

Paviland Cave: contextualizing the 'Red Lady'

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Paviland is the richest Early Upper Palaeolithic site in the British Isles and has produced Britain's only ceremonial burial (the 'Red Lady') of that age. Excavations in the 19th and early 20th centuries, combined with the action of the sea, have removed virtually all of the cave's sedimentary sequence. A new, definitive study of the site and its finds, together with over 40 radiocarbon dates, shows that Paviland currently holds the key to our understanding of the chronology of human activity and settlement from c. 30,000 to 21,000 years ago. The age of the 'Red Lady' is also finally resolved at c. 26,000 b.p.

Key-words: Wales, Paviland Cave, burial, ¹⁴C dates, Aurignacian, 'Red Lady of Paviland'

Introduction

The first recorded discovery of fossil human remains took place at Goat's Hole Cave at Paviland on the Gower peninsula of South Wales in January 1823. These remains, of a young adult male ceremonially buried with ivory ornaments and perforated sea-shells and covered with red ochre, soon became known as the 'Red Lady of Paviland'. The reason for this attribution lay in the misinterpretation by the excavator, the Rev. William Buckland, of the skeleton as that of a Roman prostitute or witch. Buckland's account is published in his *Reliquiae Diluvianae* (1823), a work whose title — 'evidence of the flood' — reminds us that Buckland, at this stage of his career, was working in the context of a belief in the literal truth of the universal deluge recorded in *Genesis*, chapters 6–8.

Excavations in 1912 by one of Buckland's successors as Professor of Geology at the University of Oxford, William Sollas, provided the most comprehensive account of the site available. Sollas, unlike Buckland, collected and analysed the abundant lithic artefacts from the site and identified the cave as, principally, an 'Aurignacian station' but with Mousterian artefacts present also (Sollas 1913). Unfortunately, Sollas recognized no meaningful stratification

within the Palaeolithic levels and — until the current comprehensive dating programme — the interpretation of the rich collection from the site had remained accessible only through typological analysis.

Typological study continued, notably by Garrod (1926), Campbell (1977) and Jacobi (1980). In parallel with this activity, several radiocarbon dates were obtained of which the first was a determination, on the bones of the 'Red Lady' himself, of $18,460 \pm 340$ b.p. (BM-374) (Oakley 1968; 1971). It is fair to say that this result was not given wide credence, principally because the age obtained was broadly coeval with the Last Glacial Maximum when glacier ice lay only half an hour's walk north of the cave (Bowen 1970). Later, Molleson & Burleigh (1978) cast doubt on any simple relationship between the radiocarbon age of the burial and the occupation(s) through their dating of a *Bos* bone to $27,600 \pm 1300$ b.p. (BM-1367). Unfortunately, the bone is not recorded to have been humanly modified and thus, whilst indicative of the possibility of carnivore presence at that time, it did not conclusively identify the meat-eaters as human or animal. Garrod (1926: 62–3) had also argued that a mammoth skull, found complete with tusks, 'formed part

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of the ceremonial interment'. Jacobi (1980, 31) saw the skull as material for an ivory workshop and regarded the burial, and therefore the skull, as most probably Aurignacian in date on the basis of parallels in Belgium to the ivory bracelets and rods apparently associated with the 'Red Lady'. He also argued that the burial could scarcely belong to the period of the Last Glacial Maximum since there was no evidence for settlement at that time nearer than almost 1000 km to Paviland.

