</i>							
CHC-2 top	<i>Thin layer under overhang</i>	0.6177 ± 0.0013	1.0845 ± 0.0074	0.1214 ± 0.0028	12.4 ± 0.38	14.12 ^{+0.35} _{-0.35}	13.02 ^{+0.42} _{-0.39}
CHC-B	<i>Small stalagmite under overhang</i>	0.4977 ± 0.0008	1.0798 ± 0.0066	0.0485 ± 0.0013	2.702 ± 0.097	5.43 ^{+0.16} _{-0.16}	3.29 ^{+0.38} _{-0.38}
CHC-C1	<i>Small stalagmite on lip of overhang</i>	0.8532 ± 0.0019	1.0700 ± 0.0077	0.0129 ± 0.0003	3.187 ± 0.107	1.42 ^{+0.04} _{-0.04}	0.85 ^{+0.1} _{-0.1}
CHC-C2	<i>Small stalagmite on lip of overhang</i>	0.5168 ± 0.0011	1.0775 ± 0.0087	0.0911 ± 0.0020	2.049 ± 0.061	10.43 ^{+0.24} _{-0.24}	5.4 ^{+0.91} _{-0.86}
CHC-C6	<i>Thin layer under overhang</i>	0.5117 ± 0.0011	1.0967 ± 0.0080	0.0844 ± 0.0015	7.535 ± 0.198	9.63 ^{+0.19} _{-0.19}	8.33 ^{+0.28} _{-0.29}
CHC-C7	<i>Thick deposit under overhang</i>	0.4892 ± 0.0013	1.0800 ± 0.0101	0.0462 ± 0.0011	7.999 ± 0.259	5.17 ^{+0.13} _{-0.13}	4.47 ^{+0.18} _{-0.17}
<i>Flowstone overlying 'birds', Church Hole</i>							
CHC-E1	<i>Thin layer below 'birds'</i>	1.0177 ± 0.0031	1.2805 ± 0.0102	0.1914 ± 0.0037	2.392 ± 0.064	23.02 ^{+0.50} _{-0.50}	14.4 ^{+1.7} _{-1.6}
CHC-E2	<i>Thin layer below 'birds'</i>	1.2202 ± 0.0028	1.2907 ± 0.0091	0.1487 ± 0.0033	2.405 ± 0.073	17.49 ^{+0.43} _{-0.43}	10.9 ^{+1.2} _{-1.2}
CHC-E3	<i>Small stalagmite below birds</i>	1.6365 ± 0.0054	1.2922 ± 0.0093	0.0614 ± 0.0017	6.858 ± 0.248	6.91 ^{+0.20} _{-0.20}	5.97 ^{+0.25} _{-0.25}
<i>Flowstone overlying 'vulva', Robin Hood Cave</i>							
RHC-F1	<i>Thick layer above 'vulva'</i>	0.6174 ± 0.0015	1.2343 ± 0.0107	0.0846 ± 0.0035	2.151 ± 0.106	9.63 ^{+0.42} _{-0.42}	5.2 ^{+0.83} _{-0.82}
RHC-F2	<i>Thick layer above 'vulva'</i>	0.7771 ± 0.0019	1.2565 ± 0.0105	0.0792 ± 0.0074	11.17 ± 1.140	8.99 ^{+0.89} _{-0.88}	8.20 ^{+0.86} _{-0.88}

Errors given at 2σ.

^aDates corrected for detrital Th using measured detrital values given in Table 3.1 and Ken Ludwig's Isoplot software (e.g. Ludwig 2003) using half-lives given in Cheng *et al.* (2000)

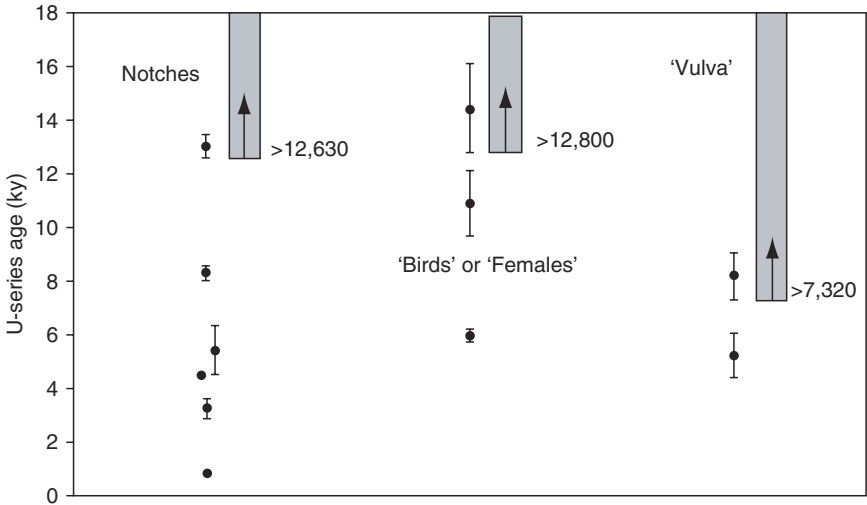


Fig. 3.2. U-series results for flowstones overlying engravings in Church Hole and Robin Hood Cave

thousand years, or continuous deposition. The thinner calcite deposits (e.g. samples CHC-2, C6, E1, E2) showed flaking and weathering, consistent with little or no recent deposition and gave the oldest ages. Since these deposits necessarily postdate the engravings, we take the younger value (at 2-sigma) of the oldest dates to provide a minimum age for each engraving. Thus we conclude in Church Hole the 'notches' are >12.63 ky, the 'females/birds' are >12.8 ky, and in Robin Hood Cave the 'vulva' is >7.32 ky BP, all at 95 per cent confidence. The results from the 'notches' and the 'vulva' are from the cleanest calcite and thus less affected by any limitations in our detrital correction, and are therefore the most secure dates.

IMPLICATIONS

Each of these dates for the formation of flowstone in Church Hole and Robin Hood Cave at Creswell is consistent with a late Upper Palaeolithic antiquity for the art. They eliminate in two cases the hypothesis that the art is of Holocene age and in one case that it is younger than the early Holocene. A series of radiocarbon determinations, largely on human-modified arctic hare bones found in association with late Upper Palaeolithic stone artefacts from Robin Hood Cave, Church Hole, and Pin Hole, give a tight cluster of

calibrated dates in the range 13.2–15.7 ky BP (Table 3.3, Fig. 3.3). As yet, these represent the best chronological estimate for the occupation of Creswell Crags by humans in the late Upper Palaeolithic, and are paralleled at other sites in the UK with identical stone tool industries (e.g. Gough's Cave at Cheddar; Jacobi 2004 and this volume). Our minimum dates, for the 'notches' and the 'birds/females' are in excellent agreement with these radiocarbon dates. The date of >7.32 ky for the 'vulva' is not inconsistent

Table 3.3. Radiocarbon determinations from human-modified bone and antler from Creswell

Lab Reference (OxA)	Sample description	Radiocarbon years (BP)	Percentile probability calibrated age range distributions at 95.4% level of confidence
<i>Robin Hood Cave, Creswell</i>			
OxA-1616	<i>L. timidus</i> cut-marked bone	12600 ± 170	15650–13150 cal. BP (95.4%)
OxA-3416	<i>L. timidus</i> bone awl tool	12580 ± 110	15650–14150 cal. BP (95.4%)
OxA-1618	<i>L. timidus</i> cut-marked bone	12480 ± 170	15550–14050 cal. BP (95.4%)
OxA-1619	<i>L. timidus</i> cut-marked bone	12450 ± 150	15550–14050 cal. BP (95.4%)
OxA-1917	<i>L. timidus</i> cut-marked bone	12420 ± 200	15650–14050 cal. BP (94.3%) 13950–13850 cal. BP (1.1%)
OxA-3415	<i>L. timidus</i> cut-marked bone	12430 ± 120	15450–14050 cal. BP (95.4%)
OxA-1670	<i>L. timidus</i> cut-marked bone	12290 ± 120	15450–14050 cal. BP (92.7%) 13950–13750 cal. BP (2.7%)
<i>Pin Hole, Creswell</i>			
OxA-3404	<i>L. timidus</i> cut-marked bone	12510 ± 110	15550–14150 cal. BP (95.4%)
OxA-1467	<i>L. timidus</i> cut-marked bone	12350 ± 120	15450–14050 cal. BP (95.4%)
<i>Church Hole, Creswell</i>			
OxA-3717	Antler rod 'scooped end'	12020 ± 100	15275–14675 cal. BP (22.0%) 14340–13805 cal. BP (68.8%) 13780–13640 cal. BP (4.6%)
OxA-3718	Antler rod 'scooped end'	12250 ± 90	15425–14565 cal. BP (46.0%) 14425–14060 cal. BP (45.7%) 13935–13840 cal. BP (3.7%)
OxA-4108	<i>L. timidus</i> cut-marked bone	12110 ± 120	15350–14620 cal. BP (31.7%) 14375–13810 cal. BP (62.1%) 13735–13675 cal. BP (1.6%)

Source: Hedges *et al.* 1994, 1996.

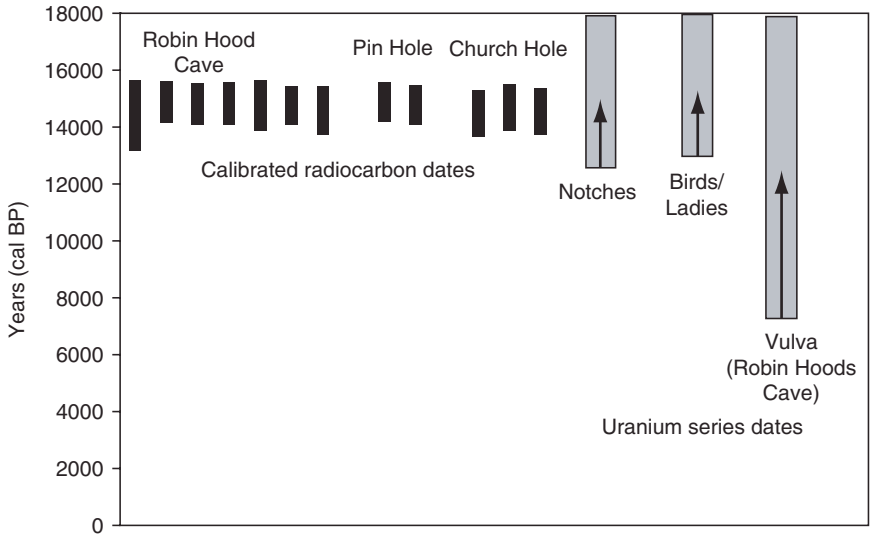


Fig. 3.3. U-series results for flowstones overlying engravings in Church Hole and Robin Hood Cave and calibrated radiocarbon dates of humanly modified bones from Creswell

since we expect the same flowstones to have formed over a considerable period of time. Thus, we feel it most likely that the engravings we have dated, and probably the majority of the engravings at Creswell, were made by Late Upper Palaeolithic individuals. This confirms the suspicion on the grounds of stylistic comparison with contemporary (Magdalenian) art from continental sites that have been firmly dated (Pettitt, this volume), such as, for example, Gönnersdorf, Andernach, and Oelknitz in Germany (Bosinski 1982, 1994; Höck 1993; Street 2000), Gouy, northern France (Martin 1972, 1989, 2004), Laugerie Basse, Dordogne, and Courbet, Tarn, France (Breuil 1931; Welté and Cook 1992).

There are of course earlier human occupation levels at Creswell, as represented, for example, by Mousterian horizons at Church Hole, Pin Hole, and Robin Hood Caves, by an early Upper Palaeolithic leafpoint assemblage in the breccia at Robin Hood Cave, and by the tanged 'Font Robert' point (presumably mid Upper Palaeolithic) from Pin Hole. Therefore we cannot entirely rule out the possibility that the art is significantly earlier than the dates we present here. This would be particularly possible should the engraved human form on bone from Pin Hole turn out to be early Upper Palaeolithic in age. However, there are no known convincing examples of Middle Palaeolithic art in Europe (see Pettitt 2004, for a discussion of a possible Middle Palaeolithic sculpture); the pre-Creswellian Upper Palaeolithic at Creswell (and elsewhere

in the UK for that matter) is very scant, and we feel stylistic parallels for the Creswell engravings are to be found most clearly in late Upper Palaeolithic contexts, as discussed above. Thus, we feel that a Late Pleistocene antiquity for the art is the most parsimonious interpretation, that is, in the 11–13th millennia BC. Furthermore, these results rule out the possibility that the engravings are of recent origin and independently demonstrate their antiquity and therefore authenticity.

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3D Laser Scanning at Church Hole, Creswell Crags

Alistair Carty

INTRODUCTION

The process of recording *in situ* archaeological art can be a time-consuming and complex task, especially on inaccessible and non-planar surfaces such as those found in Church Hole, Creswell Crags. There are considerable challenges to the recorder, including the accurate positioning and fixing of survey frames, the physical discomfort of sitting, crouching, or even lying down for long periods of time in cramped surroundings, and, ultimately, the difficulty in interpreting the panels to enable accurate recording. Furthermore, the more accurate forms of traditional recording include the taking of rubbings of the carvings, a process known to increase the potential of damage to already fragile artworks.

3D laser scanning offers solutions to most of these problems by quickly producing a highly dense fully three-dimensional surface map of the art which can be studied in more conducive circumstances by researchers at a later date. Furthermore, powerful visualization techniques can be applied to the 3D surface map to extract and enhance detail that might be virtually invisible to the naked eye. Over-arching the visualization and interpretational aspects of 3D laser scanning is the potential to use the acquired 3D surface map to monitor any change in the surface through repeated scanning over a period of time. This technique is suitable for detecting minute

The author acknowledges the support of Creswell Heritage Trust for permission to undertake the surveys within Church Hole in 2003, John Borland of the RCAHMS for discussion on illustration and lighting techniques, and Dr Gavin Miller for discussion and comments on accessibility shading. Image reproduction credits: All scans and data-processing were undertaken by Archaeoptics Ltd. and are reproduced courtesy of Creswell Heritage Trust.

differences in the surface over time, including both erosion due to natural processes or vandalism and accretion through build-up of deposits on the surface of the art.

THE THIRD DIMENSION

The most complex aspect of three-dimensional recording, no matter what the subject matter, is that of the third dimension. People have an almost schizophrenic way of looking at the world. For example, if you were to place two identical objects a distance apart, it is simple to state that one object is further away than the other due to our perception of depth and the ability to walk around the two objects. However, if you were to take a photograph or make a drawing of the scene from one point of view, it becomes difficult to tell whether two identical objects are placed some distance apart, or if two differently sized objects sit beside one another. The three-dimensionality of the scene is now lost and is available by inference only.

As this chapter discusses the recording of rock art in a three-dimensional manner, it is worth noting that the images reproduced within the paper are merely two-dimensional representations of fully three-dimensional information! This is exactly the same process used when taking a photograph of a stone, or illustrating it using a perspective framing grid, in that a three-dimensional object is reduced to a 'flat' two-dimensional image.

3D LASER SCANNING

Within the umbrella definition of '3D laser scanning', there are two broad categories of device classified by the optical method used to acquire 3D measurements: (a) triangulation; (b) time-of-flight. The latter technique is usually found in scanners that are more typically used for recording larger structures and landscape contexts. This is primarily due to the accuracy of this class of device. For the recording of very fine detail, triangulation systems are more commonly used, producing very high-resolution surface maps with very high accuracy at each measurement.

Triangulation 3D scanners are so called due to their use of the principle of triangulation to calculate 3D positions in space. That is, typically a thin stripe of laser light is projected across the surface of an object and is viewed by a

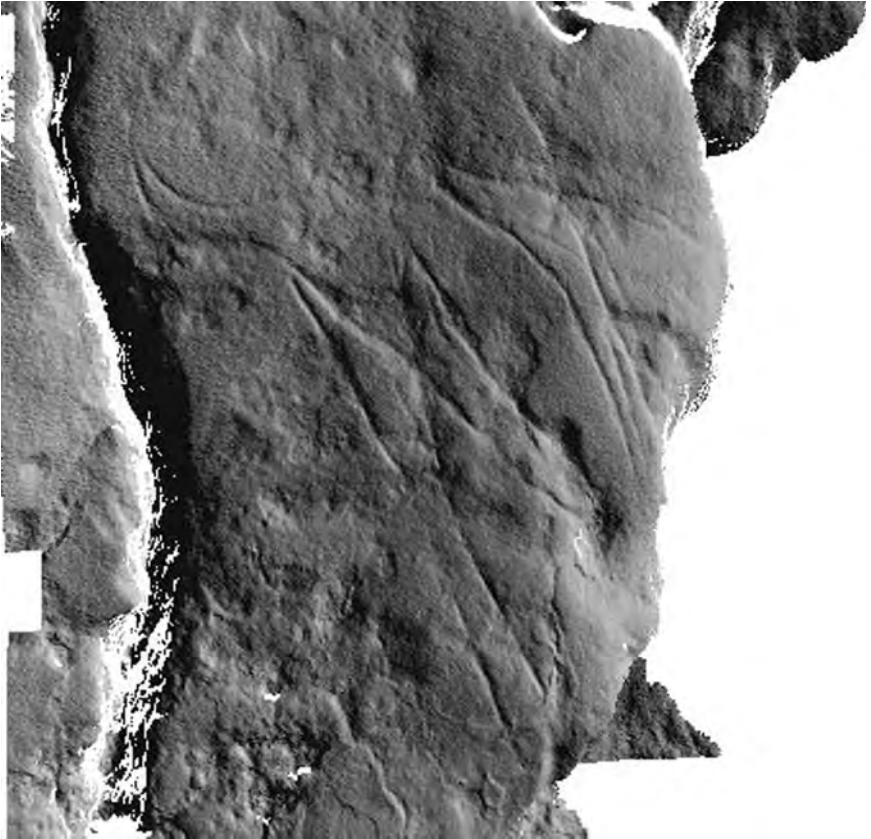


Fig. 4.1. The 'Birds' panel located within the passageway in Church Hole

built-in digital camera. Because the positions of the camera and laser emitter are fixed and known, it is simple to compute the position of points along the laser stripe in three dimensions.

Triangulation laser scanners typically have a very high resolution and accuracy, making them ideal for accurately recording fine details. In addition to this, the high accuracy also enables us to directly measure changes in the surface of the stone caused by either decay or perhaps even vandalism. The downside, such as it is, is that extremely large datasets can be generated. For example, the 'birds' panel located in the passageway in Church Hole was scanned at a resolution of 0.17 mm and an accuracy of 0.047 mm. The panel required twelve scans to cover an area of only 30 cm wide \times 50 cm high. In total, those scans comprised nearly 4 million measurements.

Recording, Measurement, and Reproduction

Once an item has been completely scanned, the resulting model can be easily manipulated on a computer in a variety of ways. The following paragraphs discuss a few of the potential uses of this recording technique.

Optimal Lighting

The 3D model of a rock-art panel can be loaded into software and manipulated in a manner that enables you to manipulate the lighting around a stone on the computer. For example, we can easily set up digital lighting around the model which simulates the use of two flashguns. This is considerably easier than the complex configuration of flashguns and grazing angle lighting in the field.

Finally, the lighting can be changed in real time. That is, you move the light and the effect of the new light position is seen automatically on the 3D model of the artwork. This enables you to minutely tweak the position and intensity of the light to optimally display incisions forming the artwork. Additionally, the human visual cortex is highly tuned to latch onto subtle changes in what is being viewed. By orbiting the light around the 3D model in the same way as moving a light around the panel in the real world, the subtle shifting of lighting patterns can lead to additional discoveries that study from a single light position might not reveal.

Illustration

One of the more important facets of archaeological recording is that of publication. Using software, it is possible to generate effective black and white illustrations of the stones in a semi-automatic manner. This may be suitable for generating good 2D images suitable for publication. It should be noted that these images, although hardly 'perfect', do constitute an excellent starting point for an illustrator to work from, in that the outlines and major details of the stone are already accurately positioned and rendered.

Furthermore, illustration styles not necessarily available to the illustrator may be used, such as 'Accessibility Shading'. This technique effectively shades the areas of the artwork that are geometrically 'least accessible'. For example, incisions are calculated as being less accessible than the unincised stone. Similarly, a cleft in the rock will be classed as less accessible than the region surrounding it. In terms of visualization, we can shade



Fig. 4.2. The 'Birds' panel shaded with an accessibility shading algorithm

the less accessible areas of the art with a dark grey or black tone, whereas the more accessible regions are shaded light grey or white. This has the effect of immediately highlighting the incisions that form the art, as seen in Figure 4.2.

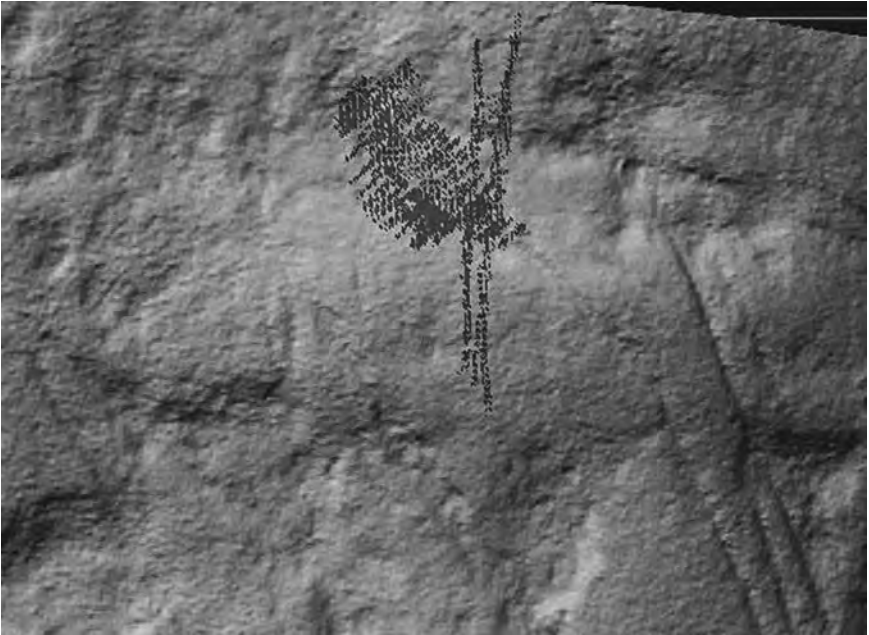


Fig. 4.3. Simulated damage to the 'Birds' panel at Church Hole

INTERPRETATION AND APPLICATIONS

During the research phase, once areas of interest have been identified through examination of archives it is not uncommon that recourse be made to the original context. For example, if studying the tooling used to make particular inscriptions, it would be impossible to measure a cross-sectional profile of an incision from a drawing. With accurate 3D data, cross-sectional profiles showing the incisions are straightforward to achieve. Additionally, more standard measurements may also be required, ranging from 'how big is that feature?' to 'how deep are the incisions at that point?' For research purposes, a 3D model is almost ideal in that the full three-dimensionality of the art can be examined in an interactive manner without repeated revisiting of the original site.

Monitoring Decay

Our Palaeolithic heritage is in constant danger of disappearing forever where such heritage is accessible and potentially open to vandalism or other detrimental natural processes. One of the major problems with this critical

issue is qualifying what processes are at work on any given context and quantifying exactly how much erosion or accretion there is. Depending on the rock substrate onto which the artworks are made, the processes might include weathering, delamination, disaggregation of the surface or even accretive build-ups through water deposit. None of these processes is easily spotted unless a substantial piece of the artwork is damaged or lost.

High-accuracy 3D scanning may offer a solution to this issue in that it is possible to exactly measure the difference between two scans of the same object. That is, if an artwork is scanned at high resolution and rescanned five years later, a 'difference map' of the two scans can be produced. The difference map can show both exactly where the differences lie and exactly how much difference there is. In the case of delamination, the differences should be fairly substantial, whereas the slower weathering process would only show a minor difference.

Non-Contact Replica Production

The final issue that this chapter discusses is that of creating replica archaeology for visitor interpretation, access, and conservation management. This process has been used to date at several Palaeolithic sites in Spain including Altamira.

As laser scanning produces a highly accurate and objective recording in three dimensions, we can directly use these data to mechanically produce a virtually perfect copy of the artwork in question. The main benefits of this approach are twofold: (*a*) the reproduction is exactly the same as the original (although manufacturing perfect scale copies is straightforward); (*b*) the reproduction is completely non-contact. The art is not touched either during the scanning process or during the manufacture of the replica.

As such, this technique offers a real possibility of satisfying the various demands on conservation management schemes for access to relatively inaccessible Palaeolithic artworks.

SUMMARY

In short, 3D laser scanning, when used with a suitable resolution and accuracy, offers an extremely powerful and accurate way of recording Palaeolithic artworks and contexts. A single dataset can be used in a myriad number of ways from aiding traditional illustrative renderings right up to completely reproducing the artwork and environment in a non-contact manner.

Zoological Perspectives on the Late Glacial

D. W. Yalden

INTRODUCTION

Enough mammal specimens of Late Glacial date from the British Isles have been subjected to radiocarbon dating to provide a reliable outline of the likely large mammal fauna of the time, though the accompanying fauna of small mammals has mostly been assigned to this period on associative, rather than direct, dating. These give an adequate zoological background against which to examine the suggested identities of the large mammals depicted at Church Hole, Creswell Crags. This background information is reviewed in this chapter. While *Bison priscus* was certainly present earlier in the Devensian, there is no evidence that *Bison* returned to Britain in the Late Glacial, but aurochs (*Bos primigenius*) did so, and must be considered a more probable identification. The evidence that ibex (*Capra ibex*) ever occurred in Britain is very dubious, which cast serious doubt on the original identification of the Church Hole Panel III engraving as being of this species. In this case, discussion and reinterpretation of the engravings during the course of the conference suggested a better resolution than the zoological one suggested at the time.

The ice of the Devensian glacial maximum, at about 20–18 ka BP, is believed to have covered all of northern Great Britain and Ireland, leaving smaller areas of the south of each island free of ice but occupied by tundra, permafrost, conditions. It is most unlikely that any of the present mammal fauna could have survived here then, though the possibilities that mountain hare (*Lepus timidus*) and stoat (*Mustela erminea*) did so must be conceded—both range well into the

Beyond thanks for the invitation to participate in this symposium, for which I thank Andrew Chamberlain, I am grateful to Roger Jacobi and Sergio Ripoll for discussion of the engravings at the time, and for other details. Robert Sommers and Norbert Benecke kindly made available to me their hard-accumulated data on the distribution of ibex and bison in Late Glacial and Postglacial Europe.

Arctic at the present day. The severity of the climate, and the likely nature of the mammal fauna, is indicated by the presence of musk ox (*Ovibos moschatus*) (Fisherton, Wiltshire, but undated) and the possible polar bear (*Ursus maritimus*) (Creag nan Uamh, Sutherland, 18.9 ka: Kitchener and Bonsall 1997) that date to this time. Barnwell Station, Cambridge, has a ^{14}C date on peat of 19.5 ka BP, and a fauna including woolly mammoth (*Mammuthus primigenius*), woolly rhinoceros (*Coelodonta antiquitatis*), reindeer (*Rangifer tarandus*), and horse (*Equus ferus*). Dated specimens from southern Ireland are also relevant: collared lemming (*Dicrostonyx torquatus*) at 20.3 ka BP, woolly mammoth at 20.36 ka BP and Arctic fox (*Alopex lagopus*) at 19.95 ka BP, all from Castlepook Cave, Cork (Woodman *et al.* 1997). Even more striking is the overall poverty of sites and mammal specimens from these dates.

The Late Glacial is marked by a warmer period, the Windermere Interstadial (also referred to as the Lateglacial Interstadial), dated to around 13–11 ka BP (15–13,500 BP in calendrical years), and a short-lived reversion to a colder climate, the Younger Dryas. The Windermere Interstadial shows that large mammals and the humans who hunted them quickly recolonized the area exposed by the retreating ice caps. Some of the mammal specimens come specifically from cave sites within the Creswell Crags area, and others from similar cave sites in south Devon, the Mendip Hills in Somerset, and south Wales, while caves in southern Ireland also contribute. Since the Irish fauna probably entered Ireland through Great Britain, these Irish records are relevant, as are records from the Isle of Man. Because these are mostly archaeological sites with human remains or tools, mammals from several have been directly dated using ^{14}C , and the direct interest in the history of the fauna, particularly of now extinct species, has led to other bones being dated. These provide a good indication of the larger mammals living in the British Isles at the time when the Creswell Crags engravings were executed. Collectively, they provide an adequate background to evaluate the zoological identification of those engravings. Small mammals are less well represented in the datings, but the likely small mammal fauna can be identified as Late Glacial by association with those larger mammals.

LATE GLACIAL MAMMALS IN THE BRITISH ISLES

The most conspicuous mammal in Late Glacial times was surely the woolly mammoth, known from several dated specimens from Condover, Shropshire, and from scraps of ivory or bone from several cave sites, including Pin Hole and Robin Hood Caves at Creswell (Lister 1991). Almost as conspicuous, and

much more abundant, was the giant deer or Irish elk (*Megaloceros giganteus*), known from over sixty sites in Ireland (Reynolds 1929; Yalden 1999), from several sites on the Isle of Man, and from many elsewhere in Britain. Some of the specimens from Ireland predate the Devensian glacial maximum, but most dates fall in the Late Glacial (Woodman *et al.* 1997), as do all the dates from the Isle of Man (Innes *et al.* 2004). There has been much interest raised by the suggestion that this extinct species might have survived into the postglacial (Gonzalez *et al.* 2000), but redating of the relevant specimens confirms that they are actually of Late Glacial date (Innes *et al.* 2004). Campbell (1977) argues that the reindeer was the most numerous prey of Late Glacial hunters, followed by wild horse (tarpan), reported respectively from thirty and twenty-one of the thirty-three Late Glacial sites he reviewed. At Robin Hood Cave, at least, the main prey of human hunters appears to have been mountain hare (Charles and Jacobi 1994), and specialized hunting of hares for their white winter coat may have been more important than hunting them for meat. Other sites have also revealed mountain hares at this period, and they were clearly important, common, and widespread members of the Late Glacial fauna. Less numerous species that have been dated to this period include saiga (*Saiga tatarica*), arctic fox (*Alopex lagopus*), lynx (*Lynx lynx*), brown bear (*Ursus arctos*), and wolf (*Canis lupus*). All of these are members of an open ground fauna, to be expected in the herb-rich but unwooded conditions of the time. The known or likely small mammals of this fauna were Norway lemmings (*Lemmus lemmus*), collared lemmings (*Dicrostonyx torquatus*), narrow-headed voles (*Microtus gregalis*, the *M. anglicus* of earlier authors) and northern or root voles (*Microtus oeconomus* = *M. ratticeps*), all well known as fossils in British faunas of this time, typical of high Arctic conditions at the present day, but rarely dated directly.

Less expected are two woodland species which would not occur in an open treeless landscape, red deer (*Cervus elaphus*) and the wild cattle, aurochs (*Bos primigenius*). There are fewer records of these species, respectively seven and six which have been dated. Birch woodland is known from the pollen record to have established itself at least in southern Britain during the latter part of the Windermere Interstadial, and all the red deer records are from southerly locations, including one in southern Ireland. The aurochs occur more widely, but there are no known specimens from Ireland, at any date, and it is an interesting but here irrelevant detail to understand how red deer reached Ireland at this time while aurochs apparently did not. Two well-dated records of elk (*Alces alces*) also belong in this woodland fauna, and there are likely to have been other, smaller, mammals such as the wood lemming (*Myopus schisticolor*) and grey-sided vole (*Clethrionomys rufocanus?* cf. Price 2003) present at this time, though currently unrecognized as part of the Late Glacial fauna.

All the known radiocarbon-dated mammal records are listed in Table 5.1. Their relative abundance is not a good guide to their abundance in the Late Glacial landscape, since scientific interest in specific questions and species has biased the record. Table 5.1 does nevertheless provide a reliable record of which mammals are known to have been present in the British Isles at this time.

Table 5.1. Late Glacial ^{14}C -dated mammal records from the British Isles

Species	Site	NGR	Mean Date (BP)	
<i>Mammuthus primigenius</i>				
Lister 1991	Condover	SJ498075	12,480	
	Pin Hole Cave	SK532741	12,460	
	Condover	SJ498075	12,330	
	Robin Hood Cave	SK534742	12,320	
	Gough's Cave	ST467539	12,170	
	Kent's Cavern	SX934641	11,650	
<i>Rangifer tarandus</i>				
Housley 1991	Pin Hole Cave	SK532741	13,050	
	Aveline's Hole	ST475588	12,480	
Woodman et al. 1997	Castle Pook Cave	R603099	12,480	
Price 2003	Torbryan Cave	SX817673	11,130	
<i>Alces alces</i>				
Hallam et al. 1973	High Furlong	SD331387	12,400	
Lister 1984	Neasham	NZ340100	11,561	
<i>Cervus elaphus</i>				
Housley 1991	Gough's Cave	ST467539	12,800	
	Misbourne Viaduct	SU8995?	12,530	
	King Arthur's Cave	SO546154	12,210	
	King Arthur's Cave	SO546154	12,120	
	Aveline's Hole	ST475588	12,100	
	Price	Three Holes Cave	SX815674	11,980
Woodman et al. 1997	Keshcorran Cave	G710130	11,790	
<i>Megaloceros giganteus</i>				
Woodman et al. 1997	Ballybetagh	O2122	15,170	
	Shortalstown	T1130	12,160	
	Garransdarragh Bog	W645785	11,820	
	Edenvale Caves	R322747	11,750	
	Killuragh Cave	R782488	11,510	
	Knocknacran	H2830	11,310	
	Ballynamindra Cave	X108955	11,110	
	Ballybetagh	O2122	10,610	
	Innes et al. 2004	Glen Wyllin, Man		10,780
	Loughan Ruy, Man		11,495	
	Ballaugh, Man		11,495	
Close-y-Garey, Man		11,495		
Ballaugh, Man		11,650		

(Continued)

Table 5.1. (Continued)

Species	Site	NGR	Mean Date (BP)
	Glen Balleira, Man		12,130
	Ballaugh, Man		12,275
	The Cronk, Man		12,455
	?, Isle of Man		11,575
	?, Isle of Man		12,020
	R. Cree		10,585
	Ballybetagh	O2122	10,610
	Kirkhead Cave, Cumbria		10,700
<i>Saiga tatarica</i>			
Currant 1986	Gough's Cave	ST467539	12,380
Currant 1987	Soldier's Hole	ST468540	12,100
<i>Bos primigenius</i>			
Housley 1991	Pin Hole Cave	SK532741	12,480
	Pin Hole Cave	SK532741	12,400
	Gough's Cave	ST467539	11,900
	Kent's Cavern	SX934641	11,880
	Pin Hole Cave	SK532741	10,979
Coard/Chamberlain	Kent's Cavern	SX934641	12,430
<i>Equus ferus</i>			
Housley 1991	Gough's Cave	ST467539	12,530
	Gough's Cave	ST467539	12,260
	Three Holes Cave	SX815674	11,970
Coard/Chamberlain	Kent's Cavern	SX934641	12,240
Price 2003	Three Holes Cave	SX815674	12,150
<i>Lynx lynx</i>			
Coard/Chamberlain	Gough's Cave	ST467539	12,650
<i>Alopex lagopus</i>			
Coard/Chamberlain 1999	Gough's Cave	ST467539	12,400
<i>Canis lupus</i>			
Woodman et al. 1997	Keshcorran Cave	G710130	11,150
<i>Ursus arctos</i>			
Housley 1991	Kent's Cavern	SX934641	14,275
	Sun Hole	ST467540	12,378
Price	Three Holes Cave	SX815674	12,180
Woodman et al. 1997	Keshcorran Cave	G710130	11,920
	Red Cellar Cave	R645417	10,650
<i>Lepus timidus</i>			
Charles/Jacobi 1994	Robin Hood Cave	SK534742	12,600
	Pin Hole Cave	SK532741	12,510
	Robin Hood Cave	SK534742	12,480
	Robin Hood Cave	SK534742	12,420
	Pin Hole Cave	SK532741	12,350
	Robin Hood Cave	SK534742	12,290
	Church Hole Cave	SK533741	12,240
Woodman et al. 1997	Keshcorran Cave	G710130	12,190
Price 2003	Torbryan Cave	SX817673	12,130
	Three Holes Cave	SX815674	12,260
	Broken Cavern	SX815674	11,380

Sources: Charles and Jacobi 1994; Coard and Chamberlain 1999; Currant 1986, 1987; Hallam *et al.* 1973; Housley 1991; Innes *et al.* 2004; Lister 1984, 1991; Price 2003; Woodman *et al.* 1997.

ZOOLOGICAL PROBLEMS IN IDENTIFYING THE
CRESWELL SPECIMENS

Public announcements and press interest in the engravings originally suggested that the ungulates represented were bison and ibex. Both are familiar from cave paintings in southern Europe, indeed bison are frequently shown, and in principle their depiction would not be surprising. However, as Table 5.1 makes clear, neither is an established member of the Late Glacial mammal fauna in the British Isles. The two species present different problems.

Bison are well known in the early Devensian faunas of Great Britain, and indeed are recorded from Windy Knoll in the Peak District, only 30 km west of Creswell Crags (Reynolds 1939). The latest dates for British specimens seem to be about 27,700 BP, from Beckford, Worcestershire, and Kent's Cavern, Devon, well before the glacial maximum (Yalden 1999). *Bison* and *Bos* are difficult to distinguish, except from their skulls and horn cores (e.g. Gee 1993), so it is possible that remains of bison have been overlooked among the certainly more numerous, well represented, and well dated, specimens of *Bos*. There is another taxonomic problem, that Devensian specimens are always identified as *Bison priscus*, while the postglacial European bison is *Bison bonasus*. It is very unlikely that these are genetically distinct, though the glacial animals are larger (postglacial size reduction is well documented for many species, including e.g. wolf and red deer). The accumulation of records of full glacial and postglacial records of bison in western Europe (R. Sommers and N. Benecke, pers. comm.) shows Late Glacial records concentrated in the Pyrenees, with a scatter northwards to central France and one in German Rhineland, and a cluster east of the Carpathians in Moldavia. For the postglacial, there is one Pyrenean record, two in eastern France, and a widespread scatter in the eastern half of Europe through Denmark, Germany, and Switzerland to Byelorussia and Ukraine. In neither period are there records from anywhere near the Channel or North Sea coasts, and, of course, none from Britain. It is unlikely that Late Glacial artists at Creswell Crags had bison models close to hand.

Ibex are equally unlikely to have been present in Britain, and only two, very dubious, records have ever been suggested. One of these is a single tooth from Robin Hood Cave, Creswell Crags. Charles and Jacobi (1994) remark that this is not reliably distinguishable from domestic *Ovis/Capra*, and its dating seems more likely to have been Neolithic, consonant with this identification. An even less certain record has been claimed from the Ipswich area, in the crags (maritime clay deposits), but the specimen has not been traced, nor reliably identified or dated (R. Jacobi, pers. comm.). The accumulation of European

records shows abundant Late Glacial and post records from the Pyrenees (usually assigned to *Capra pyrenaica*, but the distinction between Pyrenean and Alpine Ibex (*Capra ibex*) is genetically very slight and they are surely conspecific: Manceau *et al.* 1999) and the Alps, with a few records elsewhere in France, Germany, Italy, and Romania (R. Sommers and N. Benecke, pers. comm.). No record anywhere near the Channel or North Sea coasts is mapped, and montane habitat is similarly limited to southern and central Europe, making any immigration of the species into the British Isles in Late Glacial or postglacial times very unlikely.

POSSIBLE SOLUTIONS

One possible explanation is that the artists, presumably themselves relatively recent immigrants to Britain from more southern or eastern locations, had remembered locally unfamiliar animals, and drew them as a hope of what they wanted to see rather than a depiction of what they could see in the local fauna. They could themselves have been migratory hunters, and spent the winter much further south or east, encountering locally unfamiliar animals there (see Pettitt, this volume). It is alternatively possible that the archaeological record on large mammals in Britain is incomplete, and that remains of bison and ibex remain to be discovered or identified. However, it seems better to argue from the best evidence available, and assume that what we currently have is a fair understanding of the large mammal fauna in Late Glacial Britain.

For the presumed engraving of bison, the alternative identification of aurochs seems more likely. This is true on geographical grounds, since the current record of subfossil and recent bison distribution suggests it is unlikely to have been present in Britain in postglacial times, but aurochs is well recorded then (Table 5.1 and Yalden 1999). It is also true anatomically. The engraving shows the forwardly s-curved horns typical of aurochs, not the short laterally placed and laterally facing horns of bison, and lacks the mane and beard that characterize bison. Artistically, it looks much more like the depictions of aurochsen than of bison at such sites as Lascaux.

For the presumed ibex, alternative explanations are less easy. The simply curved, unbranched horn implies a bovid, but only one other small bovid is recorded in Late Glacial Britain: this is the saiga, a small antelope with short upright, s-curved horns in the male. The engraving does not show the s-curve, but nor does it show the beard that should characterize ibex. However, during the conference, Sergio Ripoll drew attention to what appeared to be the base of a brow tine, and the tip of that tine has since been discerned beyond a break

in the engraving (P. Bahn, pers. comm.). The alternative identification of the engraving as a cervid, probably a red deer stag *Cervus elaphus* (the tine is simple, not palmate as in *Rangifer* or *Megaloceros*), seems to resolve the problem (see Ripoll and Muñoz, this volume).

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Cave Archaeology and Palaeontology in the Creswell Region

Andrew T. Chamberlain

INTRODUCTION

The aim of this chapter is to situate the unique discoveries of cave art at the Creswell Crags caves in the context of what is known of the cave archaeology and palaeontology of the caves of the southern Magnesian Limestone outcrop. The long history of archaeological research at Creswell Crags and the spectacular discoveries that continue to be made in the Creswell caves have tended to overshadow the widespread though less prominent distribution of cave archaeological sites along the limestone outcrop to the north and south of Creswell, a region known as the Creswell Crags Limestone Heritage Area (Mills 2001). Recent audits of the archaeology of the region have drawn attention to the large number of cave sites within the Limestone Heritage Area as well as the considerable potential that these sites have for further research into the history of Ice Age people and their environments (Mills 2001; Davies *et al.* 2004). While the focus of this chapter is on the Pleistocene deposits and Palaeolithic artefacts that have been preserved in the region's caves, fissures, and rock shelters, these sites were used throughout prehistory by humans and animals and they contain much important cultural and environmental evidence for these later time periods after the end of the last Ice Age.

THE SOUTHERN MAGNESIAN LIMESTONE

Creswell Crags is located in the southern part of the Magnesian Limestone, a geological term for deposits of Upper Permian age that includes a series of formations of well-bedded oolitic to dolomitic limestones. The Magnesian

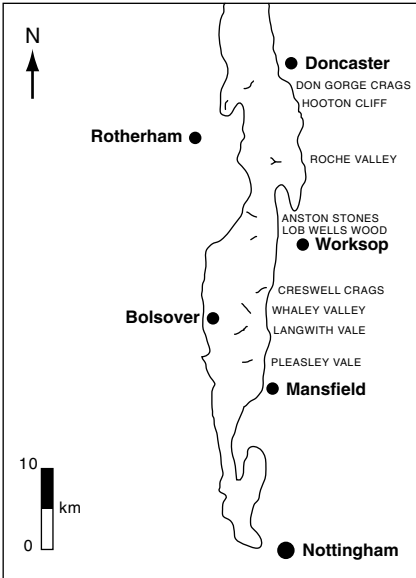


Fig. 6.1. (*left*) The Southern Magnesian Limestone outcrop, with the principal vales and gorges indicated

Fig. 6.2. (*below*) Langwith Cave, a small cave set into the side of a shallow limestone vale



Limestone forms a narrow north–south oriented outcrop that runs from near Nottingham in the south to the North Sea coast near Tynemouth in the north (Fig. 6.1). About 30 km to the west of the southern part of the Magnesian Limestone is the older Carboniferous Limestone outcrop of the White Peak, which, like the Magnesian Limestone, contains many archaeological caves.

The southern part of the Magnesian Limestone outcrop, between Doncaster and Mansfield, is cut through by a series of vales and gorges which expose caves, fissures, and rockshelters along the cliff lines. The caves and fissures are mainly developed in the Lower Magnesian Limestone formation, and are of two kinds: solution caves formed by hydrological dissolution of the limestone, and rift-slip caves and fissures formed by tectonic movement of large blocks of limestone. The rift-slip type of cave and fissure formation is usually restricted to locations close to the edges of large scarps and steep valley sides.

Although the prominent limestone gorge at Creswell Crags has received by far the most attention from archaeologists, there are caves, fissures, and rockshelters distributed throughout the vales of the southern Magnesian Limestone outcrop. Most of the area's limestone vales show subdued relief with low cliffs and rocky outcrops with small caves running into the sides of the hills (Figure 6.2). A research report on the cave archaeology of the Creswell area undertaken in the 1970s identified fifty caves, fissures and rockshelter sites of significant archaeological potential (Jenkinson 1978) and this figure was increased to over 160 sites during a recent systematic survey of all of the vales and gorges between Pleasley Vale and Roche Abbey Valley (Davies *et al.* 2004). Thus caves and rockshelters are abundant in the local area, and although most of these localities have not been archaeologically excavated they constitute a valuable component of the regional historic environment resource.

CAVES OF THE CRESWELL REGION: A BRIEF HISTORY OF STUDY

The scientific exploration and study of caves in Britain began in the early nineteenth century, with reports being published on the recovery of the remains of extinct fauna from caves in Devon (Home 1817) and other parts of the country (Buckland 1822). Scientific interest in the caves of the southern Magnesian Limestone outcrop began in the 1860s, when discoveries of extinct fauna were made in caves exposed by construction of buildings and a railway in

Pleasley Vale, a limestone gorge about 10 km south of Creswell Crags (Dawkins 1869). Between 1870 and 1875 sporadic discoveries of fossil animal bones were made at Creswell Crags (Heath 1882: 169), and scientific excavations were started in the Creswell caves in 1875 by the Revd J. Magens Mello, assisted by Thomas Heath, George Busk, and joined subsequently by William Boyd Dawkins (1877). These scholars, assisted by other members of the Creswell Caves Exploration Committee, carried out excavations in Church Hole, Pin Hole, Robin Hood Cave, and Mother Grundy's Parlour. Contrary to some reports, these excavations were of a reasonable standard for their day: deposits were dug (albeit rapidly) by layers, some sieving for finds was undertaken, and the contexts from which finds were recovered were recorded. Mello and Dawkins also discovered the first portable cave art to be found in Britain—an engraving of a horse on an animal rib—in Robin Hood Cave (see Bahn, this volume).

Further campaigns of excavation were conducted in the Creswell Crags caves during most decades of the twentieth century (see Jacobi, this volume), but only limited explorations took place in the numerous other vales and gorges of the southern Magnesian Limestone outcrop. A number of these sites contained Palaeolithic artefacts, though these were present in smaller quantities than were found in the Creswell caves.

Pleasley Vale contains more than twenty caves, fissures, and rockshelters (Davies *et al.* 2004) including the Devensian faunal site of Pleasley Vale Cave and the possible Late Upper Palaeolithic site of Yew Tree Cave, which was excavated by William Ransom in the 1860s and by A. Leslie Armstrong in the 1930s (Armstrong 1939). Langwith Cave, which is situated in the Poulter valley about 5 km south of Creswell Crags, was excavated between 1900 and 1930, first by the Revd Mullins (1913) and later by Dorothy Garrod (1927). Langwith Cave contained late Upper Palaeolithic stone tools, Pleistocene fauna, and a human skull, which was subsequently determined by radiocarbon dating to be just over 2,000 years old (Table 6.1).

In the Whaley Valley, two rockshelter sites were excavated between 1937 and 1949 by A. L. Armstrong (Armstrong 1949; Radley 1967). Whaley 1 contained shallow sediments and mainly Holocene artefacts with a few Upper Palaeolithic flint tools. Whaley 2 yielded deeper deposits which Armstrong claimed contained Ice Age fauna and artefacts. Although subsequent work at the site by Radley (1967) failed to substantiate the existence of pre-Holocene artefacts, some faunal remains from the site have been radiocarbon dated to the Middle Devensian. A human skull from Whaley 2, initially thought to be Palaeolithic, has been radiocarbon-dated to the Early Bronze Age (Table 6.1). Armstrong and colleagues subsequently excavated Ash Tree Cave in Burntfield Grips (Armstrong 1956), a site that produced Early and Middle Devensian faunas

Table 6.1. Direct radiocarbon dates on human bones from Magnesian limestone caves

Site	^{14}C BP	Lab no.	Period
Ash Tree Cave	3730 \pm 90	OxA-4446	Neolithic
Langwith Cave	2330 \pm 60	OxA-2232	Iron Age
Markland Grips	4760 \pm 90	OxA-4447	Neolithic
	4740 \pm 90	OxA-4448	Neolithic
MGP	4640 \pm 70	OxA-2350	Neolithic
	3790 \pm 70	OxA-2351	Neolithic
	3720 \pm 80	OxA-4442	Neolithic
RHC	2210 \pm 80	OxA-1832	Iron Age
	5000 \pm 40	OxA-7386	Neolithic
	4870 \pm 120	OxA-1807	Neolithic
	2020 \pm 80	OxA-736	Iron Age
	1785 \pm 50	OxA-6581	Romano-British
Scabba Wood rockshelter	4590 \pm 30	UB-3629	Neolithic
Whaley rockshelter	3470 \pm 65	OxA-4021	Early Bronze Age

(Currant and Jacobi 2001) and a small number of either Mousterian or Early Upper Palaeolithic stone artefacts (Campbell 1977).

To the north of Creswell Crags Pleistocene faunal remains were recovered from a limestone quarry at Steetley, 5 km west of Worksop, and recently some of this material has been dated using the Uranium-series method to the early Devensian period (Pike *et al.* 2005). Further finds of late Upper Palaeolithic material were made at Lob Wells Shelter and at Dead Man's Cave in Anston Stones Wood (Jenkinson and Gwynne-Griffiths 1986). Both of these sites, which were excavated by George White with the assistance of Paul Mellars, contained Late Upper Palaeolithic flint tools, and Late Glacial faunal remains were also recovered from Dead Man's Cave (Mellars 1969). Paul Mellars also excavated Creswellian flint artefacts from a disturbed surface deposit below the scarp of the Crags in Edlington Wood, and inferred that the artefacts may be derived from a nearby cave or rockshelter (Mellars 1973). In the Roche Valley possible Upper Palaeolithic and Neolithic flint artefacts have been reported from excavations carried out by the Rotherham Archaeological Society between 1977 and 1981 in a rockshelter at Stone Mill (Dolby 2001), and possible Mesolithic flints were also found in a rockshelter in Nor Wood, excavated by Radley in 1968.

South-west of Conisbrough near Hooton Roberts the Magnesian Limestone is exposed in a natural scarp edge at Hooton Cliff, which contains rockshelters, slip-rift caves, and sediment-filled fissures with considerable archaeological potential. Late Upper Palaeolithic flint tools were collected from the parish of Hooton Roberts by the Revd Reginald Gatty in the

nineteenth century (Radley 1964), and although the precise localities of Gatty's finds were not recorded it is possible that some may have come from the rockshelter sites along Hooton Cliff.

Extensive exposures of Magnesian Limestone can be seen along the south side of the Don Gorge between Conisbrough and Warmsworth, though this area has been heavily quarried in the past for lime burning. In 1878, during construction of a water pipeline in Nearcliff Wood, a sediment-filled fissure containing Pleistocene mammal bones was discovered and specimens were sent to William Boyd Dawkins for identification. The identified species included woolly rhinoceros (*Coelodonta antiquitatis*), mammoth (*Mammuthus primigenius*), horse (*Equus ferus*), and red deer (*Cervus elaphus*), with some bones showing evidence of gnawing by hyenas (Anon. 1878). Nearly thirty years later further Pleistocene mammal remains were reported from approximately the same location, during the construction of the Dearn Valley Railway (Corbett 1906).

The overall picture gleaned from this brief survey is that a fairly continuous spread of archaeological cave sites exists across the southern Magnesian Limestone outcrop, and that the Palaeolithic is unusually well represented in this landscape. Apart from at Creswell Crags, the scale of archaeological exploration of these cave sites has been limited, especially in comparison with other cave regions in Britain such as the Carboniferous Limestone outcrops of the White Peak and of Mendip in Somerset. It is therefore very likely that continued research on the Magnesian Limestone will enable additional cave archaeological sites to be identified and will help to elucidate the changing patterns of cave usage through time.

CHANGING PATTERNS OF CAVE USE

Studies of cave usage in antiquity have tended to interpret human activities at cave sites as either ritual (including art, burial, and votive deposition), or as subsistence-related, for instance domestic occupation, storage, industrial activities, and refuge (Bonsall and Tolan Smith 1997; Galanidou 2000). It is often difficult to reconstruct patterns of usage from the cultural evidence preserved at specific cave sites (Church Hole cave is one of very few Palaeolithic caves in the country for which both ritual and subsistence activities are in evidence). The nature and quality of the archaeological evidence recorded from earlier cave excavations, the frequent lack of structural modifications within cave sites and the ephemeral and palimpsest nature of the activities themselves all serve to render interpretations of past activities imprecise.

However, some general conclusions can be inferred from the archaeological record of the caves of the Creswell area.

The caves and rockshelters of the Southern Magnesian limestone contain an impressive amount of evidence for Palaeolithic human activity, mainly associated with the recolonization of Britain by hunter-gatherers during the Late Glacial interstadial and early Holocene periods. Most of the limestone vales and gorges in the region are aligned to the regional east–west dip slope orientation, and these topographic features would have formed natural routeways for game animals migrating from the North Sea plain and the eastern lowlands to the Pennine uplands to the west. A recent review of British Late Upper Palaeolithic sites has highlighted the spatial association between the Creswellian and topographic locations that are marginal to the upland zones (Barton *et al.* 2003). The location of the Magnesian Limestone ridge as an eastern outlier to the Pennine uplands fulfils this criterion of landscape preference by the Late Glacial and early Holocene hunter-gatherers, and explains the relatively high density of Upper Palaeolithic find spots in the vicinity of Creswell Crags. Cave and rockshelter use in this period is usually viewed as including temporary episodes of occupation or the utilization of cave and shelter sites as workshops or storage locations, a view that may now need to be modified given the presence of decorative panels of engravings in Church Hole cave at Creswell Crags.

Later in prehistory, with the transition from foraging to farming as the primary basis for subsistence, the character of cave use in the area changes and there is increasing evidence for the use of caves for votive deposition and as locations for the interment of human remains. Human remains radiocarbon-dated to the Neolithic and Early Bronze Age have been found in six of the region's caves (Table 6.1), a pattern that is consistent with the extensive use of caves for burial of human remains in Neolithic Britain (Chamberlain 1996). Artefacts of later prehistoric and Romano-British date are reported from many of the cave excavations, and these finds indicate that the cave sites continued to act as foci for human activities up to the beginning of the historical era.

CONSERVATION AND MANAGEMENT

An appreciation of the wealth of material preserved in the caves of the southern Magnesian Limestone brings with it the need to consider conservation and management strategies (Mills 2001). Archaeological caves are sensitive sites that are vulnerable to natural processes of disturbance and to direct

human interference. Examples of natural threats to cave deposits include the activities of burrowing animals, damage to cave entrances from tree fall, and the erosion or dissolution of deposited materials through water action. Caves may also be affected by human activity, including mineral extraction, dumping of refuse in landfill sites, pollution of groundwater from changes in land usage, and the exploration of caves in pursuit of leisure activities. Although a well-resourced management strategy has been devised for the Creswell caves, most caves do not enjoy the protection afforded through being designated as Scheduled Ancient Monuments or by being located within Sites of Special Scientific Interest, and when damage occurs to archaeological deposits it may be hidden from view.

An essential first step in conserving and managing the cave archaeological resource is to record and characterize the caves before they are excavated. As a natural feature, the form of a cave tells us nothing about its contents, so the default assumption is that all caves are possible locations for archaeology (an estimated 20 per cent of British caves contain archaeological deposits, and many other caves contain preserved faunal remains). English Heritage has been proactive in sponsoring survey projects in the Peak District, the Yorkshire Dales National Parks, and on the southern part of the Magnesian Limestone outcrop in which caves are being systematically visited and recorded. These surveys provide a baseline from which further detailed studies of the cave archaeological record can proceed.

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The Stone Age Archaeology of Church Hole, Creswell Crags, Nottinghamshire

R. M. Jacobi

INTRODUCTION AND HISTORY OF DISCOVERIES

Church Hole (SK 5339 7411) is towards the western end of Creswell Crags gorge. It is the only cave or fissure on the south (Nottinghamshire) side of the crags to have yielded evidence of human occupation. It is not known when the cave got its name and at the beginning of its exploration, perhaps through ignorance, it was referred to simply as 'Fissure C' (Mello 1875) or the 'Notts Cave' (Dawkins n.d., 1876). Looking into the cave from the entrance grille is very like looking down the nave of a church and there may be no more to the name than this resemblance.

The cave (Fig. 7.1) consists of a narrow passage, variously termed 'chamber A', 'long passage', or 'main passage (A)', which is horizontal for much of its length. It rises steeply at its inner end to terminate in a blocked crevice near the top of the Permian Lower Magnesian Limestone outcrop. On either side

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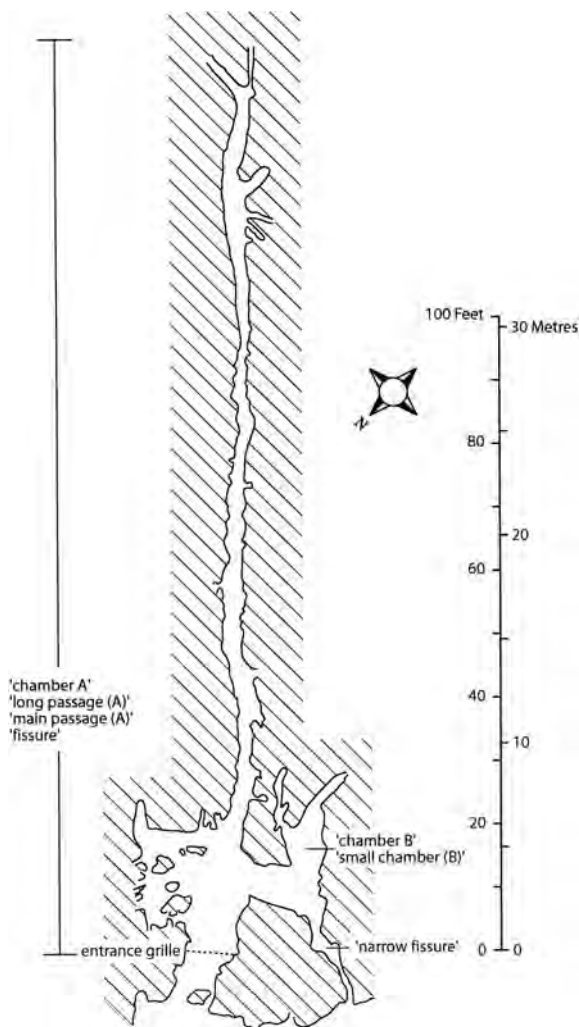


Fig. 7.1. Plan of Church Hole

of the entrance are small chambers of which the more clearly defined is that on the western (right-hand) side—'chamber B'. This is independently linked to the gorge by a narrow fissure. The cave had been closed by a stone wall and prior to excavation its outer part had been used as a byre.

While bones and teeth may have been found at Creswell by George Stubbs, and these were the inspiration for his famous lion and horse paintings (Egerton 1984), it appears that the first confirmed palaeontological discovery to be made in the Craggs came from Church Hole. This was a lower cheek tooth of a woolly rhinoceros (*Coelodonta antiquitatis*) and was found by Frank Tebbet the quarry manager at Welbeck. This was in 1872 (Heath 1879: 4).

Serious exploration of Creswell Crags was begun in April 1875 by J. Magens Mello, the rector of St Thomas, New Brampton near Chesterfield (1863–87) and better known as the author of the *Handbook to the Geology of Derbyshire* (1876a). He began by working in Pin Hole on the Derbyshire side of the Crags (Mello 1875), but dug a ‘small hole’ in Church Hole recovering a limb-bone of a woolly rhinoceros (1875: 679). In July he was joined by Thomas Heath, curator of the Derby Free Library, Museum and Art Gallery (1873–84). Together, they began the excavation of Robin Hood Cave also on the Derbyshire side (Mello 1876b).

The first major exploration of Church Hole was by Heath, sometime in the later summer of 1875, but when the days were still long. It is simplest to let Heath speak for himself and quote *verbatim* his description of the contents of what must have been a Middle Devensian spotted hyena (*Crocota crocuta*) den.

... I also began to work the Church Hole on the Nottingham side.

The entrance to this had evidently been used at a very recent period either as a stable or cow-house, the Breccia and Cave Earth being mixed up with straw and litter. I commenced here about 4 a.m. to carefully examine and clear it. It was not until 10.20 a.m. that I found the least trace of the remains of either Pleistocene Animals or of Man, when I was rewarded, about 12 feet from the entrance, by discovering the largest Molar of the *Elephas primigenius* we found. It was 11 inches in length, by 9 inches in height. The specimen is now in the temporary Museum at Firth College. In close proximity to this I found three other molars of the Mammoth. I had now reached the entrance to chamber B, . . . where I found three bone needles. I was then assisted the rest of the day by my friends—Messrs. W. B. Sellars and S. H. Burrows and Dr. Webster (the American Consul). We then commenced our work in this chamber, which had been previously disturbed in three places to a depth of about eight inches. From the entrance there was a sudden dip of the richest bed of Cave Earth we worked. In the centre, about 18 inches from the surface, it was one mass of the remains of Rhinoceros, Reindeer, Horse, Mammoth, and a few of the Bear, Wolf, and Bison. All the bones were very much gnawed. Out of over a cart-load (the result of that day’s work) there were only four whole ones—*i.e.*, two phalanges, one tarsus, and one metacarpal. The Rhinoceros bones were in large numbers, and were gnawed down to the well-known pattern. There were also a large number of the teeth and fragments of the antlers of the Reindeer. Though more remains of the Mammoth were found here than anywhere else, we did not find an adult. Plates and fragments of the Milk Molars were found in profusion, and also several whole milk teeth, and part of a tusk, too fragile to secure whole. The jaws and teeth of the Hyaena were found in the largest profusion. Working from the middle of this chamber, the Cave Earth became cemented into a tough, stubborn Breccia, which gradually ran out to the front, but at the back into a deep, narrow fissure. After working through about five feet of Breccia, which was quite as prolific as the other part of the Cave, we penetrated the fissure at the back for about six feet, coming upon a bed of Red Sand, amongst which very few remains were found. In all, I could determine the remains of 116 different animals, the result of this day’s work; of this number, no less than 72 were Hyaena. It is evident from the immense number

and gnawed condition of the bones, and the large quantity of jaws and teeth of the Hyaena, *minus* any bones of this animal, that this chamber was once the lair of the Hyaena, advantage being taken of the privacy afforded to place the prey where it could be devoured at leisure. We did not find the least trace of implements or any remains of man, so that we may reasonably conclude that the occupants of this chamber were too persistent and demonstrative to permit their privacy to be even temporarily invaded by the Palaeolithic hunter, as their roving contemporaries across the river had evidently done. Next day I finished this chamber, with the exception of a thick Breccia adhering to the wall at the latter part of the Cave... (Heath 1879: 8–11)

It need only be added that Firth College was a forerunner of the University of Sheffield and that the temporary museum was for the meeting of the British Association for the Advancement of Science which took place in the city in August 1879. Despite an intensive search no trace can now be found of the three bone needles. The river is, of course, the Millwood Brook which here forms the boundary between Nottinghamshire and Derbyshire. Within the gorge it has been artificially widened into a lake. Mello (1877: 585) gives a few more quantitative details of the fauna found at this time, as does Dawkins (1877: 602 table) who attributes the finds to Mello.

It would seem that the work undertaken at Creswell in 1875 was mainly by Heath and Mello with professional assistance from Frank Tebbet, who also provided labour. In 1876 exploration was under the aegis of a committee whose president was Sir John Lubbock (later Lord Avebury). Dawkins was the secretary. In terms of fieldwork, Mello was director and Heath and Dawkins were superintendents. Dawkins, from Owens College, Manchester, was a newcomer to the team, but had already been responsible for the descriptions of the artefacts and fauna from the 1875 campaign at Robin Hood Cave (Dawkins 1876). In this he had taken over from George Busk of the Royal College of Surgeons. It was agreed that Dawkins and Mello would be in charge of work at Church Hole, which was to be excavated simultaneously with Robin Hood Cave for which Heath would be responsible.

In 1876 excavations took place on thirty days from Monday 19 June to Saturday 22 July. At Church Hole excavations took place outside the cave on the talus, in the main passage and in the side-chamber to the right of the entrance. At the mouth of the cave and in the side-chamber this was in part a re-examination and a completion of the areas whose investigation had been begun by Heath in 1875.

Manuscript notes of work at Church Hole are by Dawkins. They are scrappy and partly illegible and cease after 6 July except for daily annotations to the site-plan to record the progress of work. Our only clear sources of information as to what was found at Church Hole are the account provided by Mello of the stratigraphy (1877: 584–7) and the descriptions of the artefacts and fauna by Dawkins (1877: 601–5). Comprehension is aided

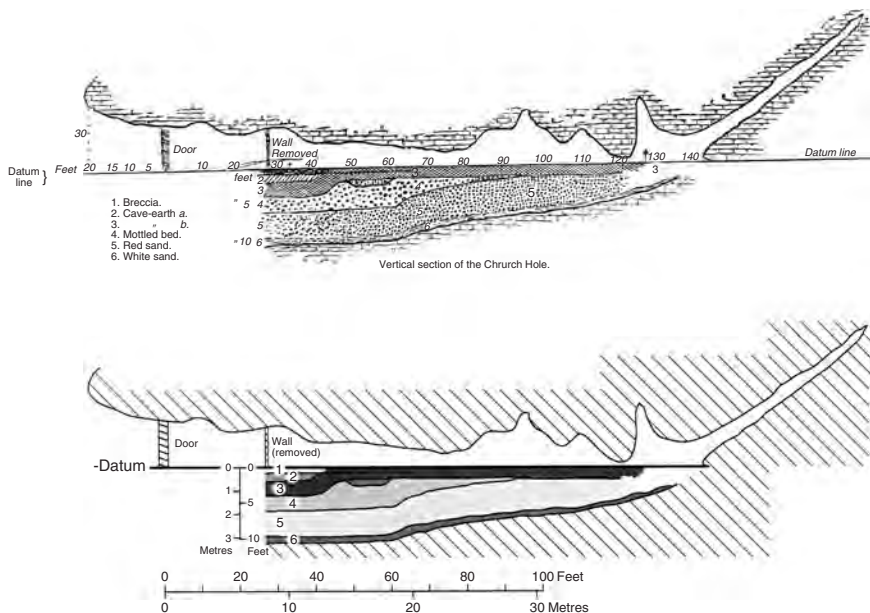


Fig. 7.2. Longitudinal profiles of Church Hole showing principal sediments

by seven diagrammatic cross-sections of the sediments. Five of these cross-sections, all widely spaced, are of the sediments in the main passage of the cave inwards of Heath's initial work. These were used as the basis for a reconstructed longitudinal profile (Fig. 7.2).

To help understanding, the description provided by Mello of the sediments and the information given by Mello and Dawkins about the finds from the individual sediments are summarized diagrammatically on Figure 7.3. Except for the 'superficial stratum' these are numbered from top to base. Some explanatory comments are necessary:

- The bronze brooch and bone counter are both Romano-British. It has to be assumed that they were found where layer 3 came close to the surface.
- As will be seen from what follows, the flint artefacts are of several different ages. There is no stratigraphic information about the contexts of individual items.
- At Creswell Crags it appears probable that quartzite was only used for tool manufacture during the Middle Palaeolithic. From Mello's account it would appear that Middle Palaeolithic artefacts were present in layers 3, 4, and 5.
- The bone and antler tools are late Upper Palaeolithic. They would appear from Mello's description to be from the same sediment (layer 4) as Middle Palaeolithic quartzite artefacts. Taken at face value this might imply gross

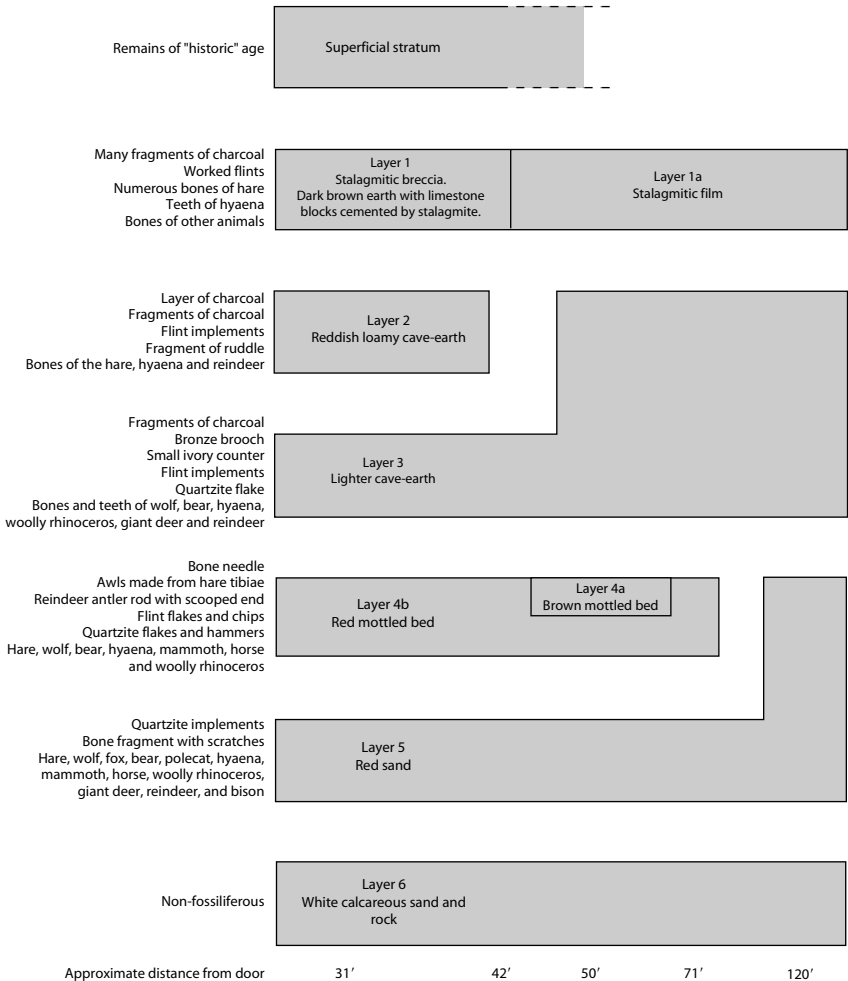


Fig. 7.3. Church Hole: diagrammatic representation of the stratigraphy with information on the contexts of archaeological and palaeontological material

mixing of the deposits. This apparent co-occurrence clearly troubled Boyd Dawkins who in *Early Man in Britain* changed the context of these bone and antler artefacts to the 'upper cave-earth' and implied that they had been found with late Upper Palaeolithic flints (1880: 185). It is unclear whether by doing this he was correcting a genuine mistake which had been made by Mello or if this was a case of wishful thinking.

It is intriguing that hare bones should have been described as 'numerous' in the topmost layer of the cave—the 'stalagmitic breccia'. Mountain hare (*Lepus*

Key:

1. Hare (*Lepus timidus*), partial rib;
2. Hare-sized long bone fragment;
3. Hare-sized long bone fragment;
4. Large-mammal bone fragment;
5. Hare-sized rib fragment;
6. Hare-sized carpal;
7. Hare, partial rib;
8. Hare, fragment of left tibia;
9. Hare-sized long bone fragment;
10. Hare-sized long bone fragment;
11. Large-mammal bone fragment;
12. Hare, partial right ischium;
13. Hare, partial right scapula with cut-marks;
14. Hare, fragment of left femur;
15. Hare, partial rib;
16. Hare, partial rib;
17. Hare, cheek tooth;
18. Fragment of older stained large-mammal bone. (Scale in mm).

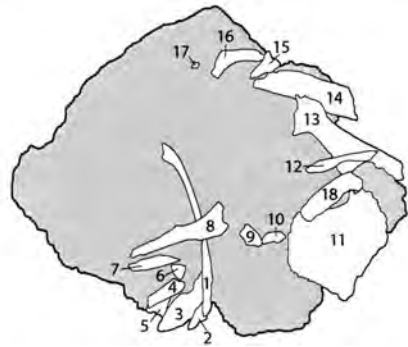


Fig. 7.4. Church Hole: small block of brecciated sediment with bones, the source of OxA-4108

timidus) bones in large numbers had been described from the 'breccia' at Robin Hood Cave and their presence attributed to human predation (Dawkins 1876: 246–7 and 249). Subsequently, numerous hare bones were recovered by John Campbell in his excavations outside the western entrance to Robin Hood Cave and human intervention was proved by abundant cut-marks (Charles and Jacobi 1994). Radiocarbon dating showed that hunting or trapping had taken place during the earlier part of the Late Glacial Interstadial (see below). In the case of Church Hole the literalness of Mello's description is borne out by a small preserved block of partially cemented (brecciated) matrix full of hare bones (Fig. 7.4). Amongst these hare bones are a femur and scapula with cut-marks of which the femur has provided a radiocarbon determination comparable in age to those from Robin Hood Cave (see below).

Mello's mention of charcoal in layers 1, 2, and 3 and of a 'layer of charcoal' in 2 should be noted. At many places sediment remnants adhere to the walls of Church Hole and lumps of charcoal are numerous in their upper part. The furthest into the cave that the charcoal has been observed is 23.47 m inwards of the present entrance grille—that is, just beyond the female images (Panel VII).

For a short length on the left-hand (eastern) side of the cave and centred on about 13.5–15.2 m inwards of the grille is a band of discoloured sediment, again near the top of the deposits. This discolouration appears to be due to a high charcoal content. Patches of similarly discoloured sediment have been reported from a number of British late Upper Palaeolithic cave-sites and sometimes interpreted as hearths. Best known is the so-called ‘black band’ at Kent’s Cavern (Pengelly 1868).

Mello reports remains of spotted hyena from all of the sediments except layer 6 which was unfossiliferous. During the Last Cold Stage spotted hyenas only appear to have been present in the British Isles prior to the Last Glacial Maximum. Hyenas denned in the Creswell caves and direct radiocarbon determinations for bones and teeth of hyenas and for the characteristically gnawed bones of their prey show them to have used the caves for over 20,000 years during the Middle Devensian.

There are two published radiocarbon determinations on recent chance finds of hyena teeth from Church Hole. Neither can now be related to the stratigraphic sequence described by Mello. The results were of interest as apparently being the youngest dates for hyenas from Creswell Crags and almost the youngest dates for this species in Western Europe. They were (Hedges *et al.* 1996):

OxA-5800	Spotted hyena, left P ₄	24,000 ± 260 BP
OxA-5799	Spotted hyena, right I ₃	26,840 ± 420 BP

However, there has recently been considerable progress in the pretreatment of bones for radiocarbon dating, particularly the addition of an ultrafiltration step (Bronk Ramsey *et al.* 2004) and there is now reason to believe that in many cases conventional gelatin extraction was less successful in removing small amounts of contaminants of a more recent ¹⁴C age—resulting in determinations which are younger than they should be. This appears to have been the case with the incisor, which it has been possible to redate. Its new age is (T. F. G. Higham, pers. comm.):

OxA-14926	Spotted hyena, right I ₃	>40,000 BP
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This is a considerable difference in age and is our first clue to the antiquity of hyena denning in the cave. It was not possible to resample the premolar, but there is reason to believe that the published determination for this specimen should be disregarded as being unreliable (T. F. G. Higham, pers. comm.).

Interestingly, Mello reports ‘teeth’ of spotted hyenas from the ‘stalagmitic breccia’, a layer from which we suspect also came evidence for the Late Glacial

exploitation of mountain hares. The same situation occurred at Robin Hood Cave, but here it was possible, by means of direct radiocarbon dating, to demonstrate that the hyena teeth were ancient fossils which had become reworked into a much younger context. This may also have happened at Church Hole.

At Creswell Crags, and other localities in England and Wales, spotted hyenas were a prominent member of a grouping of large mammals constituting the fauna of the Pin Hole mammal assemblage-zone (MAZ: Currant and Jacobi 2001). This faunal grouping, which appears to have been broadly contemporary with Marine Oxygen Isotope Stage 3, or the Middle Devensian, also included as frequently occurring components the mountain hare, wolf (*Canis lupus*), red fox (*Vulpes vulpes*), brown bear (*Ursus arctos*), lion (*Panthera leo*), woolly mammoth, wild horse (*Equus ferus*), woolly rhinoceros, giant deer (*Megaloceros giganteus*), reindeer (*Rangifer tarandus*), and bison (*Bison priscus*). Bones and teeth of all these species are recorded as having been found in Church Hole and all, with the exception of lion, co-occur in the deepest fossiliferous deposit in the cave (layer 5: Dawkins 1877; Mello 1877). At Pin Hole radiocarbon and electron spin resonance dating clearly demonstrate that this grouping is Middle Devensian (Jacobi *et al.* 1998, 2006).

Spotted hyena, lion, woolly rhinoceros, and bison are not known to have returned to the British Isles after the Last Glacial Maximum and their presence at Church Hole can, therefore, be assumed to have predated this time. However, the other species have also been recorded from the Late Glacial, although not necessarily locally. This means that assumptions cannot be made about the ages of individual bones and teeth of these species in collections from Church Hole—except where the patterns of gnawing and damage associated with spotted hyenas can be clearly recognized.

One way forward to a better understanding of faunal history at this site might be a programme of radiocarbon dating similar to that undertaken at Paviland Cave on the Gower (Aldhouse-Green and Pettitt 1998; Aldhouse-Green 2000), but this may have been made difficult by gelatinization of much of the material (Dawkins 1877: 589 n.). Extensive spoil-heaps exist outside Church Hole and these are likely to be a productive source of fresh bones and teeth for such an exercise. They would, of course, be unstratified, but so is virtually all of the material from Church Hole now in museum collections.

One item mentioned by Mello requires a final comment and this is what was described as ‘a fragment of a bone which has some scratches, apparently made by a flint’ (1877: 587). It was clearly unusual. It was found on 30 June 1876 at the ‘bottom’ of the ‘red sand’ towards the front of the cave during

investigation of sediment remnants in the area stripped of its upper levels by Heath in 1875 (Dawkins n.d., 1876). Cut bone from the Creswell Caves which is likely to be older than the Late Glacial is of exceptional rarity and it is particularly unfortunate that the bone referred to by Mello and Dawkins cannot now be recognized with confidence amongst the material from their excavations. Had it been discoverable it might have provided us with an invaluable clue as to one of the species of animals which were being hunted or scavenged by the Neanderthal inhabitants of the cave.

As presented by Dawkins and Mello, the stratigraphy of Church Hole appears closely similar to that of Robin Hood Cave and Mello states his belief (1877: 585) that the sediments were laid down at the same period and under similar circumstances. In considering his comments it is as well to remember that both were attempting to present a version of events at Creswell which involved a minimum of complexity. How much over-simplification this may have led to is now impossible to assess.

LITHIC ARTEFACTS

Sources

Lithic artefacts attributed to Church Hole have been identified in the following collections and institutions:

- The British Museum
- The Natural History Museum
- Bolton Museums, Art Gallery and Aquarium
- Department of Archaeology, University College, Cork
- Creswell Crags Museum and Education Centre
- Derby Museum and Art Gallery
- Cliffe Castle, Keighley
- Manchester Museum
- Brewhouse Yard Museum, Nottingham
- Salford Museum

With one exception all are nineteenth-century finds.

It is difficult precisely to quantify the lithics from Church Hole. Those found by the 'Creswell Cave Exploration Committee' in 1876 can be confidently identified in three ways: from figures and descriptions provided by Dawkins (1877); from printed paper labels attached to the objects stating that they had been found during the 'exploration' of 1876 and in 'Churchhole', or, in the case of flints, from their marking with a small 'C' in ink.

A further nine quartzite artefacts in whose attribution to Church Hole we can also have confidence came either directly or indirectly from the collection of J. Magens Mello. They are marked in ink or pencil and in cursive as coming from 'Church Hole'. Those at the British Museum are part of the Christy Collection and those at Cliffe Castle have come via the Cudworth collection. Four quartzite artefacts in the British Museum are marked in ink and in cursive with either 'Churchhole' or 'Churchole'. The latter spelling is to be found in Dawkins's notes and there are distinct similarities in the handwriting between that on the artefacts and in the notebook. If Dawkins was the source, there is no information as to how they came to be part of the British Museum collection.

Flint artefacts from Creswell Crags were amongst the immense collection of lithics bequeathed to the British Museum by Allen Sturge (Smith 1931: 123). Seven pieces listed by Smith simply as from 'Creswell Crags' are marked with a small 'C' indicating collection from Church Hole in 1876. Clearly, Smith was ignorant of the significance of this marking. Of eighteen 'flakes' attributed by Reginald Smith to Church Hole only one has a printed label of the type stuck to finds made in 1876 (see above). The remainder carry different markings in what are clearly different hands including, in some cases, attribution to 'Churchill Cave'. In that, in several cases, these latter markings overlie a small ink 'R', indicating Robin Hood Cave as the find spot, there is clearly reason to be uneasy about this whole group. Further, two have prices on them and so have, at some time, been on the open market. Only eight pieces from the Sturge bequest are, therefore, included in the counts for Church Hole.

Up until the recent refurbishment of the geology ('stratigraphic') gallery at Manchester Museum there was on display a tray of bones, teeth, and artefacts with a label in Boyd Dawkins's hand-writing stating 'Associated fragments from Cave-earth. Church-Hole Cave. Flint chips. Quartzite chips. Gnawed fragments. 17 July 1876'. On Monday 17 July, excavation was taking place between 81 and 87 ft (24.7–26.5 m) into the cave from the datum point of the 'door' and the cave-earth was thinning rapidly (see Fig. 7.2). The fauna includes teeth and tooth fragments of hyena, mammoth, wild horse, and woolly rhinoceros and antler fragments of reindeer. Hyena gnawing is apparent on some bone fragments. A femur of mountain hare looks more recent than the other bones. There are four worked flints and eleven small quartzite flakes, the latter including a possible 'pseudo-Levallois point'. Among the flints are a very small 'migrating platform' core on a fragment of rolled grey flint (see below) and a 'core edge removal flake' also of grey flint. Both are likely to be Middle Palaeolithic and are types not otherwise represented in the flint component from the cave. There is also a small 'end-scrapers' which appears older than late Upper Palaeolithic.

None of the artefacts and fauna is marked. Reluctantly, the artefacts are left out of the counts for Church Hole for fear that, over the intervening years, they might have become mixed or reinforced with material not from the cave. Taken at face value, however, this group would be of considerable interest for showing how deep into the cave Middle Palaeolithic activity extended and for apparently documenting an overlap between Middle Palaeolithic artefacts and evidence of hyena denning. As already noted, the passage at this point is level and there is no reason to suspect natural transport deeper into the cave.

Finally, I have omitted six flint artefacts, all of which are probably Late Upper Palaeolithic. These are also in Manchester Museum and in blocks of brecciated sediment attributed to Church Hole, but not individually labelled. My reason for omitting them is that one group of blocks (P2220) attributed in the *Catalogue of the Dawkins Collection* to Church Hole includes pieces which are labelled as from Robin Hood Cave. It is a pity that there is this ambiguity as several blocks preserve associations between flints and bones, including those of mountain hares.

Collection information is summarized on Table 7.1.

Raw Materials

Twenty-nine artefacts have been made from, or utilize, cobbles of medium or fine-grained quartzite, probably picked up locally, but with an origin in the 'Bunter' pebble beds of the Triassic. Stratigraphic data from Pin Hole indicate that quartzite was used as a raw material for tool manufacture only during the late Middle Palaeolithic (Mousterian). This dating is supported by the typology of the artefacts made from this material. Extrapolating from these

Table 7.1. Sources of artefacts from Church Hole by institution

	From 1876 exploration	Collection of J. Magens Mello	Unknown	20th-century find
British Museum	+	+	+	
Natural History Museum		+		
Bolton Museums	+			
University College, Cork	+			
Creswell Crags Museum				+
Derby Museum	+			
Cliffe Castle, Keighley		+		
Manchester Museum	+			
Brewhouse Yard Museum, Nottingham		+		
Salford Museum	+			

Table 7.2. Church Hole: quartzite artefacts and hammerstones

Flakes	13	(Fig. 7.5/1)
Broken flake	1	
Cores	4	(Fig. 7.5/2)
Chopping tools	4	(Fig. 7.6/1)
Scraper	1	
Bifacially modified flake	1	
<i>Divers</i>	1	
Hammerstones	4	(Fig. 7.6/2)

observations all of the quartzite artefacts from Church Hole are interpreted as Middle Palaeolithic (Table 7.2).

Flint was used as a raw material at Creswell Crags during the Middle Palaeolithic, Upper Palaeolithic, Mesolithic, and Neolithic. Identifying from amongst a mixed and now unstratified collection which pieces might belong to each of these stages depends on considerations of typology, flint type, and preservation state, as well as, it must be said, a degree of subjectivity. Of the sixty-six flint artefacts from Church Hole a small bifacial flake core differs from all the rest in being unaltered by patination. It is regarded as 'Neolithic' and is of interest in that so little flintwork of this age has been found in the Creswell caves (see Fig. 7.7/1). Three flint artefacts are thought to be Middle Palaeolithic, despite Allen Sturge's opinion, recorded in ink on two of them, that they came from the 'Neolithic layer' (Fig. 7.7/2–3). The remaining sixty-two flint artefacts are believed to be late Upper Palaeolithic (Tables 7.3 and 7.6). The flint artefacts traced from Church Hole are fewer than half of those listed by Dawkins (1877: 604). It has to be assumed that the missing component consisted largely of what he described as 'splinters'—in other words, the smaller and more irregular debitage.

The Middle Palaeolithic

All told, there are probably thirty-two late Middle Palaeolithic (Mousterian) artefacts from Church Hole. The comments which need to be made on the quartzite component (Table 7.2) are neither numerous nor lengthy.

Table 7.3. Contexts of flint artefacts from Church Hole

Found in 1876	65
Found in 1987	1
Neolithic	1
Late Upper Palaeolithic	62
Late Middle Palaeolithic	3



Fig. 7.5. Church Hole: atypical Levallois flake; discoidal core

On four of the flakes a strip of skin remains along the whole of one margin and these could be classified as ‘naturally backed knives’. Such a function is easy to imagine. They coincidentally show that cores were turned both clockwise and anti-clockwise during the flaking process. Two flakes could be described as ‘atypical Levallois flakes’ (Fig. 7.5/1). There is no unambiguous evidence for a Levallois component amongst the quartzite artefacts from Creswell Crags and the only artefact of flint which appears to be a result of Levallois technique is a large broken blade from Robin Hood Cave. There is a single very clear example of a ‘core edge removal flake (*éclat débordant*)’ struck from a core of purplish quartzite (Cook and Jacobi 1998: fig. 18.6.1). A piece described by Coulson (1990: 313) as a ‘denticulate’ is a flake with minor natural damage. This is therefore listed amongst the flakes.

There are four cores. In two cases a flake has been removed from a cobble to create a striking platform. Originating from this a single flaking face has been developed. On one of these cores there is evidence for the removal of four, and on the other five, flakes. It is difficult to read in which direction these cores had been rotated during knapping. The other pair of cores are ‘unifacial

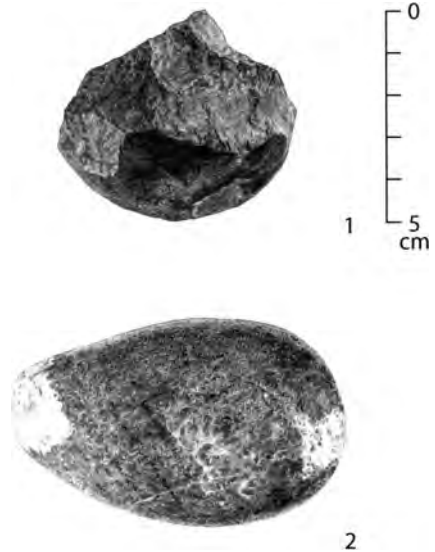


Fig. 7.6. Church Hole: chopping tool;
hammerstone

discoidal cores'. In both cases centripetal and chordal flakes have been removed. There is a minimum of platform preparation. The smaller of these cores had been used as a hammerstone. The larger is illustrated (Fig. 7.5/2) and the smaller has been drawn by Jenkinson (1984: fig. 28.4).

Four pieces could be classed as 'chopping tools'. Dawkins speculated that similar artefacts from Robin Hood Cave could have been used to smash bones to access the marrow (1877: 593–4), but more recent experimental work suggests that this could be more efficiently achieved by using an unmodified cobble (Ashton *et al.* 1992*b*). Rather than being tools they are here interpreted as cores. Two have also been used as hammerstones (Fig. 7.6/1).

There are two quartzite tools from Church Hole. One is a single convex side-scraper on an elongated flake. The other is an outer flake with bifacial retouch to part of its periphery. It is unclear whether it was a tool in its own right or a failed attempt at something like a small handaxe. It has a small area of contusions on its skin (Jenkinson 1984: fig. 28.3). The piece pigeon-holed as '*divers*' is a naturally split cobble of liver-coloured quartzite with small and irregular removals on both faces and around part of its edge. One group might, with the eye of faith, form a scraper edge. Finally, there are four hammerstones (Fig. 7.6/2). Coulson (1990: pl. 6-4.1, P.1867 and P.3119, and pl. 6-4.3, P.1868) figures three additional quartzite artefacts as from Church Hole, but these are no more closely provenanced than the Creswell caves.

There are only three flint artefacts which their condition and raw material suggest as late Middle Palaeolithic. One is a naturally pointed hinge-terminating

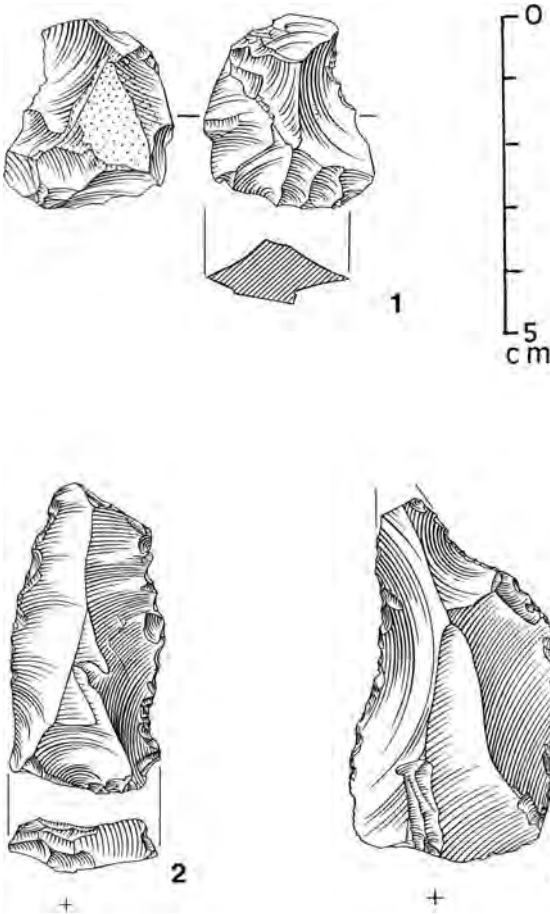


Fig. 7.7. Church Hole:
Neolithic core;
naturally pointed flake;
flake with notch

flake with transversely faceted butt (Fig. 7.7/2). It appears worn and there is small-scale natural damage to its margins. It is unclear from what type of flint it had been made.

Figure 7.7/3 is a flake with a single 'Clactonian' notch at its distal end. An alternative description would be as a 'flaked flake' (Ashton *et al.* 1992a). The third piece is a spall from a flaked flake, coming as it does from the ventral face of what appears to have been a large flake. Flaked flakes in the form of pieces with single notches or denticulation are present in the collection from Robin Hood Cave and amongst material provenanced simply as Creswell Crags. What is interesting is that most of these, like the notched flake and spall from Church Hole, have been made from opaque grey flint resembling that of the North Lincolnshire and Yorkshire Wolds. However, before

assuming long-distance transport of this raw material, it should be noted that small pieces of similar flint, but wholly natural and water-worn, were found by Armstrong in the cave-earths at Pin Hole, suggesting the possibility of a local source as glacial erratics.

Coulson (1990: 316 and pl. 6-4.4) describes a side-scraper with thinned back, also of flint, from Church Hole and the same piece is figured by Jenkinson (1984: fig. 28.1), but as an unprovenanced Creswell find. This piece has not been located, although it is said by Coulson to be at Manchester Museum. A flint flake illustrated by Jenkinson (1984: fig. 64.2) as 'Mousterian' is here counted as late Upper Palaeolithic as its condition matches that material.

The late Middle Palaeolithic collections from Pin Hole and Robin Hood Cave include handaxes and flakes from the thinning and trimming of handaxes. A handaxe is reported from Mother Grundy's Parlour (Dawkins and Mello 1879: 729). A presence of handaxes supports attribution of this material to the Mousterian of Acheulian Tradition and there is no evidence contrary to such a designation. Independent support for this correlation comes from the results of dating work at Pin Hole and Robin Hood Cave using a combination of uranium-series, electron spin resonance, and radiocarbon dating. These results suggest that late Middle Palaeolithic use of these caves was during the Middle Devensian—perhaps over a broad time-range between 40,000 and 50,000 years ago (Jacobi *et al.* 1998, 2006: 561–6), that is broadly contemporary with the formation of layers attributed to the Mousterian of Acheulian Tradition in the lower shelter at Le Moustier in the Dordogne (Valladas *et al.* 1986; Mellars and Grün 1991). There is no clear reason why the Middle Palaeolithic activity at Church Hole should not have taken place at about the same time.

The Late Upper Palaeolithic

The Upper Palaeolithic of the British Isles appears divisible into two parts: the early Upper Palaeolithic which preceded the Last Glacial Maximum and the late Upper Palaeolithic which is more recent than this event and broadly equivalent in time to the Late Glacial Interstadial.

An early Upper Palaeolithic presence at Creswell Crags is demonstrated by finds of 'leaf-points' at Pin Hole and Robin Hood Cave and of 'Font-Robert' points at Pin Hole. The leaf-points are probably to be associated with the very earliest part of the Upper Palaeolithic (Jacobi *et al.* in press) and it is uncertain whether they formed a part of the tool-kit of the last archaic (Neanderthal) humans to occupy the area or whether they should be associated with the first

anatomically modern humans. The Font-Robert points are much more recent and probably a tool-form of the earliest Gravettian (Bosselin and Djindjian 1994). There are no artefacts from Church Hole which appear attributable to the early Upper Palaeolithic and Dawkins states that there were from Church Hole ‘no fragments of the elaborately chipped “lance-heads” of the “type de Solutrè”’ (1877: 605), by which he meant what we would now term leaf-points. This comment is important for demonstrating that their absence from the Church Hole collection is not due to recent loss.

The resettlement of Britain following the Last Glacial Maximum is part of the repopulation of central and north-western Europe by people who used a Late Magdalenian technology or, as in the case of Britain, a technology which is closely related to it (see Pettitt, this volume). While repopulation occurred in some areas earlier than the opening of the Late Glacial Interstadial, humans returned to Britain close to its beginning and only after the peopling of the Paris Basin, Belgium, and perhaps northern Germany (Housley *et al.* 1997, 2000; Blockley *et al.* 2000; Blackwell and Buck 2003).

The Magdalenian derived technology found in Britain during the first part of the Late Glacial Interstadial has sometimes been termed the ‘Creswellian’. It has been described in a number of papers (Jacobi 1997, 2004; Barton *et al.* 2003) and it is not intended to recapitulate this information here.

Evidence for human activity during the earlier part of the Interstadial has been recognized from four caves (and possibly a fifth) at Creswell Crags. These are Church Hole, Mother Grundy’s Parlour, Pin Hole, Robin Hood Cave, and possibly Dog Hole (West Pin Hole). In each case, except Dog Hole, this recognition is supported by radiocarbon determinations.

The radiocarbon determinations from Church Hole are summarized on Table 7.4.

A few comments are necessary. The left humerus of mountain hare is unmodified, but was selected for dating because of its proximity to a broken blade in a small block of brecciated sediment (Fig. 7.8). The determinations

Table 7.4. Radiocarbon determinations for Late Upper Palaeolithic human activity at Church Hole

Lab. no.	Identification	Measurement
OxA-8730 ^a	Cf. bovini, innominate fragment with cut-marks	11,915 ± 75 BP
OxA-3717 ^b	Reindeer antler rod with scooped end	12,020 ± 100 BP
OxA-4108 ^b	Mountain hare, femur with cut-marks	12,110 ± 120 BP
OxA-735 ^c	Mountain hare, humerus	12,240 ± 150 BP
OxA-3718 ^b	Reindeer antler rod with scooped end	12,250 ± 90 BP

^a Ripoll *et al.* 2004. ^b Hedges *et al.* 1994. ^c Gowlett *et al.* 1986.



Fig. 7.8. Church Hole: small block of brecciated sediment with broken flint blade and bones of mountain hare (*Lepus timidus*)

for the humerus and femur are close to those for cut-marked hare bones from Pin Hole and Robin Hood Cave. All fall within the earlier part of the Interstadial (Table 7.5).

It is clear that the hunting or trapping of mountain hares was a frequently occurring activity at Creswell Crags. However, with the loss of so much of the early excavated material from the site it is impossible to answer the question whether their exploitation was likely to have been the principal reason for the use of the Creswell caves or whether the number of hares captured was actually quite low and they represented no more than easily taken snacks for human groups passing through the gorge.

It is impossible to determine whether the fragment of bovine innominate from Church Hole is from wild cow/aurochs (*Bos primigenius*) or a bison (*Bison priscus*). However, bovine bones from Upper Palaeolithic levels at Pin Hole have all been identified as from wild cattle (H. Gee, pers. comm.), as have the bovine remains from other British Late Glacial sites. These identifications are of obvious relevance to the interpretation of the bovine represen-

tation (Panel III) at Church Hole. Two of the bones from Pin Hole have been directly dated to the earlier part of the Late Glacial Interstadial (Hedges *et al.* 1989):

OxA-1471	Wild cattle, left astragalus	12,400 ± 140 BP
OxA-1615	Wild cattle, right astragalus	12,480 ± 160 BP

The other species to have been hunted at Creswell Crags during the earlier part of the Late Glacial Interstadial was the wild horse. Evidence for its processing comes from Mother Grundy's Parlour (Table 7.5).

Lithic Artefacts: Raw Material

There are sixty-two flint artefacts which, it is believed, are Late Upper Palaeolithic (Table 7.6). All of these are patinated and all except three are in sharp condition. These three exceptions appear worn and scratched and have nicked edges as if they had been transported. Three pieces are heat-altered. Together with the charcoal fragments these suggest that fires had been lit in the cave. Where there has been recent damage, or surface change is thin, it is in all cases apparent that the artefacts had been made from translucent or semi-translucent black flint. Cortical remnants are in one case chalky but in others clearly wind or water-smoothed and range in colour from an egg-shell white through buff, fawn, yellow, and orange to a vivid red. In no case does an

Table 7.5. Radiocarbon determinations for Late Upper Palaeolithic human activity at Creswell Crags

Lab. no.	Identification	Measurement
Pin Hole:		
OxA-1467 ^a	Mountain hare, radius with cut-marks	12,350 ± 120 BP
OxA-3404 ^b	Mountain hare, tibia with cut-marks	12,510 ± 110 BP
Robin Hood Cave:		
OxA-1670 ^a	Mountain hare, humerus with cut-marks	12,290 ± 120 BP
OxA-3415 ^b	Mountain hare, scapula with cut-marks	12,340 ± 120 BP
OxA-1617 ^a	Mountain hare, femur with cut-marks	12,420 ± 200 BP
OxA-1619 ^a	Mountain hare, scapula with cut-marks	12,450 ± 150 BP
OxA-1618 ^a	Mountain hare, humerus with cut-marks	12,480 ± 170 BP
OxA-3416 ^b	Mountain hare, pointed tibia	12,580 ± 110 BP
OxA-1616 ^a	Mountain hare, scapula with cut-marks	12,600 ± 170 BP
Mother Grundy's Parlour:		
OxA-8738 ^c	Wild horse, fractured lower premolar	11,970 ± 75 BP
OxA-8739 ^c	Wild horse, fractured lower molar	12,170 ± 80 BP
OxA-5698 ^d	Wild horse, upper premolar with cut-marks	12,280 ± 110 BP

^a Hedges *et al.* 1989. ^b Hedges *et al.* 1994. ^c Bronk Ramsey *et al.* 2002. ^d Hedges *et al.* 1996.

Table 7.6. Late Upper Palaeolithic artefacts from Church Hole

Flakes	7
Blades/bladelets	4
Broken blades/bladelets	23
Broken pieces	8
Broken crested blades	4
Core tablet	1
Core fragment	1
Composite tool	1
Piercers/ <i>becs</i>	2
Burins	4
Retouched truncation	1
Denticulate	1
Abruptly modified pieces	4
?Spall from splintered piece	1
Total	62

artefact retain a substantial area of cortex suggesting that cores had been largely cleared of cortex before they arrived at the cave.

The source of this flint has not been investigated for Church Hole, but at Robin Hood Cave trace element analysis of Late Upper Palaeolithic artefacts suggests that south-western sources played an important role in the supply of lithic material (Rockman 2003). This recent work is exciting for the insight it gives as to the scale of wanderings of late Upper Palaeolithic hunters in the British Isles, as well as thereby supplying an explanation for the close similarities discerned between some of the tools from the Creswell caves and those from sites in south-western England—particularly Cheddar Gorge.

Debitage and Core

One result of selective curation may be that there are now several times more blades than there are flakes. These blades are in most cases neat with parallel or subparallel dorsal ridges. Although the sample is small there is a clear bias towards blades having come from cores with either a single, or a single preferred, flaking direction. Longitudinal profiles also show a tendency to be gently curved or undulating.

There are sixteen blades or proximal blade portions and their butts can be described as follows: plain 3; faceted 5; *en éperon* 5; not determined 2; not preserved 1. This count is clearly of interest for the high proportion of butts which are either simply faceted or faceted so as to be *talons en éperon* (Karlin

in Leroi-Gourhan and Brézillon 1972). Taking this further, it is useful to compare (Table 7.7) the count for Church Hole with counts for larger samples of blade butts from two collections which radiocarbon evidence firmly places in the first half of the Late Glacial Interstadial (Kent's Cavern and Robin Hood Cave) and two collections which from their typology appear more likely to belong in its second half (Brockhill and Hengistbury Head). It is clear from this comparison that faceted butts are more numerous in the two slightly older sites and that plain butts are vastly dominant in the two younger. Church Hole, on the basis of its count, aligns with the slightly older sites. In addition, it should be noted that faceted butts taking the form of *talons en éperon* are present at Kent's Cavern and Robin Hood Cave, but are absent from Brockhill and Hengistbury Head. Indeed, partly on this basis, *talons en éperon* have been suggested as a local proxy for human presence during the first half of the Interstadial (Jacobi 1997: fig. 1; 2004: fig. 44).

Amongst the artefacts from Church Hole is a single core fragment split vertically by heat.

Retouched Tools

There are thirteen retouched tools from Church Hole (Table 7.6). The composite tool is an end-scraper combined with a burin on retouched truncation (Fig. 7.9/1). This is the only end-scraper in the collection and the working edge has been placed at the distal end of a blade. Along one lateral

Table 7.7. Butt indices for blades/bladelets in British Late Upper Palaeolithic collections

	Cortical	Plain/ punctiform	Linear	Dihedral faceted	Faceted	<i>En éperon</i>
Brockhill ^a	0.9%	84.5%	5.4%	1.8%	7.3%	–
	1	93	6	2	8	–
Hengistbury Head ^a	0.6%	85.4%	–	2.4%	11.5%	–
	1	141	–	4	19	–
Church Hole (1876)	–	3	–	–	5	5
Kent's Cavern (1866–1867 and 1871) ^b	–	37.3%	2.3%	2.3%	39.5%	18.6%
	–	16	1	1	17	8
Robin Hood Cave (1969) ^b	–	37.0%	3.7%	11.1%	29.6%	18.5%
	–	10	1	3	8	5

^a Barton 1992: table 4.31. ^b Jacobi 2004: table 8.

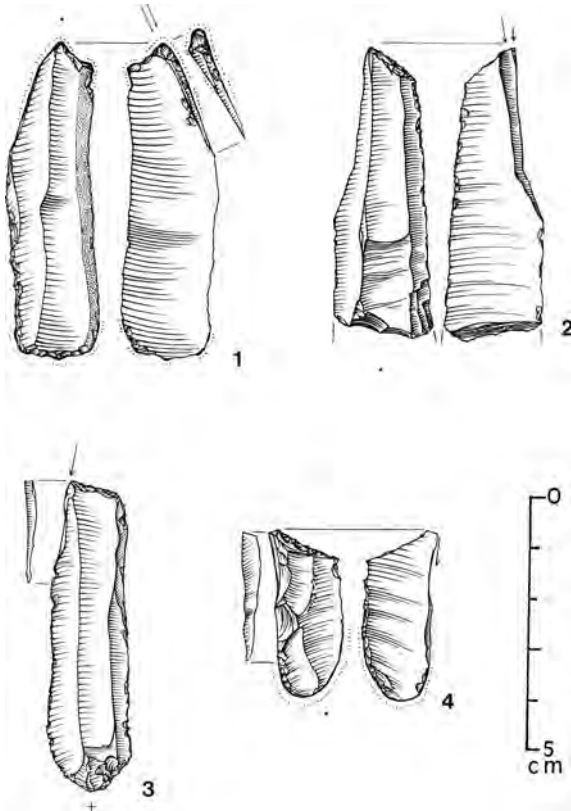


Fig. 7.9. Church Hole:
composite tool;
burins

edge is a narrow strip of cortex while the other lateral edge has been retouched for its whole length. That the scraper should have been made on a blade fits the pattern observed for end-scrapers from find spots occupied during the first half of the Late Glacial Interstadial (Jacobi 2004: table 31). In its second half, as at Hengistbury Head (Barton 1992: 108), scrapers are more often made on flakes. Likewise, the presence of retouch on a lateral edge is a feature to be observed on the majority of end-scrapers from sites used during the earlier part of the Interstadial (Jacobi 2004: tables 16 and 31).

The burin is one of five from the cave. Four of these burins are on a retouched truncation (Fig. 7.9) and the fifth a burin on a break. That four of the five burins should be on retouched truncation is perfectly consistent with an age for this group in the first part of the Late Glacial Interstadial (Jacobi 2004: table 32). Also consistent with this context is the fact that all the burin edges are narrow and are well adapted to tasks such as the working of bone and antler by the 'groove and splinter' technique. At Creswell Crags

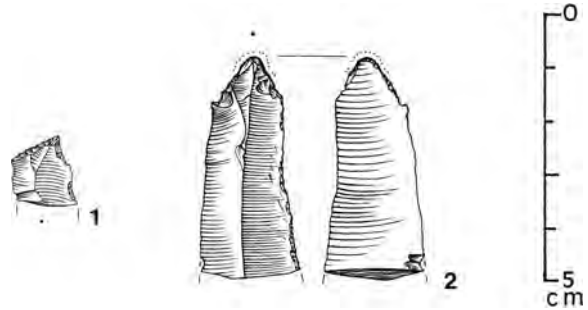


Fig. 7.10. Church Hole:
piercer; *bec*

use of this technique is shown on a proximal metacarpal of reindeer from Robin Hood Cave which was utilized as a core probably for the production of needles, before what remained was converted into an awl (Garrod 1926: fig. 31.4).

However, it is worth looking in more detail at the burin at the proximal end of the composite tool. This has damage, in the form of small flake removals, *along* the burin facets and on its ventral face adjacent to the burin facets. In turn, the burin is overlain by ‘rounding’. An identical combination of features has been observed on burins from Gough’s Cave (Cheddar: Jacobi 2004: fig. 18.8) and in the collection of late Upper Palaeolithic artefacts from Sun Hole on the opposite side of Cheddar Gorge (*ibid.*: fig. 35.4). One explanation for the distribution of this damage is that these tools have been used with a clockwise torsion, perhaps as ‘reamers’, with the burin facets giving the tool ‘bite’.

It is interesting that burins should be the most numerous tool category at Church Hole. At Robin Hood Cave they are slightly outnumbered by end-scrapers and at Pin Hole piercers outnumber both. It is unclear what should be read into these differences and it should also be remembered that in each case sample size is very small. As a final note on the burins from Church Hole, the piece illustrated by Jenkinson as a dihedral burin (1984: fig. 65.2) is here interpreted as a lateral spall from a splintered piece (see below).

The piercer (Fig. 7.10/1) is the piece found in 1987. It was picked up close to the east (left-hand) wall of the cave at a distance of 15.5 m from the grille. This part of the cave is beyond the daylight zone and so delicate tasks involving this piercer would have required artificial light. Figure 7.10/2 is an atypical piercer in that the worked end is thicker and broader. It is, therefore, classified as a *bec* (Sonneville-Bordes and Perrot 1955: 78). It had been previously described by Dawkins as an ‘awl’ (1877: 604).

The four abruptly modified (backed) pieces require some comment. Figure 7.11/1 is an example of a peculiar variant of the obliquely truncated and backed points which was first described by Jacobi and Roberts (1993) and

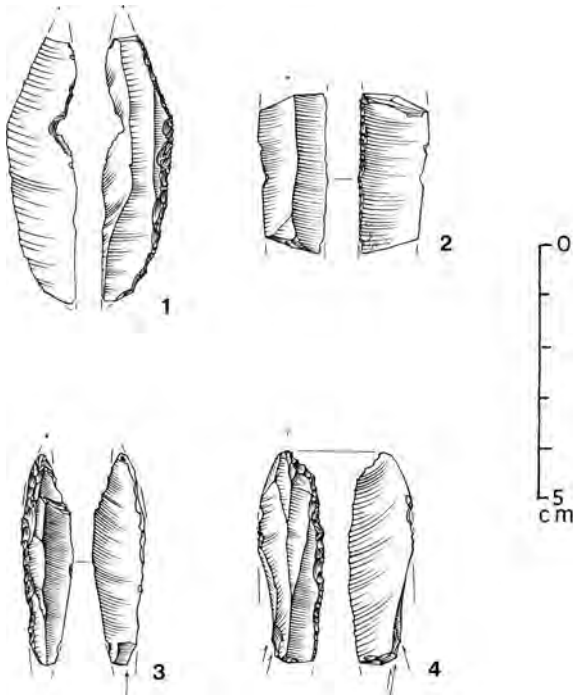


Fig. 7.11. Church Hole: abruptly modified pieces

termed by them a ‘curved and angle-backed point’. These combine an oblique truncation (at the upper end as illustrated) with sinuous modification along the shorter lateral edge—this being convex in its lower (proximal) portion. Examples of these points have been observed in collections from Gough’s Cave, Kent’s Cavern, and Cow Cave (Chudleigh, Devon: Beynon 1932: 131). Damage to specimens from Gough’s Cave is consistent with their use as projectile points. At Gough’s Cave the seven examples are part of a very large collection of lithic artefacts which is associated with cut animal bones, human bones, and organic artefacts for which there are numerous radiocarbon determinations. The oldest of these is $12,940 \pm 140$ BP (OxA-3413) and the youngest is $11,820 \pm 120$ (OxA-2795; Jacobi 2004: table 29).

Figure 7.11/2 is a fragment of a retouched tool. Whilst difficult to interpret with certainty, its most likely identification is as the mesial fragment from a bitruncated trapezoidal backed blade (‘Cheddar’ point: Bohmers 1956: 11). As the name implies, the outline of this tool-type is trapezoidal. The outline is defined by a pair of divergent oblique truncations linked by backing along the shorter lateral edge between them. While the abrupt modification which

forms the oblique truncations is nearly always direct, the backing of the shorter edge is frequently inverse. Examples of bitruncated trapezoidal backed blades with inverse backing of the shorter edge come from Pin Hole (Campbell 1977: fig. 151.3) and Robin Hood Cave (Jacobi 2004: fig. 40.3, 4 and 6).

Association of these bitruncated trapezoidal backed blades with the earlier part of the Late Glacial Interstadial has been suggested in a number of papers (Jacobi 1991, 1997, 2004; Barton *et al.* 2003) and it is not intended to repeat the arguments here. Interpretation of their function has, however, been more contentious, but recent use-wear analysis of examples from the site of Zeijen in the northern Netherlands has confirmed both that they were hafted and that they had been used as projectiles (Rots *et al.* 2002).

Figure 7.11/3 is a curve-backed point, recently damaged at its upper end exposing the translucent flint from which it has been made. At the rather thinner lower end is an ancient bending break which might well be a result of impact. When intact it could have been a 'bi-point', that is, a piece pointed at both extremities. Figure 7.11/4 is the last of the abruptly modified pieces. It, too, appears to have been a curve-backed point. At its lower end is a transverse snap from which originate several burin-like fractures. These have removed much of the leading edge and should probably be interpreted as massive impact damage.

Curve-backed pieces of various forms are often associated with the technologies of the second half of the Late Glacial Interstadial, but recent work has clearly shown that they can also be a part of tool-kits dating from the first part of the Interstadial. This is demonstrated by the radiocarbon determinations on wild horse and red deer (*Cervus elaphus*) bones from the lower layer of Locus 46 at Le Closeau, Rueil-Malmaison in the Paris Basin (Bodu and Valentin 1997; Bemilli 2000; Bodu 2000).

The remaining pair of retouched artefacts from Church Hole, which appear to belong with this Late Glacial material, are a short flake with a retouched truncation across its proximal end and a short thick flake with what is best described as 'denticulation' across its distal end.

Utilized Pieces

Three artefacts stand out because part of the perimeter of each appears 'rounded'. This is indicated by dots on their drawings (Figures 7.9/1, 7.9/4, and 7.10/2). This rounding had been observed by Dawkins, who described the *bec* as 'well worn by friction' (1877: 604). Rounding has been observed on retouched and unretouched flints from a number of British late Upper

Palaeolithic sites (Barton 1992; Jacobi 2004). Where it overlies retouch, as it clearly does in the case of the composite tool (Fig. 7.9/1) and the *bec* (Fig. 7.10/2), it is unclear if the rounding is to be associated with the use of these tools or whether the juxtaposition is fortuitous and results from a secondary utilization of the same piece of flint.

The suggestion has recently been made that such rounding comes from using flints as strike-a-lights with iron pyrites (Stapert and Johansen 1999) in which case the fact that it might overlie retouched tools would be coincidental. Such a mundane function would explain why rounding has so frequently been observed, but it is probably simplistic to conclude that all rounding is due to this use. Elsewhere, rounding of flint artefacts has been associated with the engraving of rock surfaces (Bordes *et al.* 1974; Allain 1979: 103–7; Jacobi 1982: 20; Hinout 1990: 444–7).

Finally, one small, thin piece resembles a lateral spall from a splintered piece (*pièce esquillée*). Splintered pieces can be cores or tools—perhaps wedges (*pièces intermédiaires*: Mazière 1984). They have been found at Robin Hood Cave and are present in the old, unprovenanced Creswell collection.

BONE AND ANTLER ARTEFACTS

All of the bone and antler artefacts from Church Hole are in the British Museum and are parts of the Christy collection.

Figure 7.12/1 was identified by Dawkins as having been made from the transverse process of a lumbar vertebra either of a wild horse or other large herbivore (1877: 604). This object is now incomplete, probably due to excavation breakage and the depression on one face is also damage and not an uncompleted perforation. The bone fragment has been trimmed to an ovoid outline. There appear to be up to nineteen remaining, irregularly spaced, notches, but damage makes an accurate count difficult. The margin between the notches is rounded in profile, but it is unclear whether this rounding is due to preliminary shaping or use. Ann Sieveking interpreted this object as a pendant (1987: 101), as did Jenkinson (1984: 108), but an alternative identification might be as a serrated-edge flesher (see also Campbell 1977: 184). Its size would have made it ideal for use on the pelts of small animals such as mountain hares. Another suggestion made during the writing of this chapter was that it resembles a thread-winder. Identification as part of a sewing kit would ally it with the bone needle and awls also found in the cave.

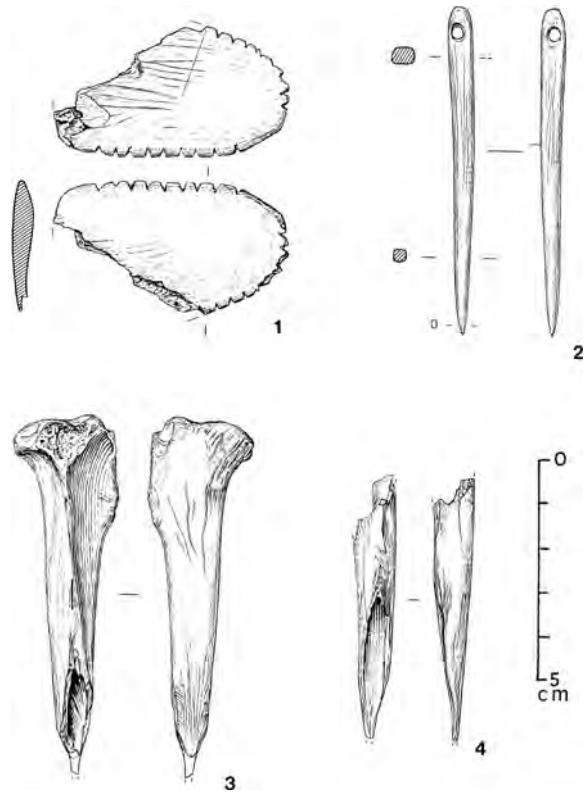


Fig. 7.12. Church Hole bone artefacts: flaker; needle; awls

The eyed needle (Fig. 7.12/2) was found on 21 June 1876 in undisturbed 'red earth . . . opposite to inner side of branch', that is, in line with the inner or southern wall of the entrance to 'chamber B' (Dawkins n.d., 1876). It cannot have been very far from where Heath reports finding 'three bone needles' (1879: 10). Had there been a cache?

The needle is 75.8 mm in length with a subrectangular cross-section changing from being broader and flatter at the upper end to more nearly square near the tip, which in turn is slightly thicker than it is broad. The eye is offset and the perforation bi-conical.

Needles of late Upper Palaeolithic age are known from Cathole (Swansea: Green 1984: fig. 10.g), Gough's Cave, and Kent's Cavern (Jacobi 2004: fig. 39.3). Each appears to have been made from thin-walled bone and in the collection from Gough's Cave there is evidence for production of needles from bones of whooper swan (*Cygnus cygnus*) and mountain hare. By contrast, the needle from Church Hole is thicker (3.7 mm maximum thickness) and has clearly been cut from a large mammal bone. As already noted, there is from

Robin Hood Cave the remnant of a needle-core made on a right metacarpal of reindeer and the anterior face of this bone appears to be of about the appropriate thickness.

Figures 7.12/3 and 7.12/4 are awls made by pointing the distal end of a mountain hare tibia. Figure 7.12/3 has been made from a left tibia and Figure 7.12/4 from a right tibia. Jenkinson (1984: 108) has expressed doubts that the larger piece is in fact an artefact and instead interpreted it as a carnivore gnawed bone. However, it is apparent that this awl has suffered an accident after it came into the Christy Collection and its pointed end, now lost, is clearly shown in illustrations by Dawkins (1877: fig. 5) and in the *Christy Slip Catalogue*. This has been restored on Figure 7.12/4. The marks on its shaft have nothing to do with carnivore damage, but are evidence of longitudinal scraping to remove the periosteum. As on several of the pointed tibiae from Gough's Cave the lateral condyle has been broken away to give a more comfortable grip and this break surface has become rounded through handling—as has the former contact of the fibula. An interesting feature of this artefact is the presence of some root-marking, perhaps suggesting that it had been found towards the cave entrance.