The preceding arguments depend on a number of important factors: the age of the burial itself; the plausibility of settlement in Gower so close to the Glacial Maximum when north-western Europe had seemingly been abandoned; the suggestion that a mammoth skull had formed part of the burial assemblage; and whether the ivory grave-goods were Aurignacian, which would imply that both ivory-working and the burial were of that age. Soon another scholar (Campbell 1986) was to propose a wholly contrary view, rooted in his experience of working in the Antipodes, that hunters would operate right up to the edge of the ice and that the view of a British peninsula abandoned during the intense cold of the Last Glacial Maximum was ultimately ethnocentric and influenced by modern Western concepts of comfort. In the same year, Gamble (1986: 185) summarized the evidence as indicating that settlement in Britain had ended by 27,000 BP. However, the debate was soon to move on for, in 1989, a new determination on the 'Red Lady' was published (Hedges *et al.* 1989a). The result of 26,350±550 b.p. (OxA-1815) proved not to be of Last Glacial Maximum age and, apparently, too young to be Aurignacian. The chronology of the Aurignacian in Europe is too wide a subject to address here in detail. However, Mellars & Bricker (1986: 77) suggest that it had come to an end in southwestern France 'well before 28,000 b.p.' On the North European plain, in Poland, it seems equally to have ended by that date (Kozłowski & Kozłowski 1966: 58–9). Again, in Germany and Belgium, the available evidence (Otte & Straus 1995: 64–5, 230–31) seems fully compatible with such a chronology. This determination on the burial, whatever its cultural affiliation, seemed finally to have moved the debate away from the issue of the peopling of Britain during the long period, c. 25,000–13,000 b.p., associated with the intense cold of the

Devensian glacial maximum. Most recently, Gamble (1991; and in Housley *et al.* 1997) has proposed a model of northern European settlement based on an understanding of the climatic and archaeological evidence but with predictive value, its main postulates being a climatic downturn 27–21,000 b.p., followed by a substantive retreat into *refugia* during the period of maximum cold, followed in turn by a progressive recolonization of abandoned areas from c. 14,000 b.p. These three phases were seen by Gamble to correspond to successive phases of a social system and the first 'open' phase, particularly in its closing millennia, is typified by very long-distance social networks identifiable by intrinsically diagnostic and clearly symbolic artefacts such as Kostenki points and female figurines. Detailed typological variation in such symbols is seen as most likely to reflect Gamble's concept of the 'attrition of distance' rather than the 'passage of time'.

Paviland Cave is the richest Early Upper Palaeolithic site in Britain but has lacked definitive publication to modern standards. In 1996, a project was devised — supported by the SCARAB Research Centre of the University of Wales College, Newport and the National Museums and Galleries of Wales — to restudy the existing artefacts, fauna and human remains and to conduct a field evaluation of the site itself (Aldhouse-Green 1996a; 1997). A definitive monograph is planned (Aldhouse-Green forthcoming). As part of this project, a successful bid was made to NERC Scientific Services for a programme of 44 radiocarbon determinations using the Oxford Radiocarbon Accelerator. The samples were selected, following study of the fauna by Alan Turner (forthcoming). The following questions were identified:

- the timing and patterning of human presence through direct dating of the 'Red Lady' himself, charred bone and ivory/bone artefacts
- resolution of the question as to whether the worked ivory was fresh or fossil
- the patterning of faunal accumulation at the site, through the dating of a sample from each individual animal present, following identification of the minimum number of individuals (MNI) represented
- the timing of carnivore occupation(s) through the dating of carnivore remains and of carnivore-modified bones

- dating of bear remains to identify potential phases of bear den activity.

The overall objective, therefore, was to establish the chronological patterning for the period of cave-use as a whole both by humans and carnivores as a basis for wider interpretation. The present paper is restricted to the issue of human presence and excludes consideration of the implications of the faunal dating or of butchery practices.

The archaeological elements present at Paviland

In addition to a few earlier, Mousterian, artefacts, virtually all of the elements of the British Upper Palaeolithic are present including leaf points, Aurignacian, Gravettian, Creswellian and Final Palaeolithic (Campbell 1977; Jacobi 1980; Barton & Roberts 1996).

Mousterian

The earliest evidence from the site comprises a handaxe, several discoidal cores (Swainston pers. comm.), and possibly a so-called 'proto-Levallois' flake (Grimes 1939: 2–3). Whilst these finds might be seen as potentially comparable with the Oxygen Isotope Stage (OIS) 7 assemblage from Pontnewydd Cave in North Wales (Green 1984) or with nearer finds from the Severn estuary (Aldhouse-Green 1993; Green 1989; Rippon 1996: 14–16; Wymer 1996), recent excavation in Paviland Cave (Aldhouse-Green 1997) has suggested that the context of these finds is likely to have been Devensian, perhaps coeval with Mousterian finds from Coygan Cave only 30 km distant (Aldhouse-Green *et al.* 1995).