The fragment (Fig. 7.12/4) is from a tibia which has clearly been divided by means of oblique incisions beginning on its external margin just above the former contact of the fibula and emerging much lower down on the medial face, which has then been scraped to a point. Again, this technique has been observed on awls from Gough's Cave.

Awls made from the tibiae of mountain hares occur in late Upper Palaeolithic contexts at Gough's Cave (Gray in Parry 1929: pl. XX, 3, 7, and 8; Parry 1931: fig. 2.2), Pin Hole (Kitching 1963: pl. 41(a)) and Robin Hood Cave. Single examples from Gough's Cave and Robin Hood Cave have been directly dated (Hedges *et al.* 1994):

Gough's Cave	OxA-4107	Mountain hare, pointed tibia	12,550 ± 130 BP
Robin Hood Cave	OxA-3416	Mountain hare, pointed tibia	12,580 ± 110 BP

Both determinations are older than any of those for artefacts and bones from Church Hole (Table 7.4) and it is worth considering whether the two awls from Church Hole might be indicators of a slightly earlier start to late Upper Palaeolithic human use of this cave than is apparent from the existing radiocarbon determinations.

The three pieces of worked antler on Figure 7.13 were combined by Garrod into a single artefact—a 'rod' with 'scoops' at both ends (1926: fig. 31.6). This was, apparently, on the advice of Abbé Breuil (*ibid.*: 135 n.). A similar reconstruction was made by Campbell (1977: fig. 143.3) who identified the

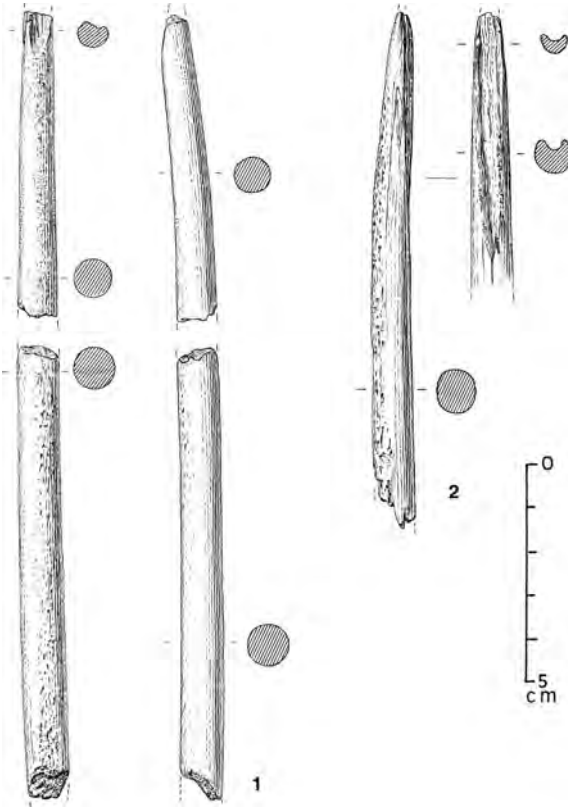


Fig. 7.13. Church Hole antler artefacts: rods with scooped ends (foreshafts)

object as a 'point' or 'spatula' (1977: 184). Jenkinson described the resulting artefact as a 'double ended gouge' (1984: 108).

It seems more probable, however, that these three pieces are parts of two artefacts, although the break surfaces of the two pieces which have been associated (Fig. 7.13/1) are very worn and a clear contact cannot now be made. What these artefacts may have been like when intact is suggested by the find of a complete example from Fox Hole Cave at High Wheeldon in the White Peak of Derbyshire. This has been illustrated by Bramwell (1977: fig. 51.5) and McComb (1989: fig. 4.15(d)). Also made from reindeer antler, it is a rod with sub-circular cross-section tapering from a maximum diameter at the lower (proximal) end of 11.3 mm to a diameter of 8.2 mm at its distal end. Its length is 320 mm and it is gently curved in longitudinal profile, this being, perhaps, post-depositional distortion. At its upper, more slender, end is a scoop or short groove. This is damaged, but has a surviving length of 23.7 mm. At its lower end is a double-bevel whose transverse profile is slightly

Table 7.8. Radiocarbon determinations relevant to the dating of reindeer antler 'foreshafts'

Lab. no.	Identification	Measurement
Church Hole		
OxA-3717 ^a	Reindeer antler rod with scooped end	12,020 ± 100 BP
OxA-3718 ^a	Reindeer antler rod with scooped end	12,250 ± 90 BP
Fox Hole Cave		
OxA-1493 ^b	Reindeer antler rod with scooped end and bevels	11,970 ± 120 BP
Stellmoor		
K-4328 ^c	Reindeer, metacarpal	12,180 ± 130 BP
K-4261 ^c	Reindeer, shed antler	12,190 ± 125 BP

^a Hedges *et al.* 1994. ^b Hedges *et al.* 1989. ^c Fischer and Tauber 1986.

oblique to that of the scoop. A presence of bevelling almost certainly indicates that the intention had been to haft this object.

An almost identical, but slightly shorter, artefact was figured by Alfred Rust from the late Upper Palaeolithic (Hamburgian) levels at Stellmoor in northern Germany (1943: tafel 26.2). Rust interpreted this, and a broken example, as notched needles (*Kerbnadeln*), but this does not explain the need for a bevel and in turn why they would have been hafted. More recent consideration suggests that the Stellmoor examples may have been the 'foreshafts' of projectiles with the scoop, or groove, being the slot into which would be fitted a flint tip—in the case of Stellmoor a shouldered point (Lund 1993). It is not known whether these projectiles were thrown or shot, but the diameters of these fore-shafts seem large for arrows. There is a direct radiocarbon date for the fore-shaft from Fox Hole Cave. This is given on Table 7.8 together with the determinations for the broken pieces from Church Hole and for reindeer remains from Stellmoor. Together, they form a reasonably tight group.

Finally, it should be noted that the awl made from a reindeer metacarpal listed by Jenkinson as from Church Hole (1984: 108) is almost certainly that from Robin Hood Cave (see above).

CONCLUSIONS

Church Hole is a cave which was used in both the Middle Palaeolithic and the late Upper Palaeolithic. Its late Middle Palaeolithic (Mousterian) use may have been pene-contemporaneous with occupation of the cave by spotted hyenas. Humans and hyenas were present during the middle Devensian and

there is no reason why Neanderthal use of Church Hole should not have been at about the same time as that of the other Creswell caves.

Of much greater relevance to the subject of the Creswell parietal art is the late Upper Palaeolithic occupation. A large part of the discussion has necessarily been chronologically orientated and the conclusion which comes across is very clear—namely, that it seems likely that all this archaeological material could belong to the earlier part of the Late Glacial Interstadial and most probably to the second half of the 13th millennium BP. This is the time when it is envisaged that the engravings were made on the walls of the cave (Pike *et al.*, this volume). This does not mean that they are necessarily coeval.

The debris left behind comes from the hunting of mountain hares and wild cattle and includes, as well as cut bones, flint projectile tips and antler fore-shaft fragments. There are awls, a needle, and a possible thread-winder, suggesting the making or repair of clothing, or equipment such as sleeping bags. The alternative interpretation of the notched bone as a flesher might be possible evidence for the cleaning of pelts. Fires were lit and it is just possible that some of the flints found were from making these or were the tools used to engrave. With the exception of the last it is the sort of random collection which might be expected at a site used over a not particularly lengthy period of time by mobile hunters passing through the Crag.

Pettitt (in Bahn *et al.* 2005) has observed that there is less evidence for late Upper Palaeolithic occupation at Church Hole than there is from the other caves at Creswell Crag—Mother Grundy's Parlour, Pin Hole, and Robin Hood Cave. This is, however, difficult to quantify at a locality where the collections are so chronologically mixed. One way around the problem may be to compare counts for Upper Palaeolithic abruptly modified (backed) pieces from each of the four caves. However, even this is not straightforward. For example, at Mother Grundy's Parlour there is also evidence for an important Mesolithic occupation and it is not always possible clearly to distinguish between Upper Palaeolithic and Mesolithic backed pieces—particularly when these are fragmentary.

Nevertheless, what is very apparent from Table 7.9 is that there are indeed fewest late Upper Palaeolithic backed pieces from Church Hole and that the largest numbers come from Mother Grundy's Parlour and Robin Hood Cave. That these should be the richest sites is not surprising given that the former is the largest deep rock-shelter in the Crag and the 'Western Chamber' of Robin Hood Cave the largest enclosed roofed space. Both are clearly better suited than Church Hole and Pin Hole to the making of camps.

Garrod in a letter to Leslie Armstrong (17 February 1925: Weston Park Museum, Sheffield: Armstrong archive) attributed the fact that there was 'only one industrial level' at Church Hole to the cave facing north, while the

Table 7.9. Count of Late Upper Palaeolithic abruptly modified (backed) pieces from caves at Creswell Crags

Church Hole	4
Pin Hole	17 (5)
Robin Hood Cave	40 (7)
Mother Grundy's Parlour	57 (18)

Totals in parentheses represent counts of pieces which, because they are fragmentary or chronologically ambiguous, cannot with certainty be listed as Upper Palaeolithic.

other caves were on the sunnier southwards facing side of the Crags (see also Pettitt in Bahn *et al.* 2005). From what we know of changes in flint point types during the Late Glacial Interstadial it is also clear that Mother Grundy's Parlour and Pin Hole were used by visitors to the Crags in *both* the earlier and later parts of the Interstadial while, as argued above, Church Hole was used *only* during its earlier part. Mother Grundy's Parlour, as already noted, also attracted occupation during the Mesolithic—an occupation which spread to the adjacent Yew Tree Shelter.

There would seem to be good reasons why Church Hole should have been the least favoured locality for groups making a stop-over at the Crags and why, as a result, there should be fewest late Upper Palaeolithic artefacts. However, is it a coincidence that evidence for wall-art at Creswell Crags would seem to be almost wholly associated with Church Hole and that this cave should also have a 'truncated' archaeology? Could it be that domestic use of the cave preceded, if only by a very short while, the engraving of its walls and that it was the presence of these images which precluded further 'profane' use?

In this chapter it has been assumed that Creswell Crags was mainly used by people passing through. The potentially large scale of movements at this time would seem to be confirmed by Marcy Rockman's identification of flint used at the Crags as having come from south-western England (2003).

The same sources seem probable for the flint from another contemporary East Midlands site, Farndon Fields, only 33 km, as the crow flies, to the south-east of Creswell Crags and just south of Newark. This is a low-density surface scatter of at least 15 hectares next to the River Devon and on the Holme Pierrepoint terrace of the River Trent. Although the tool-count is still relatively small, it differs from those of all other contemporary sites in being clearly dominated by end-scrapers. Whether Farndon Fields was an 'aggregation camp' or the seemingly wide spread of material is due to a large number of smaller encampments, each moving slightly to avoid the previous years'

refuse, may only become apparent from large-scale excavation of this important locality. It is difficult not to see a connection between Farndon Fields and Creswell Crags less than two days walk apart (Garton 1994; Howard and Knight 2004: 23–4).

Pettitt (this volume) speculates that the hunters who used the caves at Creswell moved on into the Peak District, most probably in pursuit of reindeer. Human presence in the White Peak at this time is clearly demonstrated by the radiocarbon determinations from Fox Hole Cave (Table 7.8) and it is more than probable that the large backed pieces from Thor's Fissure Cave in Staffordshire also date from the early part of the Late Glacial Interstadial (Wilson 1933, 1934: 13–46, 1937). Whilst there is convincing evidence from Ossom's Cave, also in the Manifold Valley, that reindeer were using this area of the Peak as a calving ground (Bramwell *et al.* 1987) it is important to remember that they were doing so significantly later on in the Late Glacial when there had been a marked drop in temperatures, both summer and winter, from those of the earlier part of the Late Glacial Interstadial (Atkinson *et al.* 1987). We need to know more about the history of reindeer in this area.

What is interesting, however, is evidence that the Creswell area, including the Crags, was used in the Mesolithic by groups who had spent part of the year in the Peak. This is clearly shown by an abundant presence in some local collections of cherts of Peak District origin—the relevant artefacts including microliths and micro-burins. What the Mesolithic evidence does demonstrate is that there is nothing inherently implausible in movements between the two areas having taken place at earlier times, but as yet there are no lithics from Creswell which have been made from chert and which are indisputably Late Upper Palaeolithic.

Figure 7.14 sets the East Midlands find spots into the context of broadly contemporary British find spots, their closest mainland analogues, and an outline of the geography of the time—the coastline being that modelled by Lambeck (1995: fig. 3(e)). The principal rivers are taken from Bryony Coles's paper on Doggerland (1998: fig. 9). A few general observations should be made. Of interest is that Ireland is shown to be an island and had probably been so from before the opening of the Interstadial, this being the simplest explanation for the absence of wild horse (and apparently humans) from its Late Glacial fauna. Kendrick's Cave on the Great Orme (site 20) is just over 70 km from the nearest coastline, but human remains from here show isotopic evidence for the intensive consumption of marine foods—probably mammals (Richards *et al.* 2005). By contrast, human bones from Gough's Cave and Sun Hole (sites 9 and 12) show no evidence for a marine component to the diet (Richards *et al.* 2000), indicating the existence of different economic strategies and patterns of movement at this time.

Key:

1. Bob's Cave;
2. Kent's Cavern;
3. Three Holes;
4. Tornewton Cave;
5. The Old Grotto;
6. Cow Cave;
7. Pixies's Hole;
8. Badger Hole;
9. Gough's Cave;
10. Gough's Old Cave;
11. Soldier's Hole;
12. Sun Hole;
13. Aveline's Hole;
14. King Arthur's Cave;
15. Cathole;
16. Goat's Hole
(Paviland);
17. Worm's Head Cave;
18. Hoyle's Mouth;
19. Nanna's Cave;
20. Kendrick's Cave;
21. Fairnington;
22. Edlington Wood;
23. Pin Hole;
24. Robin Hood Cave;
25. Mother Grundy's
Parlour;
26. Church Hole;
27. Langwith Cave;
28. Little Spinney
Froggatt;
29. Fox Hole Cave;
30. Lound;
31. Farndon Fields;
32. East Stoke;
33. Lockington
Hemington;
34. Bradgate Park;
35. Gill's Smallholding,
Heacham;
36. Feltwell;
37. Thetford;
38. Lakenheath Warren;
39. Mildenhall;
40. Walton-on-Naze;
41. Oare;
42. Zeijen;
43. Seigerswoude;
44. Emmerhout;
45. Op de Hees;
46. Presle.

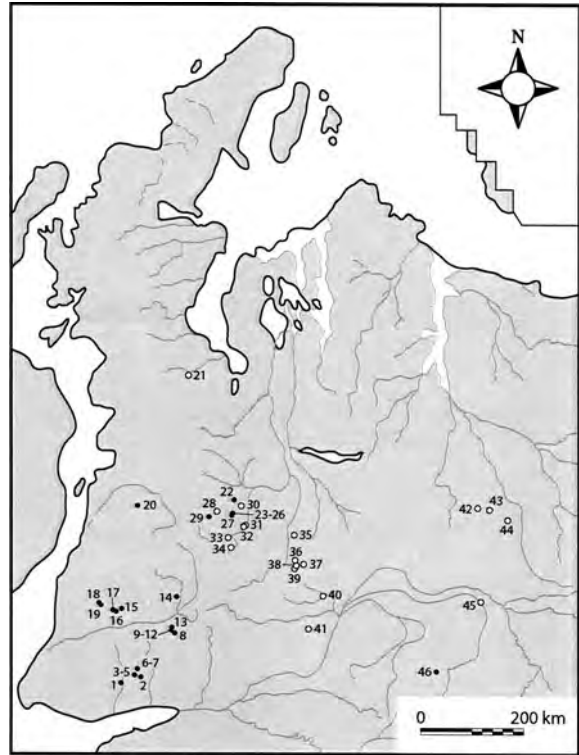


Fig. 7.14. Church Hole in the context of contemporary find-spots and geography

It is surprising how close to the North Sea coast is the single Scottish find spot of this age, Fairnington in the Tweed Valley near Kelso (site 21: Saville 2004: fig. 10.23). Finally, it is worth noting that find spots in eastern England are not much further from those in the Netherlands and Belgium than the find spots in the East Midlands are from those in south-western England.

The group of find spots in the East Midlands, like that in West Norfolk and Suffolk, is of interest for lying on, or close to, the head-waters of a river system

which has been reconstructed as flowing almost due north to an estuary on the North Sea Coast. It is easy to envisage that the lower reaches of this river would have been explored or settled and the beaches of the North Sea coastline were the most likely source of the amber pebbles found at Creswell Crags (probably Robin Hood Cave) and Gough's Cave.

Northwards movement will have brought late Upper Palaeolithic hunters into areas where summer and winter temperatures would have allowed a contemporary presence of reindeer (Coope 1977: fig. 5). Was this the source of the antler used for the fore-shafts at Church Hole?

The distribution of find spots on Figure 7.14 is interpreted as representing the area of most intensive social interaction likely to have included the late Upper Palaeolithic hunters of Creswell Crags. Even though there would seem to be evidence that human activity during the early part of the Late Glacial Interstadial extended to the Irish Sea and North Sea coastlines, the East Midland record is still very much on the edge of the Magdalenian world. However, as Pettitt in his contribution to this volume demonstrates, the art at Creswell Crags now gives a new level of connectedness to this wider world.

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Cultural Context and Form of Some of the Creswell Images: An Interpretative Model

Paul. B. Pettitt

INTRODUCTION

Since Dorothy Garrod (1926) coined the term ‘Creswellian’ to describe the British Late Upper Palaeolithic archaeology and in doing so emphasized its differences from the contemporary Late Magdalenian, the degree of connectedness of British Late Glacial hunter-gatherers with those of the continental mainland has been debated. Garrod pointed to the robust local tradition of single and double obliquely truncated backed pieces—Creswell and Cheddar Points respectively—and emphasized their dissimilarity, warranting in her opinion a separate taxonomic classification for the ‘provincial’ archaeology of Britain. Jacobi (1991) was the first to realize the problems with such a ‘splitting’ perspective, noting how the main type fossils of the Creswellian could be found among continental assemblages. While to a certain degree the problem can be seen as deriving from the specific culture-historical paradigm that Garrod was working within (Charles 1999), the degree of connection

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or distance between hunter-gatherer groups operating in Late Glacial Britain and those on the continent has remained a contentious issue. It is certainly difficult to find contemporary assemblages on the continent that contain all of the type fossils of British Late Glacial assemblages (Barton *et al.* 2003), and the few that exist are still undated (Jacobi 2004: 66). Consequently, the date and process by which the British assemblages became distinct remain to be established.

The relative paucity in the UK of *art mobilier* and the total lack until April 2003 of parietal art of any form seemed to reinforce the distinction between Late Glacial Interstadial sites in Britain and on the continent. Engravings on bone, antler, and stone plaquettes and blocks are ubiquitous on continental sites, and the paucity of such materials on British sites could be seen in the context of Garrod's regional emphasis to suggest a cultural difference. The discovery of the art, however, and its clear formal parallels with continental examples throw the issue of connectedness into sharp focus. Unlike *sagaies*, lithic armatures, and other tools, cave art is not a portable artefact. Whereas therefore design similarities between portable artefacts may result from exchange between far-flung and perhaps culturally distinct groups, formal similarities between rock art *must* suggest formal similarities of design and execution in the minds of artists; it is the *concept* that is portable. In this chapter, I argue that the similarities between aspects of the Creswell art and art of the continental Late Magdalenian indicate intimate conceptual connections across long distances which are suggestive of shared value systems about the Magdalenian world. I concentrate on some of the more enigmatic images of the Creswell art, building upon existing schemes for evaluating formal similarities in rock art (Clegg 1978).

CONTEXT OF THE CRESWELL ART

The Pleistocene antiquity of the engravings at Church Hole and Robin Hood Cave is beyond doubt (Pike *et al.*, this volume), and of relevance to this paper a U-series date on the flowstone overlying Church Hole Panel VII (the 'birds') indicates that they have a minimum age of 12,800 (cal) BP. In terms of the archaeology of the Creswell caves and of the UK in general (Jacobi 2004), as well as stylistic similarities with art on the continent, the most plausible cultural attribution of the Creswell art is to Garrod's 'Creswellian', which I hereafter refer to as Final Magdalenian. This places the art into a relatively well-dated cultural context broadly in the first half of the Late Glacial Interstadial, that is, between 13,500 and 15,000 (cal) BP, although it

is conceivable that humans arrived immediately prior to the interstadial warming (Jacobi 2004: 73 and this volume). Whatever the precise timing of human arrival in the Creswell region and Britain in general, it took place in the context of a human reoccupation of the Northern European Plain facilitated by the general amelioration of climate subsequent to the Last Glacial Maximum (Housley *et al.* 1997, 2000; Barton 1999; Barton *et al.* 2003) which saw a major population dispersal of the Magdalenian, ultimately from an Iberian refugium (Gamble *et al.* 2004). As such, it would appear that creation of art, at least on occasion, formed part of the cultural repertoire of hunter-gatherer groups that had only just recolonized the Northern European Plain.

The lowered sea levels of the Late Glacial Interstadial exposed considerable areas of land now inundated by the North Sea and English Channel (Fig. 7.14). The taxonomic diversity of faunal remains dredged up by oyster fishermen suggests that the plains of 'Doggerland' as it has been termed (Coles 1998) were rich in herbivorous biomass and perhaps seasonally in migrating birds (*ibid.* 62). It is easy to see how it might have formed a core area for Magdalenian occupation. Parsimoniously, Doggerland may be assumed to be the source area for populations who periodically exploited the Creswell region (see below). Barton *et al.* (2003) have noted the concentration of British Final Magdalenian sites at the edges of the upland margins, in this case of the Peaks, a pattern that can be observed on the continent, such as in the Thuringian and Paris Basins and the Swabian Alb. They suggest that the importance of such marginal zones lies in the presence of small-scale topographical variation, the ecotonal nature of which would permit the exploitation of a variety of resources while minimizing the distances travelled. A 'more or less simultaneous occupation of the upland and its margins' (Barton *et al.* 2003: 638) fits the general Magdalenian pattern well.

The relative abundance of Final Magdalenian archaeology in the Creswell caves (Jacobi, this volume), caves in neighbouring gorges such as Anston (Mellars 1969; Chamberlain, this volume), the Manifold Valley of the Peak District (see below), and smaller open sites in between (e.g. Radley 1964) indicates that Magdalenian hunter-gatherers were operating widely over the East Midlands landscape, at least at certain times of the year. The Final Magdalenian is also relatively well-represented in the Cheddar Gorge region of Somerset as well as by a number of other sites both in the upland margins of the south-west and flat plains of the east coast, suggesting that a number of Magdalenian groups exploited much of England and Wales in this broad period (Jacobi 2004). Why, however, are there relatively few sites in the UK, and why are numbers of materials low relative to contemporary sites on

the continent? Although large Creswellian sites presumably remain to be discovered, enough valley bottom and other open sites have been excavated down to sterile sediments to allow a confident statement that large, semi-sedentary aggregation camps such as those on the continent appear to be rare or absent from Britain, with the exception of Farndon Fields some two days' walk from Creswell (Jacobi, this volume). This lack, and the apparent clustering in a relatively tight period of the radiocarbon chronology for the Magdalenian of Britain (Jacobi 2004 and this volume), suggests that visits to the UK were relatively infrequent and/or seasonally constrained.

Given the ubiquitous faunal taxa present in Britain and on the continent during the Late Glacial Interstadial, it was presumably the seasonal availability of certain resources and procurement possibilities that rendered the extreme western periphery of the Magdalenian world periodically attractive. The presumed movements of horse, availability of Arctic hare (*Lepus timidus*) for trapping in spring, and spring reindeer migrations towards upland calving grounds may well have provided the stimulus for such a movement westwards at the time of year that climate was improving. Assuming a hypothetical Magdalenian presence on the plains of Doggerland, that is, under what is now the North Sea, an appropriate trigger for the spring move westwards could have been the reindeer migration. As Creswell and neighbouring gorges would have been crucial 'gateways' between the east and west, such a migration would have brought Magdalenians into the region in time to exploit Arctic hare at the most appropriate time of year to benefit from their food resource and replenish fur clothing, as seems to have occurred at Robin Hood Cave (Charles and Jacobi 1994). Temporarily tracking reindeer might provide a blueprint for spring occupation of this region of Britain at this time.

Although Late Glacial archaeology in several caves of the Manifold Valley in the Southern Peak District seem to attest human activity in the earlier part of the Younger Dryas (Greenland Stadial 1) and thus not in the Late Glacial Interstadial, enough palaeontology and archaeology exist to create a plausible model of reindeer (*Rangifer tarandus*) calving in the region in the earlier part of the Late Glacial Interstadial and occasional human exploitation of this. In the Creswell region, Late Glacial reindeer are known from Dead Man's Cave at North Anston, Langwith Cave, and Robin Hood Cave, Pin Hole, Church Hole, and possibly Mother Grundy's Parlour at Creswell itself; in addition to a handful of other sites in the region in very low and singular numbers (Mullins 1913; Jenkinson 1984; Armstrong 1956). At Creswell reindeer have been directly dated to the early Late Glacial Interstadial (e.g. Church Hole, OxA-3717, 12020 ± 100 ; OxA-3718, 12250 ± 90 ; Hedges *et al.* 1994). At Dead Man's Cave at North Anston near to Creswell, reindeer remains have

been dated to the terminal Pleistocene (Mellars 1969), although they were not associated with Final Magdalenian lithics also recovered from the site. The archaeological record of cave, rockshelter, and open sites in the area is testimony to repeated incursions by Final Magdalenians (Jacobi, this volume; Chamberlain, this volume). Further to the west, in and around the Manifold Valley of the Peak District, which straddles North Staffordshire and Derbyshire, reindeer were clearly a major species in the Late Pleistocene. Reindeer remains from Ossom's Cave in the Manifold Valley have been dated to the latter half of the Late Glacial Interstadial and to the Younger Dryas (Scott 1986), suggesting that their presence was seasonally ubiquitous in the Late Pleistocene. The dominance of reindeer in the faunal assemblage of layer C (e.g. Bramwell *et al.* 1987) and the dominance of calves (Bramwell 1954) probably indicates that the uplands of the southern Peaks were traditional spring reindeer calving grounds. While a number of the remains presumably represent natural accumulations, the bias in skeletal part representation (Scott 1986: 74; Bramwell *et al.* 1987: 32) and high degree of splintering of bones (Bramwell 1954; Scott 1986) may indicate that some of reindeer formed the prey of Late Glacial hunter-gatherers, although it is most probably natural. Whichever is the case, this certainly attests spring calving in the region. Almost all of the reindeer represented by teeth and antlers died at around ten–eleven months of age (Bramwell *et al.* 1987: 32), suggesting either a high degree of mortality of calves, or that a spring predation on disadvantaged reindeer calves was a routine part of the late Upper Palaeolithic annual round. The high degree of fracturing of reindeer bones at this and neighbouring sites may imply the importance of marrow and hence fat to human populations. Dental eruption and the presence of antler 'first year spikes' from very young animals indicate that the animals died in spring, and Bramwell *et al.* (1987: 28) concluded that 'the reindeer remains from Layer C very probably represent animals taken in spring as they moved up the Manifold Valley from the Midland Plain to the uplands of the Peak District'. Whether or not humans were partly responsible for the deposition of reindeer remains in Ossom's cave, Layer C yielded forty-three lithic items of which six were modified into tools (Jacobi 1987). Although chronologically undiagnostic, these are not inconsistent with a Late Glacial age for human activity at the site, and the recovery of one backed blade (either a 'Tjonger' point or possibly a *federmesser*) would seem to indicate that human activity occurred at least in the Late Glacial interstadial and/or the Younger Dryas.

Splintered fragments of reindeer bone are found in other Late Glacial deposits in the southern Peak District, for example, Elder Bush Cave, also in the Manifold Valley, where they are associated with a small number of Late

Glacial lithics (Bramwell 1964). A directly dated cut-marked vertebra of red deer attests human presence at the site at 10600 ± 110 BP (OxA-811, Gowlett *et al.* 1986) although the sample dated may have been contaminated and the resulting age determination could be an underestimate (Jacobi, pers. comm.). At Dowel Cave, split bones of large ungulates, where identifiable to species, were of reindeer, including antler tips and split phalanges, and were apparently associated with hearth charcoal (Bramwell 1959). A broken fragment of an antler *sagaie* from the site indicates that humans were present at least in the second half of the Late Glacial Interstadial (OxA-1463, 11200 ± 120 BP, Hedges *et al.* 1989). In Layer D of Fox Hole Cave, Derbyshire, a small number of Final Magdalenian lithics including a shouldered point were found in association with two bevelled reindeer antler javelin fore-shafts in an activity area apparently structured around a hearth and containing the remains of horse (*Equus* sp.), large bovid, and reindeer (Bramwell 1971). Direct dates on each of the fore-shafts indicate a Late Glacial Interstadial age (OxA-1493, 11970 ± 120 ; OxA-1494, 12000 ± 120 , Hedges *et al.* 1989). Many of the faunal remains were splintered, and the reindeer material apparently included a cut-marked metatarsal (Bramwell 1975). Although without indications of human predation, Late Glacial reindeer remains have also been recovered from Darfur Ridge Cave, in association with unidentifiable split bones (Nicholson 1966).

The hypothetical spring and autumn migration of reindeer on the east-west axis through the crags and the importance of arctic hare to the Magdalenians which is relatively easy to obtain in spring (Charles and Jacobi 1994) suggests that the crags and surrounding region were important at this time of year to Magdalenians presumably operating further to the east or south over other seasons. This is not to deny the importance of horse, whose presence is attested in the Late Glacial at Creswell (e.g. directly dated at Mother Grundy's Parlour; OxA-3398, 12280 ± 110 ; OxA-3400, 12340 ± 110 ; OxA-4102, 12540 ± 140 , Hedges *et al.* 1994), and in the Manifold Valley and surrounding region (e.g. Fox Hole Cave OxA-6310, 11920 ± 130 ; OxA-6311, 12030 ± 90 ; OxA-6312, 10980 ± 90 ; Ossom's Cave, OxA-6316, 10920 ± 90 , Kaagan 2000). The recovery of the worked Baltic amber (presumably obtained at the coast, i.e. to the north) and the similarity of aspects of the Creswell art to that further to the east and south further strengthens the picture of movement and cultural interconnectedness with the continent. The picture, however, is further complicated by the apparently south-western source for the flint, at least from Robin Hood Cave (Jacobi, this volume), which suggests highly mobile and complex landscape use by regional Magdalenian groups.

Within the Craggs itself, it is interesting that, with the exception of the 'vulva' on the wall of Robin Hood Cave, all of the Magdalenian art is on the walls of Church Hole Cave. While actual numbers of Magdalenian artefacts obtained in nineteenth- and early twentieth-century excavations is understandably difficult to reconstruct with confidence, enough information survives to indicate that Magdalenian archaeology was most strongly preserved in Robin Hood Cave, Pin Hole, and Mother Grundy's Parlour, while the Late Glacial archaeology of Church Hole was relatively impoverished. Jacobi (this volume) has used the most reliable assessment of the relative abundance of Late Upper Palaeolithic backed pieces, and shown that the majority of examples come from Mother Grundy's Parlour (~57) and Robin Hood Cave (~40), with ~17 from Pin Hole. By contrast the figure for Church Hole is only four. Given that backed pieces appear to dominate Late Glacial tool counts from caves, one can probably confidently take the frequencies of these tool forms as a broad proxy for the deposition of lithic waste in general. If this is so, it indicates that Final Magdalenian activity in Church Hole Cave was less frequent than in the caves of the north side of the gorge. While this can probably be explained simply by the fact that the south-facing caves of the north side of the gorge receive more sunlight and were generally more pleasant camp locales (Jacobi, this volume), the question remains as to why almost all of the preserved art comes from Church Hole, which one would not expect if the situation were totally 'prosaic'. It is a fair assumption that the art was there for a purpose, even if that purpose is now unknown to us. If the art were simply decoration of the walls of a gloomy cave used as a temporary camp, it is surprising that art does not survive on the walls of other caves in the same gorge, with similar taphonomic histories and indications of greater human activity. It is tempting to suggest that a conceptual difference existed in the Magdalenian mind between the caves of the north side of the gorge which may have been viewed more as 'prosaic' camps, and Church Hole in the south side, with perhaps more cosmological connotations. An appropriate analogy—and broadly contemporary—is the caves of La Vache and Niaux, which face each other from opposite sides of the valley of the Vicdessos river in Ariège. While Niaux has a rich Magdalenian cave art it contained very poor archaeology, and La Vache by contrast has a rich Magdalenian archaeology including numerous examples of *art mobilier* but no parietal art (Bahn 1983 and pers. comm.). If correct, these examples could indicate that Final Magdalenians at least physically encultured the wider landscape. Furthermore, Jacobi (this volume) has noted that Church Hole appears to have archaeology dating only to the earlier part of the Late Glacial Interstadial whereas Robin Hood Cave and Mother Grundy's Parlour contained archaeology from both earlier and later parts. He speculates that

perhaps the presence of parietal art from the early Late Glacial Interstadial somehow mitigated against subsequent 'prosaic' use of the cave. If this were so, it would be a strong example of the conceptual importance of art in Magdalenian society.

PARALLELS WITH CONTINENTAL MAGDALENIAN ART MOBILIER

Although, as noted above, parallels in the formal typology of portable artefacts or designs engraved upon them may relate solely to the circulation of such items, they indicate at the very least the currency of design norms across Magdalenian space. In a general sense, then, similarities will at least indicate areas over which elements of cultural repertoires are moving. The Final Magdalenian archaeological level at Pin Hole cave yielded four fragments of a mammoth ivory *sagaie* bearing two areas of engraving in the form of an outlined 'fish' and of a design reminiscent of coiled rope (Fig. 8.1). Armstrong (1925) noted the similarity between the design on the Pin Hole ivory *sagaie* and that on a bone example from the Late Magdalenian of La Madeleine. Further parallels can be found on Late Magdalenian *sagaies* at Laugerie Basse (Breuil 1937), and from the Late Magdalenian of the Trou de Chaleux, Belgium (Otte *et al.* 1994: pl. 32,6). All of these parallels are illustrated in Figure 8.1. Conceivably a very similar design is engraved on a *sagaie* fragment from Tito Bustillo in Asturias (Moure Romanillo 1989: fig. 5.16).

Two further examples of *art mobilier* from Creswell Crags serve to emphasize continental comparisons: the humanoid outline engraved on a rib of woolly rhinoceros (*Coelodonta antiquitatis*) from Pin Hole, and a horse head engraved on a broken rib fragment from Robin Hood Cave. The discoverer of the engraved humanoid, A. Leslie Armstrong, was aware of the significance of the find:

Unquestionably the most important find so far made at Creswell is that of an engraved bone, 8½ inches long, believed to be a piece of . . . rib, bearing at one end the drawing of a masked human figure in the act of dancing a ceremonial dance. This is a unique find and of the greatest importance to British archaeology, as it establishes a definite cultural link with the cave art of France and Spain. . . . The figure is anthropomorphic, half animal, half human . . . it is executed with a fine incised line, in profile, representing the right hand side, but the feet are not shown. The right leg is slightly bent, the left raised and bent at the knee, the genitalia being accentuated. The right arm is extended, and a club, or bow, is held in the hand. A line across the body at the waist may represent a belt, the bottom edge of a mask, or possibly it is part of the object held

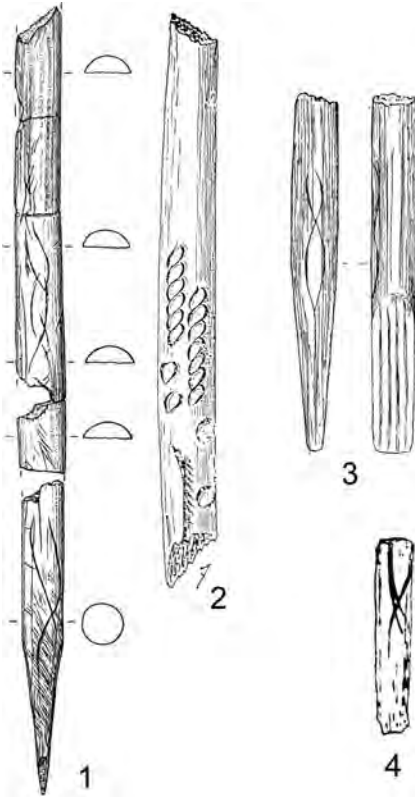


Fig. 8.1. Late Magdalenian *sagaies*

1. Sagaie on mammoth ivory from Hole Cave, Creswell, bearing engraved designs. Drawing courtesy of Roger Jacobi.
2. Sagaie on antler from Laugerie-Basse (Dordogne) after Breuil (1937).
3. Sagie on antler form La Madeleine (Dordogne) after Armstrong (1925).
4. Sagie on bone form Trou du Chaleux (Belgium) after Otte et al. (1994).
Not to scale

in the hand. The head is covered with an animal mask giving an ape-like appearance to the figure. In general character this example compares closely with the engravings on stone and bone found in the caves of Altamira and Hornos-de-la-Pena, Spain, and Chancelade, Dordogne. (Armstrong 1928)

Today, the humanoid engraving is marked out in graphite, undoubtedly where someone (possibly Armstrong himself) has sought to emphasize the engraved lines, and there is some question as to how much that one sees today is real, that is, part of the original design, and how much is fanciful interpretation. Jill Cook recently commissioned the removal of the graphite at the conservation department of the British Museum, and on the basis of this and her ongoing analysis of the piece, believes at present that the general outline of the 'humanoid' is genuine, but that the phallus was probably a modern interpretation and thus addition (Cook 2005). If this is so, the general human shape of the piece remains, but the sex is now ambiguous. Indeed,

given its peculiar shape, one cannot rule out an attribution to either sex. The clearly ‘muzzled’ nature of the head lead Armstrong to believe that the head was covered ‘with an animal mask giving an ape-like appearance to the figure’, although there is no a priori reason why it need not represent a fusion between man and animal, an imaginary human-like being, or even a standing/rearing bear (why not?). However one interprets the piece, it has numerous parallels with engraved and painted ‘humanoid’ outlines from France, Spain, and elsewhere (Sieveking 1987, 1992; Lorblanchet 1989, 1995; Powers 1994). Whether or not these really depict masked or muzzled humans, imaginary human-like beings, or standing bears, the similarity across western Europe is clear and once more attests to a strong degree of cultural uniformity, at least in the artistic realm.

Sieveking (1992) has also identified parallels between the horse’s head on bone from Robin Hood Cave, Creswell (Garrod 1926: fig. 31,5), notably with examples from Paris Basin Magdalenian sites. Wider comparisons are also clear. In terms of the morphology of its angular jaw, lips, and snout, the bristling, forward-facing erect manes, and the ‘hidden-ness’ of the ear, it is clearly similar to contemporary Magdalenian depictions of horses on engraved plaquettes in France: for example, at the Rocher de la Caille (Saut-du-Perron) in the Loire (Tosello 2003a: figs. 1, 2, 4, 5, 11, 13, 28), Laugerie Basse, Limeuil, La Madeleine, and Villepin in the Périgord (Tosello 2003b: figs. 33, 38, 180, 245, 253, 378); in Germany and Switzerland, for example, at Andernach, Gönnersdorf, Petersfels, Kesslerloch, and Schweizersbild (Bosinski 1982: pls. 9, 15, 21, 26; 1994: fig. 8; Bosinski 1994: figs. 6–8) and at Hostim in Bohemia (Vencl 1995: figs. 95, 96). Further parallels may be seen in both an engraved plaquette and parietal art of Tito Bustillo, Spain (Moure Romanillo 1989). The design may have originated in the preceding *Magdalénien à Navettes*, given that it can be seen on *sagaies* from such contexts in the Grotte Grappin à Arlay and the Grotte Blanchard, La Garenne, France (Allain *et al.* 1985), and plausibly forms one of the cultural motifs of the Magdalenian groups that recolonized the Northern European Plain.

Clearly, the designs engraved onto the Pin Hole *sagaie* and the ribs from Pin Hole and Robin Hood Cave had a wide currency across Magdalenian space. As such, they form a point of departure for considering the parietal art of Church Hole. Clear continental parallels can be found for the more identifiably figurative art in Church Hole. Aurochs engraved on Late Magdalenian stone plaquettes from the Trou de Chaleux (Lejeune 1984: fig. 103) and at the parietal art site of Teyjat, France (Wüst 1999) are similar to the Church Hole Panel III bovid. Here, though, I concentrate on more enigmatic and conceivably non-figurative elements of the Creswell art, namely ‘vulvae’ and Panels VII and X which conceivably depict stylized human females.

SOME SPECIFIC COMPARANDA AND INTERPRETATIONS

Vulvae

At least four images in Church Hole and one in Robin Hood cave may formally be regarded as triangular 'vulvae', whatever their interpretation. Such images, be they stylized female genital triangles, hoofprints, or less-obvious items, are known throughout the Upper Palaeolithic from the Aurignacian onwards (Bahn 1986). The Creswell vulvae take two main forms. One of these is comprised of three lines that converge in an apex (I acknowledge that others refer to this form as a 'bird track', Hunger 1986); the second takes the form of a triangle within the apex of which is a line or shallow oval. The former are found in both Church Hole and Robin Hood Cave, the latter only in Church Hole. In all cases they are engraved high on the walls (even to the Magdalenians) or on the ceiling. In the case of those engraved on walls (four out of five), the apex of all points downwards, that is, in the 'correct' orientation one would expect for a vulva. Vulvae similar to the Church Hole examples, that is, with a single line interior to the downwards apex of the triangle, are found among the parietal art of the Grotte des Deux-Ouvertures in Ardèche; as a frieze in La Font Bargeix in Dordogne (Bosinski and Schiller 1998), and engraved onto a sandstone plaquette at Oelknitz, Thuringia (Bosinski 1982: 44 and tabel 74,6). Numerous examples of vulvae are found in the nearest Palaeolithic parietal art cave to Church Hole, Gouy, Seine-Maritime, where both forms represented at Creswell are also found (Martin 1972, 1989 and this volume). Clearly, the Creswell art falls into the general Magdalenian canon of 'vulvae', many of which are seen by specialists as representations of female genitalia. As such they represent conceptual fragments of the human body. I now move to examine Panels VII and X, which I suggest provide further examples of the stylized body, in this case, stylistic outlines.

More Enigmatic Creswell Art: Panels VII and X

Panel X

Church Hole Panel X comprises at least three separate images, one of which (the largest and most 'complete') resembles very generally the form of the Panel VII 'birds' (see below) although, as we have noted before, the form on Panel X is inverted (Ripoll *et al.* 2004: 101). While the form is clearly enigmatic, the (lowermost) terminations of the larger image and the smaller

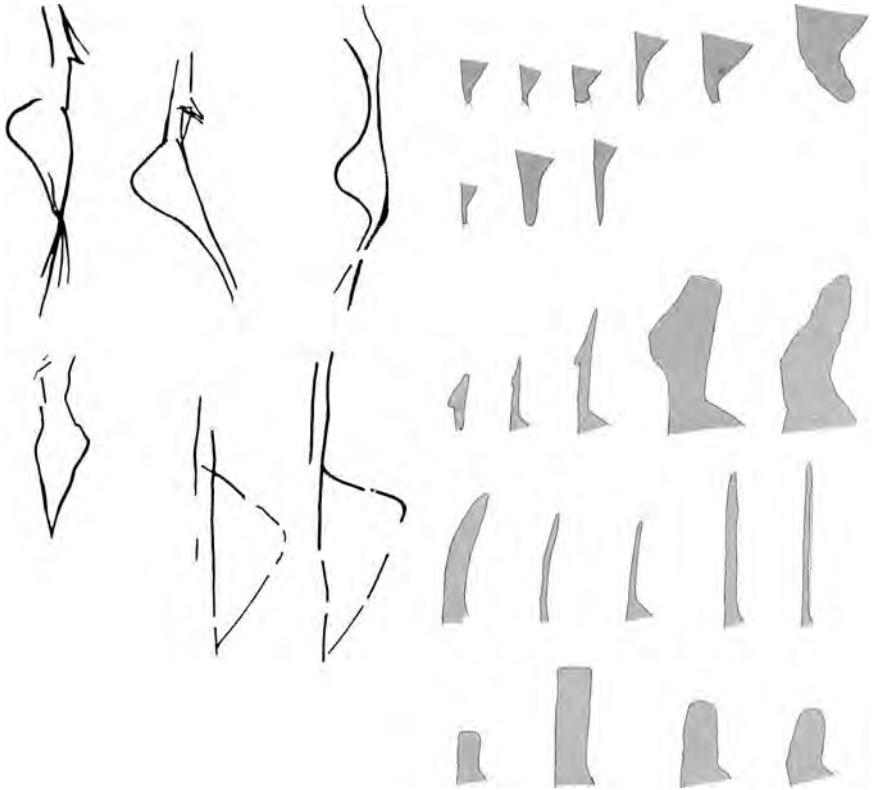


Fig. 8.2. The form of the Gönnersdorf females after Höck 1993.

to its left clearly resemble the lower leg terminations visible on the Gönnersdorf female engravings (see Figure 8.2). Although one cannot rule out the interpretation that these represent 'diving' birds, this interpretation is, in my opinion, unlikely as (assuming the lowermost 'bumps' represent their cranial vaults) they appear to be diving back to back, which would be implausible in at least one case (i.e. one bird would be diving upside down). Regarding the small and incomplete image to the left, this viewed alone cannot be identified as a bird. By contrast, the similarity of this form in particular to the Gönnersdorf material make it plausibly identifiable as a stylized human female, which is on continental Late Magdalenian sites, associated with vulvae. It is, in particular, very similar to an example from Gönnersdorf Plaquette 9 (Fig. 8.3). Note also a general similarity to the Painted Sign 52g at Gouy (Martin, this volume, Figure 9.32) I suggest that a parsimonious interpretation of Panel X is as human females. From this view, I now turn to Panel VII, which we have previously described as 'birds' (e.g. Bahn *et al.* 2003; Ripoll *et al.* 2004).

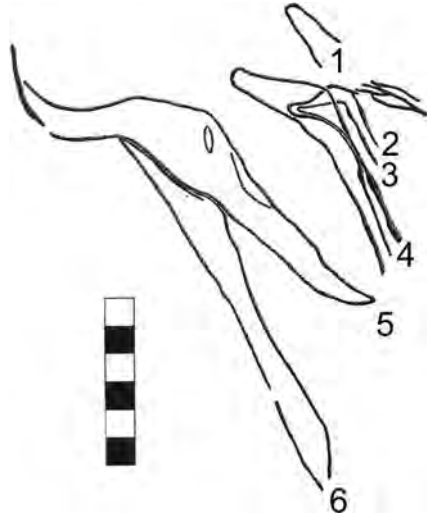


Fig. 8.3. (left) Church Hole Panel X

Fig. 8.4. (above) Church Hole Panel VII as viewed today

Panel VII: is this a scene of birds?

Panel VII comprises four, possibly five or six, elongated figures which we initially identified as birds, although acknowledged that ‘the enigmatic outline in the middle...is not clearly avian’ (Ripoll *et al.* 2004: 100). While I certainly share the Creswell art team’s view that Panel VII is difficult to interpret clearly, I put forward here the notion that it may plausibly be identified with stylized human females that are found commonly on contemporary sites on the continent. For convenience, I separately label each element (i.e. distinct image) of the panel, from 1 to 6 (see Fig. 8.4). With this scheme, the ‘enigmatic outline in the middle’ is image VII.5. Note the similarity of the shortest image (VII.1) to the leftmost image (‘termination’) of Panel X.

It is conceivable that images 2, 3, 4, and 6 of Panel VII represent long-necked birds, and we initially speculated that the longest image (6) could represent a bitterne or crane, and the shorter images (2, 3, 4) perhaps geese. Of these, bitterne and crane are not represented in the Upper Palaeolithic levels at Creswell, despite an abundant avifauna from Robin Hood Cave and Pin Hole (Bramwell 1984). Their absence from the record, of course, does not rule out the possibility that image 6 represents one or the other, and several species of geese are represented in the avifauna. As the avifaunal record cannot help, taken at face value it would seem that, if Panel VII does represent birds, it represents a mix of bitterne, crane, or swan (image 6), geese (images 2, 3, 4), a non-avian image (5), and an enigmatic short image (1) which if anything would have to be interpreted as a solitary beak. The similarity of images and their spatial proximity suggests that they must be viewed and interpreted together, perhaps as a scene, and personally I find this mix of imagery within a scenic frame unlikely.

If Panel VII does represent a mix of images, some of which represent birds, one might expect a degree of similarity with unambiguous images of birds in broadly contemporary Magdalenian art. Images of birds are rare, although enough exist to justify some generalizations. Bahn and Vertut (1988: 132) list a conservative estimate of eighty-one images from thirty-one sites, and suggest that 'water birds such as swans, geese, ducks and herons seem to be the most numerous'. Ucko and Rosenfeld (1967: 182) expressed surprise that it is 'difficult to explain their extreme rarity', given that they often provided a food resource. One of the first pieces of European Upper Palaeolithic *art mobilier* to be found—a harpoon of antler from Veyrier—bears an engraving of what could be a short-necked bird (Bahn and Vertut 1988: fig. 5). Reinach (1913: 164) illustrates images of a short-necked bird engraved on schist from Arudy (*ibid.* 23); a short-necked bird engraved on stone and one on reindeer antler, and a long-necked bird identified as a swan from Gourdan (*ibid.* 89); one long-necked and one short-necked bird on stone, a short-necked bird and horse head repeated twice on stones, and two separate short-necked forms on stone from Lourdes (*ibid.* 135); at least two carved forms on reindeer antler from the Mas d'Azil (*ibid.* 156); and two short-necked birds among the parietal art of El Pendo. There is an engraving of a short-necked bird on a limestone cobble from the Late Magdalenian at La Madeleine (Tosello 2003*b*: fig. 266). A similarly short-necked bird engraved on a sandstone plaque from the Magdalenian of Puy de Lacan (Sieveking 1987: fig. 19) is complete and the engraver paid particular attention to detailing the plumage and feet. One short-necked form complete with tail and legs/claws was engraved onto the wall at Gouy (Martin 1972). At least twelve of the engraved

plaquettes from Gönnersdorf bear images of at least fifteen birds and of these (where enough detail is present) only two are long-necked (pers. obs.) and eleven are short-necked. It seems that bird species depicted in Magdalenian engraving are overwhelmingly of the short-necked variety and, while long-necked forms are on occasion depicted, they are in a minority. Furthermore, it is interesting to note that depictions of birds almost always (*a*) depict the entirety of the birds and (*b*) pay attention to details such as eyes, feet, wings, and plumage. They are almost always solitary, or at best depict two birds. The images on Panel VII which may be birds share none of these features; they are (*a*) incomplete, (*b*) long-necked, (*c*) show no eyes or any other attention to detail, and (*d*) seem to cluster in a group of several individuals (see below). While of course one cannot rule out an interpretation of these images as birds, this does mean that, if they are depicting birds, they are not part of the known Magdalenian canon of this group, but unique.

Another trait shared by many (but not all) depictions of birds is that they are readily identifiable as such. Bahn and Vertut (1988: 132/3) have, however, noted that depictions of birds in Upper Palaeolithic art are often mediocre and on occasion share features with the depiction of humans, notably in terms of their heads/faces and of their vertical (bipedal) postures. Clearly, there is occasionally an ambiguity between the two. It is in this light that I will now put forward a formal hypothesis suggesting that the Panel VII images are not unique images of birds, but of a nature common to the Late Magdalenian artistic canon: highly stylized female human outlines. To do so requires a reorientation of our viewing of Panel VII, supposing that it is, in fact, nowadays viewed upside down. Figure 8.5 presents the panel in what I regard as the 'correct' orientation, that is, the view originally held by the Magdalenian engraver.

Panel VII: the 'upside down hypothesis'

Despite the very general similarity in form between Panels X and VII, one must accept an inversion if the two are seen as conceptually similar; one or the other must be 'upside down' accepting modern notions of the viewing of art. If one does not accept this, we must view the two panels as distinct, which in itself raises problems as there are formal similarities in shape between the two. Panel X was engraved at roughly head height to Magdalenians; it is probably safe therefore to assume that it is oriented in the correct way, that is we view it today in similar orientation to a Magdalenian. If this is so, accepting formal similarity between the two panels would suggest that Panel VII is upside down. There are, in my opinion, other

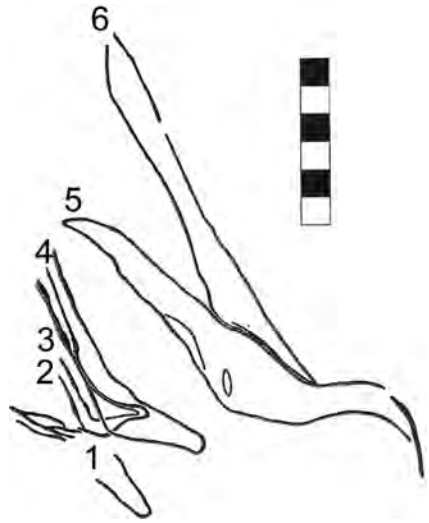


Fig. 8.5. Church Hole Panel VII upside down

reasons why this may be so. Today, one walks into the cave some 2 metres below the original level of the floor in Magdalenian times, as the excavations in the 1870s (see Jacobi, this volume) emptied the cave of older sediments containing Middle Palaeolithic archaeology. Panel VII is the only major panel of images beyond the 'daylight' zone of the cave, and it is also the only set of images that were not engraved at head height. We must therefore assume that a different posture was adopted by the engraver to create this panel. Panel VII is in the 'crawl space' in the dark zone of the cave, at a point where the ceiling would have been between 100 and 150 cm above head height, therefore requiring a stooped posture at the very least. Panel VII was engraved 50 cm above the Magdalenian floor of this crawl space, that is at around knee height. For an average-sized Late Pleistocene human this is too low effectively to engrave the panel from a kneeling posture. Two possibilities exist: either the engraver adopted a lying position, effectively engraving the images above his/her head at an acute angle from the body, or from a 'stooping' position which effectively brought the head and arms upside-down and facilitated using the wall of the cave as a support (Fig. 8.6). The former, I argue, would be difficult, as little support would be available to a lying individual and the images would need to be engraved 'sideways on' as the engraver would not be oriented in the correct position to view the images as they were intended. The latter would not only allow the use of the wall as a support to still the body and hand, but would bring the head into correct orientation with the intended image. Assuming that the engraver adopted this position and was right-handed



Fig. 8.6. The author showing two possible means of engraving Panel VII in the Magdalenian: (1) lying down; (2) stooping

(on modern analogy 80 per cent likely), the ‘correct’ orientation of Panel VII is upside-down. Figure 8.5 reverses the panel to show what, in this scenario, it looked like to the engraver.

Viewed from this perspective, images 2, 3, 4, 6, and especially 5 take on formal similarities with Late Magdalenian stylized females, which have been seen as an important part of the Magdalenian perceptual world (Marshack 1991). Viewed as part of this figurative theme, Panel VII images 2–6 possess ‘upper bodies’ without emphasized breasts, either left ‘open’ at the upper torso with no depiction of the head (2, 3, 4, 6) or brought to a point (5). They also possess clear out-thrust buttocks which articulate with the upper body in such a way as to suggest a partially stooped posture. Thirdly, they possess legs attenuated below the knee, either in a curve or with a sharp attenuation of the leg by the frontal line (image 5). Image 1 may be seen as a ‘lower leg’ termination, akin to the left-hand image in Panel X. Image 5 on Panel VII measures approximately 14.5 cm in maximum dimensions (i.e. from ‘neck’ to ‘knee’). In terms of proportion, the upper body comprises 6.5 cm, the mid-body (buttocks) are 5 cm and the lower body 3 cm. In images 2, 3, 4, and 6 of Panel VII the dominance of the upper body is very clear, and image 1 is unique in that it depicts only the lower body. Given the attenuation of the lower body below the knee, the relative dimensions are not surprising, and fit well with those of continental depictions of females (see below). It is similarly interesting that images 1–5, and separately 5–6, are ‘nested’, that is to say, form groups of individuals, a trait which again finds parallels on the continent.

I shall now consider continental examples of stylized female outlines. For the ‘upside-down’ hypothesis that the Church Hole panels are also depictions of females in this canon, the following criteria at least must be met:

- They should not be readily identifiable as any other image, for example, birds.
- They should possess general similarities with female outlines from contemporary sites.
- They should possess a number of formal similarities with continental examples.
- They should not differ significantly in a formal way from continental examples.

Magdalenian Female Figurines

The depiction of human/humanoid outlines in Upper Palaeolithic art is not as rare as popular opinion might suggest. Lorblanchet (1995: 52), for example, has estimated that ~300 parietal depictions of humans and ~830 examples of human depictions on *art mobilier* exist, the majority of which are ‘partial’, that is, incomplete. Two sites which have yielded the highest counts of individual human depictions—Gönnersdorf and La Marche—are broadly contemporary with the Creswell Final Magdalenian. Some Magdalenian depictions of the human form also bear clearly engraved vulvae, for example, in the frieze at the Roc-aux-Sorciers, Angles-sur-L’Anglin (Iakovleva and Pinçon 1997; Pinçon, this volume). Table 8.1 notes a number of examples of stylized females. The geographical spread of these images across the Magdalenian world is remarkable, and when viewed against lithic typologies, settlement patterns, and other aspects of the archaeological record which have a regional character stand out as being similar over relatively large distances.

Despite the geographical range covered by the female outlines, clear formal similarities can be found which unite these images into a coherent whole. Bosinski and Fischer (1974) in particular have developed a clear definition of the *frauenstatuetten des darstellungsprinzips Gönnersdorf* which serves here both to define the canon, and as a point of departure to a formal comparison of the Creswell examples to those of the continent. They are:

- engraved in profile, facing in either direction but with a tendency to face right;
- one of five variants of the upper body, from simple lines open at the top without breasts, arms, or heads to those possessing breasts and incipient arms; always lacking heads;

Table 8.1. Selected sites yielding stylized female outlines of the *darstellungsprinzips Gönnersdorf*

France	Lalinde, Gare de Couze, Teyjat, Cessac, Carriot, Fontalès, Courbet, Comarque, Lagrove, Les Combarelles, Gouy, Montcabrier, Murat, Niaux, Rond-du-Barry, Orival, Saut-du-Perron, Planchard
Belgium	Trou de Chaleux, Presle, Abri de Mégarnie
Germany	Petersfels, Andernach, Gönnersdorf, Hohlenstein, Nebra, Oelknitz, Saalfeld, Felsställe
United Kingdom	Church Hole?
Spain	Altamira, Las Caldas, Cueva del Linar
Czech Republic	Byči Skála, Pekárna
Ukraine	Mezin, Mežirič, Dobraničevka

Sources: Archambeau and Archambeau 1991; Bayle des Hermens 1972; Bosinski 1982. Bosinski and Schiller 1998; Corchón Rodríguez 1998; Delluc and Delluc 1981; Höck 1993; Lorblanchet 1995 and this volume; Powers 1994; Ripoll López 1988/9; Valoch 2001; Welté and Cook 1993.

- one of four variants of the lower body, varying on the nature of the 'termination' of the legs below the knee;
- in terms of general proportions generally dominated by the upper body;
- in possession of slanting thighs and pronounced buttocks suggestive of a bent posture;
- generally without internal lines, hatching or other interior details.

To Bosinski and Fischer the outlines depict women in half-crouching positions with arms partly raised, perhaps in dance. Multiple groups of such images presumably depict group dances, or a single individual in movement.

The Church Hole Panel VII images broadly correspond to these criteria, in that they face right; possess upper-body profiles similar to the range of variability noted by Bosinski and Fischer; possess lower-body profiles again within the range previously observed; are dominated by the upper body; possess slanting thighs and pronounced buttocks, and are without internal details or filling. The images of Church Hole Panel X, although not falling exactly within the canon of Magdalenian females of the *darstellungsprinzips Gönnersdorf* again share the features of upper and lower body terminations, lack of internal details or filling, and pronounced buttocks. The hypothesis at least holds in terms of these general similarities. For a more formal comparison of the two, I now turn to the large and well-studied collection of engravings and figurines from Gönnersdorf and Andernach.

The open-air camps of Gönnersdorf and Andernach, on opposite banks of the Rhine, have yielded a number of engraved slate plaquettes and organic statuettes, scattered within and between large artificial structures (Jöris and Terberger 2001) which appear on the basis of refitting studies to have been contemporary (Sensburg 2005). At least ~224 females were engraved on

87 plaquettes (Bosinski and Fischer 1974). In addition to these, the site yielded 18 carved female statuettes and Andernach 22, which also bear clear formal similarities to the engravings and may therefore be considered to be part of the canon (Höck 1993; Bergmann and Holzkämper 2002). These are made predominantly from mammoth ivory and to a lesser extent from the pointed tines of reindeer antler or slate. Höck (1993) undertook a formal analysis of the statuettes, dividing upper, mid, and lower bodies into formal design categories (Fig. 8.2). As with the engravings, the lack of presence of heads is apparent on the statuettes, with upper bodies either being brought to a blunt point, or being terminated by a straight or mildly curved line perpendicular to the main axis of the body. Buttocks take either a curved form or are relatively 'pointed'. As with the engravings, the lower bodies terminate either just below the knee or mid-shin, usually with a blunt point. In the latter, the legs are usually bent below the knee. Breasts are clearly depicted only on three of the statuettes. Höck found the typical length of the statuettes to be between 40 mm and 100 mm, and in terms of proportion to be dominated either by the upper body or the mid-body (i.e. the buttocks). Intriguingly, the *frauenstatuetten des darstellungprinzips Gönnersdorf* seems also to have been reproduced at Gönnersdorf and Andernach in pendant form on pierced fox premolars (Alvarez Fernández 1999), suggesting a high degree of redundancy of this image in the Late Magdalenian.

Table 8.1 lists a number of images which fall clearly into the *darstellungprinzips Gönnersdorf*. At Gouy, it is interesting to note the association of one of these with three vulvae (see Martin, this volume, fig. 9.23). Welté and Cook (1992, 1993) have detailed a female engraved onto the bottom of a stone lamp from the Late Magdalenian of the Grotte du Courbet (Tarn). In terms of dimension and form (legs truncated below the knee, a 'trailing' line of the front leg, which truncates the line of the back of the leg, open upper body) the outline is remarkably similar to the Church Hole Panel VII engravings (Fig. 8.7). A somewhat more frontal view of an otherwise canon female was engraved onto a *bâton perforé* from the Grotte du Ronde du Barry in Haute-Loire (Bayle des Hermens 1972), which bears a superficial similarity to an engraving on a stone plaquette from the Middle Magdalenian of Las Caldas (Corchón Rodríguez 1998: fig.11). Ripoll (1998/9) has also interpreted some of the 'claviforms' of the painted ceiling in the Polychrome Chamber of Altamira as stylized females. Note also the general shape of the hyoid bone engraved with horse and bison head from Las Caldas, Spain (Corchón Rodríguez 2004: fig.15), which replicates the basic shape of the *darstellungprinzips Gönnersdorf*. It could also be said that the 'Spindleform' statuettes on bone of Magdalenian age from Freudenthalhöhle, Germany (Bosinski 1982: pl. 23), Kesslerloch, Switzerland (Merk 1876: pl. XIII.73; Braun 2005: fig. 18), and La Garma-Galeria Inferior, Spain (Arias Cabal and

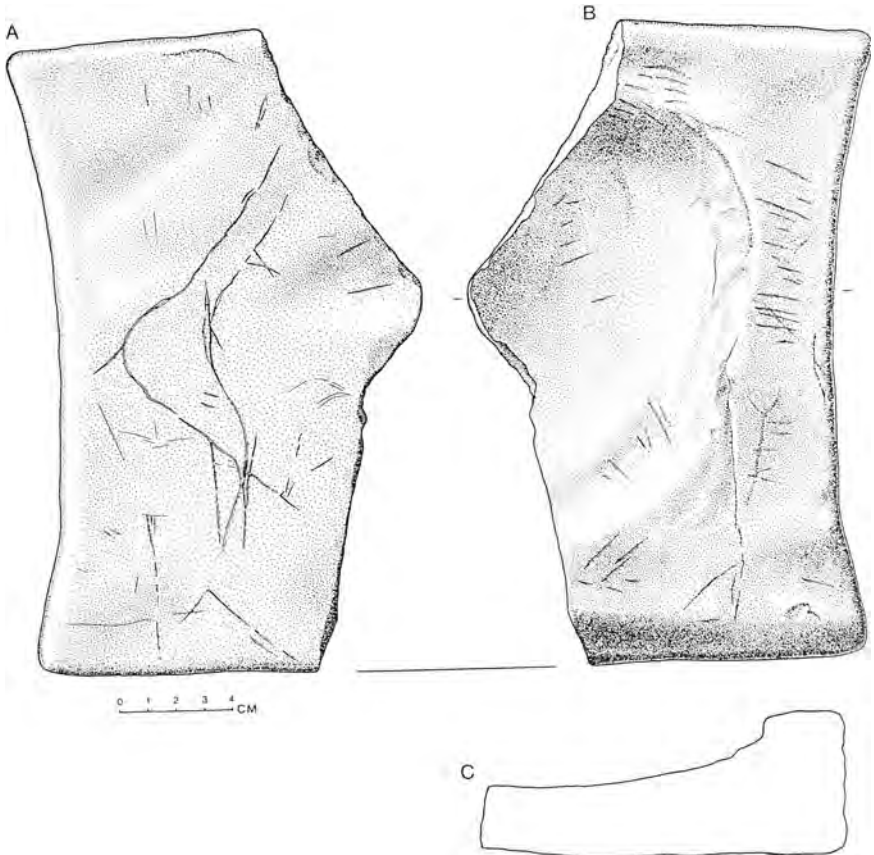


Fig. 8.7. Stylized female engraved onto the bottom of a stone lamp from Courbet. Courtesy J. Cook

Ontañon Peredo 2004: cat. no. 33) replicate a general female outline. Clearly the stylized female image had wide currency in the Magdalenian world.

Figure 8.2 illustrates Gönnersdorf/Andernach formal upper and lower body and buttock types for engravings and statuettes. Church Hole Panel VII images 1–4 possess a Gönnersdorf/Andernach type D upper body, which is to say that it is composed of two lines that are broadly parallel, possessing no breasts or arms. Of these they are closest to D3 subtype, that is, with parallel lines that do not converge or diverge. In terms of the termination of the lower body they are more similar to the statuette types 6 (shallow rounded termination below bent knee) defined by Höck (1993). Image 6 has a slender and pointed termination below a straight thigh more similar to Höck's type 9. Buttocks are rounded and form an acute angle with the upper and lower

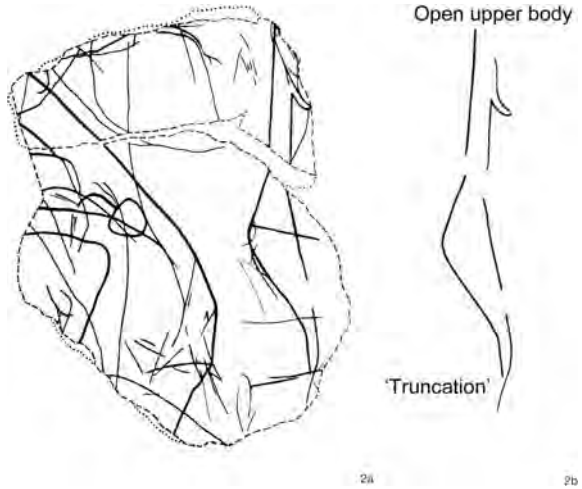


Fig. 8.8. Gönnersdorf Plaquette 2, with detail of engraving 2b, after Bosinski and Fischer 1974.



Fig. 8.9. Church Hole Panel VII Image 5 in suggested 'correct' orientation, alongside Andernach mammoth ivory statuette An2 to show similarity. Photo: PBP.

bodies, ubiquitous traits on the Gönnersdorf/Andernach engravings and statuettes. Image 5 is particularly interesting as it even shares the trait of the line of the front of the thigh truncating the line of the rear of the thigh, as seen on a number of Gönnersdorf engravings and illustrated in Figure 8.8 (Plaquette 2b), although in upper body it is akin to Höck's type 6, that is, a fairly acute curve/rounded point that is offset from the main axis of the upper body. In all, this is an impressive number of similarities in the design of the three main areas of the body, with image 5 in particular conforming to highly idiosyncratic Gönnersdorf style. Figure 8.9 shows the outline of image 5 alongside Andernach figurine An2 to illustrate the similarity. Ultimately,

one has to question how likely these similarities are to have arisen by chance. I suggest that they indicate a formal similarity of design and therefore of symbol, and propose their identification as females of the *darstellungsprinzips Gönnersdorf* which enjoyed a wide currency across Magdalenian space.

CONCLUSION

In terms of a general artistic repertoire, the Creswell art is clearly Final Magdalenian in form. The presence of engravings of a large bovid, a stag, and vulvae, in addition to more ambiguous elements such as vertical lines, demonstrates clearly that the first Palaeolithic groups to occupy Doggerland and adjacent parts of the United Kingdom employed artistic traditions shared by their contemporaries further south and east. The images of Church Hole Panel X do not depict anything readily identifiable, and I have argued above that it is unlikely that the images of Panel VII depict birds. Instead, I have illustrated their general resemblance to contemporary female outlines which are found across a wide spread of the Magdalenian world. As this is so, it would not be surprising that they formed part of any new discovery of contemporary art, or to put it another way we should be more surprised if the Church Hole images really did depict (rare) birds rather than a very common cultural theme. I have tried also to draw out some formal similarities between the Church Hole images and those from the continent, particularly from the geographically close sites of Gönnersdorf and Andernach.

The clear conceptual similarities between the Creswell art and that over considerable distances of Magdalenian space indicates that the colonists of the Northern European Plain after the Last Glacial Maximum were culturally Magdalenian, inheriting some design elements from a long-standing historical tradition stretching back one or two millennia (in the case of the *sagaies*) and shared by contemporary groups as far apart as Iberia and Germany (in the case of the animal depictions and, I have argued, females). The degree of connectedness is, in my opinion, striking, and must indicate a strong degree of similarity of cosmological belief and ritual practice, assuming that the art was embedded in such notions. If it is correct that Creswell and the surrounding region was visited by Magdalenians during spring, as an embedded part of reindeer migrations to their spring calving grounds and also to exploit seasonally moving horse and Arctic hare, the Creswell art was also a phenomenon of spring. Perhaps some of the themes of the art—a deer stag with first year antler spikes, a bovid bull, vulvae, stylized naked women perhaps in a ritual dance—reflects this season; one of fertility, renewal, and of growth.

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The Engravings of Gouy: France's Northernmost Decorated Cave

Yves Martin

INTRODUCTION

For almost half a century the cave of Gouy, discovered in 1956, was the northernmost Palaeolithic decorated cave known in western Europe. Because of its originality and its geographical location, it overturned our knowledge, as has, today, in its turn, the magnificent discovery of the first British parietal Palaeolithic art which has at last been revealed in Church Hole, at Creswell Crags, in Nottinghamshire (Bahn *et al.* 2003).

This revelation extends the distribution of Palaeolithic parietal art further to the north and the west. Following this major event, the possibilities of similar explorations have been reinforced. Even more than before, other discoveries can today be foreseen, not only in the neighbouring regions but very probably also some day soon in Belgium and Germany.

OBJECTIONS AND CONTROVERSIES

Before the authenticity of its decoration was accepted unanimously, Gouy, like Church Hole, was not exempt from scepticism. This attitude inevitably accompanies discoveries which call into question our knowledge in all fields of research. However, doubt is necessary and, in some ways, it is obviously very useful. In particular, it incites one to gather together all the elements that

I am infinitely grateful to Dr Paul G. Bahn for his remarkable translation, certainly enhanced by his knowledge of Gouy, as well as by the memory of our fruitful exchanges of views *in situ*, in the period when I still had access to this fascinating cave for my studies.

support the accuracy of any new thing. Where Gouy is concerned, there were two principal objections which counted against it and perplexed researchers.

The most frequently used negative argument from the very start was its geographical location. From 1946 to 1956 the Grotte du Cheval, at Arcy-sur-Cure in Bourgogne (Bailloud 1946), was the northernmost decorated cave. Even this cave appeared very eccentric at this latitude. Consequently, far away from the great regions of parietal art, Gouy could not be attributed to the Upper Palaeolithic.

Moreover, the (recognized) open-air occupations of the Upper Palaeolithic and Final Upper Palaeolithic were thought to be virtually non-existent (in the regions close to Gouy). This view already ignored the proximity of the rockshelters of Métreville, near Saint-Pierre d'Autils, where there had been a 'Magdalenian' industry associated with mammoth bones (Poulain 1904, 1905). In reply to this opinion, which was still widespread in recent times, Gerhard Bosinski proclaimed in public, 'it is . . . (the Final Upper Palaeolithic), look for it . . . in your region . . . you will find it'.¹ And indeed this has been brilliantly confirmed quite recently by Jean-Pierre Watté and his collaborators (Watté 2003).

The second objection concerned the rocky-support of the drawings: chalk (which makes up the walls of the cave). It seemed far too soft and fragile for Palaeolithic engravings to have been able to be preserved on it.

Denial

Consequently, in the eyes of some archaeologists, at the time of the discovery of Gouy, it was impossible that the engravings could be older than the historic period. So the engraved horse could only be Gallic. Moreover, in their view, the drawing of the animal had all the characteristics corresponding to this conclusion. For a few others, inscriptions from 1881, written in black beside the engravings, certainly indicated not only the period but also the real authors of these engravings. And at the same time, certain people even believed that everything pointed to me being the author of the drawings, because I was a pupil at the *École des Beaux Arts*. The unforgettable discovery itself was denied by former speleological companions. They claimed (through articles in the press) that they were the discoverers of Gouy. Things reached the point where, although I had had the extraordinary luck to discover this fascinating cave with my brother Pierre Martin, we were ousted for some time.

¹ Lecture on 23 Jan 1999: 'The Female Depictions of Gönnersdorf (Rhineland) from the Magdalenian (Upper Palaeolithic)'. Musée de Louviers (Eure), France. Exhibition 'De la pré-histoire', 1998–9.

Authentication

Fortunately, M. J. Graindor succeeded in persuading his friend H. Breuil to come to Gouy, despite his difficulties at the age of 85 in crawling on his stomach in a narrow passage (for a distance of 12 m). Henri Breuil's intervention at the site was decisive. The famous prehistorian authenticated the engravings as being Palaeolithic. From then on, his opinion was adopted by most people, especially as a series of new elements rapidly arose which consolidated his expertise. The uncovering of the walls at the 'entrance' revealed that below the drawings they still preserve today:

- engravings, accompanied by traces of red ochre paint, which it was impossible to see at the time of the discovery, because of the cave's fill;
- detached fragments of the engraved walls and stone blocks which are also decorated (in the rubble and the floor);
- animal bones and 115 flint objects (16 tools): 2 scrapers; 3 burins; 4 curved-back points;²
- a big point (knife with a broad faceted base) which still bears traces of red ochre colouring on its dorsal retouch, as does the base of the best blade from the site (Bordes *et al.* 1974).

The Isolation Ends

Another series of discoveries reduced Gouy's geographic isolation.

- An engraved block depicting a proboscidian was found in 1965 at Gouy II, a kilometre away, on the same side of the hill as Gouy I (Graindor 1965; Martin 1989).
- The parietal art of La Dérouine (or Mayenne Sciences) was discovered at Thorigné-en-Charnie, on the banks of the Erve, within the limestone massif of Saulges, at Mayenne, in 1967 (Bouillon 1967).
- The cave of Orival (or du Renard) was found in 1977, with its engraved and painted art, 11 km south of Gouy, but on the opposite bank (Verron 1979; Tomat 1984, 1998; Martin 1998, 2001).
- And finally, there was the discovery of the parietal art of Church Hole (Bahn *et al.* 2003 and this volume).

² The industry seems meagre, but it could represent the remainder of a more important industry that disappeared with the initial natural entrance. The building of a road brought about the destruction of the entrance porch and vestibule (of unknown length). This observation should be systematically taken into account (both for parietal and portable art). Considering Gouy as a complete assemblage contributes to seriously erroneous data.

Preconceived Ideas

The frame of mind which leads people to reject, in advance, any new element that does not fit the established framework may be outmoded, but it is still encountered at times today. At Church Hole, questions were posed about the depiction of animal species, no bones of which have yet been found in Great Britain. At Gouy, a possible 'presence of reindeer' was noted in the preliminary results (1989) of a second palaeontological analysis (Richard 1972). This hypothetical identification involved an attribution that was too early for the dating which instigator of the new analysis envisaged for Gouy. For that reason, it was rejected right away, even before a ^{14}C date could be carried out that might have led to the rejection or acceptance of this possibility.

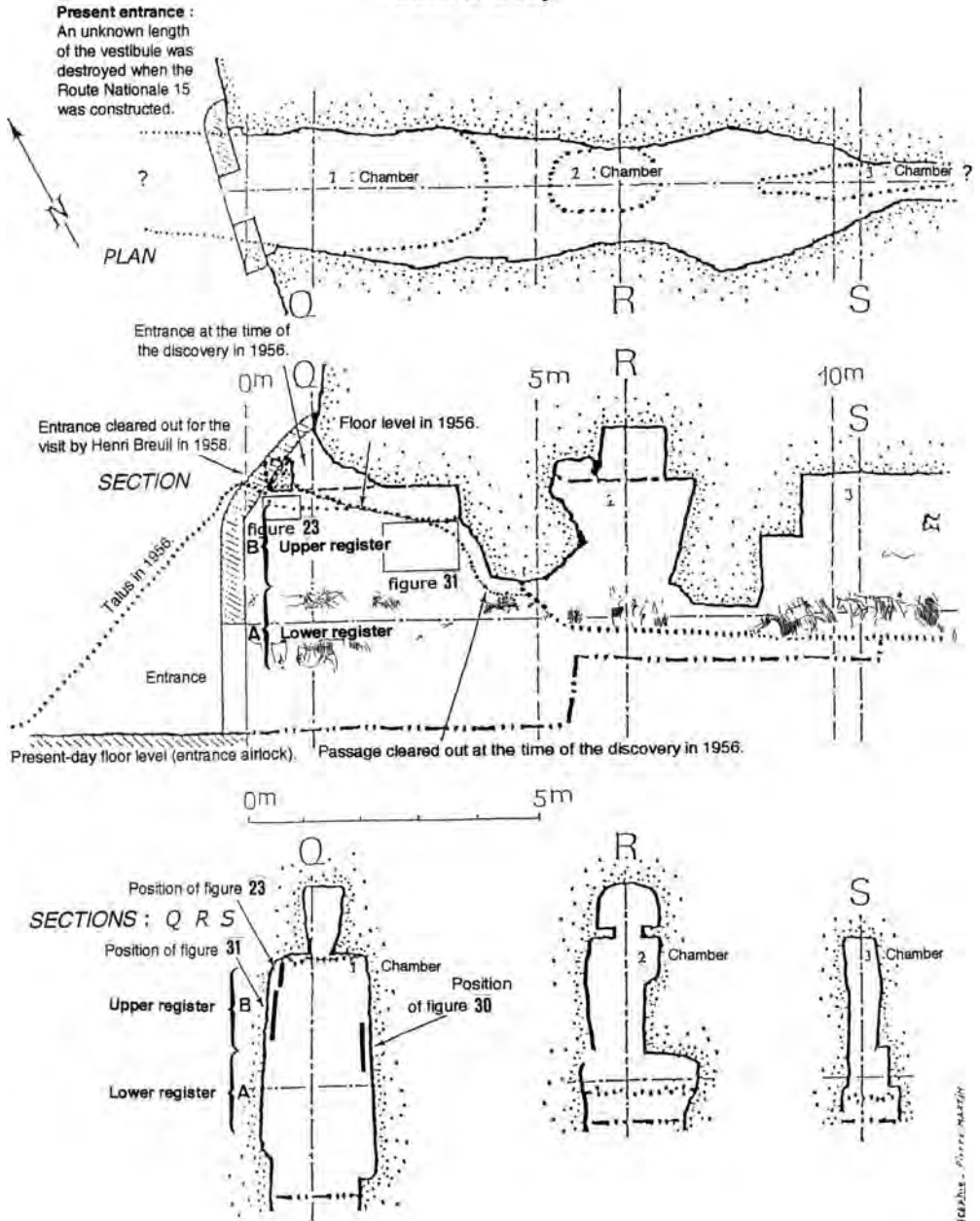
A PALAEOLOGIC DECORATED CAVE IN NORMANDY

Gouy is a very small cave. This characteristic has been amplified during modern times. The cave's natural entrance disappeared during the construction of the highway, which cut through the side of the hill. All that remains is a narrow corridor, about 12 m long and 2 m wide (at its start) which grows narrower towards the back, until it forms a kind of impenetrable fissure. The rock descends twice to almost 50 cm above the archaeological floor, and thus these low passages delimit three very small chambers (Fig. 9.1). The cave is hollowed into a white chalk dating to the Senonian (Cretaceous). It is a soft rock containing flints: (1) in layers several centimetres thick, which are discontinuous and more than a metre equidistant (one of these layers constitutes the cave's ceiling); (2) in the form of flint nodules, with protuberances of different sizes, that are scattered over the walls.

History and Research

We discovered the cave and the engravings it contains in 1956 after a major clearance at the back of the first chamber (Graindor and Martin 1972). However, next to the magnificent engraved horse there were inscriptions in black: 'à Gouy', 'Jamelin', 'Narcisse Reboursier', and '1881'. I carried out some research and found traces of these two people in the commune's archives; they were both inhabitants of Gouy. The first was a road mender and the second a mason. It is very probable that these men were aware of the importance of their discovery, which took place only two years after that of Altamira. But at

Cave of Gouy



L'Espeyrie. M. M. M. M. M.

Fig. 9.1. Plan and sections of Gouy, with location of the graphic registers

that time parietal art had not yet been recognized by the scientific community. Moreover, the discoverer of Altamira, Don Marcelino Sanz de Sautuola, was accused of naivety and imposture, and died in 1888 before his brilliant intuition was unanimously confirmed. Hence the difficulties that these two modest inhabitants of Gouy would have encountered, if they had tried to make their discovery known.

Having carried out a collective recording of the horse wall, with former speleological companions, P. Martin presented it to the curator of the Musée des Antiquités in Rouen, R. Flavigny, who immediately informed the director of the Circonscription des Antiquités Préhistoriques, M. J. Graindor, who visited the cave and recognized its scientific importance. Shortly after the visit by H. Breuil, on 16 December 1958, the excavation of the cave began, directed by M. J. Graindor.

The stratigraphy observed was as follows, from bottom to top:

- blocks of chalk, sterile rubble;
- chalky, yellow, powdery limestone sand (average thickness 30 cm);
- chalky, yellow, packed limestone sand (average thickness 3 cm): archaeological floor;
- chalk powder with chalk blocks scattered through it (average thickness 3 cm);
- chalk blocks (thickness 0 to 30 cm): rubble of the historic period.

Conservation and Moulding

In 1961, all of the walls of the first chamber were cleared of the rubble beneath which they had hitherto been buried. The full extent of the cave's dilapidated state became apparent. Large fissures and a whole network of more slender cracks led to fears that blocks and entire panels of rock might become detached. Everything pointed to the possibility that the cave might collapse at any time.³

³ This is all the more troubling as transparent filaments tend to grow on this fragile rock support. They come from the plant cover. They were delicately eliminated, in the course of the research programmes (before they could develop, and damage the walls). As the last programme was regrettably postponed (despite the favourable decision of the Commission Interrégionale de la Recherche Archéologique Grand Ouest), I no longer have access to the cave. The monograph on Gouy is in preparation. Official authorization is necessary to resume studies in the cave, in order to finish the research and publish it as intended. In the mean time vigilance has not been maintained. These past few years, on three occasions when I was invited to be present at the cave, I have pointed out that these roots have seriously developed over several square metres of *engraved wall*.

An emergency support was installed under the passage leading to the second chamber, and injections of 'glue' were applied to the base of the walls to stabilize this sector. A campaign of tracing and photography was undertaken, as well as a study of the possibilities of making casts. Different techniques were tested to try and produce replicas with the exact relief of a part of the decorated walls. These casts were also to become an important resource in the study of the cave.

The tests were carried out with a variety of products, on limestone blocks and slabs that were placed in the cave to give them similar hygrometric and thermal conditions. Our top priority was that the fragile walls should be preserved intact and undamaged, and no deterioration should affect them in the course of the operation. As surprising as it may seem, it was a process involving a 'stamping' with clay which proved to be particularly appropriate in meeting the requirements of the invaluable cave (Martin 1974, 1993).

The limestone of Gouy is porous, but saturated with water because of a high ambient hygrometry (90 to 95 per cent relative humidity) though its surface does not exude. During tests, it became clear that the clay, of appropriate consistency, did not stick to it, but did produce a precise imprint of the engraved wall and a very faithful reproduction of it (with the help of clay negatives).

Although the casting of the Gouy engravings by this process benefited from highly favourable factors, this procedure is not definitely reproducible elsewhere, nor repeatable at Gouy. Any operation requiring a direct contact with the wall should really only be used once: in an extreme case, where there is a clear and inescapable danger (for example, of extreme urgency linked to conservation) or as in the very specific cases of Font-de-Gaume (Brunet and Vidal 1981), or the Grande Grotte of Arcy-sur-Cure (Baffier and Girard 1998).

These casts are very useful for study. New elements are discovered thanks to observation of the replicas in the laboratory. Through their great handiness, the casts obtained enable one to make complementary observations which cannot be carried out in the cave—for example, because more varied and prolonged illumination is possible. Modification of the reproduced surfaces is possible, if necessary (for example, by darkening them), in order to be able to better read the fine details of the engraved lines. This brings them out clearly and accurately in white on the dark background.

Moreover, an unexpected benefit of the casting at Gouy was the restoration to the wall of detached blocks whose original position had been unknown. The imprint of the broken part of these blocks helps to fit them to the wall (by comparison), because the negative image is identical to that of the original location and thus facilitates this kind of investigation.

Parietal Layout

Gouy's walls comprise two very different registers (Figs. 9.1 and 9.2):

- (A) a lower register, with engravings that are mostly strongly incised and highly visible;
- (B) an upper register, with extremely light engravings, that are barely visible.

These two registers are themselves subdivided into three homogeneous but distinct groups.

Group I comprises most of the engravings in the lower register (engravings with strong incisions with thick and thin strokes and varying depths, bas-relief). The representations are conventional, but fairly close to nature.

Group II comprises the six animal representations of the small engraved assemblage (9–10–11), unique of its kind. A stone engraved with a small mammal also belongs to this group. Two heads out of the six are distinguished by an internal fill of criss-cross lines (engravings with strong incisions with thick and thin strokes and varying depths). The representations are conventional, but again fairly close to nature.

Group III comprises most of the engravings in the upper register and is found only in the first chamber (engravings: extremely fine, rock barely incised; lines: discreet, hesitant, uniform, and monotonous, static animals). The representations are conventional, schematic, and is far removed from nature. Frequent internal fill (bovid and triangular signs), made up of various assemblages of criss-cross lines.

Lower register

About sixty groups of engraved lines, signs, and often small figurative subjects (around 10 to 40 cm) can be made out quite easily at this level. Hence, in an abundant and peculiar tangle of engraved lines, nineteen clearly drawn animal depictions have been recorded so far: seven horned animals (aurochs mostly); eight horses; one bird; three undetermined animals. In addition to these easily readable animals, there are also four depictions of vulvas and several triangular signs. A few other depictions were made by lines completing an evocative natural relief.

It is possible to stand upright in three places in the cave. For this reason they have been conventionally called 'chambers', although they are very small.

A simultaneous reading of the two walls is often necessary at Gouy because of their proximity. Indeed, the correspondence of the drawings on them is such that, from one wall to the other, they sometimes seem to be 'answering' each other. This 'mirror' or 'echo' layout is adopted in the reading and the presentation of Gouy's parietal art (Fig. 9.2).

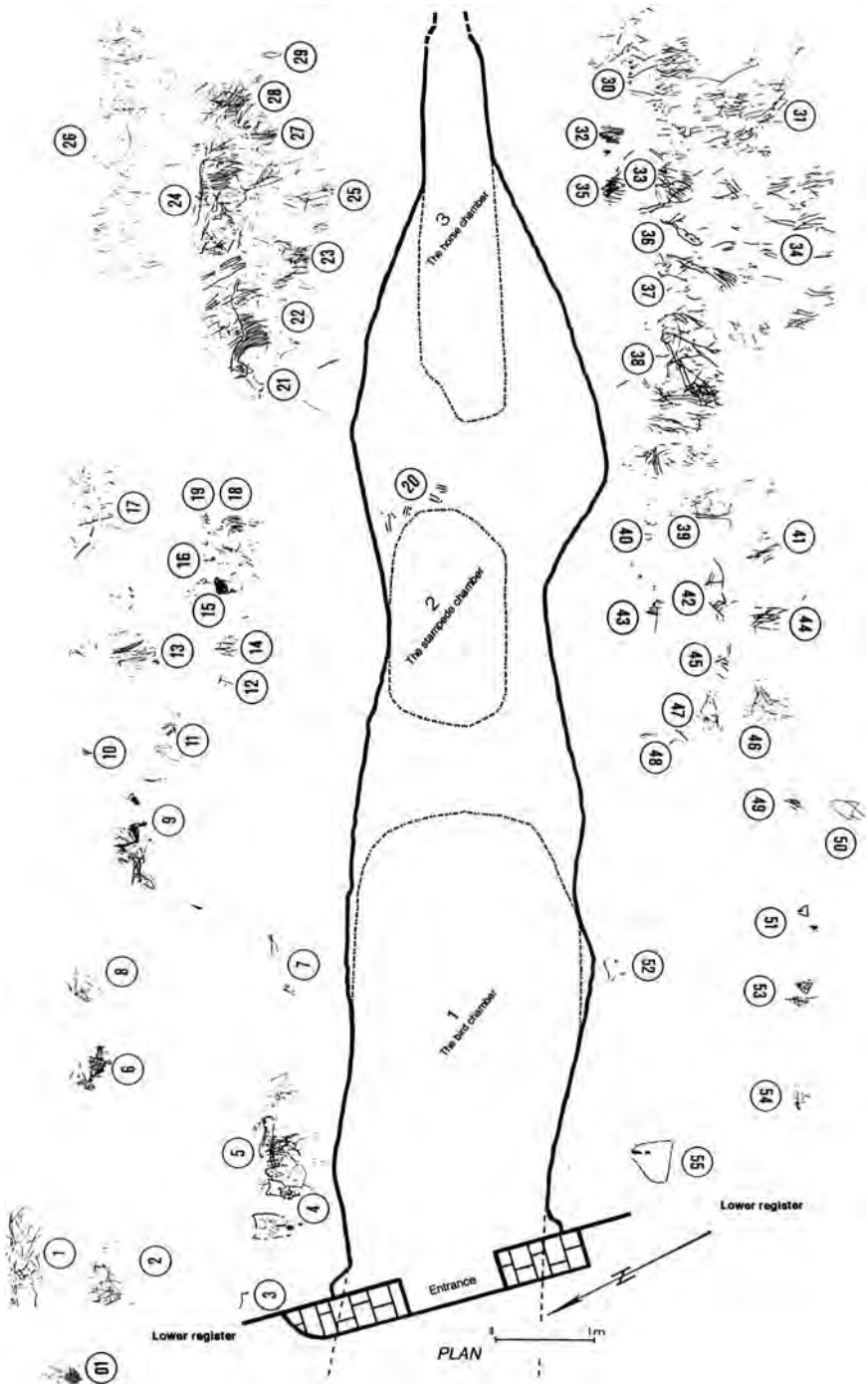


Fig. 9.2. Plan of Gouy, with distribution of the engravings in the lower register

First chamber

Immediately beyond the present entrance (left wall), the wall forms an angle with the masonry of the entrance wall that is too closed to allow observation from in front. Without a photographic decentring chamber, photos produce deformed images.

Intentional incisions are neatly cut through at the point where the cave was truncated to build the road. Enclosing eleven parallel lines, a head (probably that of a horse or aurochs), at the bottom of the wall, miraculously escaped destruction. Both ears (too big for a horse) are present. The right one curves back at the top and provides a supplementary argument in favour of aurochs. The mouth, cut from the end of the nose to the lower jaw, has disappeared. This mutilated head is one of the clearest witnesses to the damage the cave has suffered (Image 01; see Figure 9.2). But this vestige does not make it possible to assess exactly the probably great extent of what has been destroyed (Figure 9.3).

To the right, lower down and at eye level, there are two very visible vulvae (4). Each of them is surrounded by the drawing of the pubis (Figures 9.4 and 9.5). The curved upper line gives them a 'badge' or 'shield' shape (15 and 10 cm high). These vulvae are deeply marked with intentional cupules.

The second, the smaller of the two, is next to the depiction of a bird with two complete legs (5). This engraving of a bird is complex, and comprises very numerous superimpositions (Martin 1988). Further left, the engraving (3) is another vestige, probably a segment of the outline of a pubis (through comparison: the right upper angle of a third vulva). Some traces of red ochre paint, intentionally applied to the wall, accompany this engraved assemblage. They survive, often as simple traces, and sometimes very diffuse, concentrated only on what remains of the walls of the first chamber (cf. 'Use of paint in Gouy' below).

The chronological order of the superimpositions has made it possible to deduce five phases in the production of this assemblage (4–5):

- (1) fine engraving;
- (2) red ochre paint;
- (3) more or less fine engraving;
- (4) engraving of the 'bird';
- (5) blows struck to the wall and the engraving, marked by six very visible impacts, some of which destroyed several square centimetres of engraving.

On the opposite wall (right wall), a very realistic vulva (15 cm) was carved in bas-relief (55). The sculptor probably took advantage of a natural triangular protuberance, efficiently reworking its curves in order to highlight the pubis (Fig. 9.6). The wall around it was also unquestionably sculpted (to a large extent).

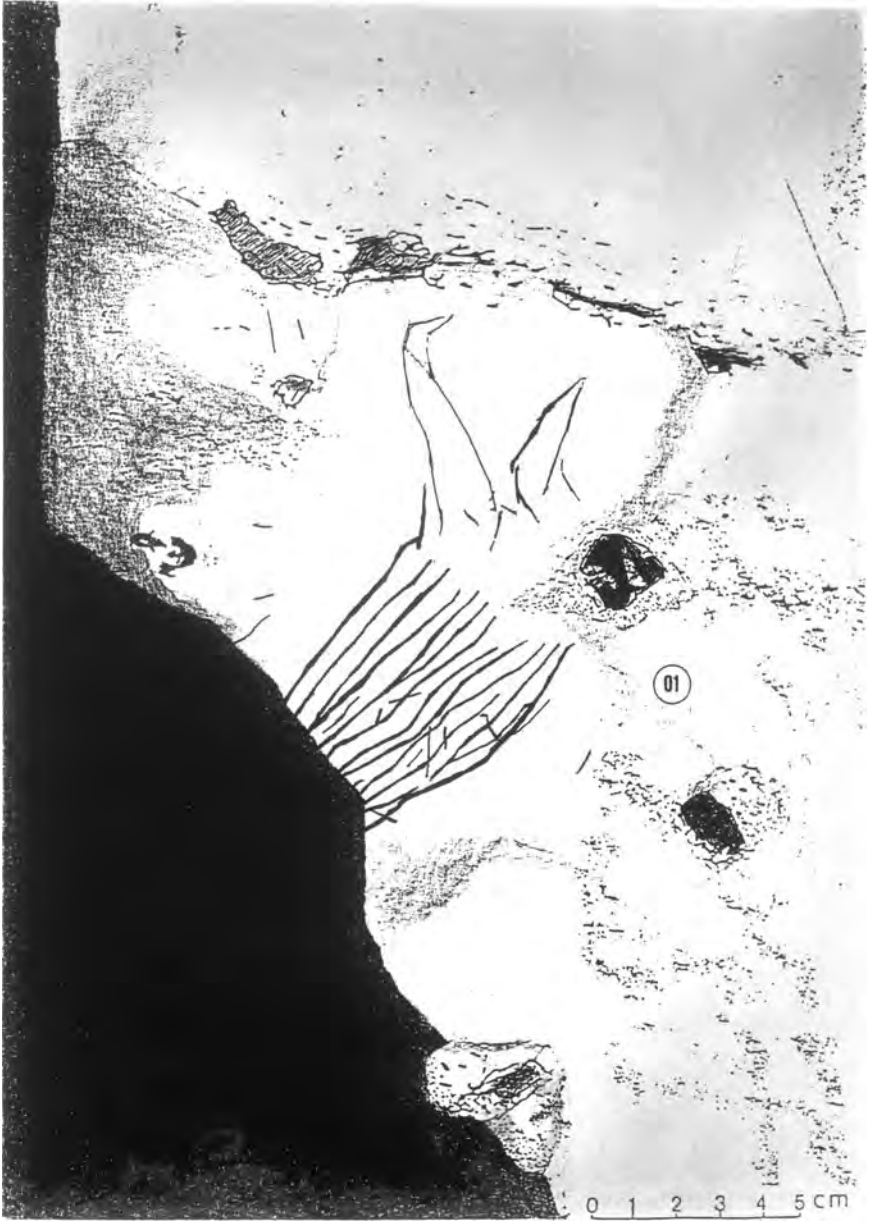


Fig. 9.3. Gouy; aurochs head (probable)

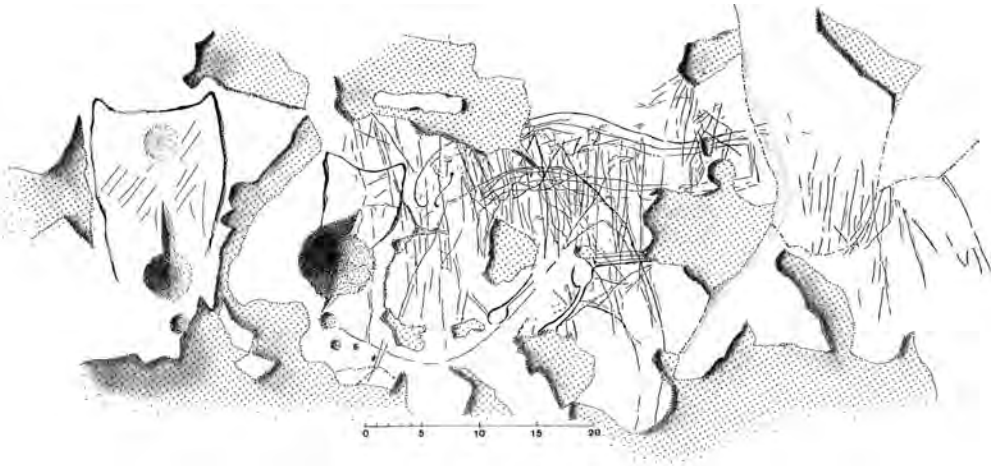


Fig. 9.4. Engravings (4–5): vulvas and bird



Fig. 9.5. Two possible vulvae (4), surrounded by the drawing of the pubis in a 'badge'; or 'shield' shape

Above, there are a few 'barbed' lines (54). At the same level, further towards the back of the cave, there are two vulvae, but this time simple geometric triangles (5 cm), with deeply hollowed-out cupules (Figures 9.7, 9.8, and

Fig. 9.6. Vulva (55): Gouy is one of the very few Palaeolithic sites and caves to have an exceptional bas-relief vulva on its walls



Fig. 9.7. Vulva (51), with an oval cupule, clearly gouged into the lower point of a simple equilateral triangle



Fig. 9.8. Vulva (53), with a firmly gouged cupule at the lower point of a triangle sloping to the right



9.30) at the lower point of the triangles (51–3). They are accompanied by a ‘branching’ sign; a third, bigger cupule is accompanied by a vertical line. Further left, there is a third triangular form with a fine line (50). Below the latter are two signs drawn with a few lines (49).

On the left wall, at the same height, near the entrance, there is an aurochs head (2).

Above, three animals with very visible heads (1), seem to leap to the right; their lines are very spontaneous and particularly fine and lively (cervids and equids?).

Thanks to scaffolding, it was possible to restudy this assemblage (see below), and this led to the discovery of another animal (20 cm × 14 cm) (Figure 9.9). It is engraved less deeply than the three animal heads that seem to follow it (Martin 1973). It is a horse (the only one in the whole cave, practically complete) drawn

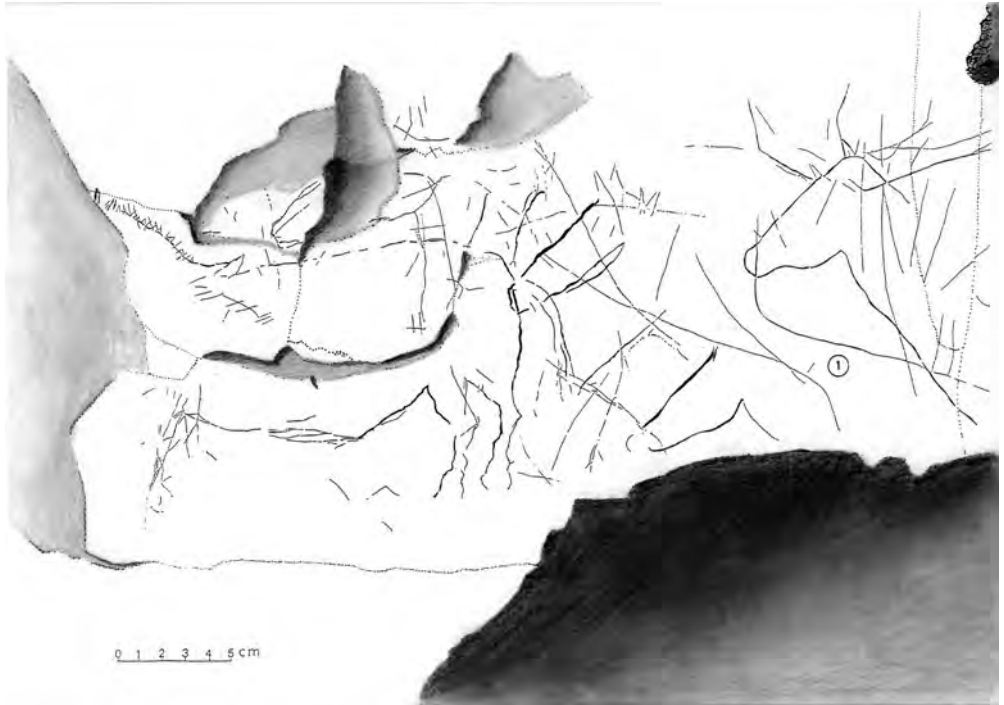


Fig. 9.9. Small horse, followed by other animals that are less clearly identifiable

realistically (faithful to nature). Its head seems partly destroyed, its two ears are very visible. Its mane is indicated by a series of short parallel vertical lines (sometimes criss-cross), as was done for an engraved horse in Fontanet no. 66, both of them being the same size (Vialou 1987). It ends in a tuft-shape at the level of the withers. Its dorsal line is well indicated, as is its rump and tail.

With this little horse we have, at Gouy, the first and only complete depiction of this animal: legs, hocks, fetlocks, pasterns, and hoofs (rounded). The belly is very rounded and, at this spot, the wall caused a reworking of the line in the middle of the belly. The drawing continues towards the front sections (which are very hard to read). The line used for the whole of the animal is very fine. A horizontal fracture separates the animal's flank into two. The rock support is very damaged, and contains numerous fissures and microfissures. Some elements of the wall have alas disappeared, along with their engraved surfaces. However, a small animal head (unidentified) survives above the horse, while the biggest part of the body has disappeared (probably a fourth head forming part of the group).

The first of the three animal heads, already known before this discovery (on the left), is engraved on the tail of the 'new horse'. Despite the trace of a blow

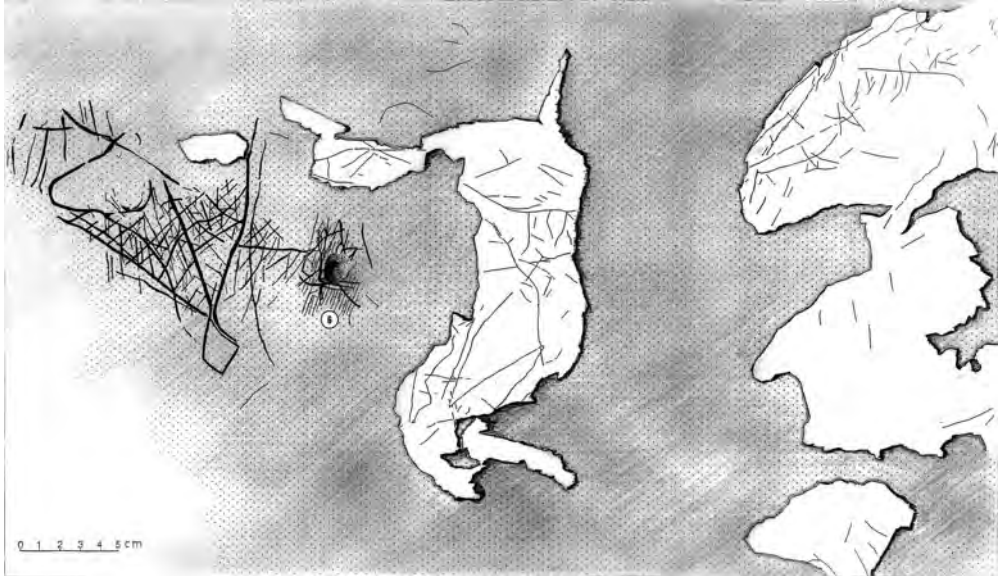


Fig. 9.10. Deterioration of the rock support and successive phases of decoration

which slightly obliterated the engraving, the superimposition is clear. The small horse was thus engraved before these three animals. It should be noted that its pose is rather static, whereas the other animals give an impression of running.

Fragments of an older wall that was decorated earlier

On the right, some 2.1 m towards the back of the cave, there is an assemblage of lines with a small cupule, here again clearly made by the engraver's tool (6). There is also a sign that has remained unpublished until today because of the difficulties in achieving the lighting necessary to make it appear in its totality (Martin 1973: 39). This original sign is made up of extremely brisk, deep incisions. A series of short lines radiates, more or less, from the cupule.

At the same level, and just nearby, there is a horse (8), made with multiple light lines, among which one can recognize the head, the dorsal line, and the beginnings of a leg.

The examination of the wall reveals the great interest of these engravings, which include some superimpositions. These very clear superimpositions could make it possible to deduce different stages in the cave's decoration, that is, successive artistic episodes.

Following the superficial disintegration of the decorated wall (at this spot), the newly created surface was also engraved in its turn. Hence, it takes the

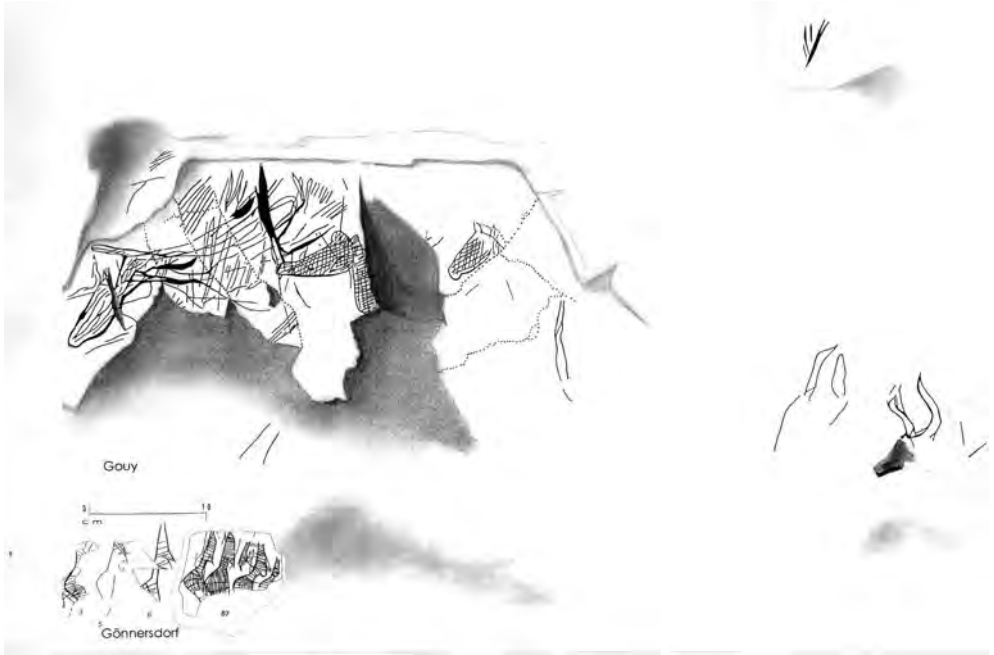


Fig. 9.11. The animal stampede (9–10–11): a dynamic composition that is extremely well thought out

form of fragments of engraved wall which survive today. These are a little like islets on a new available surface (Figure 9.10). These ‘fragments’ are the only evidence of the ancient decorated wall, which has largely disappeared. They are surrounded by grainy surfaces that appeared later, after the superficial disintegration of the old decorated wall. The grainy surfaces were also engraved afterwards, but differently. The new lines never look like those found on the ‘fragments’.

The incisions (on the ‘islets’) are remarkably precise and fine (when seen through a binocular magnifying glass). Opposite, on the other wall (right wall) and at the same height, some extremely similar elements correspond to the same processes of deterioration of the wall and of successive decorations (see Fig. 9.30).

The stampede

On the right, and above (9), in the ‘passage’ from the first to the second chamber, is an assemblage of six animals. These extremely visible, dynamic, and original drawings convey the impression that this group is rushing



Fig. 9.12. (*left*) Detail of the engraving (9): two heads (one above the other)



Fig. 9.13. (*right*) Horse head (clearly identifiable)

leftwards in a herd. The ‘stampede’ (also called assemblage II or designated by numbers 9-10-11) was made with brisk, asymmetrical V-shaped incisions, on the rims of which one can clearly see the marks left by the engraver’s tool.

The lines still look fresh because this engraving was made at the back of a sort of niche, where it was protected. This assemblage includes the deepest incisions of all the engravings in Gouy (Fig. 9.11).

Here we are faced with a veritable graphic composition: its layout on the wall was extremely well thought out, as was the choice of an exceptionally flat surface at the back of a recess.

Among the animals, five are essentially represented by their heads. The body of the second animal from the left was made with a succession of lines, placed so that they also suggest the bodies of a few others. Seven vertical parallel lines are grouped in the middle of the body and cross it. Just above, seven others are grouped together, but outside the animal. The absence of legs (purposely not depicted) does not reduce the impression of movement, of a leftward momentum.

Two heads, one of which is that of a horse that is clearly identifiable because of the precision of its lines, are completely enhanced with criss-cross parallel lines (Fig. 9.12 and 9.13). They are separated by a flaked-off area of rock, which unfortunately has not been recovered. On this flaked-off area, a block about 10 cm wide must have contained the next part of the drawing (the rest of the head of the fourth animal). Without this missing piece, it is unfortunately impossible to identify the animal in question with any certainty.

Nevertheless, the surviving drawing is sufficiently extensive to show that it is not a failed second horse head (Figures 9.11 and 9.12). One can rule out clumsiness in view of the shape produced, and the technical mastery of the assemblage (in its smallest details)—especially as it is easy to make a correction in this soft rock by redrawing the line. No rethinking has been detected. Quite the contrary—the



Fig. 9.14. Aurochs head (11) using a natural relief

shape has been clearly emphasized in its layout. On the other hand, a few (i.e. imaginary) fine details added to the surviving shape suggest the possibility of an unreal depiction.

The method of infilling the two heads obviously reminds one of certain portable engravings such as that of the abri Morin, in Gironde (Deffarge *et al.* 1975); that of the cave of La Borie del Rey, in Lot-et-Garonne (Coulonges 1963) and those of Pont d'Ambon, in Dordogne (Célérier 1980, 1984). However, this does not necessarily mean that Gouy has a real connection with them—their techniques and styles are not as close as one might suppose. The fact that they are covered with criss-cross parallel lines is not sufficient to link them. Moreover, this mode of internal fill is also found in earlier periods, though that does not mean that this assemblage in Gouy corresponds to those periods either.

Somewhat apart and to the right, a sixth head, that of an aurochs is evoked by a precisely engraved pair of horns (11), and clearly forms part of the same group. A natural relief (a flint) was chosen to depict the animal's head, and the horns start there (Figures 9.11 and 9.14). The assemblage is accompanied by parallel lines, a 'branching' line (10), a sign comprising double rods, and what could be the 'sketch' of another pair of horns.

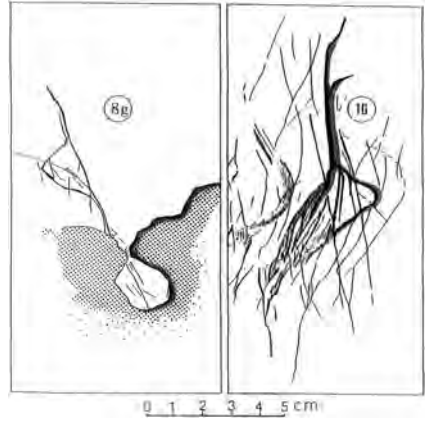
This important assemblage (9–10–11) probably occupies a crucial place, from the point of view both of its position on the wall and of its chronology (cf. below, 'Bovide decorated with criss-cross lines').

On the right wall, a few engraved lines survive on a detached block (52) which it was possible to restore to its original position. The first chamber, or what is left of it, has suffered a great deal since the Palaeolithic. Although numerous figures have survived, it is certain that others are missing. One can see evidence for this in the neatly sectioned engraved lines (3) (Fig. 9.2) at the start of the gallery (present entrance), and also in the engraving (01) (Fig. 9.3) and the blocks that have been pulled from, or have become detached from, the walls as well as the numerous more or less superficial areas of flaking (explosives having been used to make the road).

Fig. 9.15. Schematic sign (16) linked to the female outlines depicted in profile (among the most rudimentary known) of la Roche-Lalinde, and some of those from Fontalès, Gönnersdorf, and Hohlenstein



Fig. 9.16. Sign (16) from the lower register and (8g) from the upper register



Second chamber

The second chamber, smaller and oval in shape, rises in the form of a chimney.

Its ceiling forms a kind of small dome. An overhanging band of flint in the middle crowns the base of this little rounded vault.

On the left wall is a sign (12); a group of lines (mostly vertical) (14); and a ‘barbed’ sign (15) which could also be seen as a horse head.

Immediately after (Figs. 9.15 and 9.16), towards the back of the cave, a schematic sign (16) has a shape that is similar to female profile outlines (albeit the most rudimentary ones known)—the closest examples stylistically are those of La Roche-Lalinde, some of those at Fontalès, Gönnersdorf, and Hohlenstein, but these are found in series, whereas the Gouy example seems isolated (Martin 2001).

On the right there are numerous engraved lines (18–19); above and on the left is an assemblage of lines interpreted as the possible depiction of a ‘mammoth’ (13). To its right is another assemblage of lines (17). Opposite, on the right wall, where one can see perhaps more clearly than elsewhere a particular utilization of the rock with its jagged reliefs (39–48), each niche,

each flat part contains an assemblage of engraved lines (a total of ten times on a surface that is 1.3 m wide by 80 cm high).

When, either lying or crouching, one enters the passage that leads to the third and last chamber, one can see five signs (20) on the start of the low ceiling.

Third chamber

Once the passage has been crossed (crouching for a distance of 1.8 m) one emerges in an even narrower little space (50 cm wide, by 4 m long), but which is of similar height to the two previous chambers. As one stands up, one cannot miss seeing the famous horse, on the left wall (Figs. 9.17, 9.18, 9.19, and 9.25).

The curve of its slender neck, as far as the chest, is repeated inside the animal's body by a series of undulating parallel lines (22). The lines are intentionally refined, especially the 'swanlike' neck. The head is also filled with parallel lines. The forehead, the end of the nose, the mouth, the hollow of the cheek, and the jaw are represented in a characteristic way, but the eye is absent. The breast is deeply cut. Two well-drawn little ears stand on the top of the head. On the neck, a line that starts at one of the ears perhaps suggests the beginning of the mane which, in this case, turns down on the other side of the neck.

It is not a depiction that is absolutely faithful to the wild animal, but it is not far from it. The aesthetic of the lines seems to be deliberate. The front and hind legs have purposely not been depicted. Hence the animal seems both static in places and in movement to the left.

A small animal drawn with rather schematic lines faces the horse (21). This is the only animal facing the back of the cave. Its body, its legs, tail, and probably its head are depicted. There are three possible readings: the animal is headless; its head is against that of the horse; or it overlaps that of the horse. It is impossible to identify the animal species; foal, bear, boar, and badger are among the species which have frequently been suggested.

Above the horse there is an animal head that is pretty difficult to determine, covered by three parallel lines. Finally, under the engraving itself, other lines are visible but abraded, and consequently very difficult to read (Figs. 9.19a and 9.19b). This wall has clearly been worked quite heavily, before the production of the engravings that can be seen today, and probably several times (cf. 'experimental reproduction of the horse' (22)).

Opposite the horse, and slightly higher on the right wall (38), a relatively large horse head is accompanied by lines that more or less repeat its outline (30 cm). At the junction of the jaw and the neck, there is a network of tortuous but parallel lines, some of them slightly displaced, which create a complex design (Fig. 9.19c).



Fig. 9.17. Horse (22), with wavy lines, intentionally refined

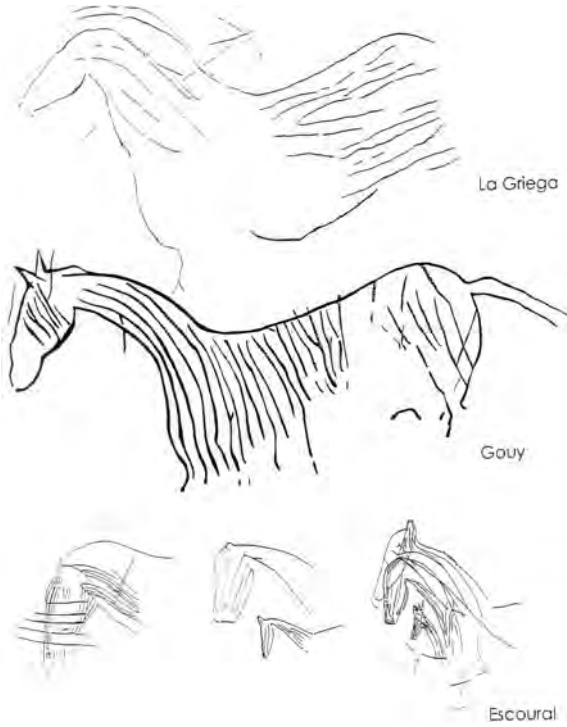


Fig. 9.18. An engraving from La Griega, Spain, as well as several horse heads from Escoural, Portugal, can be compared to the horse of Gouy

On the left (33–36–37), there are three figures, whose very precise outlines have not been identified, They are clearly subjects which were well known to the author of the drawings: series of grouped lines, oblong and circular shapes.