Leaf points

Potentially earliest among the Upper Palaeolithic finds are six leaf points (only one complete), but the status of these finds within the British Upper Palaeolithic, and particularly their relationship to the British Aurignacian, is far from clear. Indeed, it is equally possible that they are of Neanderthal manufacture. Radiocarbon dates from other British sites suggest an age in the range 38–27,000 b.p.

Aurignacian

On the basis of continental parallels one might suppose that the Aurignacian artefacts from Paviland, characterized especially by busked burins and by nosed and carinated scrapers, should fall within Aurignacian II, dated to the

period 32–30,000 b.p. at the Abri Pataud and elsewhere (Mellars & Bricker 1986). There are, however, no determinations certainly associated with the Aurignacian in Britain.

Gravettian

The only artefact that might be identified as Gravettian is a fragment of the base of a tanged artefact, arguably a Font Robert point. These occur, for example, at Maisières Canal in Belgium, where they are dated to c. 28,000 BP (Haesarts & Heinzelin 1979). In France, they are particularly characteristic of Upper Perigordian Va (Sonneville-Bordes 1960) or 'Fontirobertian' (Bosselin & Djindjian 1994).

Creswellian and Final Palaeolithic

Late Upper Palaeolithic finds are thinly represented at Goat's Hole where Campbell (1977: 2: 102–3, 119) identified only 27 artefacts, compared with a total of around 5000 Early Upper Palaeolithic finds. The former include both Creswell and Cheddar points (two each), and one penknife point. The current field assessment (Aldhouse-Green 1997) suggests that the reason for the paucity of finds may lie in the fact that the cave had largely filled up with colluvial scree by the time of the re-settlement of the British peninsula following the Last Glacial Maximum.

The radiocarbon dating programme

So far, the Oxford Radiocarbon Accelerator has dated over 40 samples from Paviland. Most of the results (TABLE 1) relate to the NERC funded project, but the list includes earlier Oxford measurements, including that on the 'Red Lady'. These are discussed below. We have not, however, included a measurement on the humic fraction of OxA-365, nor the British Museum measurement on the 'Red Lady' quoted above. Unfortunately, the mammoth skull recorded by Buckland, which may have formed part of the interment, does not survive and so its age could not be determined. Dates presented in bold pertain to human activity, being samples of human bone, implements, charred bone or cut-marked bone. The dates are presented in chronological order. The results indicate clear patterning of faunal and human materials in the cave, and vindicate the structured application of a radiocarbon dating programme to collections from old excavations from which little stratigraphic information is available.

lab. no.	sample	museum/acc. no.	$\delta^{13}\text{C}$	calibrated age BP
OxA-140	bone, unidentified	OUM		38,800±8000/-4000
OxA-7082	bone, <i>Coelodonta antiquitatis</i>	SM Z836.6.378	-19.7	> 38,100
OxA-7089	antler, <i>Rangifer tarandus</i>	SM Z836-6-432	-18.7	> 37,800
OxA-7085	antler, <i>Rangifer tarandus</i>	SM Z836-6-59	-19.0	35,400±1600
OxA-7086	bone, <i>Coelodonta antiquitatis</i>	SM Z836.6.431	-20.3	35,200±1500
OxA-6934	bone, <i>Coelodonta antiquitatis</i>	SM Z836.6.24	-20.1	34,250±950
OxA-7083	antler, <i>Rangifer tarandus</i>	SM Z836.6.54	-19.0	33,600±1200
OxA-6937	bone, <i>Coelodonta antiquitatis</i>	SM Z836.6.371	-20.	33,400±800
OxA-6932	bone, <i>Bison priscus</i>	NMW 24.94/163	-20.2	32,600±950
OxA-6936	bone, <i>Coelodonta antiquitatis</i>	SM Z836.6.370	-20.1	32,500±700
OxA-6924	bone, <i>Bison priscus</i>	NMW 24.94/217	-19.5	31,600±850
OxA-6931	bone, <i>Bison priscus</i>	NMW 24.94/160	-19.6	31,100±800
OxA-6930	tooth, <i>Megaloceros giganteus</i>	NMW 24.94/61	-19.8	30,450±750
OxA-6923	tooth, <i>Ursus arctos</i>	NMW 24.94/15.2	-19.3	30,300±700
OxA-6925	bone, <i>Bison</i> sp/ <i>Bos</i> sp	NMW 24.94/174	-19.9	29,850±700
OxA-365	bone, charred, indet. species	OUM		29,600±1900
OxA-6933	bone, <i>Ursus arctos</i>	NMW 24.94/39	-18.8	29,300±480
OxA-6935	bone, <i>Coelodonta antiquitatis</i>	SM Z836-6-374	-20.1	29,220±460
OxA-7789	bone, charred, indet. species	OUM	-26.2	28,860 ± 260
OxA-7084	antler, <i>Rangifer tarandus</i>	SM Z836-6-56	-19.2	28,550±650
OxA-6921	bone, <i>Vulpes</i> sp/ <i>Alopex</i> sp	NMW 24.94/264	-19.6	27,900±550
OxA-6982	tooth, <i>Ursus arctos</i>	NMW 24.94/15.1	-17.9	27,860±400
OxA-7877	bone, charred, indet. species	OUM	-25.23	27,780±320
OxA-6980	tooth, <i>Crocota crocota</i>	Ash 61.382	-17.3	27,750±500
BM-1367	bone, <i>Bos</i> sp/ <i>Bison</i> sp	NMW	-19.9	27,600±1300
OxA-6994	tooth, <i>Canis lupus</i>	NMW 24.98/48	-19.0	27,400±500
OxA-6984	bone, <i>Bison priscus</i>	NMW 24.98/164	-20.3	27,140±360
OxA-6986	tooth, <i>Canis lupus</i>	NMW 24.94/56	-18.8	27,060±360
OxA-6922	tooth, <i>Ursus arctos</i>	NMW 24.94/14.1	-18.6	26,820±460
OxA-6926	bone, <i>Bison</i> sp/ <i>Bos</i> sp	NMW 24.94/176	-20.2	26,820±460
OxA-1815	bone, Paviland 1	OUM Q1/1-1/28		26,350±550
OxA-8025	bone, Paviland 1, 'Red Lady', <i>Homo sapiens sapiens</i>	OUM	-18.4	25,840±280
OxA-6928	tooth, <i>Equus ferus</i>	NMW 24.94/122a	-21.2	25,940±420
OxA-6983	tooth, <i>Ursus arctos</i>	NMW 24.94/17.1	-17.3	24,760±260
OxA-7111	mammoth ivory pendant	OUM Q3	-21.4	24,140±400
OxA-6884	tooth, <i>Canis lupus</i>	NMW 24.94/52	-19.1	23,800±220
OxA-1790	bone spatula, <i>Equus ferus</i>	NMW 15.277.7		23,670±400
OxA-6927	tooth, <i>Equus ferus</i>	NMW 24.94/121	-21.4	23,580±320
OxA-7081	bone spatula, cervid	SM A836-1-34	-20.0	22,780±320
OxA-7108	ivory, <i>Mammuthus primigenius</i>	NMW 24.94/140	-20.3	22,620±340
OxA-7343	bone, indeterminate	Ash 1968.1745g	-20.4	21,940±320
OxA-7112	modified mammoth ivory	OUM S.5079	-22.9	21,100±550
OxA-6985	bone, <i>Rangifer tarandus</i>	NMW 24.94/233	-18.7	19,980±220
OxA-7087	bone, <i>Crocota crocota</i>	SM Z836-6-149	-19.3	17,880±180
OxA-6981	tooth, <i>Ursus arctos</i>	NMW 24.94/14.2	-19.0	17,670±140
OxA-6929	bone, <i>Cervus elaphus</i>	NMW 24.94/67	-20.0	15,250±120
OxA-681	bone, Paviland 2, <i>Homo sapiens sapiens</i>	NHM EM 602-603		7190±80
OxA-5989	bone, Paviland 5, <i>Homo sapiens sapiens</i>	NMW 61.382/2	-19.4	245±30

Samples in **bold** reflect phases of human activity and include human bone, humanly modified bone and ivory and artefacts made of bone and ivory.

Museum abbreviations: Ash = Ashmolean Museum, Oxford; NHM = Natural History Museum; NMW = National Museums & Galleries of Wales; OUM = Oxford University Museum; SM = Swansea Museum.