Fig. 9.19 a & b. Tracings of the walls of the third chamber (the best preserved)

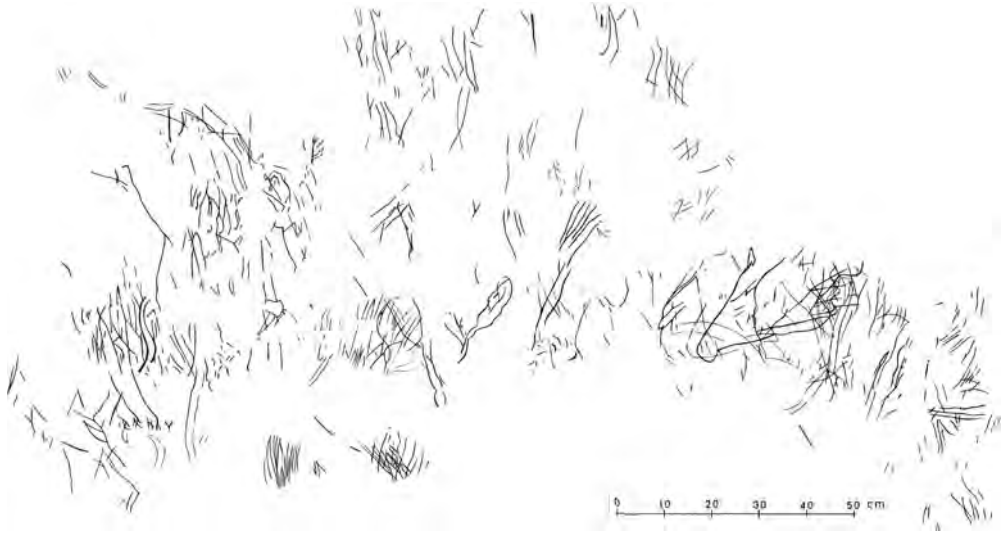


Fig. 9.19 c. (Continued Figure)

At the extremity of this last panel is a depiction comprising two very elongated 'S' lines (30): these lines very likely represent an aurochs horn (15 cm). The natural shape of the wall, as well as a few lines, may well comprise the head that supports the horn. Below there are two signs side by side, which are made up of grouped vertical lines (32–5); the one on the right is cut by oblique parallel lines.

Opposite, on the left wall, there are other parallel lines (23–5), six of which are very clear above (23). Also on the left wall is the engraving of a small head and one or several aurochs bodies (24). The little head with shallow engraved



Fig. 9.20. Aurochs head with a single horn



Fig. 9.21. Aurochs, whose head was purposely not drawn

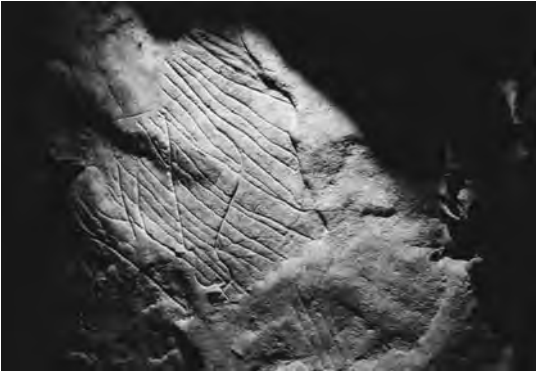


Fig. 9.22. Seventeen oblique and parallel lines are crossed by an elaborate form

lines has only one horn (Fig. 9.20). This head does not belong to the aurochs body which is immediately to its right. The aurochs body is apparently headless, and the two lines that make up its neck were stopped purposely and abruptly, without the head being drawn (Figures 9.19a, 9.19b, and 9.21).

The aurochs is the same size as the horse (22) which precedes it, and occupies the centre of the composition, as well as the centre of the narrow chamber. The back line, from the withers to the forequarters, is solidly drawn. The thighs, hocks, and legs (with the knees) are firmly planted, slender, and apart. The pasterns and hoofs are depicted.

The pose is somewhat rigid, but the forelegs are projected forwards, the right one more than the left which comprises the fetlock, in a real effect of perspective. About fifteen parallel and vertical lines, somewhat similar to those covering the horse's hide, are superimposed on the aurochs' flank. A deep oblique and natural groove was included by the engraver in order to suggest a particularity of the animal's flank or to evoke a second aurochs.

Two lines are placed too low to depict the tail. Above the back, where the tail should be placed, the decorated wall was mutilated before the visit of H. Breuil in 1958. Some individuals erased the inscription of 1881. This vandalism caused the irreparable loss of engraved elements of some importance, especially for reading this engraving (28).

Higher up, an animal (26) is evoked by a minimum of incisions: a back line and a horse head. After a few lines (27), there follows another figure (28) which is composed of seventeen oblique parallel lines covered by a shape which is difficult to interpret (Figure 9.22), as for (33–36–37). A little further to the right, an oval sign, comprising two parenthesis-lines, is the engraving that ends this assemblage (29) in the deepest part of the cave.

All the figures are surrounded on both walls by multiple intentional lines (up to the flint vault), as if it was crucial to incise a maximum of rock surfaces. One can even make some out towards the back of the cave, made at arm's length, where Gouy ends in an impenetrable fissure.

Upper register

This section of wall, located close to the ceiling of the first chamber, has been the subject of examinations and recording of its engraved art, under the direction of M. J. Graindor, since the start of my participation in the study of the cave.

Several animal depictions have been detected among the very fine incisions. Following this location work, carried out with a view to planning the research, the decision was taken only to record, at the start, the surfaces that were easily accessible, with very visible engravings (those of the lower register).

Until 1986, the material means at our disposal for the general examination of the walls did not permit their study—taking into account their inaccessibility, the height one needed to reach, the means of lighting, the photographic material available (not adapted to this work), and the need to work from macrophotographs. From 1987 onwards, thanks to programmed operations every few years and the acquisition of the first scaffolding installed in Gouy, the upper level of the cave became accessible to study.

At this level, the appearance of the engravings is extremely disconcerting (the contrast with the lower register is obvious)—so much so that, instead of engravings one might almost ask oneself if these are not, rather, natural elements. Certainly, a large number of these lines (as fine as hairs) seem, at first glance, impossible to produce by human hands. They evoke rather the light imprint of very fine roots, which might have left the trace of the networks of filaments on the soft rock before decomposing and disappearing.

State of conservation near the ceiling

Four factors make it possible to envisage the disappearance of part of this very fine decoration, in a zone between the ceiling and the top of these engravings (the highest):

- Without protection, this zone was covered with algae up to the ceiling.
- This upper part of the engravings close to the ceiling, as well as the surface of the rock support could have been weathered (because of the development of algae).
- The general fineness of the engravings only affected the rock support very superficially and hence could disappear without leaving any trace (through simple weathering of the support).
- The flaking-off of engraved surfaces occurred due to natural phenomena and shocks caused by the work that destroyed the porch (Martin 2005).

The engravings of the upper register

One hundred and eleven groups of engraved lines, signs, and small figurative subjects (from about 10 to 5 cm) can be distinguished with great difficulty at this level in the first chamber (between 3 and 4 m in height): sixty-six on the left wall, forty-five on the right wall, among which:

- 18 triangular signs (15 on the left and 3 on the right);
- 8 animal depictions (7 on the left, and 1 on the right);
- 1 horse, 5 aurochs, 1 'bovid' (79g), 1 undetermined animal;
- 7 natural rings, sometimes intentionally coloured with red ochre (4 on the left wall, 3 on the right wall).

From the present entrance (left wall) onwards, the difficulties in examining the wall, already evoked for the lower register, are also encountered in the upper register (difficulties produced by the entrance wall as well as by destruction). A band, 35 cm wide and 1 m high, is affected by these complications.

Nevertheless, one can recognize a small horse head with its neck. The outline from the end of the nose to the cheek, passing by the mouth, has the peculiarity of being in relief (3g).

To its right is a triangular sign (12g) whose upper horizontal line curves leftwards, without joining the 'V-shaped' part of the sign. In this graphic detail one can see a particular author's hand. This reflection also applies to the way in which several other triangles were drawn (cf. 'A peculiar way to draw a triangle', below).

Above there is an engraving whose very fine lines seem to contain the depiction of an aurochs head with a single horn (13g).

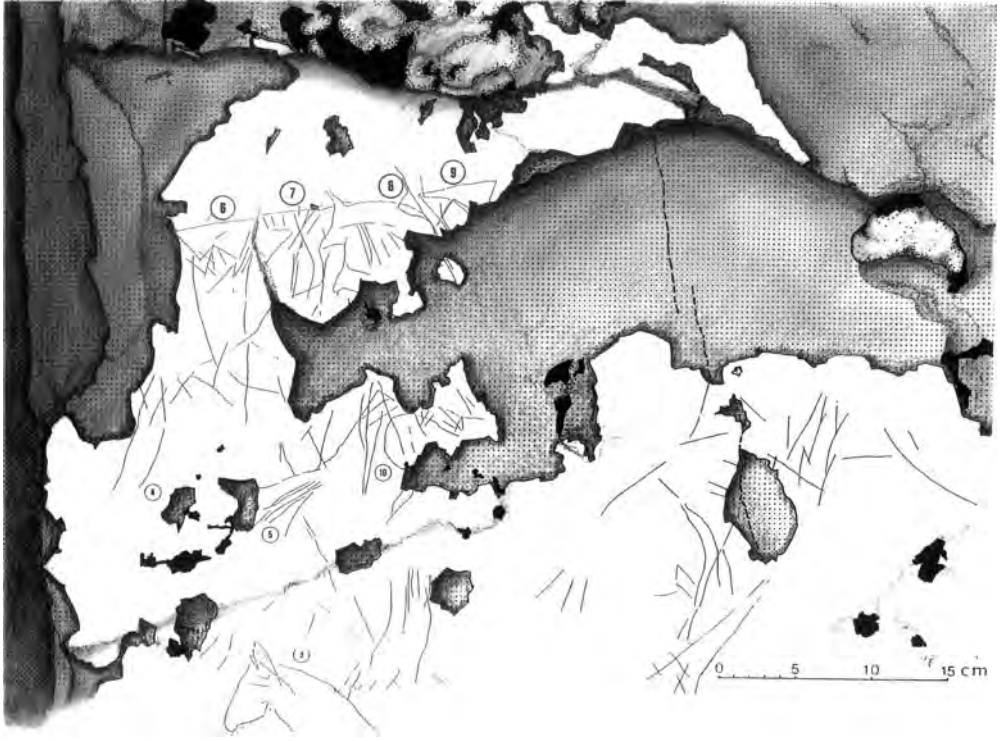


Fig. 9.23. Unusual association of a sign of Lalinde/Gönnersdorf type with three triangular signs

Above that there is a particularly original association of signs (Figure 9.23), a sign derived from female outlines (Martin 2001, 2004) depicted in profile (8g), and three triangular signs (6g–7g–9g), two to its left and one to its right.

Some probable vestiges of animal depictions are close to this assemblage (7g). Various signs occur immediately below (4g–5g–10g).

On the opposite wall (right wall), two other triangular signs are also finely drawn. Despite a very rudimentary technique the engraving of these two triangles is meticulously regular (Figure 9.26). The first purposely uses (in its upper part) a fossil that is embedded in the rock support (11d). The internal fill of the sign, in its ‘V-shaped’ part, was made with series of parallel lines crossing each other in three different directions (for the most part). The second, with a curved upper line (the only one of this kind at this height on the walls), contains a particularly great abundance of finely crossed and intermingled lines (13d).

The integration of the fossil in the production of one of these triangular signs is especially interesting. The utilization of the natural relief is obviously



Fig. 9.24. Aurochs head (24g), barely visible, drawn very precisely with a refined, extremely fine line, whereas the animal's horns are mingled with an abundance of lines

well known, but here the appropriation of a very small element of the support reveals the high degree of attention paid to the slightest detail of the wall. This extraordinarily fine fossil is barely perceptible.

Below it is a sign: an elongated and inclined oval seems to be related to an undetermined animal (8d), that is schematic and stiff (7d). The rump and the raised tail are apparently present, as well as some very strange forelegs. The recording of this engraving, which is very difficult to light, still needs to be completed.

On the opposite wall (left wall), an aurochs head (24g) has a good position on a relatively flat surface. Numerous lines, mostly vertical, and grouped in a

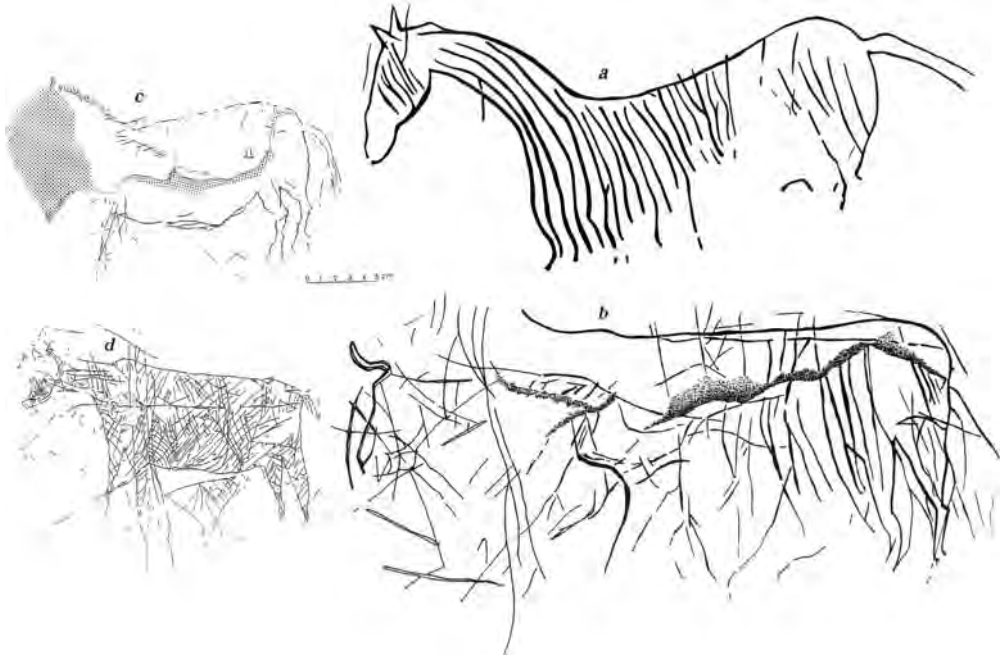


Fig. 9.25. Comparison which brings out some elements of several 'decorative' conceptions and phases

bundle, are located at the top of this head, and conceal horns of a fine size. The outline of the head is precise, and comprises the forehead, the muzzle, and the tuft of the chin. The neck is massive, from the throat to the withers, and the head is carried high. A semi-vertical fissure has split the engraving since its creation. It crosses part of the bundle of lines and passes through the neck, just before the withers (Fig. 9.24).

Above, a triangular sign, slightly stretched out at the top, has no particular internal fill (29g). A sign with a shape that is a little like an animal foot accompanies it, as well as two vertical parallel lines (30g). These two lines join at the top, where they cross to form an 'X'.

To the right one can make out an aurochs head, much more rudimentary than the previous one, and schematic and angular (31g). On the left, and to the right of the head, a great quantity of tangled lines still have to be deciphered (32g).

On the opposite wall (right wall), there are two elongated vertical oval signs, one of them measuring 6 cm (35d), and the other 4 cm (36d).

Opposite (left wall), a triangular sign only has a few rare internal lines (35g), whereas immediately to the left, five other triangular signs all have varied internal infills (Figure 9.26). The second (51g), which is meticulously

decorated, also has several chevrons overlapping in horizontal bands. The upper right extremity is not angular but rounded. This graphic detail is also found on four other triangles. As with (12g) it is possible to see in it a kind of graphic mania, the peculiarity of an author's hand.

This triangular sign (51g) is connected from its lower angle to a shape which is not a triangle (despite an identical internal infill). The form has not yet been recognized despite its precision, but is perhaps an animal (50g).

To its right, a third triangular sign, perfectly equilateral, is meticulously drawn. Its interior is carefully filled with regular lines that form numerous little lozenges. The horizontal upper part is edged with three parallel lines (53g). But another reading is possible, where one can see it as a series of nested triangles. This triangle is connected to an aurochs head (54g) by a line that crosses this head—it is a big head for the cave (17 cm), made with a few schematic lines and no detail. The well-drawn horns display the same graphic treatment.

At the same height and to its right, a fourth triangular sign (52g) possesses the same 'trademark' as the others, and this also applies to the following triangular sign (75g). A little higher, and again to the right, another triangular sign (76g), with a deteriorated upper part, shows the weathering of the rock at this level close to the ceiling (cf. 'State of conservation near the ceiling').

Close to the 'big aurochs head' (54g) two very detailed signs are present, the smaller one, to the left, having a 'hooked' shape (49g). The other one, under the head, is similar to two joined lozenges, forming a kind of 'X' closed at top and bottom (55g).

Bovid decorated with criss-cross lines

Between 2 and 3 m towards the back of the cave, a surprising quadruped is in fact a 'bovid', probably a young aurochs. It is entirely covered with a fill of criss-cross parallel lines forming multiple lozenges (78g). This disconcerting little animal depiction is complete. Its graphic conception has absolutely nothing to do with the animal figures of the lower register, and this probably applies to all the engravings located at this level of the walls (Figure 9.26).

The morphotechnical study of the engraving shows an extreme desire for moderation—the soft rock is barely penetrated by the engraver's tool (like all the engravings in this register). Originally this drawing was no more visible on the white chalk than it is today. The wall and the incisions have scarcely been modified by the passage of time.

Three vertical parallel lines, slightly 'more pronounced', cross the animal's withers and shoulder, and then continue along a foreleg. On the animal, and in several areas around it, some limestone powder and small fragments are agglomerated. They obliterate the engraving several times. One should also

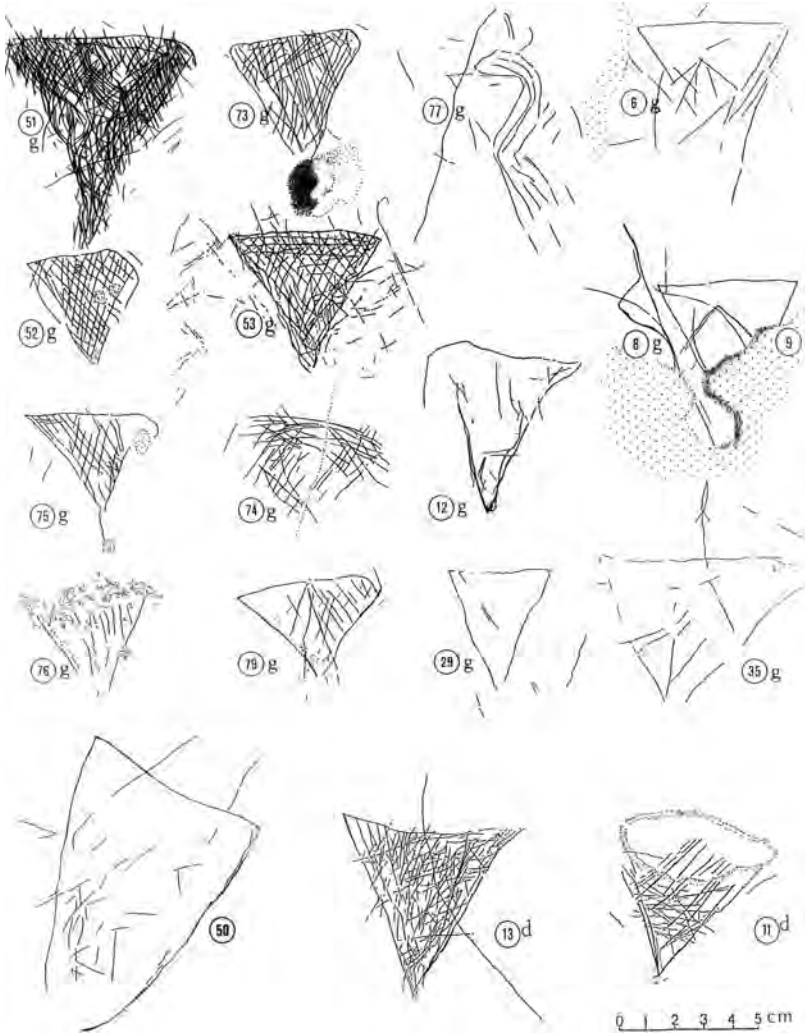


Fig. 9.26. Unpublished engravings among the eighteen triangular signs in Gouy

note the presence of two vertical fissures which occurred after the engraving was made. As elsewhere, the tracing still needs to be finalized because of the fineness of the incisions.

The animal's head is difficult to light and to see, being small, and covered in uncrossed parallel lines. The forehead and nose are curved as far as the muzzle, which is elongated and rather square. At the level of the chignon, one can see two small horns merging with ears. The neck is a bit long and especially narrow, while the chest is flat, with no dewlap. On the other hand, the

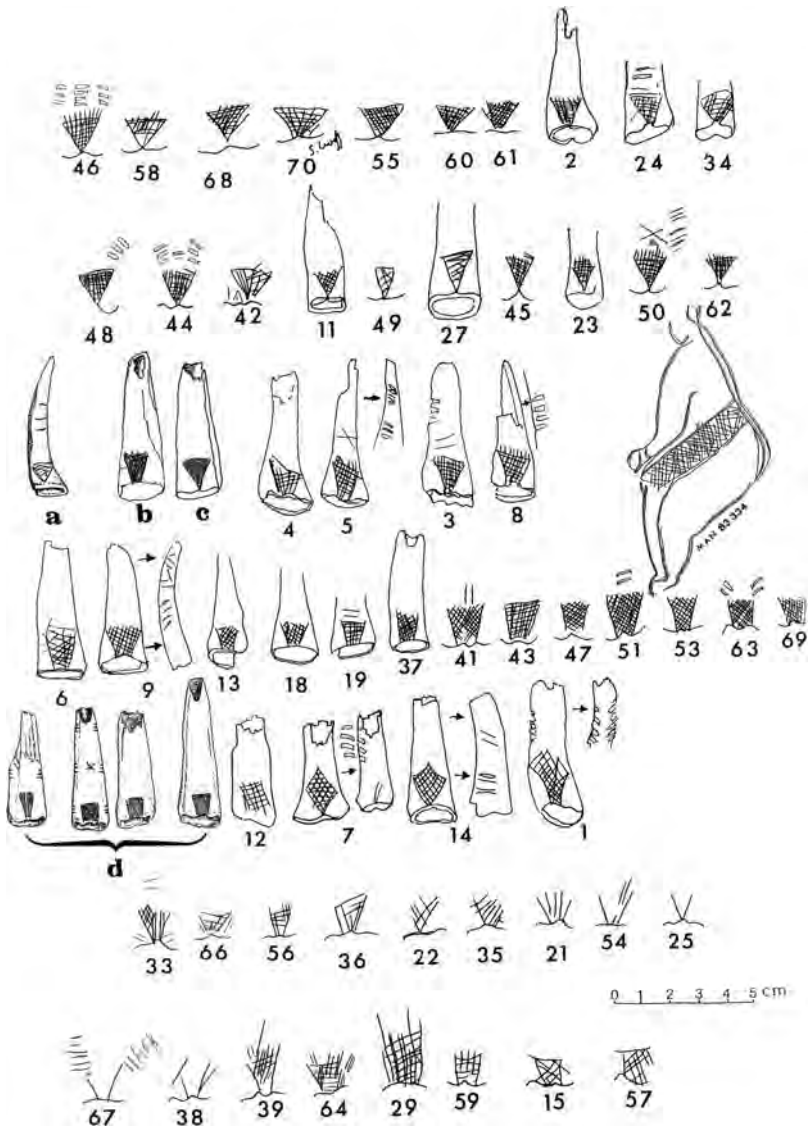


Fig. 9.27. Series of triangular signs engraved on horse incisors

withers and the back-line are well indicated (rather realistic), as is the slope of the rump to the tail. As for the fore- and hindlegs, they are conventionally short, thin, and spindly, with no knees or pasterns or hoofs.

The engraver did not attempt to reproduce nature. He made a very particular and extraordinarily determined graphic translation of the animal.

The same applies to the lines that cover the body, mostly comprising lozenges formed by the intersection of parallel lines. A certain number of these lines follow anatomical outlines and seem to be intended to indicate volume, as has been noted, albeit in a different and less marked fashion, at the abri Morin. Technically, the line is extremely discreet and hesitant (uniform and monotonous). The rock is barely incised. The animal is rigid, as if frozen.

Here, for the first time on a cave wall, we have a number of stylistic and technical elements that suffice to connect this engraving, and probably all those of the upper register (in the first chamber) to the mobiliary engravings of the abri Morin, la Borie del Rey, and Pont d'Ambon (Sonneville-Bordes 1986; Roussot 1987; Célérier 1980, 1984).

Between the bovid's legs, a triangular sign of the same technique was originally and very directly associated with it (79g). To the left of its head one finds another motif, perhaps horns, with another triangular sign (77g). It is crossed by a long, semi-vertical fissure, curiously parallel to an engraved line, but with no connection at all since it was formed later.

In addition to the triangular sign associated with the bovid (between its legs), two other triangular signs (with variations in their infill) are located under the bovid. One is above the head, the other, perhaps less well preserved, is further forward. The one above the head stands out because it was engraved just above a natural cupule (73g). This choice does not seem to be due to chance. It would be surprising if this natural detail in the rock had not been noticed, especially if one remembers the meticulous positioning of the triangle (11d). Another particularity of this triangular sign is that, like four others, it has a rounded right upper extremity. As for the one that is slightly in front of the little bovid, it is crossed through the middle by a fissure in the rock—the same one that crosses the upper left angle of the triangle (77g). The 'V'-shaped part of this sign does not seem very marked. Because of the specificity of these engravings, it is impossible to trace all of the fine incisions in a single campaign. So clarifications and complementary details are constantly being added to the first published tracings, little by little, in the course of successive campaigns.

Triangular signs decorated with criss-cross lines

In 1988, eight triangular signs were mentioned (Martin 1988), but ten others have been discovered since then (Figure 9.26). All these triangular signs are of the same type and similar size (5 to 6 cm), with variations in their infill, and can be compared with a triangle engraved on a portable block (Figure 9.28). It was found during excavation of this same chamber (and has a much more emphatic line). The whole assemblage of these signs is also graphically comparable to the triangle engraved on a pebble from the Bois-Ragot (Chollet

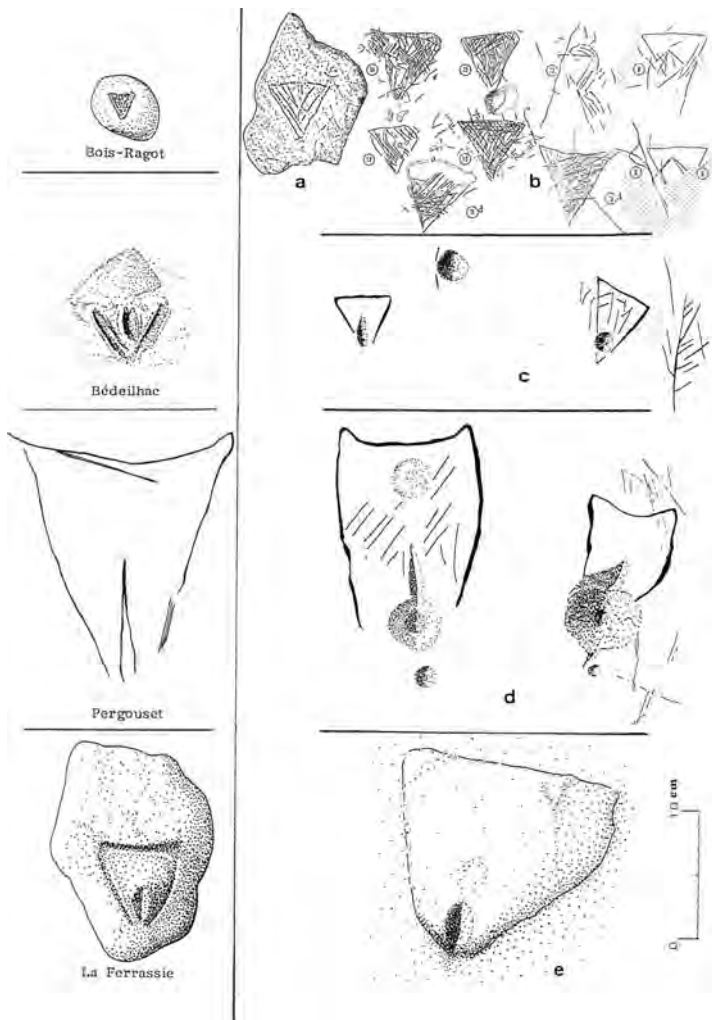


Fig. 9.28. Comparison of female sexual depictions and the triangular signs of Gouy with those from other sites

et al. 1974; Airvaux 2001), and to the one engraved on a pebble from Laugerie-Haute in Dordogne (Delluc and Delluc 1987).

They are also comparable to the far smaller ones from the cave of La Marche, and from the Roc-aux-Sorciers at Angles-sur-l'Anglin in the Vienne (Lwoff 1968) on the limited surface of the lingual face of horse incisors (Figure 9.27); to that of Montgaudier: abri Gaudry, in Charente (Bouvier *et al.* 1986) which is likewise on a horse incisor (these are geographically the closest) and of Laugerie-Basse (Girod and Massenat 1900; Sieveking 2003).

Where the comparisons with the Marche are concerned, and its triangles decorated with criss-cross lines, it may also be significant to draw a parallel between those of Gouy and the big belt decorated with criss-cross lines (Figure 9.27) that is worn by a (probably female) person in profile—for the moment, this is the only one found with a belt engraved in this way—M.A.N. no. 83.334 (Pales and de Saint Péreuse 1976).

A peculiar way to draw a triangle

One graphic detail is very revealing: the rounded upper right extremity, noted on several triangles at Gouy. This is a kind of spontaneous ‘trademark’, probably produced by the same engraver. Despite the extreme fineness of the incisions, this repetitive detail seems clear. It apparently betrays the presence of several individuals. The other triangles are probably not by the same hand. Those without this ‘trademark’ were probably drawn by other individuals.

Hence, the four triangular signs (51g, 52g, 75g, and 79g) were likely the work of a single person, and perhaps also (12g). The thirteen or fourteen following examples were made by others. In this case, the author of these four signs probably also made the little bovid, because the sign (79g, intentionally placed between the animal’s forelegs and hindlegs) has the same ‘graphic mannerism’. This innocent habit probably reveals the organization of the practices applied to the walls, as well as evidence for the cave’s frequentation.

Female sexual depictions and triangular signs

One of the major peculiarities of the little cave of Gouy is that it contains several engraved vulvas with no ambiguity about their identification (Bahn 1986), but also some triangular signs. The companion (Figure 9.28) of the female sexual depictions and triangular signs of Gouy with those of other sites, underlines their great resemblance as well as their absolutely identical graphic conception (independently of any chronological considerations): La Ferrassie (Delluc and Delluc 1978); Pergouset (Lorblanchet 1984, 1995, 2001); Le Roc-aux-Sorciers (Iakovleva and Pinçon 1997); Bédeilhac (Sauvet); Bois-Ragot (Chollet *et al.* 1974). The analogy between these engravings is striking, and can be seen in the forms and technique employed, the size, and even in the degree of visibility—that is, whether they are ostentatious or discreet.

All the triangular signs and all the female sexual depictions of Gouy are engraved on the walls of the first chamber. The vulvas and triangular signs are all together there in a layout which may have some significance.

Lower Register: The most realistic and the lowest are today at eye level. Higher up, one can clearly see—although they are at a height of 2.8 m—two

triangular signs with cupules deeply hollowed out at their lower extremity. They are deeply engraved by brisk incisions, and there is no doubt as to the subject depicted (vulvas and pubic triangles).

Upper Register: close to the ceiling at a height of 3.5 m, eighteen triangular signs are 'hidden', ten of which have a varied internal fill. They are extremely discreet, finely engraved, and very difficult to see, although of the same size as the signs: triangles/vulvas, with associated cupules.

Does this peculiar layout correspond to the 'three states of depiction: visible, discreet, hidden' (Vialou 1987)?

Did some technical difficulties contribute to this situation? It was indispensable to know precisely the degree of technical difficulty that the engravers of Gouy might have encountered. A priori, it seems difficult to use a simple flint to make deliberate and deep incisions on a hard rock support. Yet the limestone of Gouy is very soft, so one might expect that it was not difficult to make incisions in it. It was necessary to verify this by means of experimentation.

EXPERIMENTS

In the absence of a cave permitting experimental work on its walls, we had to seek limestone blocks outside, close by the cave (in order to have a limestone of the same quality).

The choice of engravings to be reproduced experimentally was as follows:

the horse (22) from the third chamber and the little bovid (78g), decorated with criss-cross lines, from the first chamber.

Experimental Reproduction of the Horse (22)

The experimental reproduction was made following the order seen on the original thanks to superimpositions (with a lamp as sole lighting) and after obtaining a few simple flint flakes. The engraving surface was held vertically to resemble that of the wall. First, the rectangular sign with an internal fill of parallel lines was engraved, and then blurred as in the original (very easily by rubbing with the hand). Starting with the outline of the head, the main lines of the horse were drawn (lower line of the neck, ears, and upper lines of the neck and back). Finally, the parallel lines inside the head and neck were engraved in their turn. For each line, a fine groove was first traced before producing the definitive accentuated incision of the required depth. Without this 'rail', it is impossible to give the tool the desired direction if one wants to obtain this

depth immediately. The engraving of the horse, like the superimpositions on the rectangular sign, was made to the limits of the available surface (duration of the experiment: 17 minutes).

Experimental Reproduction of the Small Bovid (78g)

The engraving of the bovid was made in the same way as the copy of the horse (same lighting and simple flint flake), but with far more restraint, since the engraving is extremely fine.

On the very soft rock support of Gouy, experiments show that it is far easier to produce deep incisions like those of the horse chamber (with varied thick, thin, and deep strokes), since the weight of one's hand alone is sufficient.

Despite all the prudence thought necessary, the first engraved line, the bovid's back-line, was done too deeply, more than that of the original engraving. So the outline of the head, neck, legs, and belly and the interior fill were done more lightly, as was the triangular sign (duration of the experiment: 15 minutes).

The two flint flakes used as 'engraving points' were kept. They display few wear traces: light traces from the horse, and virtually none from the bovid.

Results of the Graphic Experiment

The graphic experiment enabled us to attempt an experimental approach to the analysis of the engraved line which would have been impossible to obtain in another way. It led us to rediscover techniques and gestures, very spontaneously, which are probably very close to those used by the engravers of Gouy.

The experiments taught us that it is impossible (for the engravings of the lower register) to give a line a precise direction (on the Gouy limestone) without first tracing a fine incision, whose groove then serves as a guide to the tool. It is only after repeated passes with the flint that depth can be attained in the desired direction.

Similarly, it is not easy to produce a line as shallow and discreet as that of the small bovid. A similar engraved line can only be obtained by extremely controlled and reduced pressure of the tool on the wall. It is indispensable for the action to be enormously restrained. So, in addition to the restricting graphic conventions, one can see a particular intention in the second method of engraving. Hence, the experiment shows us the ambiguity between the fear of scratching the rock and the imperative desire to nevertheless make these conventional drawings appear very lightly.

The time devoted to engraving the bovid with multiple fine lines proved to be shorter than might have been assumed. But the original engravings were probably made even more rapidly than their experimental copies. Indeed, it has been observed that the time taken by a copier is longer than that taken by the author in the production of his work. Finally, one can specify that it is extremely pleasant to engrave on this soft support when acting as in the case of the horse, whereas the engraving of the bovid forces one to make tense gestures so as not to produce brisk incisions despite oneself (more deeply than those of the original).

The small size of the two figures that were engraved experimentally—38 cm × 29 cm for the horse, 35 cm × 20 cm for the bovid—makes it possible to compare them in three dimensions with the cast of the engraving (9), 48 cm × 16 cm. The comparison is revealing: the horse and the engraving (9) display two stylistically different but technically very close graphisms, with thick and thin lines, and energetic and deep incisions.

Although the species represented are different, one cannot help but notice in their respective drawings a graphic treatment and conception that are quite far removed from each other. One has here two very different ways of depicting an animal outline. The horse (22) displays a certain realism, whereas the engraving of the little bovid (78g) contains more of an ‘interpretation’ with regard to the real aspect of the animal as seen in nature. The dissimilarity is so profound between the two types of engravings that it cannot simply be due to the different authors (even if several engravers can indeed be detected). This difference seems to be engendered by an extreme respect for the new graphic conventions.

COMPARATIVE ANALYSES

The engravings chosen for comparisons and graphic superimpositions are those which are the closest in style to those of Gouy (Martin 1988). They are portable engravings from the abri Morin, the Borie del Rey, and Pont d’Ambon (Fig. 9.29).

Each engraving, first enlarged or reduced to about 20 cm, was drawn on a transparent support to allow superimpositions and juxtapositions, with no preconceived ideas about what might emerge (similarities, convergences, or differences).

Horses

Three horses were first brought together, one from Gouy, one from the abri Morin, and one from Pont d’Ambon, and superimposed. Those of the abri

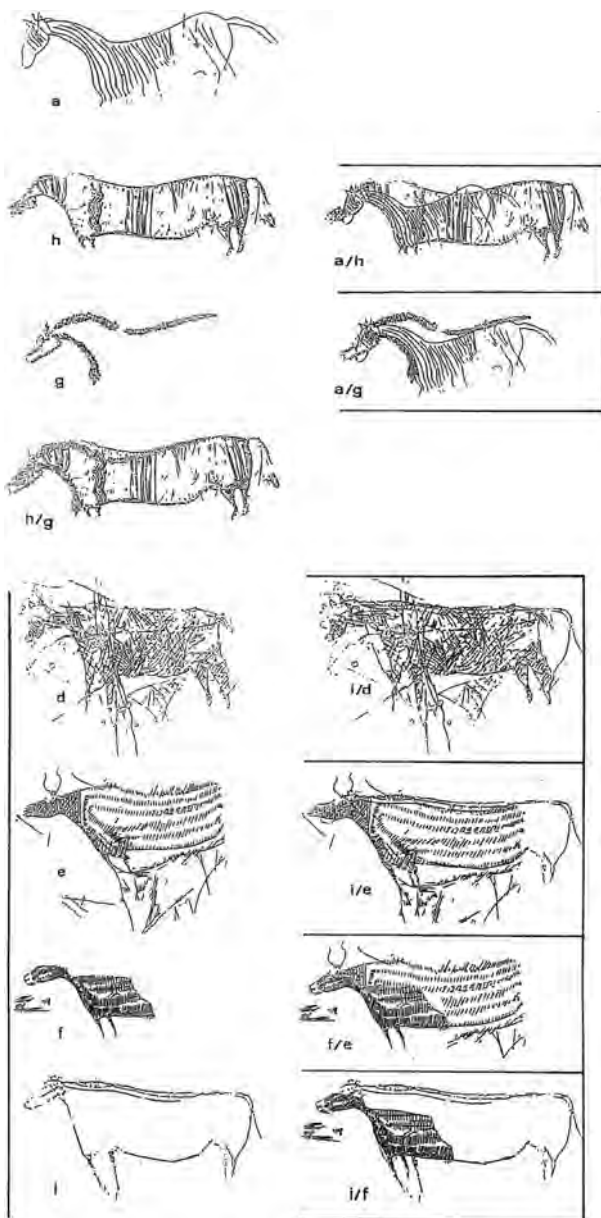


Fig. 9.29. Comparative analyses

Morin and Pont d'Ambon can be superimposed quite well, with numerous points of convergence, whereas this is not the case with that of Gouy: while the lower line of the neck coincides correctly, the back-line protrudes at the level of the withers, and the heads, albeit of the same size, are different.

If one tries to make the lower line of the necks correspond a little more, one notes that the difference between the back-lines is accentuated. The head of the horse from the abri Morin is longer, the body of that from Gouy is much shorter.

If one lines up the angles of the breasts of the horses from Gouy and Pont d'Ambon, and the attachments of their tails, one notices that the back-line of the horse of Pont d'Ambon protrudes over that of the horse from Gouy.

Finally, if one makes the lower line of the necks coincide more, from the throat to the point of the shoulder, one has to reduce the Gouy horse considerably—in these conditions, it is twice as short as the horse from Pont d'Ambon.

Hence the comparison reinforces the similarities already recognized in the horses of the abri Morin and Pont d'Ambon. But where Gouy is concerned, it makes them very divergent (despite the characteristics that they supposedly had in common).

Bovids

An identical procedure was carried out for the bovids (abri Morin, the Borie del Rey, and Gouy), and the superimpositions coincide well, but only with the small bovid with criss-cross lines (78g).

The analogy between these engravings is established (Fig. 9.29). The limbs, although longer and more massive, obey the same conventions of depiction. It is, however, important to note that the body of the Gouy animal has not been given the characteristic elongation of the engravings to which it is compared. In fact it is quite the opposite—rather squat. There are the following similarities: the animals' very small size, rather small heads, quite square and elongated muzzles, more or less short legs, tapered ends, internal fill of criss-cross parallel lines, oblique hatching or crosses.

As for the engraving (9–10–11), it does not reveal any unquestionable convergences, contrary to what might have been supposed (Figure 9.10). Moreover, the graphic conception of the two heads in question (including the horse head, slightly isolated on the right) is very far from that of the horses of the abri Morin and Pont d'Ambon. Technically and morphologically, this assemblage is even the opposite of engravings like that of the small bovid of Gouy (Figure 9.25). The internal fill of criss-cross parallel lines is not sufficient in itself to link things (cf. 'The stampede' above).

Use of Paint in Gouy

The vestiges of red paint in the first chamber led one to suppose a very limited use of paint in Gouy. A process capable of detecting possible outlines was

indispensable in order to know more. A large number of unfruitful attempts was necessary before attaining the best results (Aujoulat 1987; Vertut 1979; Martin 2004)—using a method not normally used for the study of parietal art.

It consisted of a lighting system originally used in biology (a fluorescent tube for plants) and currently used in aquaria. It has proved particularly efficient, and in Gouy revealed a painted line, 1.3 m long (dark red), on its first use.

Yet no trace of paint was known in this precise spot. The red line had never been discerned or recorded photographically. This discovery made it possible that other painted elements might survive—and this was subsequently verified. Various other data (extremely ‘readable’) also appear with the same lighting. When applied to the decorated walls, this light proved very useful—the reds (particularly intensified) can now be recorded.

Recorded Paintings

With this lighting, three kinds of paintings—hitherto unsuspected—were revealed. As for the one that was already known, it in fact corresponds to two different paintings (4 and 5):

- (1) red (dark brick red);
- (2) red (projected red ochre);
- (3) orangey (orangey-yellow ochre);
- (4) red (fluorescent red ochre), same colour and tone as no. 5;
- (5) red (neutral red ochre), same colour and tone as no. 4.

Painted line (L: 130 cm, width: 0.5 cm), (27d–47d), red no. 1

Today in eight segments (Figure 9.30), the drawing was probably made with a finger dipped in paint or directly with a block of colouring material. The left extremity curves like the back-line of an animal (rump, spine). The coloured deposits left on the rugged surface mark its direction. Hitherto it had not been possible to see it, despite this same wall having been recorded and photographed from all angles. On the old photographs and in the publications, it never appears (Martin 1973: 156). No other point of utilization of this painting is known at present, but it is necessary to recall here that several square metres of wall (original entrance and part of the gallery) have been destroyed.

Red deposit (L: 5 cm, H: 16 cm, 35g), red no. 2

This is the projection of a coloured liquid, first interpreted as a ‘graphic construction’ difficult to decipher. The impact produced a deposit of thick paint from which four sinuous lines radiate out (Figure 9.31, Sign 35). The assemblage does

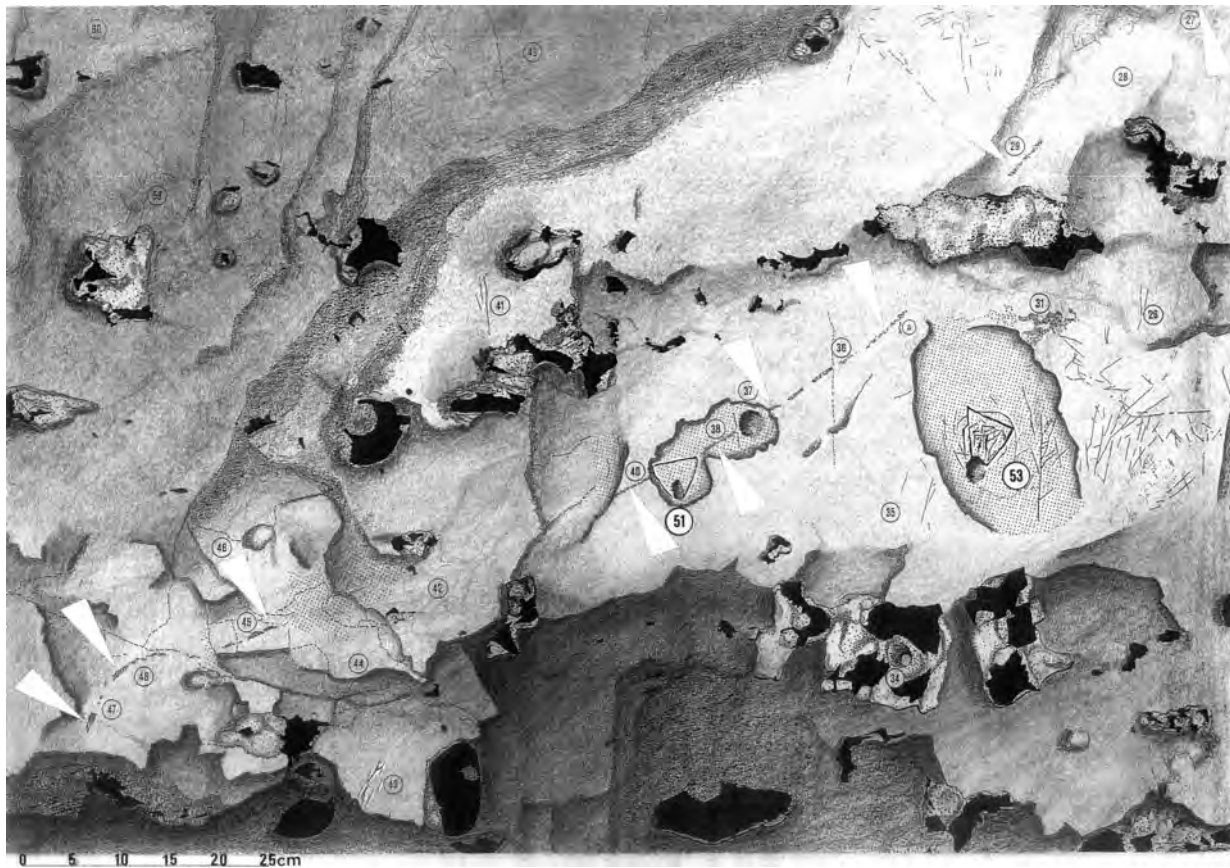


Fig. 9.30. Red line 'straddling' the two registers of the right wall



Fig. 9.31. Unusual associations of signs

not seem accidental. The surface concerned is too small for an act of profanation, of very ancient vandalism which consisted in tarnishing the place. The hypothesis of a magico-religious act adding to the decorated wall is highly probable: the deposit by spraying of a coloured substance during ceremonies. Projections of paint are not unknown in parietal art. They form part of parietal decorations that are considered 'very original and much rarer than charcoal traces'—at any rate, they are not mentioned very often (Lorblanchet 1974). Some brown series are known in the cave of Les Escabasses (Lot), and red in the Peña de Candamo (Asturias).

Large painted sign (L: 5 cm, H: 31 cm, 52g), red no. 3

Imperceptible traces were constantly detected at a specific point, when lighting was applied, without it ever being certain that they really existed. It was impossible to define anything when lighting and one's gaze were turned to them, as the painted lines seemed to melt into the wall. After a check with photographs taken with long-wave UV light, the image of a line was no longer in doubt. Detailed examination showed that it was probably not a vertical



Fig. 9.32. Painted sign (52g), left wall (first chamber)

zigzag line or a series of triangles (as at Llonin, for example), but another, very original sign (Figures 9.31 and 9.32), reminiscent of the signs called 'claviforms', although also somewhat resembling the 'model' of certain schematic female profiles carved in mammoth ivory or bone.

Painted sign (L: 10 cm, H: 12 cm, 53g), red no. 3

This sign (Figure 9.31) takes the form of an 'n' or 'H' with the vertical strokes getting narrower at the bottom: legs, belly, and back of an animal, or a painted triangular sign? The shape does not seem to be closed at the base.

Fluorescent red painting (red no. 4)

Under UV light, this painting produces strong, pink-red luminescence. This luminescence was first observed in the company of Alexander Marshack, who

came to Gouy with a battery-powered Wood lamp (Marshack 1969). Using similar material, following this memorable visit, it was possible to differentiate the two red paintings:

- Red no. 4 was used over a bigger area than red no. 5.
- Red no. 4 was exclusively used for outlines of shapes, lines, flatwash applications.
- Superficial flaking of surfaces only affects the surfaces painted with red no. 4.
- Certain parts painted with this red could be simple washes.

The luminescent materials that are commonly encountered beneath the earth are generally restricted to calcite and aragonite (Aujoulat 1987). They appear as a dazzling white which cannot be confused with the colour emitted by red no. 4. However, 'red and orangey red' are mentioned in regard to the fluorescence colour of certain forms of calcite in Arizona, California, and Franklin, New Jersey (Eastman Kodak 1972), when using short-wave UV, in contrast to Gouy. No publication mentions a phenomenon similar to that observed at Gouy. With this lighting, painted motifs usually appear dark without any light emission, but at Gouy the pink-red photoluminescence was recorded on colour photographic film of 'daylight' type (Figure 9.23). There may be many reasons for this light emission. It could be the incorporation of particular substances in the paint (purposeful or not) or the presence of micro-organisms (certain lichens?), but they would need to have been exclusively present on the painted surfaces, and to never have prospered outside those areas. Pigment analyses are indispensable (Martin 1993*b*). A request for authorization to carry out a programme of research has been made towards that objective. A project for studying the pigments of Gouy has been submitted, and a first series of discussions with Bernard Guineau, a research engineer with the CNRS 'Study of pigments, history and archaeology' (Centre Ernest Babelon, Orleans) has been undertaken.

Red painting (red no. 5, neutral)

Under UV light, this painting appears black and grey, without emitting the least luminescence, so it is very difficult to find it with the Wood lamp, whose use seems restricted to red no. 4:

- Dots and red fingermarks seem restricted to this paint.
- It is never on flaked surfaces, unlike paint no. 4.

It should be possible to confirm the distinction between the two paints, and this is suggested by preliminary tests carried out with a scanning electron microscope (Eric Beucher 'Analyses & Surface', Louviers, Eure).

Parietal painted layout

The painted motifs are exclusively located in the upper register (left wall). Red paint no. 4 can be seen in both registers, whereas red paint no. 5 is only located in the lower register. Red paint no. 1, which was only used for the painted line, encroaches on both registers (right wall).

Considered to be an 'engraving cave', Gouy only featured a single technique (engraving) in its inventory (still under way). At the start of a more complete study which this time includes painting and engraving, the corpus has been enriched by four new motifs.

Other New Data Revealed

The contribution of the fluorescent tube is not limited to the spectacular aspect of the discoveries described above. Under this light there also appears a great quantity of information (Table 9.1), whereas with a UV lamp, photography with filters, special films and image manipulation, the data are gathered separately. These normal methods have in no way been replaced. However, the fluorescent tube enables one to make remarkable observations such as those below, with great visual comfort, in contrast to the Wood lamp which makes one's eyes tired very quickly:

- The concentration of red pigments can be evaluated as soon as the painting is lit.
- The paints and natural oxidations can easily be distinguished from each other.
- The rock support is differentiated from all the other elements stuck to its surface.
- Patinas can be seen and precisely determined.
- Surfaces of calcite can easily be localized where they were previously unknown.
- Algae and lichens are clearly delimited, while others which were unsuspected betray their presence.
- Bones and bone fragments which were unknown on the walls and floor have been revealed.
- Imperceptible fossils, enclosed in the rocky support, are indisputably located.
- Flints (identical) display their different aspects (colours, patina, breakages, etc.).
- Blows struck against the wall and surfaces that were destroyed in ancient times can be identified.
- Historical scratches can be recognized as such.

Table 9.1 Colours perceived on the walls of Gouy according to the lighting used

Wall	Without special lighting	By the light of the vegetal fluorescent tube	By black (ultraviolet) light (320 400 nm)
	General colour: the white of the chalk, which is mixed with a whole range of greys, with no possibility of attribution	Dominant: purplish pink attenuated by a rapid adaptation of the eye (example: the white, although pinkish, is perceived as white)	Dominant: dark blue Other colours: grey, light blue, purple blue, purple
PAINTING			
no. 1	Grey mixed in with all the other greys	Dark red	Grey (among other greys)
no. 2	Grey (among other greys)	Red	Grey (among other greys)
no. 3	Indiscernible	Orangey red	Barely perceptible grey
no. 4	Red (can be seen with the naked eye), identical to painting 5	Intense red	Intensive luminescence saturated pink red
no. 5	Red (can be seen with the naked eye), identical to painting 4	Intense red	Grey
Oxidation	Grey	Yellow	Grey
Patina	Indiscernible	Grey	Dark grey found on all the walls
Calcite	Indiscernible	Active concretion: white Dried-up concretion: grey	Fluorescent white (luminous)
Bone fragment	Discernible with difficulty	Yellow	Dark yellow
Historical scratches	Discernible with difficulty	White	Shining white
Fossil	Grey, white	Yellow (typical)	White
Flint	Grey (various, up to black)	Grey, blue, brown, black, yellow	Brown, black
Lichen	Grey (among other greys)	Very bright light green	Grey (among other greys)

Details about the Lighting

Just as the eye, little by little, adapts to a certain level of light, perceptions of colour also evolve gradually. This is how a dominant purplish-pink tone, which is overwhelming and awkward at the start of the light emission, rapidly becomes blurred with chromatic adaptation. In particular, this faculty makes

it possible to consider as white a truly white surface which at first appeared purplish-pink. Obviously, photography does not benefit from this adaptation. In these conditions, the 80 B filter offers two possible appropriate corrections:

- On the lens (disadvantage: implies a correction of exposure);
- On the lens of the projector (correction during slide projections).

With digital photos, the correction is made automatically. The red paint revealed by the lighting is efficiently restored, whereas the (purplish-pink) luminous pollution is eliminated. As a general rule, with the fluorescent tube, it is impossible to pass in front of the tiniest bit of red colour without seeing it. Hence, a very small coloured element that was previously glimpsed and not recorded suddenly commands attention.

It comes to light by springing out of the wall, whereas it has perhaps already been forgotten because it was not noted down previously as soon as it was seen. As is evident, this lighting can usefully be added to the array of methods of studying decorated caves. The heat emission produced by the tube is very low. The stability of the fragile environment is safeguarded by spacing out the work sessions.⁴

Other Applications

It may be possible to benefit from the same lighting elsewhere—in portable art; for the study of cave floors; during excavations, even in the open air; for reading sections; in rock art (by night).

STYLISTIC ATTRIBUTION AND DATING

At the time of Henri Breuil's visit to Gouy, only the walls of the second and third chambers were visible. For him, the parietal art was Magdalenian (he picked up a worked flint during his long visit).

For André Leroi-Gourhan, the horse in the last chamber corresponded to Style III, whereas the vulvae of the first chamber and the sign that could be linked to the female silhouettes depicted in profile were instead of Style IV:

⁴ Two fluorescent tubes for aquaria, of an identical white, are on sale on the market. Only one of them provides the maximum information, but when one buys them, it is impossible to know which of the two is proposed. In the dark—without linking them to an electrical supply—one must illuminate them with UV (black light). The one that is being sought is then totally and uniformly coloured (giving off a powerful magenta red light). The other one, currently the most widespread, only gives off a pale blue light. The manufacturer (SLI SYLVANIA) has so far, alas, failed to answer the questions put to it.

‘the style of the engravings of Gouy is difficult to define, for lack of elements of comparison other than the cave of Saulges’ (Leroi-Gourhan 1971). And again: ‘The very particular style of the figures of this little cave (narrow gallery, 15 m long) with its walls of soft limestone places it among the (cave-documents) that are carefully protected and open only exceptionally’ (Leroi-Gourhan 1981).⁵ Leroi-Gourhan never knew the engravings of the upper register of the first chamber. For Michel Lorblanchet

the cave of Gouy arouses particular interest in every respect... The characteristics of its parietal decorations and their context make it an extremely original site... for the abundance of often indecipherable drawings, the generally very small size of the readable figures... and for the unusual and conventional style of the drawings. (Lorblanchet 1973).

Moreover, three blades found at Gouy display wear traces: as we wrote, ‘perhaps we have here some of the tools that were used to engrave the cave’s walls’ (Bordes *et al* 1974). This observation does not enable us, for the moment, to claim that the industry and the engraved decoration (all or part of it) are contemporaneous, nor even that these tools were indeed used to engrave the walls. Only a sufficiently advanced functional study (use-wear analysis and comparative experimentation) will make it possible to determine this (Collin and Jardon 1990). Doubtless, the very soft limestone of Gouy will play a decisive role in this forthcoming study.

Similarly, a fragment of animal bone was dated in 1992: Gif A 92346, 12,050 ± 130 BP; (H. Valladas *pers comm*). With this date we have the certainty of a visit to the cave in this period, although we cannot assign all or part of the parietal art to this time. Naturally, if there were any possibilities for direct dating of the decoration, they would be most welcome. For the moment, alas, we must content ourselves with knowing that in the phase of 13000–12000 BP northern France was again occupied by the horse and reindeer hunters of the Final Magdalenian (Fagnart 1997; Bodu 2000; Valentin and Pigeot 2000). However, the small bovid that is covered with criss-cross lines is a precious reference point (by comparison). Unquestionably it displays a process of azilianization operating in the upper register of the first chamber of Gouy, whereas this does not seem to be the case for assemblage (I) of the lower register,⁶ nor quite the case for assemblage (II).

⁵ This is no longer the case. The number of visits has increased since 1996.

⁶ Assemblage (I), fairly faithful to nature, comprises engravings with brisk incisions of varying thickness, thinness, and depth, as well as a bas-relief sculpture. Assemblage (II), also faithful to nature, comprises brisk incisions of varying thickness, thinness, and depth (the deepest of the whole cave).

Gouy was probably frequented for a relatively long period, and probably over several phases, as is suggested by the assemblages (I, II, III) of the parietal layout, as well as the fragments of older decorated wall.

THE CONTINUATION OF RESEARCH

Henceforth, other perspectives are emerging, and complementary research programmes can be developed, especially with regard to the following points:

- updating photographs and tracings by means of present-day technical methods;
- recognition of the different pigments used;
- detection of possible paint recipes;
- study of several superimpositions: engravings/paintings and paintings/engravings;
- presence (or not) of elements that may offer the possibility of direct dating.
- comparative analyses of samples from mineral deposits close to the cave, in order to determine the provenance of the Gouy paints (perhaps local).

Finally, links between the decorated wall and material picked up from the cave floor may perhaps emerge from:

- a point with an ochred back (red);
- a blade with traces of red ochre on its base;
- the ochred interior of a perforation in a cervid tooth (piece of jewellery).

Comparisons must also be made with the red signs in the Grotte du Renard at Orival. The study of all the parietal art in the two caves should be carried out in parallel (Martin 2001: 215, and my official application of 27 August 1998).

CONCLUSION

Without the decision to study the walls close to the ceiling of the first chamber, as well as the fragments of red paint, the latest discoveries would not have been made. The happy consequence of this has been the revelation of a 'new cave'. One can now see the whole cave with totally different eyes, and doubtless even more so since the discovery of the parietal art in Church Hole, at Creswell Crags. The field of investigation is broadening considerably. Gouy is also contributing new food for thought about the transition from the

Magdalenian to the Azilian. As we await the day when the study of the cave can again be continued, in order to produce the planned monograph,⁷ let us hope that the lighting system, whose contribution has been described above, may prove as useful elsewhere as at Gouy.

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⁷ The monograph on Gouy will include the study of numerous decorated blocks (elements detached from the walls, and decorated portable blocks).

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Palaeolithic Art in Isolation: The Case of Sicily and Sardinia

Margherita Mussi

INTRODUCTION

The archaeological record of Italy is long and complex, suggesting continuous peopling since the Middle Pleistocene (Mussi 2001; Mussi *et al.* in press). The evidence of Palaeolithic art, however, is rather restricted: Early Upper Palaeolithic (EUP) art is close to nil, including just a few notched implements; the Middle Upper Palaeolithic (MUP), admittedly, is much richer, with some twenty Gravettian figurines, the largest such sample in Western Europe (Mussi *et al.* 2000; Mussi 2004); parietal art is also documented at Grotta Paglicci, where painted horses and positive handprints were discovered (Bosco and Palma di Cesnola 2000; Zorzi 1962); when Late Upper Palaeolithic (LUP) lithic industries were produced which belong to the Epigravettian, portable and parietal art is known at a number of sites. In the late 1980s, Zampetti (1987) reviewed twenty-one Epigravettian cave sites, and a single open-air site, all of them with zoomorphic art. Three more have been discovered since: Riparo Dalmeri, Riparo di Villabruna, and Grotta di Settecannelle.