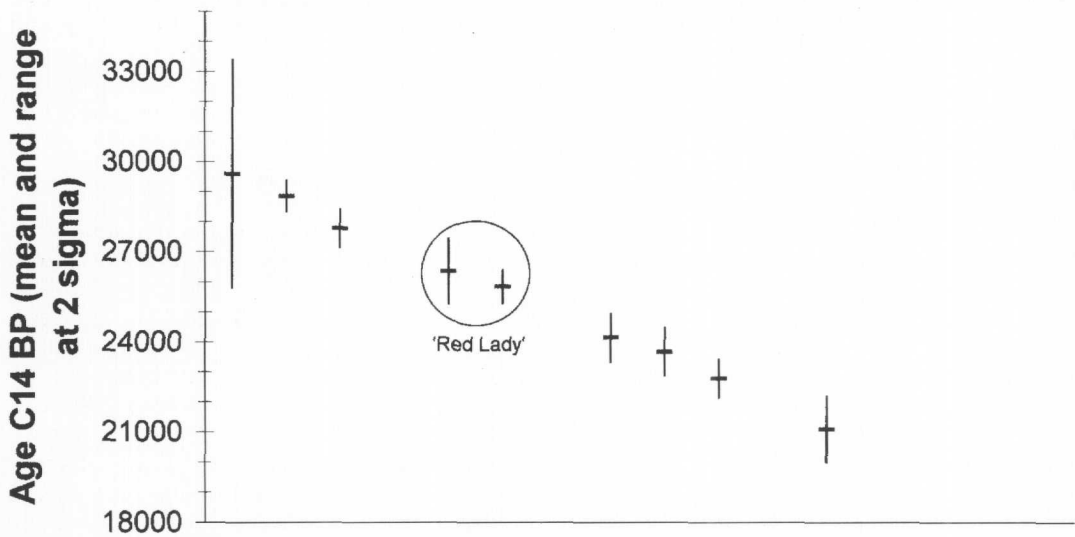
Note on contaminated sample

The carbon/nitrogen measurements of one sample indicated that we had not successfully removed all contamination. Given that the piece had obviously been treated with an unknown preservative, this is the most likely source of contamination. The result has therefore been removed from consideration alongside the other results:

OxA-6938	bone spatula, ?cervid	SM A836.1.35	-20.7	18,190±130
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TABLE 1. Goat's Hole Cave, Paviland. Oxford accelerator dates.

Palaeolithic human activity at Paviland



Oxford AMS Radiocarbon measurements (bone & ivory)

FIGURE 1. Paviland. The chronology of Palaeolithic human activity.

lab. no.	2σ range	sample	mean	μ ₁ -μ ₂
OxA-365	33,400-25,800	charred bone	29,600	
OxA-7789	29,380-28,340	charred bone	28,860	740
OxA-7877	28,420-27,140	charred bone	27,780	1080
OxA-1815	27,450-25,250	human bone (the 'Red Lady')	26,350	1430
OxA-8025	26,400-25,280	human bone (the 'Red Lady')	25,840	510
OxA-7111	24,940-23,340	ivory pendant	24,140	1700
OxA-1790	24,470-22,870	bone spatula	23,670	470
OxA-7081	23,420-22,140	bone spatula	22,780	890
OxA-7112	22,200-20,000	modified ivory	21,100	1680
OxA-681	7350-7030	human bone (Paviland 2)	7190	
OxA-5989	305-185	human bone (Paviland 5)	245	

TABLE 2. Goat's Hole, Paviland. Radiocarbon ages representing human activity. The formula μ₁-μ₂ expresses the difference between successive mean ages and illustrates simply the gap in radiocarbon years between and within the Pleistocene groups of dates here identified. For full descriptions of all fossil human remains at Paviland, see Trinkaus (forthcoming).

The age of the 'Red Lady'

Two determinations were attempted on the bones of the 'Red Lady' as part of the dating programme. The first proved abortive because of problems with preservatives. However, a

second attempt was made on a fragment of ochre-stained rib (originally recovered by Sollas) whose significance had lain unrecognized — and the bone unconsumed — until identified by Stephanie Swainston during her research

on the Paviland lithic collections (Trinkaus forthcoming). The result of $25,840 \pm 280$ b.p. (OxA-8025) overlaps with the earlier result of $26,350 \pm 550$ b.p. (OxA-1815) within a single standard deviation. An age of c. 26,000 b.p. for the 'Red Lady' is thereby confirmed. The ^{13}C value of -18.4 is indicative of a marine contribution to dietary protein of 15–20% (Mike richards pers. comm.), a result whose wider significance will be explored in the definitive Paviland monograph (Aldhouse-Green forthcoming).

Human occupation

Excluding OxA-6938, which is contaminated, there are 11 dates that pertain to human activity at the site (FIGURE 1). OxA-365 should be treated with some caution given that it is burnt and that it was measured early on in the life of the Oxford Unit. This is reflected in the large error, but it is encouraging to note that it is statistically the same age as OxA results -7789 and -7877. In order to examine the nature of human occupation, these determinations are presented as age ranges b.p. at 2 standard deviations (TABLE 2).

The Pleistocene results fall into a minimum of four periods, the last only a single outlying determination, with respective means of 28,750 (the charred bone dates), 26,000 (the 'Red Lady'), 23,500 (the pendant and spatulae) and 21,000 (ivory working) years. The dates in each group are all statistically the same age but the only complete hiatus lies between the second and third groups. The results are consistent with the notion that these groups may represent mostly brief occupations of the site, or visits to it. It can be seen that the two spatulae for which there are reliable measurements are statistically the same age, as one might expect given their typological similarity (FIGURE 2). The mammoth ivory pendant is statistically of the same age as these also. The other ivory artefact date — the modified ivory object — clearly relates to a later occupational phase than the other bone/ivory artefacts. There is also a determination on unmodified mammoth ivory of $22,620 \pm 340$ b.p. If these results all reflect a single phase of ivory exploitation — that is, if fossil ivory were being used — this must have taken place at or after c. 21,000 b.p., the age of the youngest object. There is no evidence currently available to guide us in seeking to interpret these

results. It is clear, however, at the 95% level of confidence, that the 'Red Lady' is not associated with any of the worked ivory and bone dated here. Given the chronological range and overlap of the five measured samples it is most likely that the third and fourth groups reflect repeated use of the cave in the period 25–21,000 b.p.

The dating procedures

Samples of bone, ivory and charred bone were selected for dating in line with the criteria identified above. Dating such materials is a routine procedure at Oxford: for full details of pretreatment methods see Law & Hedges (1989) and Hedges *et al.* (1989b; 1992). All faunal specimens were prepared using the standard Oxford pretreatment for bone or ivory samples, which is aimed at extracting and purifying collagen, the carbon from which is ultimately measured. Each was decalcified in acid and given an alkaline rinse to remove humic acids before being gelatinized by heating in a weak acid (for bone) or turned into constituent amino acids (ivory). Following this each sample was freeze-dried for combustion. Samples run at Oxford earlier (OxA-6994, -6884, -5989) were ion-exchanged between gelatinization and combustion, a procedure that has now been dropped, but there is no reason to believe that results from these samples are affected detrimentally. The samples of charred bone were treated using the standard Oxford method for charcoal, the aims of which are to eliminate everything except the pure carbon. As with bone, samples are given an acid and alkaline rinse, before being freeze-dried for combustion.

Radiocarbon chronology before 20,000 b.p.

There are a number of potential problems affecting accuracy of radiocarbon determinations in the period before 20,000 b.p. of concern here, and the question as to whether ^{14}C dates in this time range are reliable must be considered. First, ^{14}C ages appear to be asymptotic in nature, i.e. there is a ' ^{14}C Event horizon' as Chappell *et al.* (1996) refer to it, around 40,000 b.p., at which residual contamination of samples is such that results cluster around this period. The range of dated human occupation at Paviland, however, is younger and, so, the results of this project are unaffected by that horizon. Second, one must consider the correction of radiocarbon dates



FIGURE 2. Paviland. The bone spatulae. Left to right: National Museums and Galleries of Wales accession number 15.277.7 (ex Talbot collection); Swansea Museum accession numbers A836.1.34 and A836.1.35 (reference numbers OxA-1790, -7081 and -6938). (By permission of the National Museum of Wales.)