I will examine below the artistic record of Sicily and Sardinia, both of them at the periphery of Italy, which, in turn, is secluded from Europe by the Alps. My aim is to contrast the effects of geographic isolation, with the circulation of people and ideas, if any, as documented by portable and cave art.

I am most grateful to the organizers of the Creswell Conference for inviting me to participate, and allowing the visit to the newly discovered Palaeolithic engravings. Filiberto Scarpelli (Laboratorio di Paleontologia del Dipartimento di Scienze dell'Antichità, Università di Roma 'La Sapienza') produced the figures.

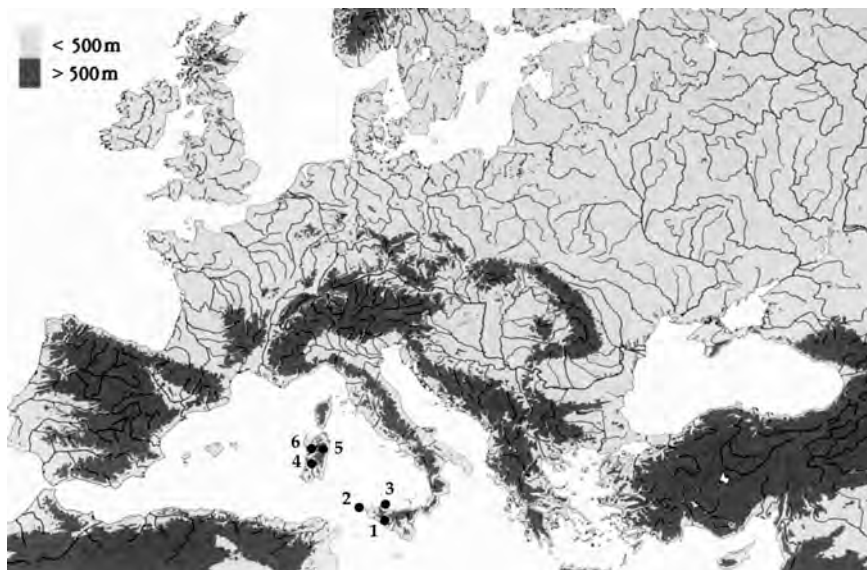


Fig. 10.1. The main Sicilian and Sardinian sites mentioned in the text, some without any artistic evidence

SICILY

Sicily, currently an island of 25,700 km² and the largest in the Mediterranean, lies 140 km from Africa, and a few kilometres off southern Italy. The strait of Messina is 3 to 25 km wide, but is far from easy to cross, because of violent tidal currents, and whirlpool, also known as 'Charybdis' by Greeks and Romans. The depth is just 72 m at the Sill of Peloro. Because of intense neotectonic activity, however, any palaeogeographic reconstruction is highly speculative. Analysis of the faunal assemblages, which during oxygen isotope stage (OIS) 2 include a limited number of species, none of which is endemic, suggests that intermittent connection with the mainland possibly existed around the Last Glacial Maximum (Mussi *et al.* in press). The large mammals, found in varying percentages, are the deer, *Cervus elaphus*, the aurochs, *Bos primigenius*, the small steppe horse, *Equus hydruntinus*, and *Sus scrofa*, the wild boar. Fox, *Vulpes vulpes* and, rarely, Wild Cat, *Felis sylvestris*, are also documented. The earliest dated Epigravettian site of Sicily is Grotta dell'Acqua Fitusa, in an inner part of the island (Fig. 10.1): there is no artistic evidence, but a hearth was radiocarbon-dated to 13,760 ± 330 BP (F-26) (Bianchini and Gambassini 1973). Many more dated and undated sites with Late

Epigravettian industries have been discovered (Segre and Vigliardi 1983). This suggests a stable peopling of the island not later than 14,000 BP (uncalibrated).

Engravings were discovered around the middle of last century on the walls of eight caves, which cluster in the north-western part of the island. Engraved blocks also exist at Grotta Giovanna, in the south-east. At two caves, Grotta dei Cervi and at Grotta dell'Addaura, a sizeable number of representations were spotted that will be described in more detail.

Palaeolithic art was first noticed at Grotta dei Cervi in 1950, by P. Graziosi and his collaborators (Graziosi 1962). The cave opens on the islet of Levanzo, in the Egadi archipelago off western Sicily. The arm of the sea, however, is quite shallow, and nowhere deeper than 40 m. The area is much more stable than that of the Strait of Messina, and it is assumed that Levanzo was a promontory of Sicily during the Upper Pleistocene.

Altogether, 33 figures 15–30 cm long were spotted in a dark, inner chamber (Fig. 10.2): these comprise twenty-nine animals and four anthropomorphs, one of them a funny pair of running legs, devoid of any upper body. Most animals are equids (12), bovids (10), and cervids (5), but there is also a felid and an undetermined animal. Graziosi underlined the lively and naturalistic, 'franco-cantabrian' style of the engravings. The spatial organization of human and animal figures was later examined in detail by A. Leroi-Gourhan (1972): to him, the cave was a fitting example of the model he was by then describing at Magdalenian and earlier sites of Western Europe: bovids and equids are in the centre of the engraved panels, in dominant numbers (Fig. 10.3), while other animal species, as well as humans, are at the periphery. This was also underlined by D. Zampetti (1987), who further refined the evidence documented at this site. At Levanzo, however, the position held by the common horse in Franco-Cantabria is occupied, instead, by the hydruntine horses, the only equid which ever crossed the Strait of Messina and successfully settled in Sicily.

A clue to the age of the engravings is provided by an excavation made at the entrance of the cave, and in full light (Vigliardi 1982). The lowermost part of the deposit was radiocarbon-dated by different laboratories, which provided slightly contrasting results. The dates, nevertheless, cluster around 11,000 to 10,000 BP (uncalibrated). Higher up in the stratigraphic sequence, in level 3, a stone slab was discovered, with an engraved schematic bovid, stylistically quite different from those of the inner cave (Fig. 10.4). It is generally assumed that the latter are earlier, and possibly predate the human settlement excavated at the mouth of the cave.

Grotta dell'Addaura is a small cave in Monte Pellegrino, of $c.6 \times 5 \times 3$ m, in the outskirts of Palermo. On a smooth rock surface, a complex scene is engraved (Fig. 10.5). The panel, approximately 2.5 m long, includes a minimum of sixteen anthropomorphs, 13 to 23 cm in length (Bovio Marconi 1953). Most are males

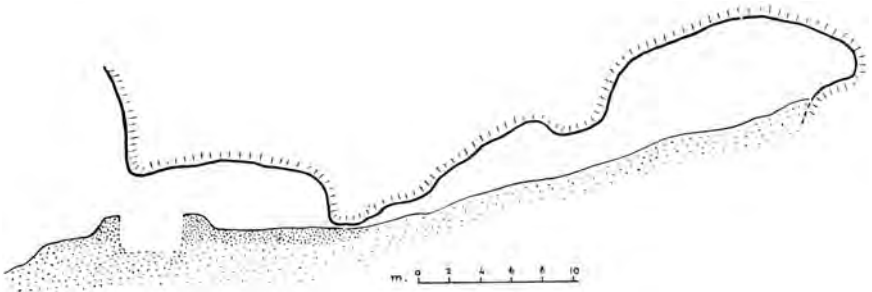


Fig. 10.2. Grotta dei Cervi at Levanzo: cross-section

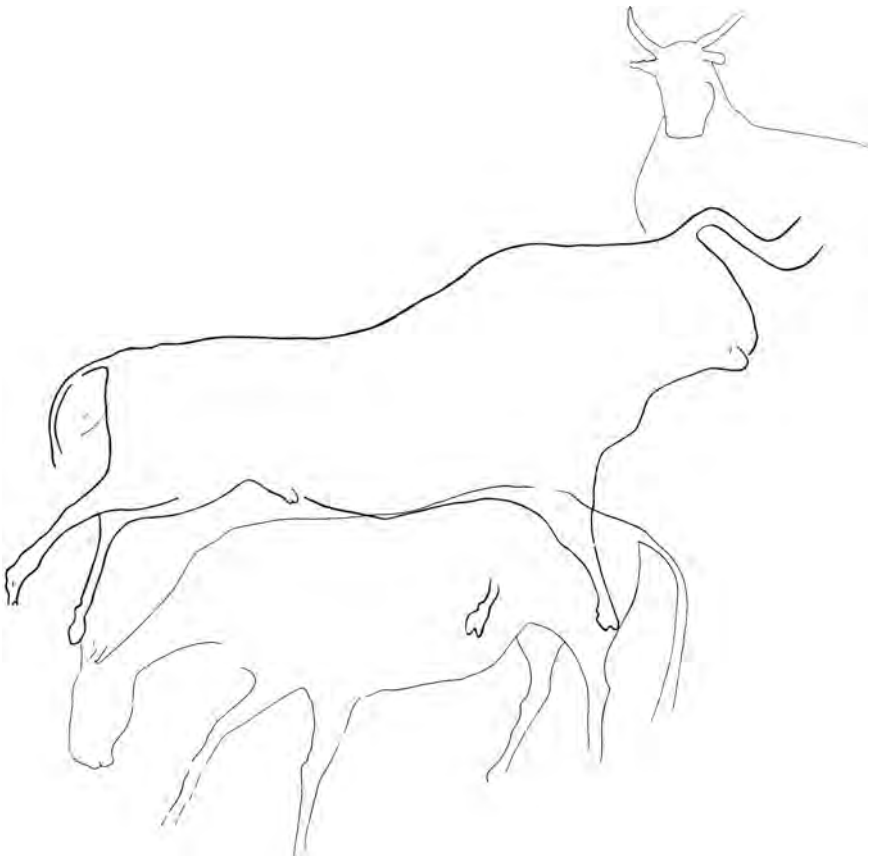


Fig. 10.3. Grotta dei Cervi at Levanzo: engraved aurochs and hydruntine horse

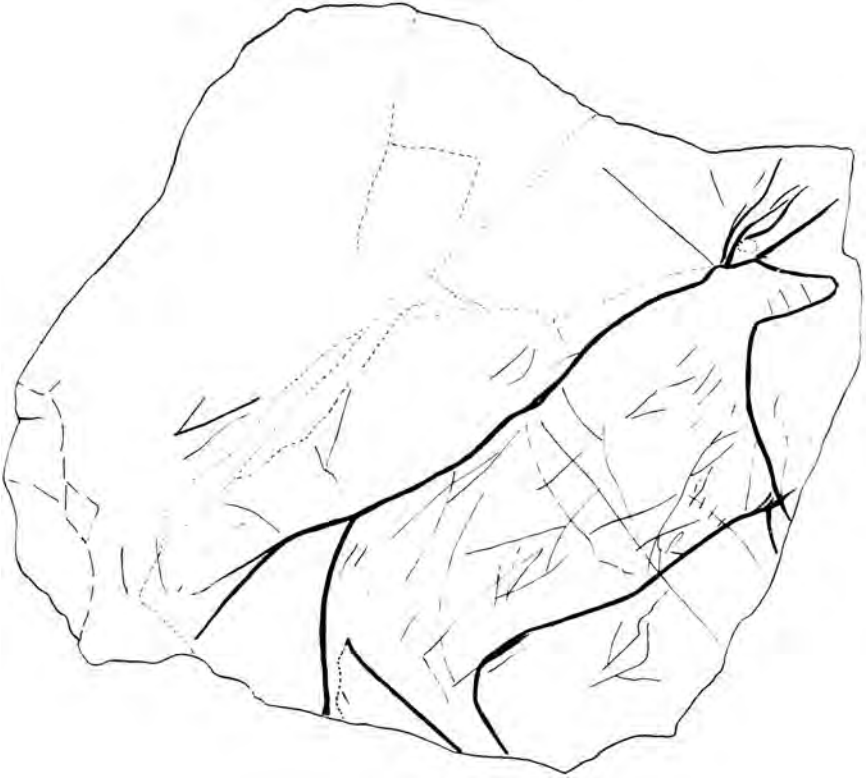


Fig. 10.4. Grotta dei Cervi at Levanzo: block with an engraved schematic bovid

depicted in lively attitudes: standing, with raised arms, carrying poles (Fig. 10.6). Many are grouped, encircling two superposed individuals, who apparently lay on the ground, the uppermost one having bent legs (Fig. 10.6B). In the lower part of the panel, there are several herbivores, 12 to 37 cm in length: deer, horse, and bovids. The last ones, schematic and square-shaped, are stylistically similar to the aurochs on the slab of Grotta dei Cervi. They are clearly superimposed on the other engravings, which are much more naturalistic. A second similar panel, or maybe a continuation of the previous one, also with anthropomorphs and herbivores, is only partially preserved.

Many anthropomorphs display a bulging cap or hairdo, and the face, which is seen in profile, is pointed or truly elongated, with a beak-like appearance. In some instances, the penis and possibly the scrotum are depicted. Only one creature can be sexed as female, after the shape of the breast seen in profile.



Fig. 10.5. Grotta dell'Addaura: map with the location of the engraved panel, and the trench which was excavated nearby



Fig. 10.6. Grotta dell'Addaura: the engraved wall, with an anthropomorph with raised arms (A) and the 'Acrobats' (B)

She might be pregnant, and she carries a voluminous egg-shaped pack on her back. Extending from the lower abdomen of the two males lying down, a pointed shape, made by three converging lines, has been widely interpreted as an aroused penis (but see below).

Most of the attention has focused on the grouped anthropomorphs, including the central two (Fig. 10.6A). I. Bovio Marconi, when first publishing the engravings in 1953, interpreted the scene as an initiation ceremony, with dancing ithyphallic males and a homosexual intercourse. Alternatively, she suggested acrobatics—hence the nickname of *Acrobati dell'Addaura*, the 'Acrobats of Addaura', by which the scene is commonly referred to in the Italian scientific literature. According to Blanc (1954*a*, 1954*b*), and Chiappella (1954), too, it was a depiction of ritual activity, but this would have included the ceremonial killing of the two recumbent individuals: they were supposedly strangled by a rope tightly linking neck to feet, which in turn caused priapism. Graziosi (1973) suggested instead gymnastics, and the use of a protective penis sheath.

Anecdotal interpretation is better avoided in the analysis of this complex and unprecedented panel. The elongated, triangular shapes described at first sight as 'penises', arousing a heated debate, are scarcely such, in my own judgement and analysis—if anything, because more 'penises' can be seen as protruding from the face of some individuals (Fig. 10.6A, 10.6B). The penis of some more figures is actually represented, as said above, but discreetly, and with a realistic length. On the back of the two 'Acrobats', three lines are clearly depicted, which are a continuation of the converging ones protruding from the frontal part of the body (Fig. 10.6B).¹ The recumbent anthropomorphs are better described as *crossed* by lines.

The corpus of Palaeolithic art, which has greatly expanded since the 1950s, allows for comparisons inside and outside Italy. The peculiar hairstyle or hood is duplicated on a bone engraving from Vado all'Arancio in Tuscany, a Late Epigravettian site for which there is a radiocarbon date of $11,330 \pm 50$ BP (R-1333) (Minellono 1985–86; Mussi and Zampetti 1997). The very fact of depicting so many anthropomorphs is no longer unique, after discoveries such as La Marche and Gönnersdorf, both of them Magdalenian sites with tens or hundreds of engraved humans (Bosinski 1991; Pales 1976). The theme of the 'wounded man' or 'killed man' has been described by A. Leroi-Gourhan (1965, 1978), and by J. Clottes and J. Courtin (1992) at several sites, ranging in age from at least 20,000 BP to c.12,000 BP. Within this general group, there are several examples of anthropomorphs whose bodies are crossed by a bundle of

¹ Blanc (1954*a*: 176) describes the three lines on the back of the upper anthropomorph as 'poorly rendered feet' (my translation), but fails to take note of the three lines of the back of the lower individual.

converging or parallel lines, as at Cougnac, Pech-Merle, Grotte Cosquer. I assume that the 'Acrobats' are a further example of this theme.

At Grotta dell'Addaura, the archaeological deposit had been wiped out before excavations were undertaken. This is quite unfortunate, because there was evidence that the latter originally covered part of the engravings (Bovio Marconi 1953). In the close vicinity (Fig. 10.5), however, Bovio Marconi excavated a rather disturbed sequence, which included an Epigravettian industry and animal remains, amongst which the hydruntine horse is mentioned. Together with stylistic and thematic comparisons, a further clue to a relative chronology is the rough, square-shaped bovids, superimposed on the 'Acrobats' and naturalistic animals: elsewhere, as at Levanzo, they have been dated to the very end of the Upper Pleistocene, and to the early Holocene (Mussi and Zampetti 1997).

SARDINIA

The Upper Palaeolithic record of Sardinia is much more elusive than the Sicilian one (Mussi *et al.* in press). The island, of 24,000 km², lies 120 km west of the Italian peninsula, and 185 km north of Africa. At the Last Glacial Maximum it merged with modern Corsica, and the resulting island was by then the largest in the Mediterranean (Caloi and Malatesta 1974; Fierro *et al.* 1981; Oser *et al.* 1980). The Sardo-Corsican island was severed from peninsular Italy by an arm of the sea, which was everywhere wider than 7 km.

Because of constant insularity, and of the distance from the mainland, during the final Upper Pleistocene the fauna was much more unbalanced than in Sicily, and included exclusively endemic species (Mussi *et al.* in press). The only sizeable terrestrial mammals were *Prolagus sardus*, a lagomorph looking like a short-eared hare; *Megaceroides cazioti*, a cervid the size of a fallow deer; and a little canid, *Cynotherium sardous*.

Direct evidence of human peopling at this time is limited to a fragmentary phalanx from Grotta Corbeddu. It was retrieved by sieving from a deposit which, higher up in the stratigraphic sequence, is radiocarbon-dated between 12,000 and 16,000 ka BP (uncalibrated) (Sondaar *et al.* 1995). No other archaeological remains were found, and criticism of the 'Upper Palaeolithic' of Grotta Corbeddu was expressed by D. Vigne (1996). More recently, geomorphological and archaeological investigation in the Campidano plain of south-western Sardinia led to the discovery of a laminar industry within eolian deposits at Santa Maria Is Acquas, next to Sardara (Mussi and Melis 2002). On the surface, Neolithic remains are plentiful. The sands overlying the lithic implements were subsequently dated to 12,000 ± 3,000 BP by optically stimulated luminescence (Mussi *et al.* in press).

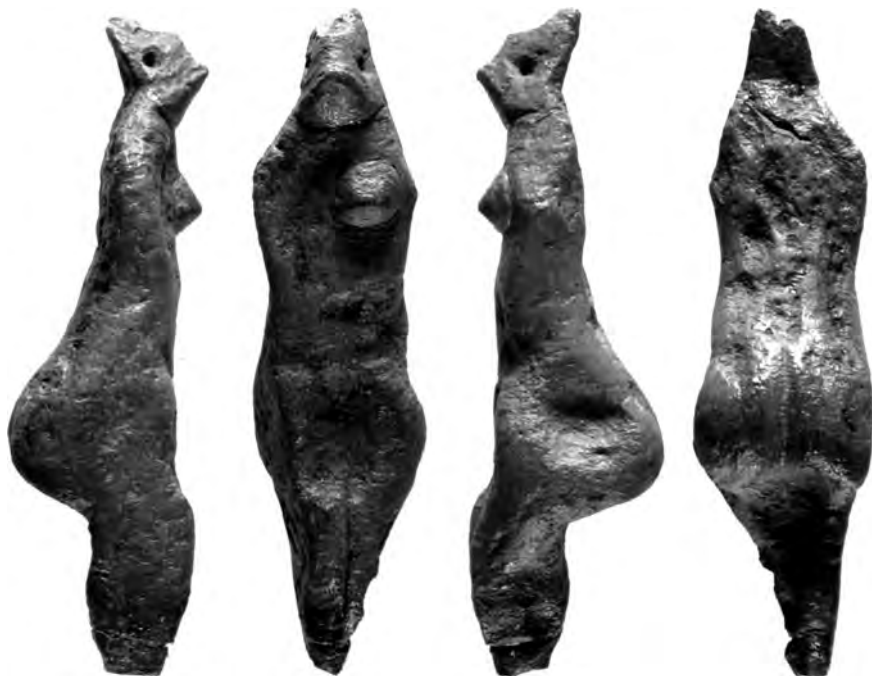


Fig. 10.7. Macomer: the theriognous figurine with a *Prolagus sardus* head

Accordingly, there is some evidence, if slim, of human colonization at a time when Sardinia and Corsica² were already distinct islands. Not surprisingly, artistic remains are limited to a single find, the so-called *Venere di Macomer* or Macomer Venus, which was found before the age of scientific archaeology. In 1949, a small cave on the outskirts of Macomer, filled with archaeological deposits, was nearly emptied by the landlord, before the Soprintendenza³ was made aware of it, and his activity was stopped (Pesce 1949). There are Roman materials, but far more numerous are the Eneolithic implements, which belong to the *Cultura di San Michele* (Lilliu 1966). The only find which does not fit into this scheme is a female statuette, 134 mm long,⁴ carved out of a lava fragment, which was apparently found in a different part of the deposit⁵ (Pesce 1949).

² Upper Palaeolithic sites have not been discovered in Corsica (Vigne 1996).

³ The Italian territory is subdivided into a number of regions. In each there is a Soprintendenza which controls and cares for archaeological and palaeontological remains, which are state-owned even if discovered on private land.

⁴ The figurine is incomplete, because of recent fractures.

⁵ A few flaked stone tools were possibly associated with the statuette (Mussi 2003).

It is a unique find, so far unparalleled in the growing corpus of Neolithic and Eneolithic stone figurines of Sardinia. This asymmetrical statuette, with voluminous buttocks and an animal head, has been tentatively attributed to the final Upper Palaeolithic on stylistic grounds (Mussi 2003) (Fig. 10.7). Female figurines, engravings, and pendants, with small breasts, or lacking breasts altogether, and with protruding buttocks which give them a peculiar twisted shape, are known in western and central Europe from a number of Magdalenian sites (Bosinski 1991). The Venus of Macomer fits well into this group. The head, however, is better seen as representing the extinct *Prolagus sardus*. This, in turn, allows comparisons with the therianthropic⁶ representations which started to be produced in the EUP. They are well known in the LUP, as at Tolentino (Massi *et al.* 1997), Las Caldas (Corchón Rodríguez 1990), La Madeleine (Delporte 1993).

CONCLUDING REMARKS

I have described above the meagre evidence from Sardinia, and two selected cases from the much more conspicuous Sicilian record. More can be added, as far as Sicily is concerned, such as a discussion of the lively, naturalistic aurochs and hydruntine horses engraved on the walls of Grotta Niscemi, close to Grotta dell'Addaura: they duplicate, if in a simplified way, the classic scheme of Grotta dei Cervi at Levanzo. Or the very characteristic Azilian pebbles, also discovered at Levanzo, but out of context, which are a further, direct link to peninsular Italy and to western continental Europe (Graziosi 1973; Mussi and Zampetti 1997). The Sicilian sites, furthermore, deserve much more than a sketchy description, which scarcely takes into account different phases and superposition of engravings, not to mention the possible use of red painting at Levanzo.

Some points, however, have been illustrated: there is an adaptation to insular environments, and substitutes are found for animals, such as the common horse, which failed to cross the straits; endemic species, such as *Prolagus sardus*, also enter the record. Distance and geographical barriers, however, did not impinge significantly upon the circulation of people and ideas. Themes and stylistic aspects that developed on the mainland are duplicated on remote islands. Large social gatherings, which counteracted isolation and allowed the exchange of people, items, and ideas, are actually suggested by the very scene depicted at Grotta dell'Addaura: whatever the

⁶ Therianthropic refers to male half-human, half-animal figures. Female figures are better described as theriognous.

specific, ceremonial activities and/or creatures involved, much more than a dozen adult males are represented.⁷ This, in turn, implies experience of gatherings where several local bands met. As said elsewhere, the 25,000 km² or so of Sicily, at a density of 0.02 inhabitants per km², which is perfectly reasonable for hunter-gatherers, corresponds to an overall population in the range of 500 inhabitants (Mussi 2001: 289) that is, to a self-sustainable human group from a demographic viewpoint (Wobst 1974, 1976).

The development of nautical skills in the late Upper Pleistocene of the Mediterranean has been demonstrated by C. Perlès (1979). Artistic and archaeological evidence from the two major islands points to an active network of information exchange and, in the case of Sicily, to a stable population.

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⁷ Sets of lines, parallel to shapes in the foreground, suggest that a second or a third individual might be represented behind some anthropomorphs. This is the case, most notably, of the 'Acrobats'. Preservation is also incomplete, and animal as well as anthropomorphic outlines have partially or totally disappeared.

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The Horse in the Palaeolithic Parietal Art of the Quercy: Outline of a Stylistic Study

Michel Lorblanchet

INTRODUCTION

The discovery of the engravings at Church Hole brings numerous and precious new elements that renew our knowledge of Palaeolithic parietal art. In particular, it poses the problem of styles in the closing phase of the Palaeolithic.

As a comparison, I will present here an outline of the evolution of styles in the Palaeolithic parietal art of the Quercy between about 27,000–28,000 and 12,000–13,000 years ago. In order to clearly highlight the value of such an evolution, I shall begin by comparing various horse figures, since these are the dominant subjects in all phases of this long period. I shall start by comparing the equids of the cave of Roucadour with those (likewise unpublished) of the cave of Combe Nègre 1 (Lot), and then those of the caves of Sainte-Eulalie and Pergouset (Lot), and I shall end by recalling the characteristics of the horses of Pestillac and Lagrave which illustrate the end of the parietal Magdalenian in our region. I will make one last comparison with the portable art of the abri Murat (Lot) which yielded horse depictions in an azilian level.

HORSES IN THE CAVE OF ROUCADOUR (THÉMINES, LOT)

Location of the Cave, and History of Research

The cave of Roucadour, vast and of easy access, is in the northern part of the Causse de Gramat (Lot). Its total length is about 300 m, and it constituted a

I would like to thank Paul Bahn for translating this text.

very attractive site for man during a large part of prehistory. During the neolithic and protohistory, a habitation (excavated by A. Niederlender and then by J. Gasco) was installed in front of the cave entrance. The deep galleries were also used in the same period, since quantities of pottery, burials, and bronze objects were discovered there.

In 1962, two speleologists, Pierre Taurisson and Jean Paul Coussy, discovered parietal paintings and engravings in a lateral gallery. The cave was classed as a historical monument in 1964. The study and recording of the engravings were entrusted to the abbé André Glory, assisted by his collaborator, the abbé Jean-Louis Villeveygoux; the discoverers themselves also seem to have lent their help at the start. André Glory, who was then an engineer in the CNRS, had just finished tracing the decoration of Lascaux. He carried out four campaigns of recording at Roucadour from 1964 to 1965 (Glory 1964, 1966). A tragic road accident in 1966 cost him and his assistant their lives. A few years later, the CNRS and Professor Balout entrusted me with the completion and publication of André Glory's recordings (preserved at the Muséum d'Histoire Naturelle, Paris). I was then a young researcher in the CNRS, I lived in the region, and was undertaking the study of the decorated caves of the Quercy.

Unfortunately, various local difficulties made it impossible to undertake the study of Roucadour immediately. It was only in 1996, after long and laborious bargaining with the successive owners of the site, that the cave became the property of the French state, and effective protection could be installed: a solid gate was placed at the entrance. In 2002–3, the state finally installed a permanent platform giving access to the engravings that are located 5 m above the present floor. Four years ago I undertook the systematic, collective, multi-disciplinary, and international study of the parietal assemblage of Roucadour which constitutes a major site at the regional but also European level; the cave has not yet yielded all of its secrets. For reasons of conservation, it will doubtless never be open to the public.

The team that I organized for the study includes not only my usual collaborators but also a few prehistory students from the University of Toulouse and a German student; I invited Professor Le Tensorer from the University of Basel to take part in the research with some of his students. The work includes the geological study of the cave, the tracing of all its decorated walls, analyses of the pigments, and excavations to try and find the Palaeolithic floor that corresponds to the parietal depictions.

The work, and especially the recording of the art, has been led throughout by M. Lorblanchet, who himself carried out the tracing of panels I, II, V, XI, XII. The recording of the other panels was carried out under his supervision by G. Bariviera (panels IV, IIIC–D), Ruth Hecker (panel III), Josseline Lorblanchet (panel VII), Charlotte Boureux (panel VIII), and Laurence Martial-Guilhem (panel X). J. M. Le Tensorer carried out the recording of panel VI.

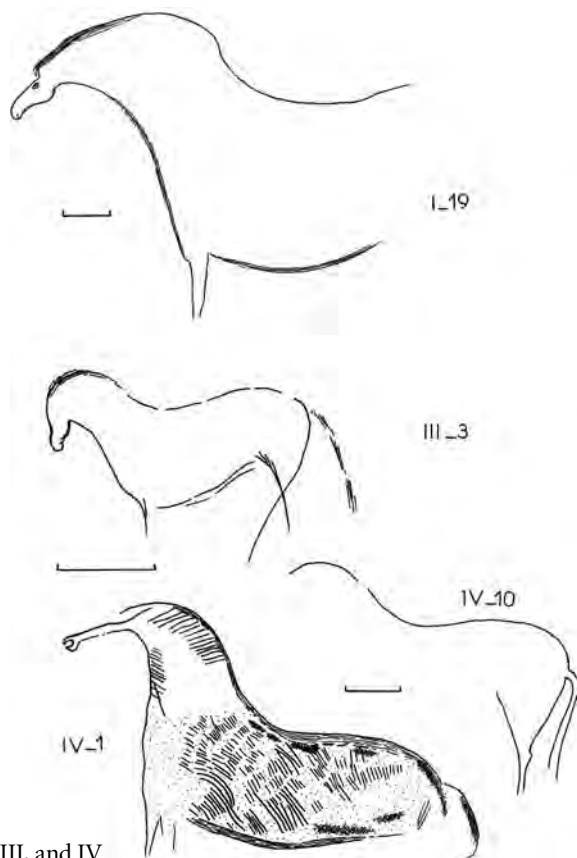


Fig. 11.1. Engraved horses of Roucadour cave: Panels I, III, and IV.

Themes and Dating of the Parietal Works of Roucadour

With the exception of three panels, the engravings are grouped in their hundreds in a deep fissure at the end of the decorated gallery.

About forty of them are depictions of horses, which for the moment seem to be the most numerous animal figures, outnumbering *Megaloceros*, felines, bison, and mammoth, each of which is represented by about twenty examples. There are abundant geometric signs—mostly indented circles (about forty), striated areas, and ‘barrier’ signs. About fifteen red or black negative hands, and groups of big red spat dots, complete this parietal assemblage which is very dense and very tangled.

The great originality of this layout can be seen in the themes: the abundance of felines, of *Megaloceros*, of indented circles, and the presence of motifs that are unique or exceptional in Palaeolithic parietal art, such as a composite horse-bird

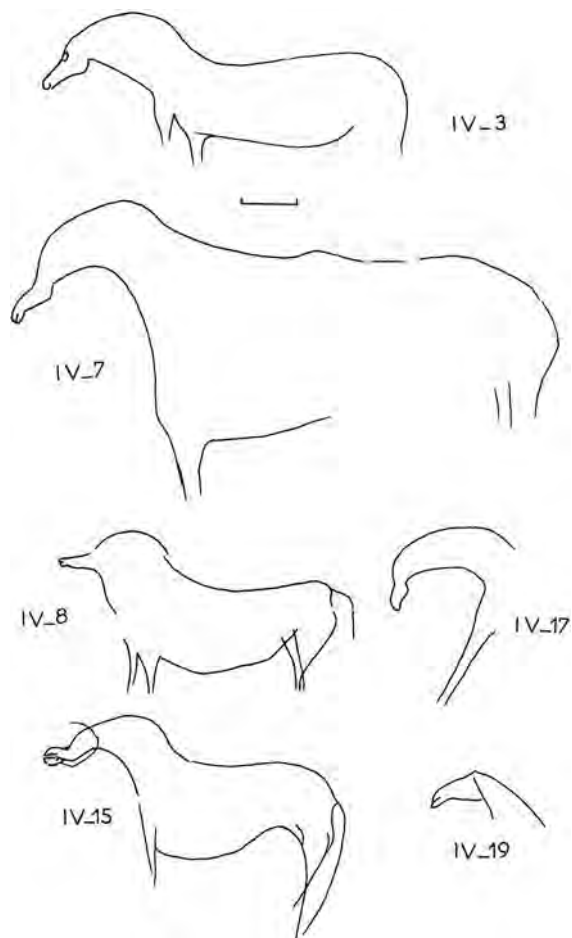


Fig. 11.2. Engraved horses of Roucadour cave: Panel IV

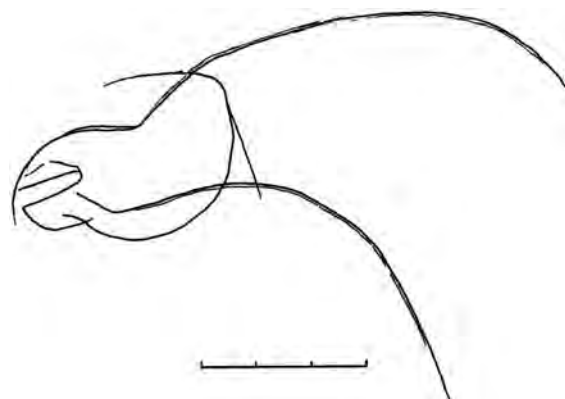


Fig. 11.3. Roucadour cave: detail of horse's head.

being, a mammoth falling head and trunk downward, an engraving of a hare. The execution techniques are also often highly original: some motifs are both polychrome (red, black, and brown) and engraved, and the negative hands are hands drawn onto striated areas; this technique, which differs from the usual stencils, is unique. Only a small black hand in Combe Nègre (Frayssinet le Gélât, Lot) presents a few comparable characteristics.

The dating of the Roucadour assemblage is not in any doubt, although the first pigment analyses show an abundance of manganese and a rarity of charcoal in the blacks. The remains of a black hand made with charcoal did not yield sufficient pigment to allow an AMS date. Despite the absence of direct dating for the moment, a Perigordian or even Aurignacian date is perfectly well founded; the criteria of a date in an archaic phase are provided by the abundance of the *Megaloceros* and felines, negative hands and spat dots, and the style of the mammoths and horses. The mammoths, all with a high ventral arch, enormous legs and absent tusks, are of the Jovelle (Dordogne) type which is found in a few other caves of the Périgord (La Grèze), the Ardèche (Chauvet), or Spain (Carranza pass).

The horses, which will be described in detail below, are characterized by a tiny 'duck bill' head, a well-developed neck, a very curved back, and a drooping belly. The comparison with Pech Merle, Cougnac, Les Fieux, Les Merveilles, and Frayssinet-le-Gélât—that is, with the early phase of Quercy art—is based on all the criteria mentioned above, although the mammoths of Pech Merle are of a different type, except for just one which has a small ventral arch. Although the horses of Roucadour are archaic in style, we shall see that they do not lack either variety or precision or elegance. The following examples will show this.

The Horses of Roucadour

Panel I

Horse 19 (length 40 cm) with a duck-bill head; small head, with eye and lips indicated, engraved on a red negative hand and skilfully using the red background constituted by the hand to simulate the iris inside the eye. The multi-line mane is broad, the back very curved; only one fore leg is depicted; the hind leg is not drawn, because it is in a highly fissured area.

Panel III

Small horse 3 (length 15.4 cm) at the base of the panel, with multiple lines and X-shaped legs; the style of the head is close to a 'duck bill'.

Panel IV

The whole of panel IV is dominated by horses; the decipherment and recording of this heavily laden and high complex panel are still under way.

Horse 1 (length 37×23 cm) now appears to be a figure that is both painted and engraved. The animal has a very upright posture, its head held high, the chest vertical. The head is exaggeratedly long, and ends in an open mouth. The jaw is absent; the head appears abnormally thin. The silhouette is filled with an area of red ochre which has an inner decoration of interlaced lines and fine striations executed after the red paint. The outlines were done after the application of the red with a scraped line and some fine multiple incisions that form lighter bands. These outlines are emphasized in places with black paint, especially at the level of the belly and the back. The neck is highlighted with the brown colour of the wall at that point; so are dealing with an engraved polychrome animal. The artist was admirably able to play with the colours of the rock.

Horse 3 faces right, small head, lips not very drooping, eye depicted.

Horse 7 has a tiny duck-bill head, and an overdeveloped neck.

Horse 8 has a small characterless head, entrenched in the mane like that of horse 5 of panel XII; this head is set horizontally, not very clear of the neck; the jaw is not very accentuated, while the lips are barely sketched in and not drooping. The arched neck is exaggerated.

Horse 10 is incomplete; it has a perfectly shaped hind leg and tail.

Horse 15 has a strange head; its multiple outline seems to depict an open mouth recalling that of horse IV-1.

Number 16 is a large horse (length 40 cm) with a highly curved neck and a hanging belly. Its body is covered with clusters of vertical striations. The nostrils are formed by a natural hole.

Horse 17 is another example in which only the very curved neck is depicted, ending in a tiny duck-bill head.

Horse 19 is reduced to a duck-bill head, with an abnormally narrow neck.

Panel V

Horse 1 (length 38 cm) with tiny head, not duck-bill in shape, heavily curved back, and arched neck whose volume is exaggerated. The legs are merely sketched.

Panel VII

Horse 1 (23×22 cm) is a horse with an upright chest and small duck-bill head; the eye is marked by a small natural depression in the wall; the single ear

points forward, and may depict an animal on the lookout; the neck is powerful but not exaggerated, the belly slightly drooping, the groin marked by a deep rounded notch; the single hind leg is well shaped and very fine, while both fore legs are shown, and with an extra line that perhaps expresses movement. The very long tail has a double line. An oblique line forms a separation between the neck and the body as in the horses of Pech Merle and Frayssinet-le-Gélat (Lot).

This figure is remarkable for its finesse, its elegance, and its precise details: behind the mane one can see series of short, fine parallel incisions depicting its hair. Inside the neck, fine vertical hatchings occur along the outline of the chest; here again, it may be a conventional depiction of the coat, and likewise the oblique stroke at the base of the neck which has just been mentioned.

Panel VIII

Horse VIII-1 has two quite naturalistic fore legs, since hoofs and fetlocks are depicted. These are the most visible parts of the animal. Only one hind leg is depicted, but it is quite detailed. Two long indeterminate lines (too long to represent the second leg or the phallus) emerge from the top of the thigh; do they belong to the drawing of the horse? They were engraved with a striated line before the hindleg. The tail too is exaggeratedly long. This horse thus has a disproportionate outline with its short forelegs, its thick neck, its excessively long tail, and its tiny head in which only the jaw is correct. This horse was engraved above an indented circle and a series of parallel lines.

In the centre of the panel there are two horses laid out head to foot. Horse X-1 is bigger (height 39 cm × length 42 cm) and faces the back of the fissure. It is headless. However, the artist took particular care with the fore legs: the right one is deeply and clearly engraved, and highly detailed with the fetlock depicted. The left one, behind the right, is longer. Here, the artist used a calcited fissure that resembles a fore leg. A few engraved lines accentuate this natural shape. The hind leg also uses relief, since a little vein of calcite suggests the back of the limb.

The second horse, facing right and slightly rearing up, is smaller (height 21 cm × length 20 cm). Its neck is cut by that of the big horse. Its head is too small for its body, but is finely engraved. Its limbs are not detailed.

The head and neck of these two horses are placed on an assemblage of dense clusters of lines orientated obliquely. In places, the surface seems to have been scraped.

Observation and analysis of the superimposition of lines make it possible to establish the chronological order in which the different engravings were produced. The order is as follows:

- (1) scraping of the upper part;
- (2) small horse;
- (3) assemblage of lines including the striations at the level of the big horse's fore legs;
- (4) the big horse.

Panel XII

This very full panel comprises forty-six motifs in a surface area of 1.5 m².

XII-5: incomplete horse in which one can only see the rear end, the belly, the back and voluminous arched neck prolonged by a tiny head with no particular characteristics. The whole thing gives the impression of an animal with its head entrenched in the mass of the mane.

XII-36: finely engraved horse with a duck-bill head and thick neck (length 30 cm). The rear part seems to be missing.

XII-41: finely engraved horse with a tapering head and big hanging belly (length 17 cm).

XII-42: in the lower part of the panel, in contact with the horizontal fissure that limits panels XII and XI, there is a horse 33 cm long (XII-42), whose hind legs were not depicted. The head, mane, and chest are drawn with great care, in an anatomically precise style that differs from that of the 'duck-bill' horses which are more common at Roucadour. Here the head is not deformed, the drawing of the jaw is correct; the mouth, nostrils, and both ears are present. The hairs of the mane are suggested by a series of lines. The harmonious curve of the back (of exaggerated length), without a very marked accentuation of the curvature, plunges forwards. The most remarkable feature of the drawing is the integration of tiny fissures for the nostrils and, especially, for the eye which is formed by a natural circle in the limestone delimited by fissures. One cannot overemphasize the disconcerting skill with which the Palaeolithic engravers strove, from the beginnings of art, to blend their drawings with the rock, to integrate natural features into their drawings. (The experimentation that I have carried out has highlighted this particular notion.) Horse XII-42 was engraved above an indented circle with concentric lines, but it is covered by the rear end of a female *Megaloceros* (no. 16), drawn vertically, which shows that, despite its style, it is not a late intrusion.

XII-43: at the base and on the left edge of panel XII, adjacent to panel X, horse (length 23 cm) in absolute profile, only one leg from each pair; linear mane and tail. The drawing of the hind leg is finely shaped.

General Characteristics of the Horse Depictions of Roucadour

Comparison of the horse images of Roucadour leads to the following observations (the numbering of each horse image includes the number of the panel followed by that of the figure in the panel).

1. They are depicted in absolute profile. Often the fore legs are both present whereas the hind legs are sometimes represented by a single limb. The limbs are always side by side, with no attempt at perspective.

2. The head is always small: it represents from 8 to 10 per cent of the total length of the animal; the exception is 14 per cent for horse XII-42 which is a little marginal in its proportions and the configuration of its head. (The length of wild Przewalski horse heads is between 16 and 22 per cent.).

Most of them display the 'duck-bill' convention, to use the abbé Breuil's formula (I-19, II-3, IV-7, IV-17, IV-15, IV-19, VII-1, XII-36)—that is to say, an elongated and fine head, whose extremity is curved downward like that of a duck bill: the lips are well developed and droop down.

However, a second minority type (IV-8, XII-5, X-2, XII-41, XII-43) displays a small elongated head which is not 'duck-bill' in shape but rather like a glove-finger directly prolonging the arch of the mane. The jaw is exceptionally well marked (VIII-1, IV-3).

Some heads are aberrant: the polychrome horse IV-1 possesses an elongated 'muzzle' that ends in a kind of hook or 'pincers' that represents an open mouth. The very original head of horse IV-15 surrounded by a strange double outline also doubtless depicts open jaws.

The eyes are sometimes engraved (I-19, IV-3, VII, XII-36). The eye of horse I-19 is very skilled, since for its pupil it integrates a particle of red pigment belonging to a negative hand just below. In many other cases, it is a natural feature, such as a hole in the wall, which serves as the eye (VII-1, XII-42) and sometimes the nostril (IV-16). The skill with which the engravers of Roucadour systematically used natural rock features, even the tiniest ones, is particularly astonishing. It doubtless contributes to the meaning of these parietal works.

3. The mane and neck generally have an exaggerated volume; the mane has the shape of a regular arch (IV-10, IV-8, IV-16, VII-1, VIII-1, X-2, XII-5, XII-36, XII-43). But sometimes it takes the shape of an asymmetrical arch with an expansion at the back (I-19, IV-7, IV-15, V-1).

4. The back and belly most often have an accentuated curvature. These are very curved backs and hanging bellies.

5. The tail is most often linear and simple, but sometimes more shaped and with a double line (IV-10, VII-1, VIII-1).

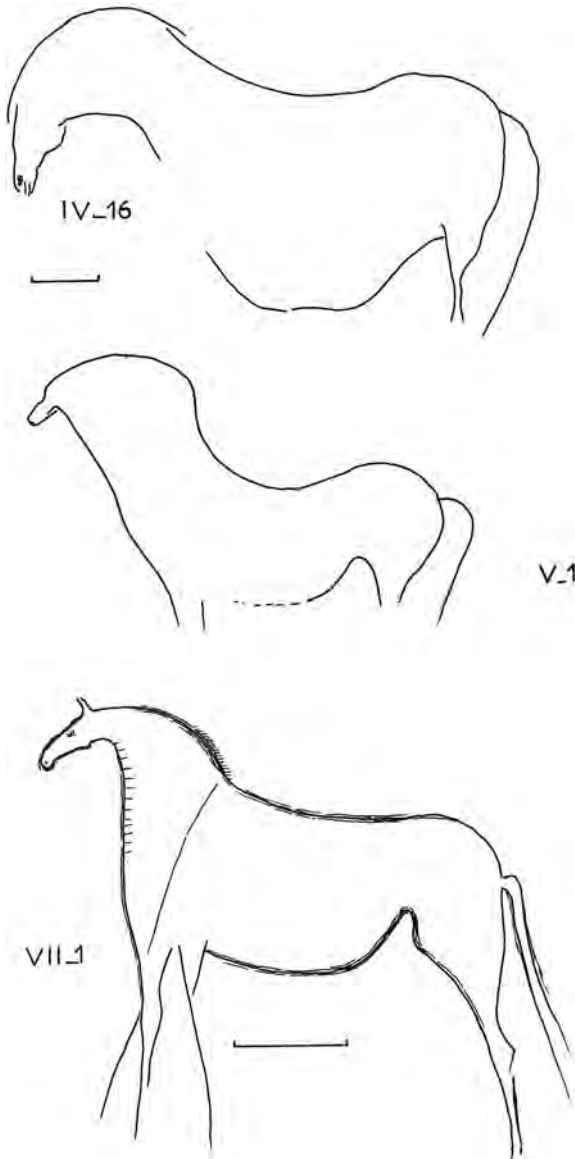


Fig. 11.4. Engraved horses of Roucadour cave: Panels IV, V, and VII

6. The legs are often neglected, absent or simply sketched (I-19, IV-3). In several notable cases, the legs are perfectly shaped and detailed (IV-16, VII-1, VIII-1, X-1), and even the hoofs are depicted (VIII-1, X-1). It should be noted that several animals have X-shaped legs, a convention that is frequently found during archaic phases of parietal art (III-3, IV-15, XII-41).

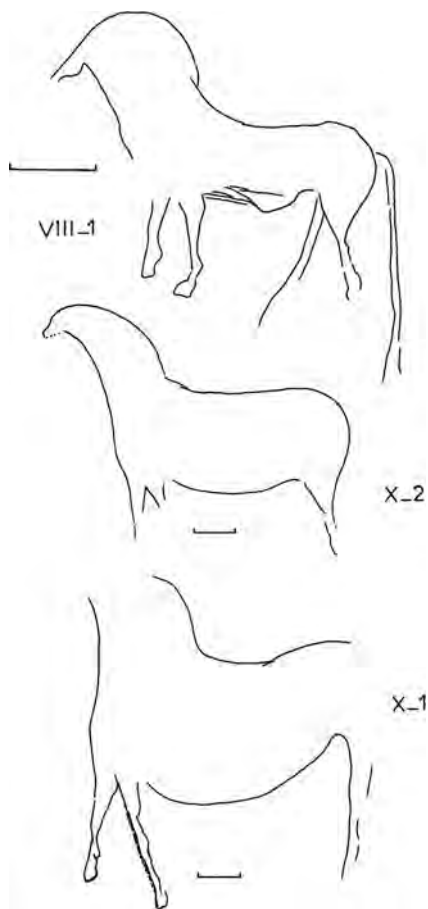


Fig. 11.5. Engraved horses of Roucadour cave: Panels VIII and X

7. The animals' coat is sometimes represented. The body of horse IV-1, painted in red, is covered with fine hatchings which doubtless represent the coat. Its neck uses a brown patch on the wall which may suggest a neck that is darker than the body.

In one case (VII-1), an oblique line separates the neck from the rest of the body (noting the colour of the coat?) as can also be seen on the horses of Pech Merle.

Some of the arch-shaped manes have an upper outline that has multiple striations which doubtless depict the hair (I-19, III-3, VII-1).

Other horses have internal striations that are perpendicular to the arch of the mane, and which are also a schematic depiction of hairs (IV-1) or external perpendicular striations which have the same function (VII-1). The striations

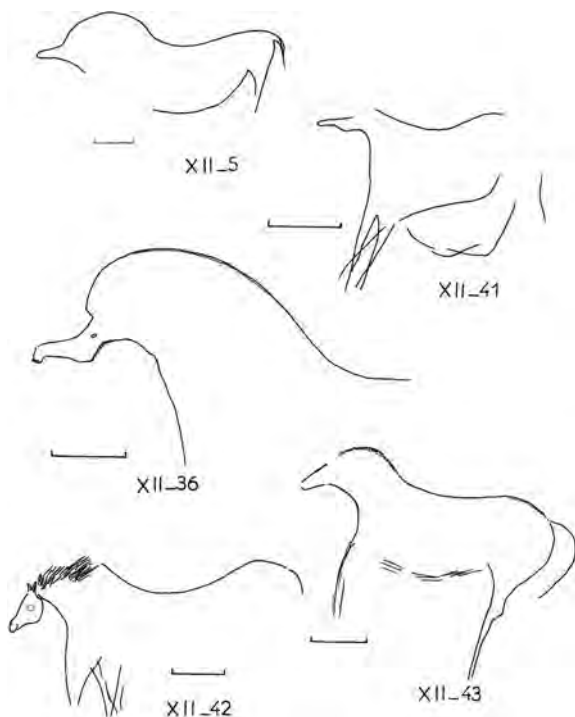


Fig. 11.6. Engraved horses of Roucadour cave: Panel XII

perpendicular to the outline are found at the front of the neck (IV-1, VII-1). These striations, built up perpendicular to the outline, are also found on a bison in panel IV.

Finally, in Roucadour we encounter only one example of a detailed mane formed of clusters of oblique striations (XII-42) which makes this horse a very special case. However, one should note the total absence of depictions of the beard beneath the jaw, whereas the beard of bison is represented.

Conclusion on the Horses of Roucadour

Hence, the horses of Roucadour display a general trend towards schematization; their graphism shows a few conventions that are well known at the start of Palaeolithic art—absolute profile, limbs without volume or perspective, reduction of the head, duck-bill, hanging bellies, arch-shaped manes, X-shaped legs—but at the same time they escape uniformity through a frequent recourse to detail: the markings of the coat, the astonishing precision of certain anatomical segments, especially the legs and manes which are found

more often in the images of Magdalenian horses; for example, the legs and hoofs of VII-1 and X-1 and the mane and head of XII-42 would be perfectly at home in Magdalenian works. An original form of animation already seems to be depicted in two cases through the opening of the mouth (IV-1 and IV-15).

It should be noted that archaic conventions are sometimes found on the same animal next to characteristics that occur in all phases of Palaeolithic art until its end: for example, the association on the same horse of legs made of parallel lines and X-shaped legs or well-shaped legs and duck-bill heads; or the association of archaic traits with polychromy and the marking of coats, that is, with characteristics which are still generally attributed to evolved phases of Palaeolithic art.

Taken as a whole, all the images in Roucadour astonish us through their mastery and their graphic freedom, their trend towards the conventional simplification of the outlines, marking a distance from the anatomy of the subjects, associated with an episodic search for the true detail and even an attempt at animation. The current study of superimposition of lines seems to underline the homogeneity of the parietal layout at Roucadour which, chronologically, must be dated to around 25,000 to 28,000 years ago. The original signs of Roucadour, especially the indented circles, which are associated with all the types of horses that have just been described, further emphasize this homogeneity.

A Few Other Archaic Horses of the Quercy

Although Cougnac is exceptional in that it only possesses a single very schematic horse image in the middle of the *Megaloceros* frieze, Pech Merle and Le Combel possess some very famous horse paintings which can be attributed to the Gravettian according to a variety of evidence and a direct date from one of the spotted horses.

The cave of Frayssinet-le-Gélat (Lot), discovered recently (Jaubert, Féruglio and Lorblanchet, in preparation), especially the lower gallery known as Combe Nègre 1, possesses a couple of stylized horses painted in black, accompanied by a drawn negative hand, a bison, and groups of dots, all in black (Figure 11.7).

My recording reveals the usual characteristics of the Perigordian horses of the Quercy: general stylization, miniaturization of the head, neck stripe, neglect and lack of perspective in the legs, but all of this does not rule out (far from it!) graphic elegance. Through its subjects, its techniques and its style, the little parietal assemblage of Frayssinet-le-Gélat is clearly contemporaneous with Pech Merle, Cougnac, Les Fieux, Les Merveilles, and Roucadour.

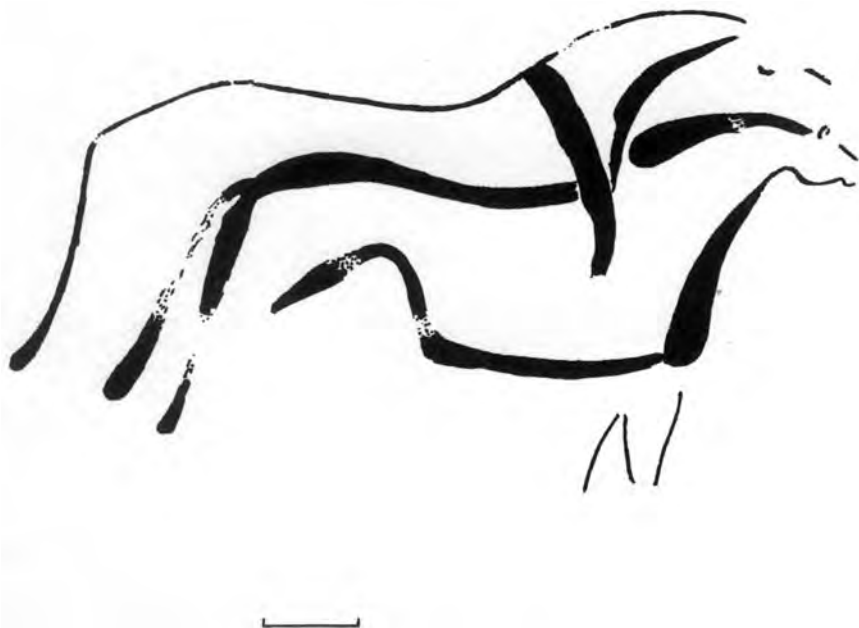


Fig. 11.7. Black horse (copulating?) in the cave of Combe Nègre 1

The Magdalenian Horses of the Quercy

In the cave of Sainte-Eulalie (Lot), I recorded and studied eight horse images which I compared with the horse depictions of Les Combarelles and Les Trois Frères (Lorblanchet 1973). These animals are immediately distinguishable from those of Roucadour and the early phases of Quercy art through their technique of short multiple incisions, avoiding big linear traces done in one go, their massive appearance, the accuracy of the bodily proportions, and the size of the head. (Figure 11.8). The heads are henceforth thick and short: they represent 16 to 18 per cent of the length of the body; their length is thus double that of the equid heads in Roucadour. The size of their head is identical to that seen on present-day Przewalski horses whose heads represent between 16 and 22 per cent of the animal's length.

At Sainte-Eulalie the artist's wishes were very different from those of the engravers of Roucadour. The animals represented on the walls are astonishingly present: the principal horse (panel V) whose iris and lashes are even depicted, is aquiver with life. The evocation of the coat, the proud allure, the intensity of the look, the opening of the mouth, the multiple drawings of the ear which may depict its movement, describe an animal on the lookout. In the Middle Magdalenian (all the engravings of Sainte-Eulalie have been dated

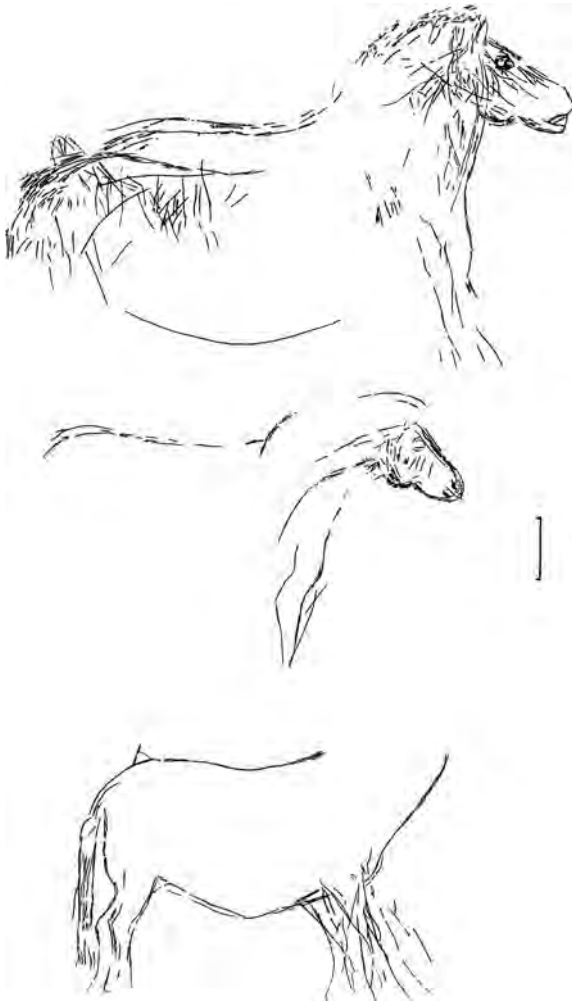


Fig. 11.8. Engraved horses of Sainte-Eulalie cave

stratigraphically to around 15,000 years before present) the relationship with reality thus becomes more direct and closer; we are in the presence of a mastery of realism through the precision of details and the concern for proportions.

In this decorated cave of the valley of the Célé, on another horse depiction, even if the mane is not detailed, the eye, nostrils, mouth, and the perfect shapes of the head are noted and the multiple outlines of the head express the animal's vitality. In the same cave there is a purposely headless horse, the line suddenly stops at the start of the mane and the jaw. But this is not a 'dead' horse, because its multiple limbs express movement. All this is doubtless



Fig. 11.9. Engraved horses of Pergouset cave

meaningful. One also finds headlessness in the early art of Roucadour (horse X-1); so this is not a Magdalenian speciality.

The cave of Pergouset (Saint-Géry, Lot) possesses seventeen horse depictions. (Figure 11.9) They are the dominant animal figures here, as in most of the Palaeolithic decorated caves of the Quercy (Lorblanchet 2001).

In the deep part of the cave, the style of the engravings is crude and very schematic, the incisions are broad and deep; by contrast, the style becomes gradually naturalistic as one approaches the entrance of the decorated gallery.

I have shown that the stylistic variations probably play a role in the meaning of the sanctuary which appears to be linked to a myth of the creation of the world.

The most naturalistic animals, close to the entrance, have exact bodily proportions, and their drawing is often precise. The hairs of the mane and beard are often depicted, as are the eyes. One of the horses in chamber II in a narrow fissure possesses an eye that is as precisely drawn (with pupil and iris) as that of the big horse of Sainte-Eulalie. Moreover, lines emerging from its open mouth doubtless depict breath. Another complete horse—whose cloven fore-hoof suggests that it may in reality be a composite horse-bovine being—displays a herringbone mane which is also found on certain equids in Les Trois Frères (Ariège) and in the Magdalenian portable art of Bruniquel (Tarn-et-Garonne). Moreover, it is to the Middle Magdalenian, at a date close to the one obtained for Sainte-Eulalie, that one can attribute the sanctuary of Pergouset.

Let us return to the cave of Sainte-Eulalie. The stratigraphy which we discovered during our excavation in this cave includes at the top a rich level of Magdalenian VI with harpoons, which covered the wall that was previously decorated during the Magdalenian III. In this Final Magdalenian level where, in the fauna, the red deer accompanies the reindeer, we discovered several portable horse depictions which can usefully be compared with those made several millennia earlier on the walls of the same cave.