beyond 10,000 b.p. to calendrical ages that has recently been summarized and discussed by Van Andel (1998), following the data presented by Laj *et al* (1996). Such *correction* (named as such to distinguish it from the dendrochronologically based *calibration* in the Holocene) is crucial if we are to compare radiocarbon-dated archaeological phenomena to environmental sequences provided by ice and deep sea cores, which are dated (by other methods) in calendrical years. The underestimation of ^{14}C between 25,000 and 50,000 b.p. may be as much as 6000 years and rises with age, reaching c. 10,000 years for samples at c. 50,000 b.p. (e.g. Geyh & Schlüchter 1997; Goslar *et al* 1997). Although this is a serious problem, once again, it would appear not to bear directly upon the results of

the Paviland project. Perhaps the most serious problem affecting accuracy in the period concerned is the possibility of one or more plateaux that will distort results. A potential plateau of major proportions is suggested by the fact that almost all speleothems of between 35,000 and 45,000 BP (dated by other means than radiocarbon) yield an age of c. 30,000 b.p. when the radiocarbon method is applied (Goslar *et al* 1997). A plateau, of perhaps 5000 years, is also indicated around 32,000 b.p. by the comparison of Greenland $^{18}\text{O}/^{16}\text{O}$ ice cores and North Atlantic foraminifera profiles dated by U/Th (Jöris & Weninger 1997). As research into potential plateaux in this period is at an early stage, any discussion must inevitably be provisional, but, in terms of the specific Paviland results, there appears to be no bias of resulting ages which seems to indicate that there is no major plateau effect upon the results.

The results

Overall patterning

The results can be interpreted at several levels. Excluding two maximum age and two Holocene determinations, the results span the 20 millennia from 35,000 to 15,000 b.p. The individual determinations would support a pattern of punctuated use by humans and/or animals during the period 35,000–21,000 b.p. but with only a very sporadic presence thereafter. The means of the determinations which refer to human presence are limited to the period 30,000–21,000 b.p., although there is clear artefactual evidence of a human presence before 30,000 b.p. in the form of Mousterian finds, and perhaps the leaf points and busked burins. The dates cover the Early Upper Palaeolithic — and perhaps a phase of the Mousterian — but extend only to the lower margin of the Last Glacial Maximum.

ateglacial occupation is attested by only a small number of finds (Campbell 1977). It would seem a reasonable inference that the Late Upper Palaeolithic occupation was slight, a possibility attested not only by the dates but also by the paucity of diagnostic tool types. This is probably explained by the fact that the process of sedimentation of the cave seems to have been so advanced by this period that the site would have possessed only limited *Lebensraum*. The Mesolithic is similarly ill-represented in lithic terms although very incomplete human

remains of one or possibly two individuals may reflect the use of the site for burial. Overall, therefore, the gaps in the dates can be seen to be broadly consistent with the level and timing of human presence. We may offer the following analysis of the Mousterian and earlier Upper Palaeolithic phases of occupation in relation to other radiocarbon-dated sites.

Mousterian

The British Middle Palaeolithic is poorly dated and suffers in this regard from its position at the very limit of the radiocarbon technique. Nonetheless, a few useful results have been obtained:

'Creswell Crags'

>42,700±1600 (OxA-3418) cut-marked reindeer astragalus
37,200±1300 (OxA-3417) cut-marked reindeer tibia

Hyaena Den

40,400±1600 b.p. (OxA-4782) cut-marked red deer incisor
34,900±1450 b.p. (OxA-4113) charred bone

Coygan Cave

38,684±2713/-2024 b.p. (BM-499) unmodified reindeer antler

The Coygan date (Aldhouse-Green *et al.* 1995: 76) is best regarded stratigraphically as a minimum age, whilst the earlier Hyaena Den determination comes directly from a layer interpreted as Middle Palaeolithic; the later date is the oldest (and therefore arguably the least contaminated) of a series of charred bone dates from a comparable context (Hedges *et al.* 1996: 393).

None of the dates on humanly modified bone from Paviland is older than 30,000 b.p. A series of results on unmodified bone falls into the range 35,400–29,850 b.p. and is extended by two minimum ages of >37,800 and >38,100. Many of these specimens display evidence of chewing by hyaenas: whether cut-marks were obliterated by this activity remains impossible to determine.