The horses on bone and stone of the terminal Magdalenian of Sainte-Eulalie can be distinguished from the parietal horses of the Middle Magdalenian by the volume of their head which represents from a quarter to a third of the animal's total length: they belong to the tradition of the 'big-headed horses' of the Upper Magdalenian.

In Palaeolithic art, therefore, the size and shape of horse heads has no anatomical value: they are purely a stylistic convention.

The Last Horse Depictions in the Palaeolithic of the Quercy

We find further examples of the 'big-headed horses' in a very few interesting sites with parietal art at the end of the Quercy Magdalenian: the cave of Pestillac (Montcabrier, Lot) and the rockshelter of Lagrave (Faycelles, Lot), discovered recently (Ipiens *et al.* 2000; Sentis 2000).

In both cases, the horse engravings (the length of the heads varying between 20 and 30 per cent of the animals' total length) are associated with female depictions of Gönnersdorf type which makes it possible to attribute them to the 13th millennium BP. At Lagrave, a line of about forty little horses distributed along a ground-line recalls the lines of horses and reindeer of the terminal Magdalenian of Limeuil and Teyjat (Dordogne)

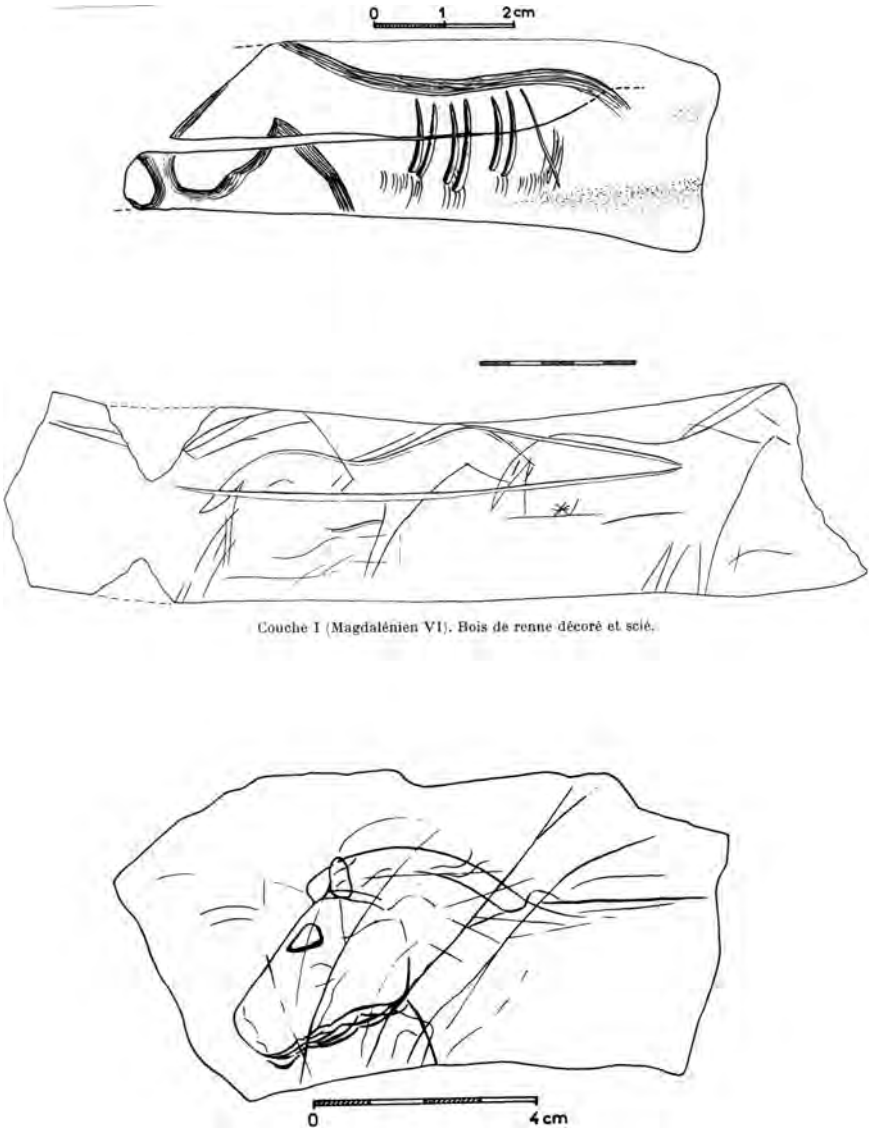


Fig. 11.10. Engraved horses on bone, reindeer antler, and stone from Magdalenian VI layer in Sainte-Eulalie cave

and Chaffaud (Vienne), which again supports the dating contributed by the association with the Gönnersdorf figures.

The 'big-headed horses' are now schematic and standardized; the interior details are practically absent. Animation is only very rarely individual; it is

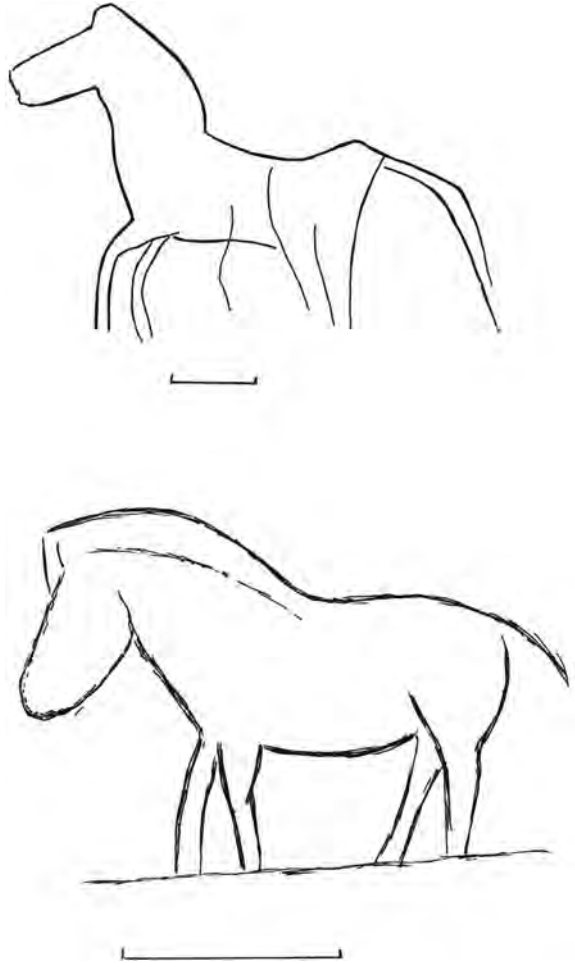


Fig. 11.11. Pestillac cave and Lagrave rockshelter horses

generally collective, and implies the representation of a troop of animals moving around, a mass movement.

The extreme end of Palaeolithic figurative art in the Quercy is illustrated at the abri Murat (Rocamadour, Lot) which gave the abbé Lemozi, around 1920–4, some horse images on bone and pebbles in its final Magdalenian. I resumed excavations in this shelter in 1983–5 and discovered images of horses both in the Magdalenian VI levels and in early Azilian levels which Lemozi did not see.

In 1958 the abbé Lemozi published an astonishing little schematic horse which he had discovered in level P at Murat (Magdalenian with bilaterally

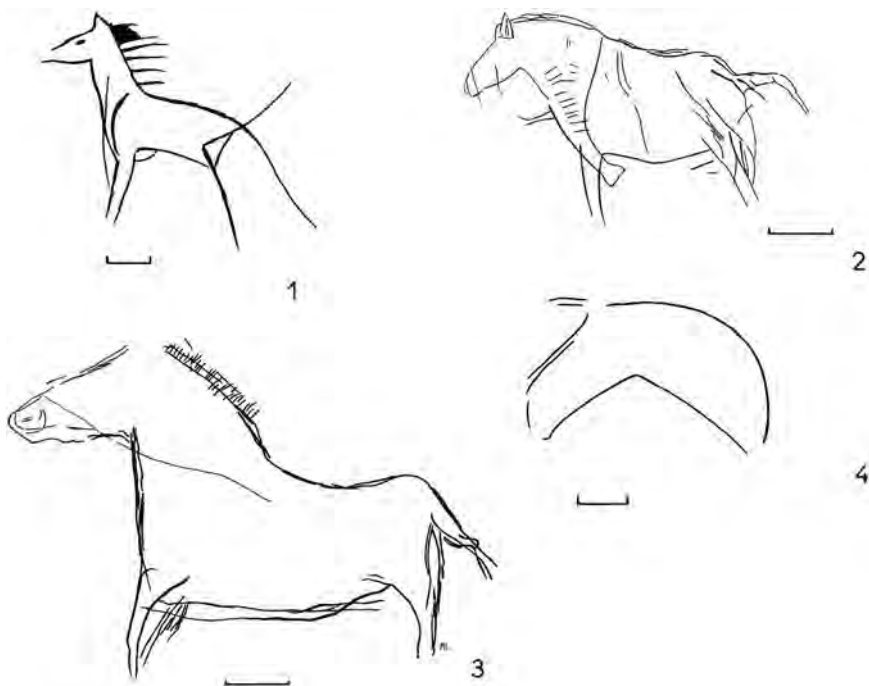


Fig. 11.12. Abri Murat (Rocamadour, Lot) horses

barbed harpoons): the drawing is instinctive; the animal is fixed in a few lines which record the unreserved gesture of the hand whose momentum died away—a very different technique from the painstaking, attentive, constantly interrupted lines of Sainte-Eulalie. The end of the animal art is near.

It was in layer IV, dated by radiocarbon to $12,620 \pm 130$ BP (Gif A 92345), that in association with an early Azilian industry we found some 'big-headed horses'; towards the top of the layer these drawings became decreasingly figurative and increasingly geometric. They are then associated with purely geometric motifs which become exclusive in the layers of the typical Azilian (Lorblanchet 1996).

It should be noted that in a region close to the Quercy, the miniaturization of the head of horses (and bovines) reappears in a regional facies of early Azilian art: in the Laborian and Protolaborian of Pont d'Ambon (Dordogne) and La Borie del Rey (Lot-et-Garonne) (Célérier 1980; Le Tensorer 1979).



Fig. 11.13. Roucadour cave, panel IV, Horse 1, polychrome and engraved

CONCLUSIONS

The oldest horse depictions in the parietal art of the Quercy (between 25,000 and 28,000 years ago) are simplified, most often in absolute profile, and drawn in a linear fashion. They present a constant association of particular graphic conventions, the grouping of which seem to characterize this phase: miniaturized head and 'duck-bill' shape, arch-shaped mane, very curved back, hanging belly, X-shaped legs. In isolation these conventions have no chronological value.

In these early depictions we also observe techniques and episodic markings that, in contrast, express an occasional search for detail and animation which would become stronger later.

On the other hand, the artists of the Middle Magdalenian, in the Quercy as elsewhere, depict living horses, animated and strangely present on the walls. The internal details, the depiction of the coat and animation are constant.

So an art that symbolizes the idea or the essence of the depicted subjects seems to be followed by an art that is more concerned with appearances; a change of this kind in techniques and style is doubtless linked to an evolution of beliefs and the social functions of the art.

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A Topographical Approach to Parietal
Figures: The Monumental Sculptures of
the Roc-aux-Sorciers (Vienne, France)
Produced in Daylight at the Back of
a Rockshelter and on its Ceiling

Geneviève Pinçon

INTRODUCTION

The wonderful discovery of parietal figures in the entrance chamber of Church Hole by P. Bahn, P. Pettitt and S. Ripoll in 2003 invites us to study the elements that are linked to the topography of parietal figures made on ceilings in daylight. At Creswell, early excavations had revealed Magdalenian occupations. This association between habitation and parietal figures recalls other contexts, such as for example that of the Roc-aux-Sorciers at Angles-sur-l'Anglin (Vienne, France).

This Magdalenian site contains a sculpted, engraved, and painted parietal assemblage which extends for more than 50 m at the foot of the cliff along the Anglin River. The upstream part of the site, called the Taillebourg cave, and which corresponds to a typical vestibule, yielded numerous decorated blocks that came from a major collapse of the cave's ceiling; their refitting is currently under way. The downstream part, known as the abri Bourdois, which is a shallow overhang, at present contains a sculpted, engraved, and painted frieze, almost 20 m long, located on the vertical wall at the back of the rockshelter. Today the shelter's ceiling has no traces of sculpture or engraving, but nothing confirms or rules out the presence of parietal figures here in the Magdalenian.

I would like to thank the conference organisers most warmly for their invitation to contribute to this volume and Paul Bahn for the translation of my text.

After an analysis of the spatial organization of the figures in the abri Bourdois, we shall look at the elements at our disposal for understanding the figures on the ceiling of the Taillebourg cave in order to grasp whether the difference in location and the morphology of the supports had any impact on the spatial organization of the figures in the site as a whole.

THE SITE OF THE ROC-AUX-SORCIERS

The site of the Roc-aux-Sorciers is located in Poitou-Charentes, in central-west France, in the commune of Angles-sur-l'Anglin. It was officially classed as a historical monument on 18 January 1955. Facing directly south, it extends for about 50 m, at the foot of cliffs, near the present-day village, on the right bank of the Anglin (Fig. 12.1).

It was discovered in 1927 by Lucien Rousseau who published his excavations in 1939 in the *Bulletin de la Société Préhistorique Française*. In 1946, it was visited by S. de Saint-Mathurin who found an engraved slab similar to those of La Marche (Lussac-les-Châteaux, Vienne, France) which spurred her to undertake new excavations. It was then that she asked her English friend D. Garrod for scientific support in resuming the research here (Figure 12.2). She accepted without hesitation, and together they started work at the site. In 1949, on the ceiling of the Taillebourg cave, in the upstream part of the site, they noticed a bison in relief associated with other deteriorated sculptures. They unearthed a very large number of sculpted fragments, of all sizes, which had fallen from the wall in different periods since certain fragments were lying in the Magdalenian layer. In 1950, along the cliff further downstream, S. de Saint-Mathurin and D. Garrod discovered a recess in the rock, flush with the talus, which looked very promising to them. They organized the clearance of this zone and quite rapidly encountered the back of the shallow shelter, and discovered there the sculpture of a horse with its head turned back. This was the start of the unearthing of the Magdalenian sculpted frieze of the abri Bourdois at Angles-sur-l'Anglin, associated with numerous archaeological remains and structures such as hearths.

The analysis, currently under way by a multi-disciplinary team, of the archaeological material makes it possible to obtain a more exact picture of the context of this site's Magdalenian occupation. The proximity and the relationship between the parietal art and the vestiges of human occupation pose the problem of the site's function(s): is it a sanctuary and/or a habitation? What was the relationship of its occupants to the parietal and mobiliary art? This question



Fig. 12.1. The site of Le Roc-aux-Sorciers at Angles-sur-l'Anglin (Vienne)



Fig. 12.2. Suzanne de Saint-Mathurin and Dorothy Garrod at Le Roc-aux-Sorciers

has constituted the principal theme of our research since we resumed the study of this site of parietal art in a rockshelter.¹

The archaeological fill that covered the assemblage of figures makes it possible to attribute them to the Middle Magdalenian, and a few radiocarbon dates are available:

14,030 ± 100 BP (GRO 1913)

14,160 ± 80 BP (GrN 1913)

14,510 ± 160 BP (Gif A 94191)

14,770 ± 140 BP (Gif A 94190)

This Magdalenian is particularly characterized by the presence of little bone points with a simple bevelled base and grooves called ‘sagaies de Lussac-Angles’, the ‘very cute ones’ as the abbé Breuil called them; ivory ornaments including beads called ‘Stomach beads’ by S. de Saint-Mathurin; or original objects such as horse incisors with a fine criss-cross design engraved on their labial surface (see Martin, this volume). All this material recalls that from La Marche or Les Fadets at Lussac-les-Châteaux (Vienne, France), located about 40 km away, and characterised by their mobiliary art engraved on plaquettes or slabs; these are also found at Angles, but in smaller quantity.

The stratigraphic approach, through analysis of the organic-material industry carried out with Anne Bertrand, shows an evolution in the distribution of the different tool-types during the period of the site’s frequentation in the Middle Magdalenian, that is, over about a thousand years. The comparison between this study and that of the wall has revealed resummptions of themes over time, and this looks highly promising for the correlation of successive interventions by the artists on the parietal figures with the recurrent frequentation of the site that can be deduced from the archaeological remains.

The site of the Roc-aux-Sorciers constitutes a very rich subject for scientific study—particularly in the domain of sculpted parietal art. It enables us to take advantage of innovative research methods and new (3D) technologies, while not neglecting the classic methods of graphic and photographic recording. Recent research has made it possible to realize that various techniques, from very fine engraving to haut-relief sculpture, were used by the Magdalenian artists to convey volume. A few traces of red and black paint still survive today, and provide evidence for the use of colour in association with this art (Pinçon and Iakovleva 1997).

¹ Through having access to the original site and relying on the articles and archives (excavation notebooks, tracings, iconography, etc.) which they left us, it is incumbent upon us, at the request of S. de Saint-Mathurin, to undertake the task of bringing to the scientific community and the public the knowledge which can be derived from this site.

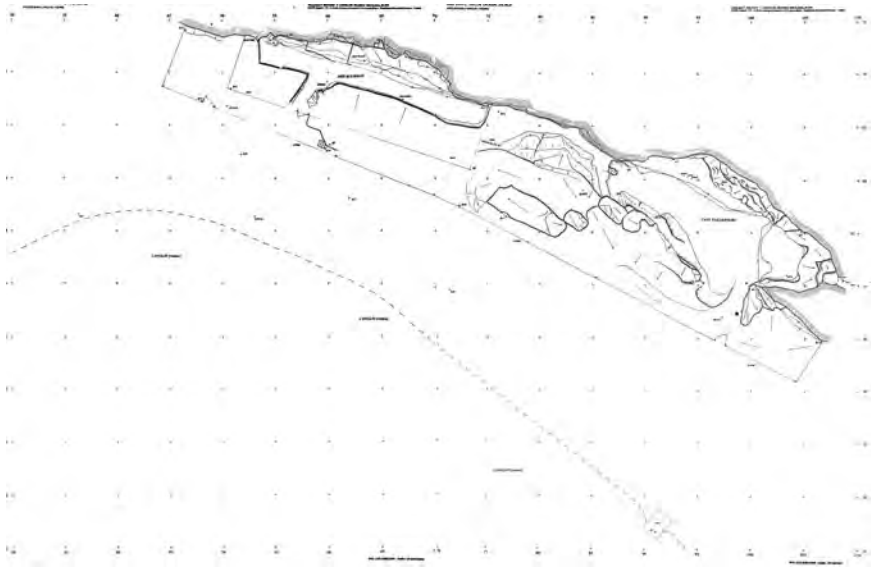


Fig. 12.3. Topographic plan of the Roc-aux-Sorciers made by F. Rouzaud and Y. Le Guillou in 1993

GENERAL TOPOGRAPHY OF THE SITE

The analysis by F. Rouzaud and Y. Le Guillou of the topography of the site is particularly interesting in terms of the site's morphology in the Magdalenian period (Fig. 12.3):

The straightness of the cliff at the location of the Abri Bourdois and of the Taillebourg Cave, associated with the presence on the same axis and at the site's eastern extremity of a cave entrance suggest the previous existence of a major fissure which evolved into a speleological conduit. The latter was later cut into by the meander of the Anglin, thus forming a kind of 'tunnel', which gradually opened out in places onto the valley and was probably very well lit. This hypothesis is supported by the breadth of the destroyed ceiling, which seems far greater than is generally observed in true rockshelters. Test pits in the future could confirm the existence of remains of 'pillars', vestiges of the cave's south wall—and the 'Roc-aux-Sorciers' could be one of these. The breadth of the collapsed roof is quantified by the distribution of the blocks which occupy almost the whole space between the cliff and the Anglin. The shelter's total depth, which can be estimated from the dimensions of each of the collapsed blocks, could be between 5 and 10 metres. The presence of sculptures at the base of several blocks, in the Taillebourg Cave, proves that they formed a 'roof' during the prehistoric occupation. All these elements make it possible to envisage the existence, in the Magdalenian, of an enormous natural rockshelter covering the site, with a minimum surface area of a hundred square metres. This vast shelter included the present-day

Abri Bourdois and Taillebourg Cave in one single site. This hypothesis can be verified by the investigation of the 'underneath part' of the collapsed blocks, in order to specify the breadth of the ancient roof's decorated surface (Rouzaud and Le Guillou 1993).

THE SCULPTED FRIEZE DISCOVERED *IN SITU*

The sculpted, engraved and painted frieze, preserved *in situ*, extends for more than 18 m in length and 2.5 m in height. It comprises several themes, such as bison, horses, ibex, female figures, and human profiles. An assemblage of such quality and such breadth is extremely rare and exceptional for the European Upper Palaeolithic: less than ten caves and shelters contain such monumental sculpted figures.

In the abri Bourdois, the sculpted parietal figures are not distributed at random. The south-facing frieze, sculpted in a stable band of fine-grained limestone, and generally well-preserved, is in full daylight and visually forms a single unit. It is laid out in a continuous fashion in two horizontal registers, the main one being aligned just below the ceiling line (Fig. 12.4). This unity is linked to the shelter's geomorphological aspect. Those figures which remain in place are laid out within the site under the part of the encasing rock which rises above the shelter. Some vestiges of sculptures reveal that, during the Magdalenian, other figures were made upstream of the shelter, beyond the present ceiling, but were purposely destroyed by prehistoric man.

The unity is also seen in the spatial configuration of the figures which follow each other in a line. Most of them are drawn in right-facing profile, which emphasizes the sense of movement, especially along the upper register. There are regular breaks in the frieze formed by the natural vertical groins. So the entire composition of the frieze is organized, panel by panel, according to very precise rules. Each sculpted composition—or panel—was demarcated, in accordance with the site's topography on the one hand, and the figurative themes on the other. The frieze certainly follows the rhythm of the wall's natural shapes, that is, the vertical groins formed by natural angular reliefs on which the Magdalenians sculpted rings (Fig. 12.5). Moreover, the thematic organization of the figures supports the breakdown of the whole frieze into panels. The wall has a succession of figurative and non-figurative zones or fault zones. Among the figurative zones, eight panels currently display figurative elements with—from downstream to upstream—a couple of bison, a horse turning its head, a horse lowering its head, a recumbent bison, three women associated with two bison, and an assemblage of ibex distributed in two registers and three panels. The coherence of each of the panels is



Fig. 12.4. The sculpted frieze of the abri Bourdois still in place

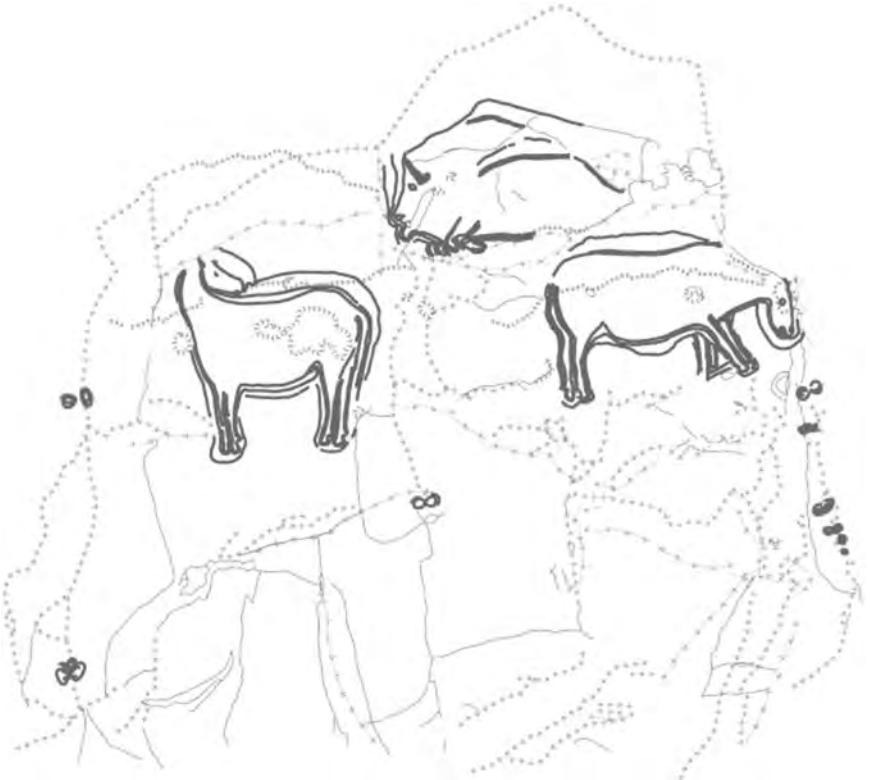


Fig. 12.5. Abri Bourdois: panels of the horses and the recumbent bison

reinforced by the depiction and proportions of the subjects it contains. For example, the bison are all represented in light relief, at one-third natural size, and the ibex are depicted in haut-relief and life-size (Pl. 14).

The layout of the parietal figures that are currently visible in the abri Bourdois is strongly influenced by the wall's linear morphology. The figures sculpted by the Magdalenians are juxtaposed and laid out in accordance with the shelter's general longitudinal axis. In other respects, the irregularities in the rock were used as framing lines for the placing of the figures. The sculptors materialized these frames on the vertical plane by means of the rings, and thus delimited the figurative panels. Hence, we can observe a perfect adaptation of the organization of the figures relative to the wall's morphology, which lent itself very well to sculpture—the frieze appears at the back of the shelter in its entirety.

However, in this part of the site, decorated blocks were found in the excavations which bear rings and which are, for the most part, finely engraved and painted. A major event in the study campaign of 2004 was an exceptional refitting made at the site by E. Desroches, the restorer. This refitting brought together two enormous blocks, thanks to a little block that could be inserted between them. One of them bears the finely engraved forequarters of a bison and a red grid motif superimposed on the depiction, while the other is covered with traces of red paintings. It had not been possible to study it earlier because of its bad state of conservation. Once they had been rejoined, the assembled blocks displayed a broad surface with some peculiarities: a painted and finely engraved surface that was very hardened; a flat lower fracture surface that was also covered with concretions; and a constant width in the rejoined blocks, which may perhaps be compared with the width of a band of collapsed limestone in the ceiling of the abri Bourdois. These observations make the restorers inclined to believe that the blocks may come from the ceiling of the abri Bourdois. In order to be able to confirm or disprove this hypothesis, a study of the fracture-surfaces and a cartography of the fracture shapes in the shelter's ceiling are currently under way.

The presence of a ceiling bearing fine engravings in the abri Bourdois would lead us to new questions about the organization of the figures, this time engraved and painted, about their lighting conditions, and hence their readability and their relationship with the sculpted frieze.

THE CEILING OF THE *TAILLEBOURG CAVE*

In 1929, L. Rousseau announced his discovery of a new site in the Vienne at Angles-sur-l'Anglin (Rousseau 1933: 4). At the time, the site was called 'Cave à



Fig. 12.6. Example of a plan recording the blocks fallen from the ceiling of the Cave Taillebourg during the excavation by S. de Saint-Mathurin

Lucien Jacob' (the name of an early owner of the land) but is now known as the 'cave Taillebourg'. This part of the site of the Roc-aux-Sorciers also faces directly south. Rousseau described the collapsed pieces of limestone detached from the cliff. The archaeological deposit that he unearthed had an average thickness of 0.5 to 0.8 m and, in his view, corresponded to a homogeneous layer dating to the Magdalenian. It was covered with sterile debris, 1.5 to 1.8 m thick on average. He noted the disturbance of the layer during his excavations of the terrace in front of the cave, that is to say, in front of the cliff's current overhang.

In 1949, S. de Saint-Mathurin's aim in her summer excavation campaign was 'to unblock the next part of the shelter which was filled to the ceiling by a massive amount of rubble that covered the surface of the archaeological layer' (Saint-Mathurin 1950: 124). It was then that she noticed, on the shelter's ceiling, a bison in relief associated with deteriorated sculptures. She unearthed 'a very great number of sculpted fragments of all sizes, and their position indicated that they had become detached from the ceiling and the wall in different periods, since certain fragments were lying in the Magdalenian layer' (1950: 124). The ceiling of the Taillebourg Cave is currently being 'reconstituted' (Fig. 12.6), since the position of a large number of its blocks was recorded in different planes by S. de Saint-Mathurin and D. Garrod.

When she resumed excavations at this location, S. de Saint-Mathurin observed that the blocks were superimposed without any rubble between them, a



Fig. 12.7. Large rubble encountered during the excavation of the Taillebourg Cave

sign of a sudden fall, and saw no traces of weathering through frost action. She deduced that this fall was probably linked to a collapse of the fault zone, detaching it from the cliff where infiltrations had diminished its adhesion to the limestone mass (Fig. 12.7).² This collapse sealed in the Middle Magdalenian layers. In the Taillebourg Cave, the layers are upended and highly disturbed, in contrast to those of the abri Bourdois whose stratigraphy is clearer.

For S. de Saint-Mathurin who, for this sector, spoke of a ‘collapsed frieze’ (1951: 419), the distribution of the sculptures was laid out in three rows in tiers: ‘We had to recognize that three rows of sculptures had originally existed, but the

² These levels were ‘surmounted by a major scree, formed at the expense of the encasing rock, which passes to the other side of the talus to a collapse of big blocks from the cornice, up to 3.5 m thick. . . . It was beneath this detritic material that the sculpted fragments of wall and ceiling were found, which had been the first to undergo the effects of the phenomena of frost action and, as was recognized by Mlle Alimen, of dislocation’ (Saint-Mathurin and Garrod 1951: 415).

third was very damaged' (1950: 124). By systematically exploring the wall, despite its poor state of conservation, we have discovered several vestiges of sculpture on the ceiling. Under the bison found *in situ*, S. de Saint-Mathurin unearthed sculptures, especially of horses, which had 'remained in a vertical position, but [which] no longer adhered to the wall thanks to the collapse' (1988: 45). This observation poses the question of the extent of the wall worked by the Magdalenians and hence of the surface and morphology of the wall that need to be considered when trying to understand the distribution of this sector's parietal art.

Imposing Fragments of the Ceiling

For the moment, the projection of the ceiling, in its present state, cannot be estimated in any exact way. However, in front of the foot of the cliff there is a big rock fragment which forms a rampart dominating the Anglin. This block constitutes a major surface of the ceiling that needs to be recomposed virtually. Its provenance can be discovered by studying the path of its fall. Its weight was so great that one cannot envisage a fall involving much movement in relation to its point of origin. The analysis of its movement makes it possible to orientate on the ceiling the figures that have been found. The three subjects identified are in a line, and depicted with their legs turned towards the interior of the cave. Through its size—i.e. 6 m width on the ceiling by more than 2 m in projection—this block alone represents a piece of the sculpted ceiling that measures about 12 m².

Another block, given the number F45 by S. de Saint-Mathurin, which had remained at the site, has two types of limestone bands in its material—one of them is particularly rich in fossils, the other is more compact. This very same phenomenon can be seen on the ceiling where one sees these two limestone bands in place. This morpho-geological clue also makes it possible to define the block's original orientation, and thus gives us a guide as to which way up the figures should be seen. They were orientated with their legs towards the interior, like those on the blocks mentioned above and the bison that is still *in situ* (Fig. 12.8).

Located in the furthest downstream part of the Taillebourg Cave, this block (F45) measures 1.56 m in length by 0.55 m in height. It was recorded on an excavation plan. From left to right we can make out the back end of an animal in left profile. Its dorsal line is fractured, as is its tail. This is a sharp-edged bas-relief sculpture with a major removal of raw material. Through its proportions, it recalls the bison or ibex figures of the cave Taillebourg. Further to the right, a fractured ring is visible. Just above, some vestiges of broad, deep and pecked engravings appear. They look like two hooves. A third of the same type can be detected a few dozen centimetres further to the right on the same level as the first, and could be associated as the remains of a third hoof of the same

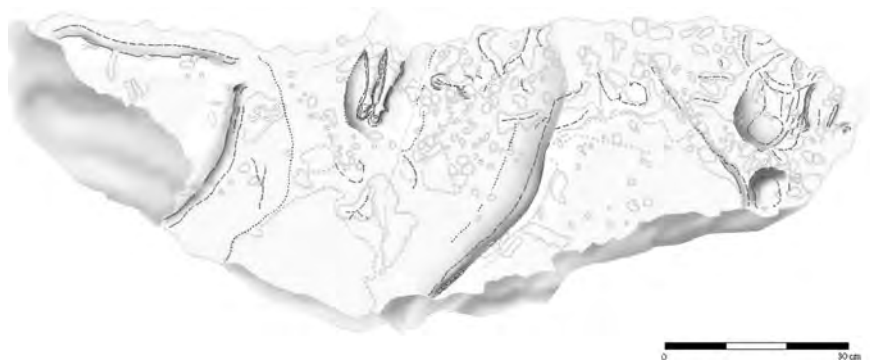


Fig. 12.8. Block F45 of the Taillebourg Cave

animal depicted in right profile. Above, with a highly scraped, broad, and deep removal of material, two legs in left profile are sculpted. They are two legs with cloven hoofs, and with the ergot and the curve of the calf clearly depicted. This again is a sharp-edged bas-relief sculpture. These fractured legs could belong to a bison or an ibex. Just to the right, on the same level, two deep cupmarks meet. Finally, even further to the right, an imposing volume sculpted in bas-relief forms a kind of animal rump seen in left profile, and inclined to the left in relation to the block's present position. What seems to correspond to the back of the left thigh has been strongly flattened by scraping. A big complete ring has been made juxtaposed to it. The bridge, still intact, is 3 cm wide. Associated with this ring, and juxtaposed to the right, there are some highly deteriorated and fractured legs, probably of a horse given the curve of the hoof. The animal is also in left profile. One can read the details of the hoof, the ergot, and the leg. An elongated vestige of the leg associated with it is located just to its right, but unfortunately is partly destroyed.

This block has anthropic vestiges over its whole surface, which corresponds to a major area of ceiling. The rings are not all orientated on the same axis, in contrast to those on the ceiling which are still *in situ*.

The Sculpted Bison Remaining *in situ* on the Ceiling of the Taillebourg Cave

On the ceiling, the most readable part is that where the bison is located. It was discovered on 30 June 1949 and was fully unearthed on 6 July. This was the first evidence of parietal art at Angles. It is located above locus VII, excavated by S. de Saint-Mathurin, in which several blocks were discovered that can be compared with this bison. These blocks, which can in part be refitted, bear bison depictions (Fig. 12.6).

The fractures affecting the bison's back and hindquarters and the space around its forequarters are mostly ancient. One can also see here the boundary between a band of grainy limestone (rich in fossils) and the other, more homogeneous limestone band. These two limestone bands are horizontal and superimposed. The band which is the more gritty and hence the less well preserved is at the upper level. The more compact band is lower, at the level of the bison's trunk and its legs. Some recent flaking and erosion make the whitish rock visible in places (for example, at the level of the chignon). Thick calcite covers the beard and the forequarters. The animal is walking, and seen in left profile, with its legs orientated towards the interior of the cave. It is sculpted in sharp-edged bas-relief, with a major removal of material around its head (11 cm) and rump (14 cm). Its volume has a thickness of about 3 cm on average. There is some shaping at the level of the shoulder and cheek which only a very oblique light can bring out. The head is complete and very detailed (Figure 12.9). The forehead has deteriorated. The eye is almond-shaped, and its pupil and brow ridge are in relief. The ear is oval with one edge in relief. Some small and very fine incisions are visible on the ear. The left horn has a double curve, in relief, and point forwards; its extremity is broken. The horn's inner edge follows the outline of a ring carved at the level of the animal's forehead. The right horn is sketched behind and beyond the forehead. The bun of hair is particularly brought out in relief. Its shape is elongated, which is enhanced by the relief line that evokes the volume of the tuft of hairs at this spot. A geometric decoration is used as the fill for this surface that is delineated in relief. This relief is marked by a pecked line and continuous scraping. The fill of this volume comprises deep and broad oblique striations. The pecking continues at the level of the hump and thus forms a volume. Geometric stylization is common at Angles and belongs to the Angles 'style'.

The muzzle is largely broken, but is still clearly visible, with a fragment of relief belonging to the left nostril. The hollow of the nostril is drawn with a comma shape, and a fragment of the upper lip is also still readable. The beard is broken. It seems that another sculpture cut into this anatomical part. The dewlap is rendered in relief by a horizontal band edged in volume. The fold of the chest is geometrical, being almond-shaped. A recent line marks another stylized shape superimposed on the dewlap. This use of geometric shapes has already been observed on the ibexes of the abri Bourdois and the bison of the Taillebourg Cave. The legs are drawn with details. The left fore leg has its shoulder modelled in relief. It is displaced backward in relation to the right fore leg which is further forward. On each of them, an incised line marks the muscle. The right fore leg was destroyed at the level of the hoof by an insistent, humanly made pecking. The same applies to the left fore leg, where part of the hoof and the ergot were spared. This human intervention denotes some recarving at this spot—and indeed, nearby, a dorsal line marks the position of a sculpture for which raw material

had to be removed, and this therefore led to the partial destruction of the bison's fore legs. The belly line is in relief. A recent flaking has affected the belly's volume. The attachment of the phallus is a geometric shape, emphasized by a broad engraving associated with its relief. The right hind leg is complete with the detail of the cloven hoof which bears some black colour. A line is incised on the bend of the knee. The left hind leg has suffered more, and its hoof is broken. Moreover, a ring was sculpted on this leg, using its volume. It too is broken. The line of the buttock is very straight, and may have been recarved, because a big ring was made on the thigh, using the volume of the animal's relief. This ring is intact. This posterior part of the animal gives us a peculiar image of hindquarters—one has the impression that a triangular head was carved here.

Fragments of the bison's dorsal line can be traced. At the edge of the damaged area on the hump, some red dots are visible. Colour occurs in several places on this figure: black is distributed on the hoof and the phallus, with red on the animal's hump.

Some engraved elements are also superimposed on the bison. In particular, two parallel elongated shapes, irregularly drawn, are engraved on the bison's flank.

It bears two large intact rings and a broken one. The one on the forehead is intact, on an east–west axis, but the bridge is eroded. The second, on the rump, is also intact and large. It too is orientated east–west, as is the last ring which is broken. All the rings still in place on the ceiling of the Taillebourg Cave are orientated east–west. Their distribution is interesting to observe. They are associated with the bison and are large, because they are sculpted not on natural rock groins as in the abri Bourdois but on the ceiling on which the only usable groins were those made by the animal reliefs. It seems that this context forced them to make bigger rings here. Their distribution on the ceiling divides up the space into regular segments on a north–south axis.

In order to study the effects of lighting on the ceiling figures, especially on the bison remaining in place, we carried out a three-dimensional laser recording which then enables one to simulate the moving of various light sources. This animation with lighting is particularly interesting in the case of the sculptures at Angles-sur-l'Anglin. The simulation of a lighting from right to left of the sculpture, that is, from upstream to downstream, or east–west—since the site faces directly south—corresponds to natural sunlight, and makes it possible to assess the effects of diurnal light on the sculpted ceiling (Fig. 12.10).

Close to the bison, further downstream, but in the same alignment, some sculpted elements are still clearly detectable. There is a fragment of sculpture which also bears a big ring orientated east–west—its maximal width of 15 cm, and it was sculpted on the edge of a sharp-edged bas relief. The whole surface of this vestige of relief is covered with very fine but very eroded engravings. A fragment of a band in relief with an infill of oblique hatchings has also been preserved.



Fig. 12.9. Detail of the head of the bison sculpted on the ceiling of the Taillebourg Cave still *in situ*



Fig. 12.10. Bison *in situ* on the ceiling of the Taillebourg Cave: 3D simulation

The blocks and vestiges of sculpture that are still in place certainly have their individual interest, but they take on their full meaning when they can be refitted and hence the jigsaw can be put back together. This work opens up new perspectives for the reading of the figures, their positioning in relation to each other, and a comprehension of the parietal assemblage in this site which associates a parietal ceiling art with a vertical-wall art.

Hitherto, the blocks had been occasionally refitted at the time of the excavations (S. de Saint-Mathurin), when the inventory was drawn up at the time when the objects were sent off to the Musée des Antiquités Nationales, and then sporadically in the course of research work and the restoration work carried out by Emmanuel Desroches. These refittings rely on the texture and colour of the stone, the graphism, and the topographic location of the blocks in the excavation:

Ideally, in order to complete the jigsaw correctly, one should be able to assemble all the fragments in the same place. This place should be vast (so as to have areas for storage, jigsaw areas, and aisles for wooden palettes or people, for spreading out fragments on tables, for arranging space for a lifting device (gantry), and extremely well lit (preferably with natural light), and provided with a solid floor (stone slabs). It is only in such conditions that the jigsaw could be exhaustive. (Desroches 2004)

So one can understand the great usefulness of digital models of all of the blocks, and their restoration at reduced size (Fig. 12.11). The work on the blocks is a major enterprise, given the number of items to be taken into consideration. The use of new technologies is fundamental, not only in view of the handling of this great number of elements, but also and especially in order to achieve the virtual reconstruction of the morphology of the Taillebourg Cave with its sculpted, engraved, and painted ceiling and shelter-wall.

The study of each block, one by one, is a first approach that is unavoidable, and already several refittings have been carried out manually. The reconstruction of the ceiling is fundamental for understanding the organization of the figures between themselves, the techniques and the role of the rings, which are also very numerous; their role in relation to the organization of the figures does not appear as clear as in the abri Bourdois where they affect vertical rock groins which are fairly regularly spaced across the wall.

However, it seems that the ceiling of the Taillebourg Cave was, over a continuous and relatively broad surface, entirely worked by the Magdalenians. The sculptures were certainly produced continuously, at least from the topographic point of view. There are no empty zones, that is, zones where the rock surface remained natural. This continuity follows on from the frieze in the abri Bourdois.

The exploration of the entire ceiling deserves to be undertaken, because it has turned out that many traces of sculptures are still visible, and could serve as reference points for the virtual reconstruction of the blocks from the ceiling

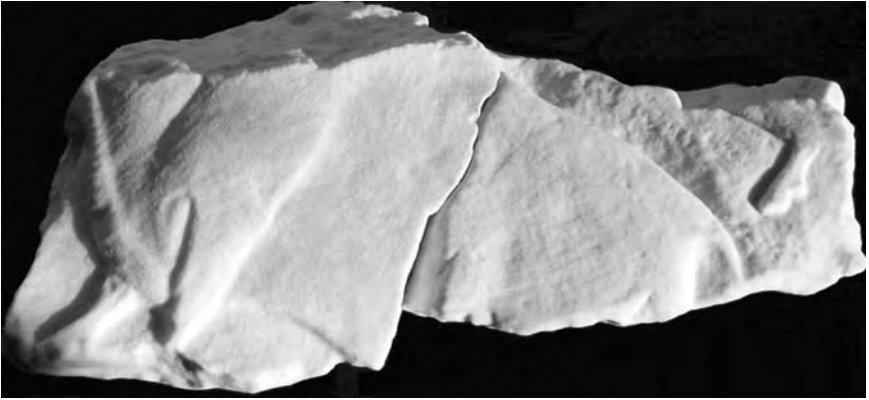


Fig. 12.11. Reassemblage of the 3D impressions of blocks 5P6 and 13P8 discovered in the Cave Taillebourg

of the Taillebourg Cave, but the bad state of preservation of some blocks and of the ceiling in the Taillebourg Cave has not made it possible so far to make progress along these lines. A good readability of the ceiling would enable us to find clues that would make it possible to differentiate the sculpted zones from the broken (collapsed) zones, and hence facilitate refittings on the ceiling. The clearly individualizable geomorphological unity can only be tackled in a fragmentary way in the Taillebourg Cave. The distribution of the figures and thus of the themes, as well as that of the rings, does not enable us to see if the space is partitioned, if different registers and different panels are discernible. Does a ceiling offer greater freedom in the organization of figures? Does the artist have more freedom of movement there than at the back of a rockshelter?

At Angles-sur-l'Anglin, the result of these observations which essentially concern the ceiling of the Taillebourg Cave is that the artistic coherence of the assemblage has become apparent. The ceiling of the Taillebourg Cave must have been of major extent, given the vestiges that we can still see in place and which enable us to evaluate the habitable and especially the decorated space. The whole of the site needs to be considered as a single unit, despite a topography and especially a relative positioning of the figures that is still fragile in this part of the site where one can already discern a juxtaposition of subjects and redundant orientations, such as the legs of the depicted figures being turned towards the interior of the cave. It should be recalled that, in several sites, the fragility of the walls exposed to the exterior which were never covered by any archaeological fill, probably deprives us of numerous figures made in the open-air in full daylight. It was the collapse and burial of the ceiling of the Taillebourg Cave which, in a way, ensured its preservation.

The topography of the figures and their relative organization reveal artistic choices. A. Leroi-Gourhan saw that in deep caves graphic entities were located in a central composition; and also in peripheral compositions, or in entrances, passages or the far ends. In rockshelters or on the entrance porches of occupied caves, other criteria need to be taken into consideration, such as the lighting conditions which, for sculptures, are indispensable for their readability. The passage from light to darkness seems to have been, for Palaeolithic people, the symbol of the passage from one world to another. However, we should bear in mind, as stipulated by M. Lorblanchet in his article on open-air art in the Palaeolithic, 'neither the criterion of location, nor the association or isolation in relation to dwellings, is sufficient to characterize an art as sacred or to eliminate the idea of the sacred' (Lorblanchet 2002: 104–5). The Roc-aux-Sorciers is one of the rare sites discovered in its archaeological context which makes it possible to approach this relationship between the life of Palaeolithic man, and parietal and mobiliary art. The Creswellian site of Church Hole joins it today, with the discovery of its decorated ceiling.

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Dating Magdalenian Art in North Spain: The Current Situation

César González Sainz

INTRODUCTION

The graphic activity of Magdalenian human groups forms the most spectacular part of the archaeological record in Cantabrian Spain and, at the same time, represents probably the most expressive aspect of the culture of those Upper Palaeolithic hunters. Since the early 1990s, several projects have tried to fix more precisely the chronology of the cave art through the application of radiocarbon dating by Accelerator Mass Spectrometry (Valladas *et al.* 1992, 2001; Moure Romanillo and González Sainz 2000; Fortea Pérez 2002). The present article attempts an integrated discussion of the results of the absolute chronology for Magdalenian cave art and the present situation of the most reliable parallels between this and the mobile art of the same period.

CHRONOLOGICAL CONTEXT

It is well known that the ordering in time of cave art is rather more complex than that of decorated objects, which are dated by their archaeological context (and therefore both this context and the artefacts themselves can be dated by radiocarbon). In Cantabrian Spain, the approaches to dating cave art, especially for the Magdalenian depictions, are the series of superimpositions known on certain walls of a few caves, the analogy with stratified mobile art, and absolute dating, essentially for this period, radiocarbon dating by accelerator. Other procedures, such as the correlation with stratigraphic sequences, offer good results in pre-Magdalenian periods (Fortea 1994), but are limited in the period

that interests us here to just a few cases, such as Cueva del Mirón, in relation with some rather modest depictions (González Morales and Straus, 2000).

1. Series of superimposed figures of different kinds have often been described, on panels in a limited number of cave sites. In Cantabrian Spain, the main examples are found in the caves of La Peña del Candamo, Tito Bustillo, Llonín, Altamira, El Castillo, La Pasiega, and La Garma Lower Passage—in other words, the main cave art centres, repeatedly used over long periods in the Upper Palaeolithic. These sites tend to differ quite clearly from the other cave art sites, which are more or less synchronic internally (they have a much lower number of depictions which, above all, are more homogeneous in style and techniques). The more complex centres referred to above may have been true points of reference for the Palaeolithic populations, especially in the later phases of the Upper Palaeolithic that interest us here.

2. The analogy with mobile art is the part of the procedure for ‘stylistic’ chronological ordering that is most acceptable at present. As well as the comparison, in both kinds of art, of technical procedures, themes and iconography, perspective, formulas of animation, treatment of the bodies, etc., the most fertile approach, in order to establish chronological inferences, is the comparison of motifs that are identical (except in their size) in both art-forms. These motifs are defined as the same theme represented with a determined formal and technical treatment, and in second place, as normalized motifs, frequently reproduced in several different sites.

I shall now explain in greater detail the two clearest and most effective cases for establishing cave art chronology, bringing up to date an earlier discussion (González Sainz 1993).

Hinds’ Heads

Naturalistic, and at the same time, highly simplified figures representing hinds’ heads, with striated bands in their chins and necks, are commonly found on flat mobile surfaces (until now, only on scapulae). The aim is not to date the technical procedure of striation, which is known in several regions in the Iberian Peninsula from the Solutrean (and it can currently be expected from even earlier periods) to the end of the cycle of Palaeolithic cave art. Rather, it is to date this particular motif, especially adapted to flat surfaces and reproduced assiduously in several sites in the centre of Cantabrian Spain.

In their mobiliary version, these conventional engravings of hinds and, more rarely, stags have been discovered on scapulae from early Magdalenian levels in Altamira—the doubt about their stratigraphic position was adequately cleared



Fig. 13.1. Distribution map of figures of hinds with striated bands on their heads and chests, both on cave walls and on scapulae

up with the dating of one of them (GifA-900057: $14,480 \pm 250$ BP Valladas *et al.* 1992), El Castillo (level 8), El Cierro ('Magdalenian' level), El Juyo (level 8), El Mirón (level OV-17)—and without stratigraphic context in El Pendo. The relatively abundant data coincide in situating the development of these engravings in the early Magdalenian, with direct dates for one of the Altamira scapulae, as mentioned above, or dates of association (the level OV-17 in El Mirón is dated to between $15,700 \pm 190$ and $14,550 \pm 160$ BP, while level 8 in El Juyo is situated between the dates available for level 11, $15,300 \pm 700$, and for level 7, $14,440 \pm 180$ BP) which are clearly coherent.

In its parietal version, this motif is located in at least seven cave sites, and in interior contexts of different types. It is sometimes found, grouped in specific chambers or walls, separated from the rest of the decorated zones; hence, concentrations of these engravings of hinds and stags with the typical striations are seen in Zones IV and X in Altamira, in Sector B7 in La Pasiega, and more occasionally in B5, on the right-hand walls of the 'Main Hall' in El Castillo, prolonged in the walls of the passage leading to the 'Second Hall' in the cave, as well as in the chambers 1c and 1f in the La Garma Lower Passage. In other cases they are on walls with more complex accumulations of figures, where the hinds appear over or beneath other depictions (Chamber I in Altamira, main wall in Zone X in Tito Bustillo, walls in Sector C3 of La Pasiega, and the start of the 'Gallery of the Hands' in El Castillo). This same motif was also produced in other caves with a smaller number of figures, such as Los Emboscados, Las Aguas, and Cobrante.

There is a notable geographical coherence to the distribution of the motif in its cave and mobiliary versions—located so far in the central part of Cantabrian Spain. In a less restrictive consideration of the motif, it can be assimilated with cave figures that are similar in their technical aspects, and found in the whole

area, from La Peña de Candamo to Alkerdi; but the chronological precision of the parallel is reduced at the same time as we relax the definition of the motif. In fact, as alluded to above, the technique of striation can be supposed to have a much longer chronology in the region than that of the motif being studied.

Ibex

The highly schematic figures of ibex viewed from the front or, although more unusual and occasionally of doubtful interpretation in Cantabrian Spain, of female figures seen in profile (of the Gönnersdorf-Lalinde type), can be identified in their mobiliary version from levels of the middle Magdalenian period, but become especially frequent in the late and final Magdalenian (between 13,300/13,200 and 11,600 BP). Unlike the previous motif, the geographical distribution of these schematic figures goes far beyond the regional boundaries, both in their mobiliary and cave versions, and they are much more polarized towards portable objects, with very few examples on cave walls in the region (the clearest figures are schematic ibex seen from the front, in the caves of El Otero and Ekain).

The identification of other motifs on both kinds of surfaces is more problematic, as they are not so common, with a smaller degree of normalization. So the identification of these motifs in both versions is more controversial. I am referring, for example, to lines on mobiliary artefacts and the 'tectiforms' (a term which, to be exact, should be discarded in Cantabrian Spain, see González Sainz 1993) on cave walls, or equally, to the combinations of longitudinal and oblique lines, and scaliform or ladder-like compositions, etc.

Direct Dating

In recent years, radiocarbon dating has been applied to a large number of decorated artefacts and cave art (about a hundred dates are now available, including non-figurative charcoal marks, in many cases of medieval chronology). Although dating parietal art has its problems, and is much more complex than was expected in the period between 1992 and 1997 when the technique was first applied in Cantabrian Spain (Moure *et al.* 1996; Fortea 2002), the procedure has provided a large series of dates, many of which are perfectly acceptable. They therefore give greater precision and consistency to the scheme of chronological ordering for this graphic activity in the region during the Magdalenian. At least, despite a few problems which have not been solved, the dates obtained in cave centres like Covaciella, Altamira, Castillo, La Pasiega, Las Monedas, and La Garma Lower Passage match their expected results

based on the style of the figures; and other dates for certain figures of more recent phases in La Peña de Candamo and even Llonín are also very useful.

In contrast, there are greater problems with the assessment of the dates obtained in El Buxu, Pindal, Tito Bustillo, Sotarriza, Santimamiñe, and Ekain. In many cases, the dates for these sites not only contrast with what was expected from the style of the art, but they are also contradictory among themselves (for the same figure, for figures in the same, apparently synchronic group and, in some cases, for results from the same original sample, divided in the laboratory). In compositions that are apparently synchronic, such as the horses and reindeer in Chamber X in Tito Bustillo, there are noticeable differences between the dates obtained from different laboratories, for figures in the same group. It should be pointed out that, among the dates that are difficult to accept, obtained for figures whose style indicates a Magdalenian chronology, the results are systematically more recent, or later than 11,500 BP (which suggests that there is not enough monitoring for contamination by recent carbon), and the dates are never doubtful because they are too old (more than 17,000 BP). The results from Cueva de las Chimeneas, which we also consider doubtful, were the object of another discussion (Moure *et al.* 1996: 317–20).

We will now attempt to assess the available ^{14}C -AMS dates for Magdalenian cave art, organized according to the most important phases for the period in the region. The discussion is centred on the cave sites with the less problematic dates, although we will also refer to the others. We use the dates in uncalibrated BP chronology (see Weninger *et al.* 2004, for the dates calibrated with the CalPal-2004 curve).

Older Magdalenian (initial and early: 17,000–16,000, to 14,400–14,200 BP)

Radiocarbon dates attribute to this period some very different kinds of cave art, in the caves of Peña de Candamo, Altamira, and El Castillo. In the first of these, as well as colour stains and black lines (GifA-98193: $16,470 \pm 280$ BP) and some repainting of much older figures, we can consider some animal figures, drawn in black and engraved, such as one of the large aurochs in the Wall of the Engravings, with two contradictory results. One, of charcoal, is very recent (GifA-96137: $10,810 \pm 100$ BP), contrasting with the date for the acid-humic fraction, which sends the figure back to the Solutrean-Magdalenian transition (GifA-96150: $17,180 \pm 310$ BP).

Another figure that is situated in the very early Magdalenian, or even in the Solutrean, is a horse, outlined in black and facing right, of which now only the cervical-dorsal line, croup, anterior part of a rear leg, and a convex belly can be seen; in Cueva de El Castillo (Gallery of the Hands, no. 27/28 in the 1911

publication). It has two dates, whose standard deviations do not overlap (GifA-98153: $16,980 \pm 180$ and GifA-98154: $19,140 \pm 230$ BP). The same cave has the slightly more recent figure of an isolated ibex in the main passage (no. 56 in 1911, on the left-hand wall in the passage between the Second and Third Chamber, with two dates: GifA-98155: $13,900 \pm 130$ and GifA-98156: $14,740 \pm 140$ BP) (Pl. 15).

Most of the radiocarbon information for the old Magdalenian comes from Altamira, where a series of dates ranging between 16,500 and 14,500 have been obtained for the 'Black Series' (as named by Leroi-Gourhan 1965)—drawings of animals and signs in black in different areas of the interior of the cave. These match the chronology of the occupations of the site during the Magdalenian (which does not imply that all the decoration in the cave is of Magdalenian age, as has occasionally been suggested). These paintings are: a series of black non-figurative lines ($16,480 \pm 210$), a group of quadrilateral signs in the first part of the final passage 'The Horse's Tail', or Zone IX ($15,440 \pm 200$), a hind's head in Chamber VI ($15,050 \pm 180$), and a black line cut by the striated engraving of a hind in Chamber IV ($14,650 \pm 140$).

Finally, several samples have been taken from the principal figures on the ceiling of Chamber I in Altamira: three figures of bison, numbered XXXIII, XXXVI, and XLIV in the 1935 monograph. The first two are large polychrome paintings, and the third a smaller bison only painted in black. Owing to differences between the results for charcoal and the acid-humic fraction (which, contrary to what was expected, is older in many cases; see a full discussion in Moure *et al.* 1996: 301), the chronology cannot be assessed precisely, but the dates do allow a general approximation. In my opinion, there are two possibilities:

(a) Considering all the dates and assuming that the acid-humic fraction dates should be similar or slightly more recent than the charcoal ones. The entire group of animal figures on the left of the chamber could be synchronic, and produced some time between 14,820 and 14,250 BP, towards the end of the early Magdalenian.

(b) If we consider the charcoal dates, and not the acid-humic fraction ones, there could be a difference in time between the production of the large polychrome animals (bison XXXIII and XXXVI) and the other smaller figures only painted in black (bison XLIV). The former would have been painted between 14,820 and 13,940 BP, with a mean—which could give a guideline—for the four dates of 14,472 BP. In contrast, the bison XLIV (and another very similar one facing it) would have been added to the composition of polychromes, filling in a gap between the large bison, and maintaining the spirit of the composition, in 13,570 or 13,130 BP, now in a late moment of the middle Magdalenian, and

when the cave vestibule, as far as we know, was no longer occupied as a habitation site.

In any case, the time when at least the polychrome figures, and possibly all the large figures in the composition were painted, corresponds to the end of the early Magdalenian, and is frankly difficult to separate from that of other figures with very similar dates, but more clearly assignable to the middle Magdalenian, in Covaciella, Llonín, El Castillo, Pasiega C, or La Garma Lower Passage. In fact, the calibration of the dates tends to make it even more difficult to separate the large composition in Altamira from the cave art dated to the middle Magdalenian, as has often been argued from the stylistic point of view.

Middle Magdalenian

A large number of dates for black paintings are concentrated in this period, with a chronology of 14,400/14,200 to 13,300/13,200 BP in Cantabrian Spain. Out of the Asturian sites, the results from Covaciella are particularly coherent, with dates for charcoal and the acid-humic fraction for two bison (Fortea *et al.* 1995: 268) indicating an age at the start of the middle Magdalenian, between 14,260 and 14,060 BP. This agrees with the stylistic coherence for the whole composition. In the same way, some of the engraved and black figures on the Wall of the Engravings in La Peña de Candamo correspond to a very similar moment. One of the best known figures in the group, a wounded stag with its head raised, apparently roaring, was dated to $13,870 \pm 120$ BP (GifA-98172).

The results from the Main Panel in Cueva de Llonín are more difficult to assess. But it seems reasonable to assume a middle, or possibly late, Magdalenian chronology for one of the bison in the cave (no. 4, samples LL-4 and LL-28) of a clear Magdalenian style. According to the logic of the dates, the older result is more probable (GifA-98205: $13,540 \pm 170$ BP), taking into account the acid-humic fraction (GifA-98206: $13,260 \pm 220$ BP), than other samples which offered results that are much more recent and difficult to accept.

In the centre of the region, several sites contain figures, in nearly all cases bison, corresponding to this period. I have already mentioned the possibility (arising if we only consider the charcoal dates) that some small bison were added to the composition of polychromes in Altamira during the middle Magdalenian, around 13,570 or 13,130 BP. The assessment of results from the caves of El Castillo and La Pasiega (Gallery C), both in Puente Viesgo, is also relatively complex. As many as fourteen dates were obtained in El Castillo for four bison located on what Alcalde del Río, Breuil, and Sierra called 'The Frieze of Polychromes' in 1911. In fact, these figures are not polychromes nor are they positioned in a single frieze. One of them (bison 19, in 1911; painted in black and

without engraving) is isolated on the left, while another two (18a and 18b), closely juxtaposed, larger and more complex, are superimposed on older figures in the same panel (negative handprints, signs, hinds...). A fourth bison (18c) is placed on a separate wall to the right of the others. It is the most complex, technically speaking, not only drawn in black and engraved but also with ochre-brown pigment added in the upper part of the body.

The assessment of the results at the present time (with ten dates that were not available at the time of the previous study, by Moure *et al.* 1996: 307) still supports the idea proposed before: the probable differentiation of their production in two moments. The smaller bison 19 was painted near the end of the middle Magdalenian, between 14,090 and 13,510 BP, while the other two central figures were produced later and possibly at the same time (as suggested by their greater technical and stylistic homogeneity and their juxtaposed position), probably about 13,000 or 12,900 (the mean of the three dates for figure 18a is 13,066 BP, very close to the date for 18b of $12,910 \pm 180$ BP). They correspond therefore to the start of the late Magdalenian. Lastly, the bichrome bison on the right has given four dates for charcoal that are too recent (all later than 11,300 BP, that is, at a time when no figurative mobiliary art has been found in any of the numerous sites dug in the region, in the Azilian period). Only the date for the acid-humic fraction (GifA-95375: $12,390 \pm 190$ BP) could indicate the moment of the addition of this bison, in the late-final Magdalenian, to the figures that had already been painted, although its synchronicity with the pair of bison 18a–18b cannot be ruled out.

Four dates were obtained for two figures in Gallery C in Cueva de La Pasiega: the ibex (67 on the 1913 plan; sector C8 in Balbín and González Sainz's revision) and bison (88 in 1913; sector C7) (Fig. 13.2). The two dates of the former figure are quite coherent and situate the production of this ibex figure (and probably the surrounding figures, very similar from a technical, stylistic and compositional point of view) at the start of the middle Magdalenian. Most of the sample was taken from a hole in the cave wall, full of charcoal, and coinciding with the animal's belly. According to the laboratory (H. Valladas, personal communication) the weight of the processed sample (540 and 1210 mg) was ideal.

However, the two dates obtained for the bison in sector C7 are somewhat contradictory and noticeably more recent, in both cases corresponding to the late Magdalenian. At first sight, as in the neighbouring cave of El Castillo, this could indicate the continuity in the decorative process in certain sectors, in phases of the middle and late-final Magdalenian. However, this possibility is in disagreement with the synchronicity that the decorated walls in sectors C7 and C8 seem to display, based on the homogeneity in the style, the same use of technical procedures, their proximity in the cave and the choice of walls at a low height above the floor (in contrast with the rest of Gallery C). The weight

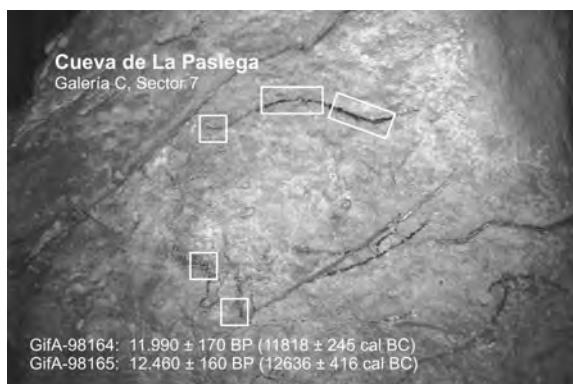


Fig. 13.2. Bison in Magdalenian style, in sector C7 of Cueva de La Pasiega

of the processed sample was, in this case, of 290 and 390 mg respectively, which is below the recommended weight according to H. Valladas. So we need not rule out totally the possible synchronicity, in the middle Magdalenian, of these two panels in La Pasiega C.

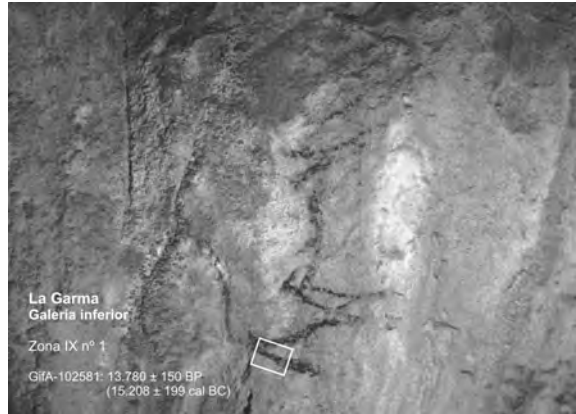
Finally, from La Garma Lower Passage, we currently have a single date available for a figure of a bison situated at the end of the passage (Zone IX), although more samples have been taken (Fig. 13.3). The result is quite coherent with the figure's style and the dates obtained from occupation floors, at different points along the present floor of the passage (González Sainz 2003), also corresponding to the middle Magdalenian.

Late-final Magdalenian (13,300/13,200 to 11,800/11,600 BP)

With the radiocarbon dates, and as discussed above, the continuity in the construction of certain subgroups, begun in the middle Magdalenian and continued in the late-final phase, is clear in Cueva de El Castillo (composition of bison) and at least possible in Pasiega C. Something similar happens in La Peña de Candamo, where depictions appear to have been produced until 12,000 BP: black non-figurative lines, beneath the striated bison 27, of a clear Magdalenian style, and located in the centre of the main panel in the Wall of the Engravings, were dated to $12,260 \pm 100$ BP (GifA-98195, in Fortea 2002: 9–10).

Among the synchronic sites, the one that most clearly belongs to these late phases of the Magdalenian is Cueva de Las Monedas. Dates are available for the horse 20 (GifA-95360: $11,950 \pm 120$ BP) and for the ibex 16 (GifA-95203: $12,170 \pm 110$ and GifA-95284: $11,630 \pm 120$ BP). The relative proximity of the dates allows this assemblage, noticeably homogeneous stylistically, to be situated in a late moment of the Magdalenian (the mean of the three central dates is

Fig. 13.3. Bison in a vertical position, in Zone IX, of La Garma Lower Passage



11,916 BP), as has always been suggested for this assemblage, not so much because of its stylistic character as for the iconographical composition, with several reindeer.

In any case, the dates for Las Monedas and Peña de Candamo show that cave art in a clear Magdalenian style continued until 12,000 BP at least. Very few generations later, in about 11,600 BP, the human populations in Cantabrian Spain display a noticeably different graphic behaviour. Figurative mobiliary art, which had been so abundant until then, became restricted to abstract designs on a few types of tools and stone cobbles. A large number of Azilian deposits have been dug in the region, with an adequate degree of conservation of bone or antler materials. So taphonomical factors, or an unequal archaeological knowledge of the two periods, cannot be given as explanations for such a noticeable change in graphic expression. Even though an artefact with figurative art might be found in an Azilian context in the future—some doubtful examples have already been noted—this would not affect the profound contrast with the abundant figurative mobile art (and cave art, as in Las Monedas and La Peña de Candamo) of late Magdalenian deposits.

To leave Cantabrian Spain momentarily, a similar decline in the figurative art of Magdalenian populations can be seen in all regions in South-West Europe with a sufficient archaeological record, although with some variations. Outside the Cantabrian-Pyrenean region, figurative decoration is somewhat less unusual (in Quercy or on the Spanish Mediterranean coast), but at least in France the few figurative depictions display a stylistic character that is relatively different from in the Magdalenian period (see Guy 1997).

For these reasons, I do not think some very recent dates obtained for a number of figures in a Magdalenian style are reasonable. In some cases, they are figures integrated in groups where other dates are available or which have

other non-stylistic arguments in favour of their Palaeolithic, and very probably Magdalenian, chronology. I am referring to dates of about 10,000 BP for black signs in Llonín (beneath striated engraved hinds), another two dates for a stag in El Pindal with a similar chronology, black non-figurative lines at the back of the area—Chamber IV—with three horses in a Magdalenian style in Cullavera (10,400 ± 90), a couple of figures of cervids in El Buxu, dated to 9,130 ± 170 BP, the horse in Sotarriza (GifA-98170: 8,890 ± 90), and some of the dates obtained in the sites of Tito Bustillo and Ekain, with important internal contradictions. The results obtained for the more recent phases in Tito Bustillo and for the assemblage in Ekain, in a necessarily selective and brief assessment, can be considered as very close to the traditional chronological assessment, based on their style, which situated this art in the middle or late phases of the Magdalenian, but they do not allow any further approximations.

DISCUSSION

Despite the problems seen in the assessment of a significant number of radiocarbon samples, the integration and contrast between the absolute dates and procedures for the relative ordering in time, applied to Magdalenian art in Cantabrian Spain, now allows us, in my opinion to do the following.

First, we can confirm in its essential nature, the most characteristic features of Magdalenian art, proposed in the past by authors such as H. Breuil, F. Jordá, or A. Leroi-Gourhan, among others. The basic features are the more naturalistic treatment of the animal figures, often somewhat less simplified, and with greater care in expressing volume or the third dimension. The results, in a very general assessment, do not disagree with this definition of Magdalenian cave art, nor with the traditional chronological attributions (at least, not in the way they do for Pre-Magdalenian art, where the variations with the traditional view appear to be more important—see González Sainz and San Miguel 2001: 162 and following). This difference in the validity of the traditional chronological proposals for Archaic art and Magdalenian art is understandable, taking into account the greater security of the traditional chronological bases for Magdalenian art, because of the abundance of mobility art in South-West Europe from this period and the analogies established with cave art. It may also be due to the apparently greater cultural integration and artistic homogeneity, between Cantabrian Spain and South-West France, with more widespread and recognizable graphic conventions in the Magdalenian period. The concentration of nearly all the dates obtained by ¹⁴C-AMS in Magdalenian figures (owing to the much more common use of charcoal in

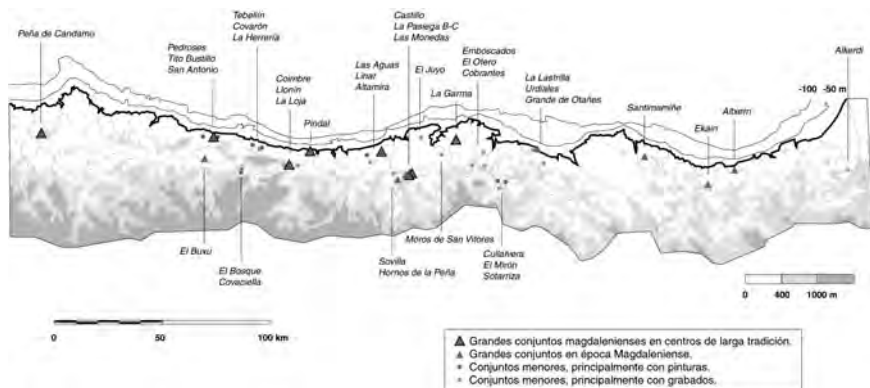


Fig. 13.4. Distribution in the region of the cave sites of Magdalenian age: some categories

paintings) increases the difference in our chronological precision for cave art during these two main periods in the region.

Because of this, I consider it possible to isolate or separate with a reasonable degree of certainty, the graphic representations in caves belonging to the latter period (from 17,000/16,500 to 11,600 BP) from those of the earlier age (Archaic or Pre-Magdalenian Art) (Fig. 13.4).

Secondly, rather than solve certain problems (e.g. the exact age of the polychromes, or of the late claviform signs), for the moment, absolute dating is assisting in focusing on the right questions and the limitations of some traditional work procedures—for example, how we work with series of superimpositions. The relative similarity of the series of superimpositions in complex panels in La Peña de Candamo, Tito Bustillo, Llonín, Altamira, Castillo, and Pasiega B–C, led to the attempt at defining successive artistic phases throughout the Magdalenian, which on occasions seemed exclusive and closed. When comparing the succession of black figures—striated engravings—polychromes—other black figures and engravings, at various sites, we need to be extremely careful in the significance we give to this comparison. If we situate the phases of these different cave panels in parallel, in fact we are supposing that the artistic phases were closed (or, in other words, that at a certain time, in the different sites in the region, they only produced figures with one particular technique). This contrasts with the variability seen in mobiliary art for any phase of the Magdalenian (although this approach has not yet been developed fully in the region), and with the radiocarbon dates now available for Magdalenian cave art. In the same way, this somewhat regulated view does not coincide with the subtlety of the changes in time seen, for example, in such a large collection of mobiliary art, covering a long period, as that of Parpalló (Villaverde 1994). Lastly, and from a methodological point of view, the graphic

'phases' of any cave sequence are normally based on a very small number of superimpositions, and are extrapolated to quite numerous series of figures, whose unity and synchronicity are not always clear. In reality, in many cases, these 'phases' were not separated so drastically in time. To conclude, the procedure of chronological ordering, based on the superimpositions of depictions in the more complex sites in the region, is of greatest interest in reconstructing the decorative processes in a certain site, but is rather more questionable as a synthesis of graphic changes throughout the region.

Thirdly, from the perspective of time, the dates reviewed here confirm the extraordinary entity of this graphic activity in the final phase of the Upper Palaeolithic in Cantabrian Spain, both in the cave version and the mobiliary one. This activity becomes even more surprising, taking into account the great changes that occurred at the end of the Magdalenian, between 12,000 and 11,500 BP. In particular, they tend to highlight the following points:

- Dates for the early Magdalenian (17,000 to 14,700 BP, or 18,500 to 16,000 cal BC) are relatively scarce and dispersed. In part, this is because the increase in the number of datable paintings with charcoal, compared with those in red or merely engraved, is not so great as in later Magdalenian periods. As well as drawings in black (that have occasionally been dated), the art of the early Magdalenian still includes many animal figures and signs in red, and frequent engravings.
- The important concentration of cave art assemblages dated between 14,000 and 12,800 BP coincides with the end of the early Magdalenian, and the middle and late phases, in the region. The length of time for this period in calendar years (it is equivalent to 16,000 to 13,300 cal BC, or a variation in length from 1,900 to 2,700 when calibrated) hardly takes significance away from this concentration, which coincides with a great increase in graphic activity on portable artefacts, which become noticeably diversified.
- The prolongation in time to the end of the Magdalenian (to at least approximately 11,800/11,600 cal BC) of an essentially naturalistic cave art (Monedas, recent phases of Peña de Candamo). Other sites which can be added to this late phase, for non-radiocarbon criteria, are the recent phases in Llonín and El Covarón, or the caves of El Bosque, Sovilla, El Otero, and, with less certainty, Altxerri.

Fourthly, the available dates are not enough to define specific stylistic characteristics for cave art in the early Magdalenian, in contrast with those in the middle or late Magdalenian, etc. At present it does not seem possible to differentiate, from a merely 'stylistic' point of view, between Early and Recent Style IV, accepting the full discussion made by J. Clottes (1989) for a wider geographical area. However, within the relative unity of Magdalenian art in the

region, changes did occur, especially iconographical variations (in line with those proposed by Leroi-Gourhan in 1965: relative increase in the figures of reindeer, fish, and bears and changes in the abstract signs), or in other aspects that are easily accessible with the present information, such as the decorated mobiliary objects. Apparently, more purely stylistic modifications occurred (in terms of coordinated animation, composition of scenes, spread of conventions of schematization, etc.), which have been studied less and which may not be enough to define a different 'style' for the most recent Magdalenian phases.

In Cantabrian Spain, the information about Magdalenian art tends to arrange itself into two successive stages with some iconographical changes (animals and signs), and possibly in the stylistic aspects already referred to, less well-known, especially in parietal art. In any case, the turning point (or the moment of fastest change) should not be located between the middle and late Magdalenian (as was the case of the break between early and recent Styles IV, that is, about 13,000 BP), but at the end of the early Magdalenian and the start of the middle Magdalenian, about 14,700/14,200 BP (about 16,000/15,600 cal BC). At this moment, the role played by this graphic activity seems to have grown noticeably, becoming present in many different aspects of the everyday life of those human groups, as can be seen in the multiplication of decorated objects in stone, bone and antler, or—if the distribution of radiocarbon dates is relevant in this respect—the same multiplication in cave assemblages. These sites included large compositions of animals with increasing frequency (with a renewed role for the bison), which contrasts with the more disperse location of figures attributed to the early Magdalenian, which have fewer large compositions (except perhaps in Peña de Candamo and Llonín). In the same way, an increase is seen in the frequency of bison, ibex, and reindeer, while the number of hinds falls drastically, and figures of horses, stags, and aurochs maintain their usual frequency. This apparent break in the iconographical tradition in Cantabrian Spain is accompanied by a significant change in the most common kind of abstract sign. The end of the more specifically Cantabrian signs (quadrilateral and oval signs, classic claviforms...) occurs during the old Magdalenian, whereas in the middle and late Magdalenian other signs appeared (late claviforms, in caves such as Pindal and Cullalvera) similar to those in the region of Ariège.

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Rock Art and the Côa Valley Archaeological Park: A Case Study in the Preservation of Portugal's Prehistoric Parietal Heritage

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INTRODUCTION: SAVING THE CÔA ROCK ART AND THE REORGANIZATION OF PORTUGUESE ARCHAEOLOGY

Although Nelson Rebanda—the archaeologist working for the electricity company (EDP) that was building a dam in the Côa river—probably discovered the first Côa Valley engraved surface with Palaeolithic motifs (the now well-known Rock 1 of Canada do Inferno) in November 1991, the find was only revealed to the public in November 1994 (Jorge 1995; Rebanda 1995). Subsequently, the first reports on ‘important archaeological finds in the Côa Valley’ started to appear in the newspapers.

The Canada do Inferno engravings were located upstream and very near to the construction site of the Côa dam. The construction work advanced at a good pace and the completion of the dam would irremediably destroy the engravings. The public revelation of the find instantly triggered a huge controversy since the first specialists to visit the site immediately classified the engravings as being of Palaeolithic style.

As a result of the media attention on the Côa and right after the broadcast of the first TV reports, a pilgrimage to the Côa Valley rock-art surfaces began. Reacting to the first news on an affair that was starting to be known as ‘the Côa scandal’, IPPAR (the state body that, at the time, was in charge of managing archaeology in Portugal) created, at the end of November 1994, a committee to follow the archaeological rescue work being done in the Côa. Nevertheless, and considering the serious problem created by the

construction of the dam (and the construction work continued), it rapidly became evident that IPPAR was gradually losing control over the situation as it shifted to the public domain.

In December 1994, IPPAR asked UNESCO for an expert opinion to challenge the efforts of EDP (the Portuguese Power Company responsible for the construction of the dam and at the time totally state owned) to demonstrate that the Côa findings were not of Palaeolithic chronology. Throughout 1995, this would be a crucial issue since some defended the position that, if the engravings were not Palaeolithic, their patrimonial value would not be very important and, therefore, the dam could be built!

Hence, in December 1994 at IPPAR's invitation, Jean Clottes visited the newly discovered panels of the Canada do Inferno site. His report, which IPPAR did not make public, confirmed the engravings' Palaeolithic chronology while considering the advantages and disadvantages of submerging the decorated panels or not (Clottes 1995: 143–7). Nevertheless, his conclusions pointed to the study of the engravings prior to their submersion since he stated that the engravings would be better conserved under water, because the Portuguese authorities would not be able to cope with the actions of vandalism. This view, revealed in a press conference in Foz Côa on 16 December 1994, aroused great indignation in the Portuguese media and, consequently, in national public opinion. This was a decisive moment in the escalation of the campaign to save the Côa art that marks the beginning of the true Côa controversy. Nonetheless, as Clottes explained in a more recent article (Clottes 1998: 15–18), at the time when his opinion was publicized few engravings were known. He only had the opportunity to see a small number of panels in Canada do Inferno, since most of the engraved outcrops in this site were (and still are) submerged due to the Douro River (of which the Côa is a tributary) Pocinho dam, built in the early 1980s, which raised the Côa by 12 m. However, Nelson Rebanda had the chance, in autumn 1993, to observe the submerged area of the Canada do Inferno site, rich in Palaeolithic art. Some of the drawings made by his team were seen by Clottes. Presumably, this would have contributed, at the time, to a more exact appraisal of the importance of the Canada do Inferno site. Regrettably, no in-depth survey of archaeology and rock art was carried out in the region prior to 1994 since it was not believed that more sites with engraved outcrops could be found in other areas of the Côa and its tributaries.

In the next few weeks, partly as a reaction to IPPAR's indecision in classifying the engravings under Portuguese Heritage law and to the government's unclear attitude on the Côa controversy, the valley was invaded by the curious and by archaeologists who eventually discovered new sites which, together with sites also uncovered by IPPAR's team, greatly enhanced the significance of

the Côa. Surfaces with engravings were identified in the Penascosa, Ribeira de Piscos, Quinta da Barca, Vermelhosa, and Vale de José Esteves sites, among others. The newly found motifs were immediately publicized by the most important Portuguese media.

By then it was clear that the Côa comprised a huge collection of Palaeolithic open-air rock art, that surpassed, for instance, the important Siega Verde site (in Spain but only a few kilometres from the Côa) (Balbín *et al.* 1991, 1995, 1996). The Côa rock-art sites spanned the 17 km between Faia (the site furthest upstream) and the mouth of the Côa. Especially from December 1994 onward, almost all Portuguese archaeologists started to believe that the only way to preserve and study the Côa rock art was to cancel the construction of the dam.

Together with the national movement, a worldwide campaign to save the Côa engravings was also initiated. Different kinds of activists and renowned archaeologists started visiting the Côa, and flooded the highest Portuguese public officials with letters of protest calling for the abandonment of the dam. In Portugal, the 'Movement for the Salvation of the Côa Engravings' was created together with the slogan 'The engravings can't swim', adopted by the high school students of Vila Nova de Foz Côa who strongly defended the preservation of the engravings.

Meanwhile, at the very beginning of 1995, UNESCO, in agreement with IPPAR, sent a second group of experts to the Côa. This mission, led by Mounir Bouchenaki, director of UNESCO's heritage division, had, fundamentally, the aim of assessing the possibility of conserving the engravings while still building the dam. Although the resulting report was very cautious, it proposed that the dam's construction work should be suspended so that in-depth scientific studies might be conducted in order to more fully know and understand what really existed in the Côa Valley. Following Clottes's and our team's own opinion, the report accepted that most of the Côa engravings are of Palaeolithic age.

In Portugal, the role of the media, and particularly of the TV channels, was decisive in the evolution of this whole process which was to maintain its controversial characteristics throughout 1995. Abroad, several prestigious journals and newspapers dedicated editorials and exhaustive articles to the Côa. Likewise, TV channels like the BBC sent their reporters to the Côa. In the foreign media, the Côa rock art always appeared connected with the word 'scandal'.

In the mean time, right after UNESCO's visit, IPPAR, delaying a decision that would always be controversial on what to do regarding the engravings and the dam, created an international scientific committee (comprising A. Beltrán, E. Anati, and J. Clottes) to accompany the study of the Côa rock art. This committee was to meet in Portugal only once, in May 1995.

In the face of enormous media pressure, EDP actively pushed on with the construction of the dam, trying to demonstrate that it was possible to make it compatible with different ways of 'preserving' the engravings. We can characterize the strategy of the company as comprising three different lines of action. First, it attempted to prove that the engravings were not of Palaeolithic age. If that was the case, it would have meant a decrease in the public campaign to save the rock art. Secondly, it ordered the moulding of an engraved panel, thus trying to show that the engravings could be 'saved' through the production of replicas to be exhibited in a museum to be built in Foz Côa. Afterwards, the originals could be submerged. Finally, it cut and removed a big schist panelled block (with no engravings) in order to establish that it would be possible also to remove original engraved surfaces to the above-mentioned museum. All these actions were intensively followed and publicized by the Portuguese media.

However, the attempt to 'directly date' some engravings would prove to be the most spectacular of these actions in terms of the media. Different techniques were employed by Robert Bednarik and Alan Watchman, but also by Fred Phillips and Ronald Dorn. Through the years and even today, only the first continues to claim vehemently that the engravings are of very recent chronology. The conclusions of the preliminary reports on the 'direct dating' experiments, the result of techniques that were not yet fully developed, and were therefore unreliable, were quite dissimilar, some of them pointing to a non-Palaeolithic chronology for the engravings (see Zilhão 1995*a*, 1995*b*). Their findings, which were not presented to the scientific community, made the front page, together with the photo of a well-known couple of Palaeolithic horses (see pl. 16), of the most important Portuguese right-wing weekly newspaper with the suggestive title of 'Fraud' (*O Independente*, 7 July 1995). The report, offered to public opinion with a degree of scientific certainty in opposition to the 'stylistic' dating made by the wide community of archaeologists defending a Palaeolithic chronology for the Côa rock art, understandably sparked enormous puzzlement in Portugal.

Hence, the summer of 1995 was a period of great uncertainty, with EDP carrying on with the dam's construction work since the government, under strong media pressure, demanded merely that the construction should continue at a slower pace. By then, it was becoming clear that only a change of cultural policy in Portugal would allow the Côa engravings to be saved. That was precisely what happened, almost simultaneously with the ample debate that took place in the Turin Congress held in September. Under the spotlight of the Portuguese media (the first time ever at an international rock-art conference), the Portuguese archaeologist João Zilhão thoroughly rebuffed the 'direct dating' techniques and the modern chronology for

the engravings (Zilhão 1995a, 1995b). The Portuguese delegation would leave Turin with the solidarity of an important sector of the international community of archaeologists and prehistorians of art.

In Portugal, 1995 was politically characterized by a long list of electoral acts that would culminate in the October general elections. For that reason, throughout 1995 the Côa welcomed all the main political leaders, especially those in opposition, since few government members went to see the engravings with their own eyes. One of these few, the then Secretary of State for Culture, right in front of the Canada do Inferno panels, swiftly dismissed them as 'children's doodles'! He was crucified in the media, and was also made a laughing stock when Foz Côa High school students offered him a schist plaque with their own doodles, quite different from the Palaeolithic ones!

The different cultural and political sensibilities of the leaders of the main opposition force (the Socialist Party) contributed to the further politicization of the affair when they decided to turn the Côa into one of the central electoral issues by promising the preservation of the rock art in their proposed manifesto. After they won the October elections, the fulfilment of the promise was announced in the November by a ministerial delegation expressly sent to Foz Côa for the occasion. The dam's construction work was stopped *sine die* and all time needed to fully study the Côa rock art was given to the archaeologists.

The following year witnessed the consolidation of the victory of the Côa engravings in contrast to the frustration of the dam builders. Despite minor 'faits divers' (like the creation of a second international scientific committee) and EDP's complaints of huge financial losses (for which the company was later compensated after a successful privatization process), it became increasingly apparent that the Côa rock-art defenders had won the preservation battle.

In a country where heritage was seen as something of minor importance, the political decision that stopped the dam and preserved the engravings *in situ* must be regarded as exceptional, even at a worldwide level, as Clottes has pointed out. Naturally, several factors came together and contributed to such an outcome. First of all, Portugal was at the end of a political cycle characterized, in the preceding ten years, by absolute majorities supporting right-wing governments, all led by the same prime minister. The Côa battle was instrumental in questioning the inconsistent cultural policy followed by those right-wing governments. The socialists, in their struggle to return to power, expertly took advantage of these inconsistencies and presented themselves with an altogether more open attitude to the cultural policy issues that the Côa ended up by symbolizing. It should be noted, nevertheless, that it was a courageous decision that, apparently, implied massive financial

costs. At the end of the process, Portuguese archaeology came of age and finally gained a respected voice that became heard in land management issues (something that, until the C \hat{o} a, had not happened). The role of the Socialist Minister of Culture, Manuel Maria Carrilho, a firm supporter of the C \hat{o} a rock art, should be remembered, since his political resolve greatly contributed to the highly satisfactory outcome of the whole process.

On the other hand, the C \hat{o} a controversy contributed to the public questioning of the economical development policy of high environmental costs represented by the construction of large dams. Nonetheless, this policy was not set aside, at least completely, as was proved by the construction (ordered by the Socialist government) of the Alqueva dam on the Guadiana river. This huge dam, which created the biggest European artificial lake, caused some important rock-art sites to go under water, namely the core site of Cheles on the left (Spanish) river bank.

The salvation of the C \hat{o} a became definitely consolidated when, in December 1998, UNESCO included the C \hat{o} a Valley prehistoric rock-art sites in the World Heritage List in one of the organization's fastest scheduling processes. This process marked, symbolically but also *de facto*, the end of the 'C \hat{o} a battle' and of the most turbulent affair in Portuguese twentieth-century archaeology.

The whole process also gave an important boost to the reorganization of Portuguese archaeology. In May 1997, integrated in the Ministry of Culture, the Portuguese Institute of Archaeology (IPA) was created together with its three dependent services: the National Centre for Rock Art (CNART), the C \hat{o} a Valley Archaeological Park (PAVC), and the National Centre for Underwater Archaeology (CNANS). The first two are based in Vila Nova de Foz C \hat{o} a, a small town located in the most undeveloped Portuguese interior, now justly famous due to the C \hat{o} a rock-art finds.

THE C \hat{o} A VALLEY'S PLEISTOCENE ART

The C \hat{o} a Valley region contains examples of one of the most prolonged rock-art cycles already documented in western Europe. Although the first finds date back to 1991, its systematic study was only initiated in 1995.

Since 1995, the region's rock-art survey and study, and especially from the moment CNART began its activities, allowed for the identification and systematization of the 'C \hat{o} a and Upper Douro rupestral artistic cycle'. It is essentially characterized by two main groups, according to the chronological categorization and number of painted or engraved surfaces: the Upper Palaeolithic and the

Iron Age examples. Between these two main groups, separated by more than 10,000 years, some examples of Epipalaeolithic or ancient Neolithic and Bronze Age rock art have also been identified. These demonstrate a real occupation of the area throughout the whole of the Holocene, something also confirmed by the discovery of countless habitation sites. The rock-art inventory carried out by CNART has so far detected 335 engraved and painted surfaces from all these periods in the Ca region alone. Nevertheless, the Palaeolithic rock art is unquestionably the most important component.

Following Western European Pleistocene art canons, the Ca quaternary art's themes, with motifs of true aesthetic and technical quality, are, fundamentally, of a zoomorphic and naturalist character. Equids (horses), bovids (aurochs), caprines (goats and chamois), and cervids (deer and does) constitute the represented fauna, typical of warm climates. Some rare fish complement this bestiary, together with several undetermined zoomorphic figures whose morphology is, however, typologically close to the species already mentioned.

On only two distinct surfaces were several different human representations identified, of which the best known is the ithyphallic anthropomorphous figure of Ribeira de Piscos Rock 2. All have a caricatural or even animal aspect, emblematic of the quaternary humans identified in portable or cave art.

The motifs were, in most cases, engraved with techniques of incision or pounding. In rare cases, only present at Faia, the site furthest upstream, granite shelters provided a reasonable conservation environment for the engraved and red-painted aurochs that can still be seen today. Therefore, it is reasonable to assume that other motifs which, today, only present engraved lines may also have been painted.

Except for Faia, where the Ca flows through granite bedrock, all other engravings were executed on smooth vertical graywacke-schist outcrop surfaces that resulted from the tectonic and mechanically driven fracturing movements that forced (and still force) the metamorphic rock to adapt itself to new topographical environments.

In most cases, motifs, though widely superimposed one on another (Fig. 14.1) are well individualized as if hovering in an ideal space, something reinforced by the absence of soil or any vegetational element. Scenes or evident compositions are rare but still remarkable, as in the case of Ribeira de Piscos Rock 1, where two horses are represented with enlaced heads (Pl. 16). Some animals are also represented as having multiple heads with the clear intention of portraying movement (Fig. 14.2). This is an idiosyncratic characteristic of the Ca rock art that can be considered original in the context of Palaeolithic art. On the other hand, a key factor in the comprehension of the Ca art consists of the intentional superimposition of several animals in the same area of the panel, leaving blank other apparently suitable zones of the same surface. Hence, the most densely



Fig. 14.1. Quinta da barca's Rock 1, also known as the 'spaghetti rock'

engraved panels constitute true palimpsests of rich figurative stratigraphies, a valuable resource in stylistic evolution studies. Sometimes, these intentional superimpositions used lines from previously engraved animals (Figure 14.3), a feature that might suggest a sort of symbolic reutilization of older grooves.

The excavation in December 1999 of a habitation site located right in front of Farizeu's Rock 1 (Aubry and Baptista 2000; Baptista 2001) exposed a panel, of which only the tip was known, packed with superimposed engravings that presented all the formal and stylistic attributes of C \hat{o} a rock art. Layers containing lithic assemblages ascribable to periods from the Proto-Solutrean to the Magdalenian sealed the panel. This demonstrates that the structured and intentional accumulation of motifs in the same areas of the C \hat{o} a panels processes itself in the same cultural context, most likely in the Gravettian period, the pinnacle of the quaternary artistic cycle (Fig. 14.4).

Samples for absolute dating were collected from the sealed layers (Fig. 14.4), and the results await publication. Farizeu has also provided the first examples of portable art in the C \hat{o} a: two Magdalenian small schist plaques with fine-line incisions of a geometric and zoomorphic nature (Fig. 14.5).



Fig. 14.2. Example of a zoomorphic motif featuring two heads with the clear intention of portraying movement



Fig. 14.3. A goat on Penascosa's Rock 5

Almost every month the CNART or PAVC teams, working in a complementary fashion, find new rock art. This was the case with Ribeira de Piscos rock 24—of which some figures were already known—when a PAVC excavation unearthed some more engraved motifs. Together with the exhaustive CNART documentation work on this panel, which allowed for the identification of new, barely visible but exquisite fine-line incised motifs (Figs. 14.6 and 14.7),

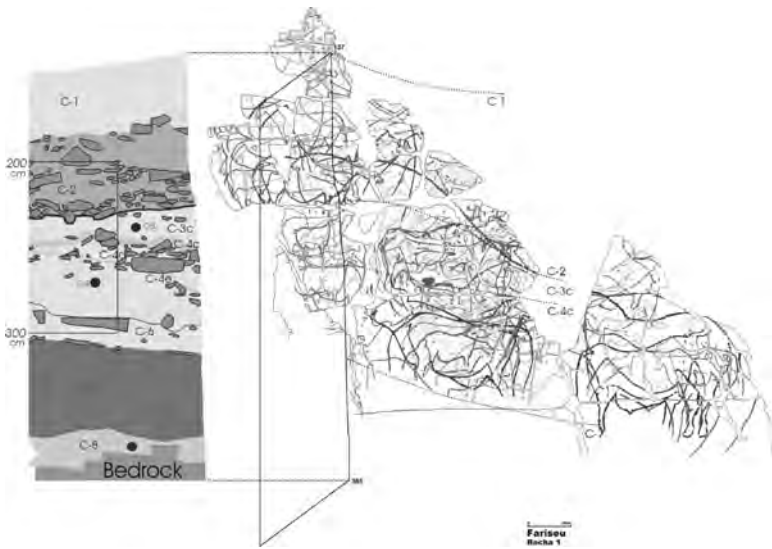


Fig. 14.4. Schematic representation of the stratigraphic layers (C1 to C7) that almost completely covered Farizeu's Rock 1



Fig. 14.5. Detail of the portable art plaque found during the excavation of Farizeu's Rock 1

the multi-disciplinary study of rock 24 and its archaeological context revealed an extremely important C^ôa art surface. Once again, it was proven that in the case of rock art there is always much more than what immediately meets the eye (Figs. 14.8 and 14.9). It also demonstrates that rock-art investigation

(especially in a site such as the Côa that possesses more than 300 different surfaces with more than 2,000 individual rock-art motifs located in areas difficult to reach) is a prolonged process if one expects satisfactory results that truly characterize the full significance of a panel or a rock-art site.

Upper Palaeolithic ritualized understanding of the decorated space that privileged the Côa Valley beach areas confirms that the monumentalization of the landscape, of the herbivorous fauna, and also of the watercourses, has manifested itself since Gravettian times. Engraving episodes continued, albeit less intensely, throughout the Solutrean until, at least, the early Magdalenian. During this long period, we can consider the Côa Valley as a vast open-air 'sanctuary', traversed and understood by successive generations of Upper Palaeolithic hunter-artists.

The late discovery of such a vast region, artistically monumentalized by fossil humans, is mostly due to its relative isolation in the most undeveloped interior of Portugal. Ironically, it is this fact that today allows for the enjoyment of a largely unaltered human heritage in its contextual landscape. This is one of the reasons why it was felt to be extremely important, after its significance was established, to create an archaeological park with the specific goal of conserving the Côa rock art and presenting it to the public. Hence the PAVC was born.

THE CÔA VALLEY ARCHAEOLOGICAL PARK

After the November 1995 governmental decision to cancel the construction of the Côa dam, the PAVC was formally created in August 1996. It became Portugal's first archaeological park. Portuguese legislation did not even allow for the existence of archaeological parks, and a lengthy legal process in order to acknowledge it under the law had to be initiated from the beginning. Meanwhile, the park was integrated with the Portuguese Institute for Archaeology.

The demarcation of the PAVC's territory, which occurred in parallel with the first intensive study of the region's rock art, aimed to integrate all the rock-art sites known at the time, whether of Upper Palaeolithic chronology or not. That is the reason why UNESCO included all the prehistoric rock-art sites in the World Heritage List.

The PAVC is responsible for the preservation, promotion, and enhancement of the Côa rock art and its landscape, but also of other archaeological sites located within its territory, a depressed and sparsely populated area; it is also one of the Park's objectives to aid in its sustainable, natural, and heritage-friendly

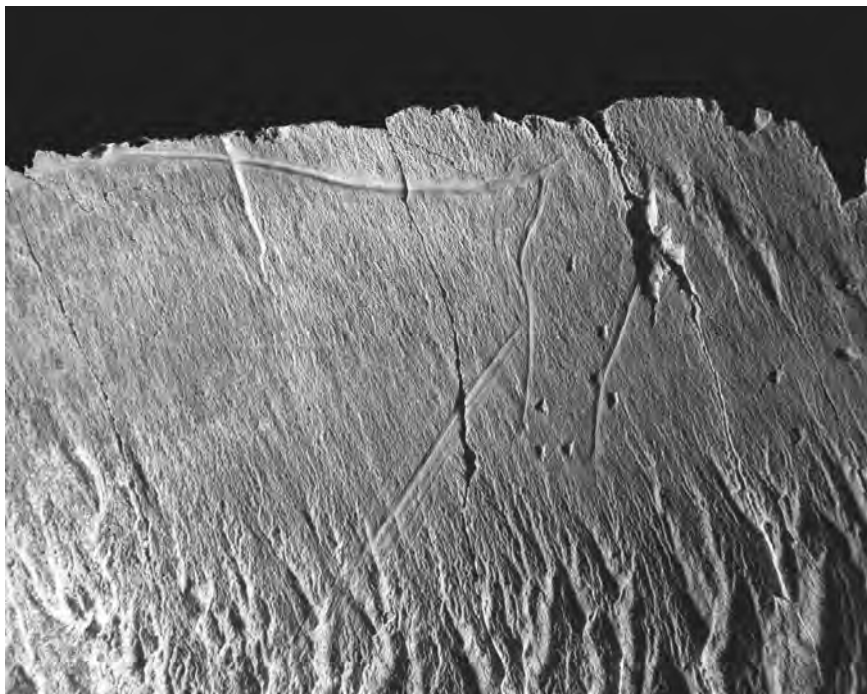


Fig. 14.6. Detail of a finely incised aurochs on Ribeira de Piscos's Rock 24, with the head in frontal perspective

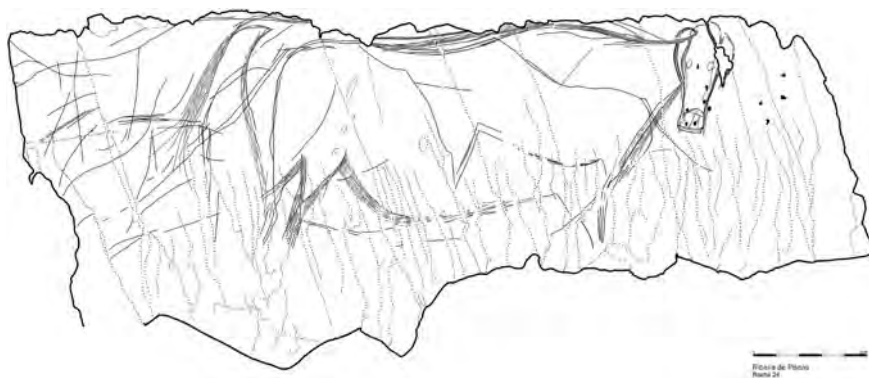


Fig. 14.7. Complete drawing of the same aurochs presented in Fig. 14.6

development (see Fernandes 2003). The PAVC comprises a corpus of rock-art guides and a small team of archaeologists who survey the land and selectively excavate some of the sites found which correspond to diverse human occupa-

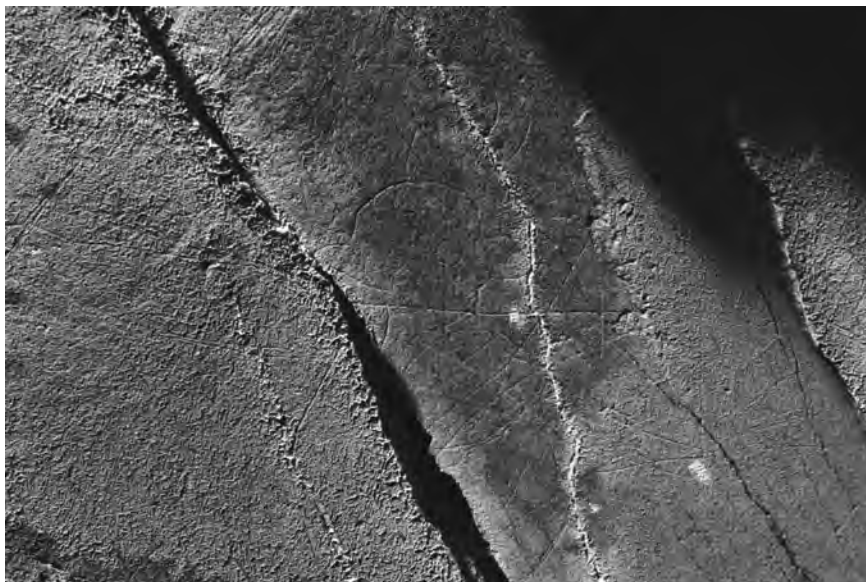


Fig. 14.8. Detail of one of the fine-line incised anthropomorphic motifs present on Ribeira de Piscos's Rock 24

tions from Palaeolithic times until the present. The PAVC archaeologists are also responsible for land management issues within the park's territory, for monitoring economic activities that have an influence on the landscape (vineyards or quarries, for instance), for the direct management of the rock-art sites, and for the conservation of the rock-art surfaces. In fact, one of the authors of this paper coordinates the Conservation Program of the Côa Valley Rock Art (see Fernandes 2004). For obvious reasons, in its first few years, the PAVC has directed its efforts towards the investigation of the several Upper Palaeolithic habitation and encampment sites already detected, whose number by now adds up to more than thirty. The effort has paid off because it has provided archaeological contexts for the Côa's prehistoric rock art, thus proving that human occupation in the region has existed since at least Upper Palaeolithic times. Let us remember that, at first, the chronology for the Côa rock art was proposed by purely stylistic comparative methods. Other methods (namely, archaeological investigation) have now validated those first proposals.

Of the twenty-nine different rock-art sites already identified only three are open to the public: Canada do Inferno, Ribeira de Piscos, and Penascosa. These are areas where numerous Palaeolithic engravings are concentrated. For security and conservation reasons these three sites are under direct

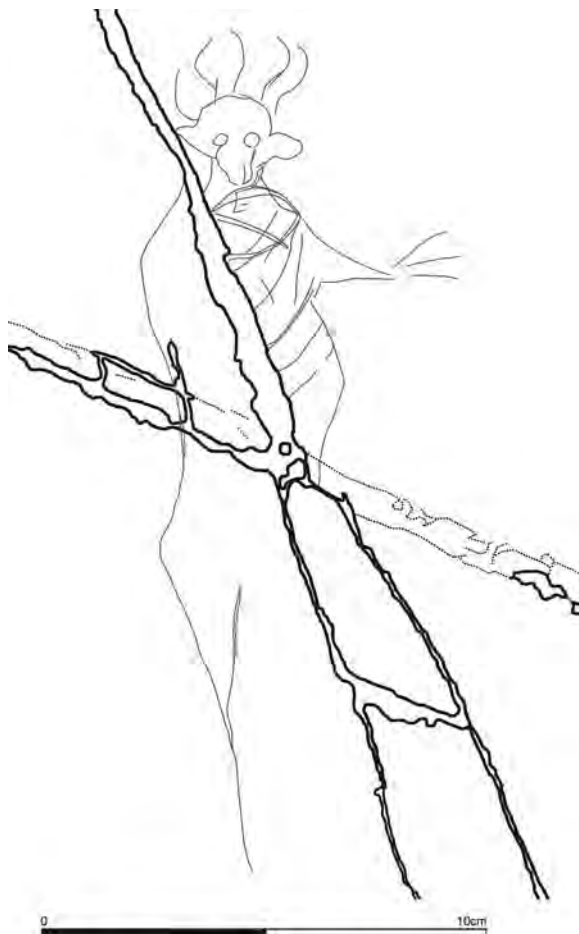


Fig. 14.9. Drawing of the same anthropomorphic motif as in Fig. 14.8

Foz da Ribeira de Piscos
rocha 24 painel 3
Côa

surveillance twenty-four hours per day through the services of a private security company. In the near future other sites may also be opened to the public, such as Quinta da Barca (located in front of the Penascosa site on the other side of the river) or sites adjacent to the mouth of the Côa. All other sites should remain, for the time being, inaccessible to the general public, although available for visitation by rock-art experts and researchers. There are several reasons for keeping these sites closed to the public. The first consists of

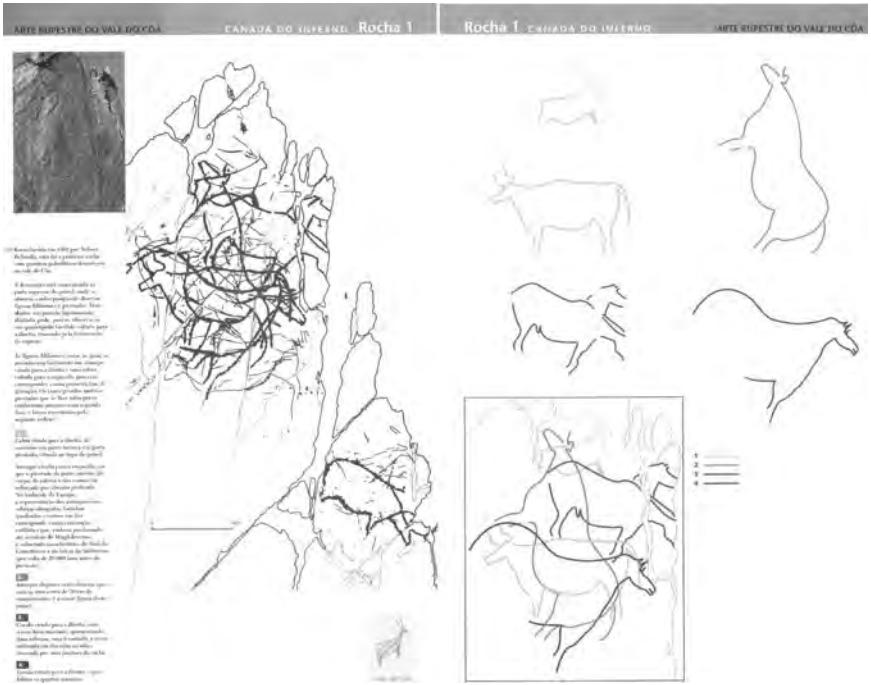


Fig. 14.10. Front and back of one of the explanatory cards used by the PAVC guides

conservation and security issues. The second lies in the difficulty of access to those sites. Following the preservation strategy which was one of the reasons for its creation, the PAVC has no intention of improving the picturesque tracks that led to some sites or of constructing new ones to take visitors to still pristine rock-art locations. Likewise, it does not plan to harden the dramatic precipitous slopes where most sites are located so that the public can visit these sites in total safety. The sites currently open (together with the planned construction of a museum) already provide an informative and comprehensive insight into the Côa Valley rock art (see Fernandes 2003).

The visits to the rock-art sites are always personalized. The park possesses a fleet of 4×4 vehicles driven by the PAVC's qualified guides who show and explain the rock art panels to visitors. Since many motifs are difficult to observe (especially by untrained eyes), the PAVC together with CNART created a card (see Fig. 14.10) on which each motif is individualized and the panel's artistic composition is explained to visitors. The PAVC guides, young persons from the region who, thanks to the park's creation, could settle in the area, went through rigorous training in rock art and today form a corps of guides that is unparalleled in Portugal.

At the same time, the construction of a Museum of Art and Archaeology of the Côa Valley is in preparation. Its construction is an ancient promise of the Portuguese government. Initially it was planned to build the museum in the very place where the dam had begun to be built. That project, whose localization was a result of the political issues behind the whole Côa affair, was later abandoned. Another site has been chosen, and a young team of Portuguese architects won an international call for proposals. The museum, whose new project has in the mean time been approved by the government, is to be built near the Côa's mouth.

The creation of the museum will give visitors an opportunity to more fully appreciate the Côa Valley rock art. In effect, the great majority of Palaeolithic motifs are very difficult to observe, due to the use of the fine-line incision technique which today makes these motifs almost invisible. On the other hand, it is impossible (even if advisable, conservation-wise) to make all sites available for visits. Therefore, only a structure such as the museum will allow for a more transversal explanation and public presentation of the Côa rock-art cycle. The museum will also take some pressure off the sites open to public visitation, which nevertheless will continue to receive visitors, allowing for an increase in visitor numbers which will help to meet local expectations for development.

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Rewriting the History Books: The Magdalenian Art of Creswell Crags

Claire Fisher and Rob Dinnis

INTRODUCTION

The text books say that there is no cave art in Britain. These will now have to be rewritten. . . . There had been a psychological barrier to the existence of cave art in Britain . . . but never a satisfactory explanation as to why there was none. (Jon Humble, Inspector of Ancient Monuments, English Heritage, in an interview with John Pickrell for *National Geographic News*)

In April 2003 Britain's first unequivocal Palaeolithic parietal art was discovered in Creswell Crags, a narrow limestone gorge located on the Derbyshire and Nottinghamshire border in the English North Midlands. The announcement of its discovery was accompanied by a furore of media attention. Archaeological dogma had long maintained that no such art would be discovered in Britain, although, as Bahn (2003) has suggested, there was no good reason for such art not to exist. As Bahn highlighted, Britain has plenty of caves with evidence of Upper Palaeolithic occupation, plus examples of portable art from the period, including two figurative engravings attributed to Creswell Crags.

The Magdalenian era was the last time that Europe was unified 'in a real sense and on a grand scale' (Paul Pettitt, quoted in *The Guardian*, 15 April 2004) and the conference organizers realized that to fully appreciate and understand the Creswell art, it must be considered in its wider continental context. The conference in Creswell was conceived to bring together specialists from across Europe and to place the art of Creswell in its European setting. The conference was held at the Social Centre in Creswell from 15 to 17 April 2004, and was organized by the team who had discovered the art, along with Andrew Chamberlain of the University of Sheffield and Ian Wall of the Creswell Heritage Trust.

The Creswell Crags project is at the heart of regeneration in this former rural coalfield area. Indeed, Jon Humble (English Heritage 2003) has described the project in glowing terms as, 'quite possibly the best and most successful example of an archaeology-led project for social and economic regeneration anywhere in the UK'. The organizers of the conference recognized the importance of the art to the local community and, with this in mind, the conference was held in the local community centre and a series of evening lectures were arranged, aimed specifically at a public audience. These lectures were to explain the work of Palaeolithic archaeologists, place the Creswell art in the wider context of prehistoric cave art around the world, and explain how and what such art might tell us about our Palaeolithic predecessors. It was a clear aim of the conference that the importance of the Creswell engravings should not be lost to obscure academic literature.

The early registration for the conference gave an idea of the wide range of people who were to attend the conference. The *Guardian* newspaper had run an article that day entitled 'Dancing Girls and the Merry Magdalenian' and the mood at registration was almost festive as delegates caught up with colleagues and eagerly enquired of each other as to who had already seen the art. As they registered, delegates were invited to sign up for cave tours; little encouragement was needed. Later, conference delegates were joined by local people keen to attend the first public lecture. All generations of the Creswell community were represented in the audience, from the young to the very old, all eager to learn more about the art that had put their community in the news. Several people recounted stories of their childhood games in and around the caves of the Crags. The details of the lectures given at the conference can be read in the papers of this volume, so here we would like rather to recount something of the flavour of the conference, the impressions of those who attended and some of the discussions that arose from the lectures.

THE CONFERENCE: SOME THEMES

The discovery of the art in April 2003 had captured the imagination of academics and public alike and the conference gave the audience the opportunity to hear first-hand accounts of the discovery. Paul Bahn's vivid account of the discovery and the team's elation at their success amply conveyed the passion and enthusiasm of the team. For most of the delegates the first time that they had the opportunity to see the art in any detail was the presentation of Sergio Ripoll and Francisco Muñoz. Preliminary reports and

pictures had been only a taster of the images that filled the screen, increasing the sense of anticipation for the cave tours. Well illustrated, vibrant lectures, open discussions, and informal chats, along with the cave tours all contributed to a feeling of involvement sometimes lacking at conferences. This sense of involvement was not limited to the conference delegates. During the last afternoon of the conference Sergio Ripoll and Francisco Muñoz captured images of art that had been spotted during the tours of the cave. After the last public lecture, the laptop was hurriedly set up to show the latest discoveries and the audience was left in little doubt that they were caught up in the middle of one of the most exciting and important discoveries in British Palaeolithic archaeology.

For many at the conference the tours of the cave were the high point of the weekend. Here was the opportunity to view at first hand something that for most would usually be known only from journals and text books. Despite the unfavourable weather the first cave tours of the conference were eagerly awaited. A minibus took delegates on the scenic journey from the hall to the Creswell Crags visitor centre. As delegates returned to the hall, somewhat bedraggled but still full of enthusiasm, animated discussions soon began to take place. Throughout the weekend the tours of the cave proved wildly popular and each group tried to linger a little longer, exclaiming over the art already discovered and searching in the hope of new images.

The combination of thought-provoking lectures and the unique opportunity to view Palaeolithic cave art set the stage for one of the key discussions of the conference: 'How should we interpret what we see?' The interpretation of Palaeolithic art is a controversial issue, with some cave art specialists holding somewhat entrenched views of how art should be viewed and interpreted. The discovery of parietal art in a new area of the Pleistocene world provided the opportunity to consider the issue of interpretation anew and this was addressed by several of the speakers at the conference.

Derek Yalden's presentation on zoological perspectives raised important questions about interpreting Palaeolithic art and created lively debate concerning if and how it is possible to understand the relationship between Palaeolithic art and the artist's environment. This had particular relevance to the Creswell art, as the interpretation of the large engraving near the mouth of Church Hole as an ibex was brought into doubt, due to the lack of evidence of ibex from Britain during this period (although this may be a taphonomic problem rather than a palaeontological reality). If it is sometimes difficult to identify animals from engravings, it is even more difficult to extract the meaning from Palaeolithic art. Should Palaeolithic art be viewed as an accurate depiction of the artist's world or a medium through which people interpreted and made sense of their environment? Should we expect art to

represent abundant species or scarce species, or perhaps even those species known to the artist only through some collective memory? If we are to view Creswell in its total European context then should we worry that certain animals were not present in the immediate environment? During the discussion Sergio Ripoll conceded that the engraving might not represent an ibex after all and went as far as to revise the drawings displayed on the hall's wall. Indeed, the engraving is now believed by the team to represent a red deer stag, given the discovery of badly eroded antler tines on what was originally interpreted as a horn.

Paul Pettitt examined some of the more enigmatic figures of the cave by comparing them with the art of the German Magdalenian. He compared the Creswell bird panel at the rear of Church Hole with art from the German Magdalenian sites of Gönnersdorf and Andernach, suggesting that the Creswell 'long-necked birds' are in fact highly stylized depictions of the female form found across the Magdalenian world. The theme of Palaeolithic artistic 'tradition' was also highlighted by Margherita Mussi's examination of late Upper Palaeolithic art of Sicily and Sardinia. Drawing upon examples of portable art from Sicily (from the sites of Grotta di Levanzo and Grotta dell'Addaura), and through comparison with the Venus of Macomer, a contemporary piece from Sardinia, she argued that while large geographical areas (in this case, across the sea) were linked through a common symbolism and set of beliefs, there was also clear evidence for the creation of regional symbolism representative of the particular local environments of the two islands.

Speaking in place of Michel Lorblanchet, Paul Bahn offered another way of looking at the art—through the action of its creation. Lorblanchet is world famous for his experimental work and his recreations of cave paintings. Bahn discussed Lorblanchet's work and showed how by placing the artist at the centre of our discussions of Palaeolithic art we are able to catch a glimpse of how Palaeolithic people viewed their world. Lorblanchet has suggested that the oral spray-painting that is so key to Palaeolithic parietal art may have a spiritual dimension, a projection of the artist onto the wall and into the subject of their painting. The positioning of the art and its accessibility or otherwise may give some clue to interpretation. The most enigmatic figures discovered so far are located in the narrow phreatic tube to the rear of the cave mouth (Pettitt 2003) rather than in the wide cave entrance. Whilst the art at the front of the cave is best viewed in bright daylight these enigmatic figures would have always been in the cave's dark, restricted interior.

A BRIGHT FUTURE FOR THE CRAGS: THE CRESWELL ART IN MODERN CONTEXT

That the Creswell art is of great significance to the archaeological world is undeniable but it is also of great importance to modern life in Creswell. Creswell Crags and Heritage Area is one of the most significant Pleistocene archaeological landscapes in England and since 1986 it has been a candidate for World Heritage status. The Crags are at the centre of a regional scheme for the regeneration of the coalfields known as the Creswell Initiative and the success of this project will give a major boost to the local economy. The discovery of cave art at Creswell has focused national and international attention on this outstanding heritage area and it is hoped that the discoveries will provide increased impetus to future development plans.

Nigel Mills described recent improvements to conservation and public access at Creswell Crags and future plans. Recent work has seen the relocation of the sewage works away from the Crags site and the restoration and landscaping of the works site to create the Crags Meadow events and picnic area. The Crags pond has been dragged and restored and an accessible footpath has been constructed around the gorge along with improved access to Church Hole and Robin Hood Cave. Sensitive archaeological deposits in the Arch cave have been protected by roofing. Future plans for the Crags include the relocation of the B6042 road, which currently runs through the gorge, and the construction of a new museum and education centre.

Our overriding impression of the conference weekend was of the deep interest shown by local people, not only in the Creswell art but also in Upper Palaeolithic art and archaeology in general. The three public lectures were very well attended and the questions we were asked personally, and the many questions posed to the speakers during the public lectures, proved that the Creswell art, and indeed the Creswell artists, are extremely important to the people of Creswell. The inhabitants of Creswell have embraced the development of Creswell Crags as a heritage site and there is a real sense of community pride in the Crags and their archaeology. It appears that realising the potential of this unique national education and scientific resource will only serve to reinforce its position at the heart of the Creswell community. One of the speakers at the conference was overwhelmed by the community response to the art and compared it to the public negativity he so often faces in his own work.

Since the Creswell conference the art has remained in the public eye. The engravings discovered on the ceiling of the cave have given rise to the moniker the 'Sistine Chapel of the Ice Age', while debate over the enigmatic

figures discovered in the narrow phreatic tube occasioned articles referring to 'Britain's first nude'. Continued recording and interpretation of the art is sure to bring new information and surprises. The art of Creswell Crags has captured the imagination of archaeologists and the public alike:

Two days have passed and I am still in awe and wonderment at the sights I saw at the weekend... I feel privileged; no—I AM privileged—to have been allowed in to Church Hole Cave and to be shown the first prehistoric cave art to have been re-discovered in Britain. (<http://www.themodernantiquarian.com/site/3067>)

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