Leaf points

British leaf points display typological variation, reflecting perhaps their origins, function, technology or chronology. Taken as a whole, they are dated, with varying reliability, at a number of sites. At Bench Tunnel Cavern, a hyaena mandible found in contact with and lying di-

rectly beneath a leaf point (Campbell 1977: figure 97,1) has given ages of 34,500±1400 b.p. (OxA-1620) and 32,500±1200 b.p. (OxA-5961); a bone fragment also in contact gave an age of 32,400±1100 b.p. (OxA-4985) but a hyoid bone (no identification) from just above gave an age of 27,150±600 b.p. (OxA-4985) (Hedges *et al.* 1989a: 214; 1996: 395). The context of the latter, and perhaps of all of the finds, seems to have been a mud flow and, accordingly, only the youngest age can be used to offer even a possible *terminus ante quem* for the leaf point. At Soldier's Hole, leaf points from Parry's layer 4 can be assigned an age in the range 29,000–>42,000 b.p. (Gowlett *et al.* 1986: 210; Hedges *et al.* 1991: 123–4). At Pin Hole, a result of 42,200±3000 b.p. (OxA-1448) offers a *terminus post quem* for a leaf point (Hedges *et al.* 1989a: 212). At Kent's Cavern, three determinations all of *c.* 28,000 BP and one of 38,270+1470/-1240 b.p. (GrN-6324) have been obtained on unmodified fauna from layer A2 (Campbell & Sampson 1971; Campbell 1977: 2: 19) where a leaf point was found with nosed scrapers. However, recognition at that site that the deposits had been emplaced by debris flows (Straw 1996) means that the only valid result is the youngest determination of 27,730±350 b.p. (GrN-6325) which thereby offers a possible *terminus ante quem* for the artefacts contained in the layer. A possible leaf point trimming flake from Picken's Hole was found with fauna yielding ages of 34,365+2600/-1900 b.p. (BM-654) and 27,500±2600 b.p. (ApSimon 1986: 169). At Robin Hood's Cave, a layer with leaf points and burins has yielded an age of 28,000+1600/-1300 b.p. (BM-602) (Campbell 1977: 1: 79; 2: 19).

All these dates 'associated' with leaf points are on unmodified bone and so are of limited evidential value. Moreover, several of the contexts involve debris flows and, accordingly, careful and cautious interpretation of the radiocarbon dates is required: the youngest age obtained on any contained specimen will offer a *terminus post quem* for the emplacement of the layer but not a reliable *terminus ante quem* for the contained fauna and artefacts which may clearly be of still younger age. Setting that aside, patterning is perhaps evident: no context is younger than 27,000 b.p. or certainly older than 29,000 b.p., and over half of the determinations cluster in the range 30,000–27,000 b.p. with only sporadic earlier occur-

rences. A similar cluster of results occurs at Paviland and to this we shall return. The chronological and cultural contexts of British leaf points have been reviewed by Allsworth-Jones (1986: 183–7; 1990: 207–8) who would see leaf points as potentially associated with Aurignacian material at Paviland, Ffynnon Beuno and Kent's Cavern.

Dating the British Aurignacian

Dating the Aurignacian in Britain presents a serious problem for there are no radiocarbon dates available which can be certainly linked with Aurignacian material or contexts. It is important, therefore, to review such dating as is available.

Hoyle's Mouth

Hoyle's Mouth is principally known for its Creswellian industry, but a single busked burin is also present (David 1991: 148). Excavation (Green & Walker 1991: 58–60; Aldhouse-Green 1996b) suggests that no potentially Aurignacian sedimentary contexts survive at the site. One group of radiocarbon dates falls, not unsurprisingly, in the range 12,220–11,860 b.p., but an earlier group – all on unmodified bone – dates, at 2σ, within the 29,000–25,000 b.p. age range (TABLE 3). These latter results could relate equally to a phase either of hyaena den activity or to human presence.

Ffynnon Beuno and Cae Gwyn

These sites have yielded a leaf-point, a busked burin, an angle-burin and an end-of-blade scraper with converging fluted retouch very much in the Aurignacian manner. Reassessment of the faunal range present at this site by Kate Scott has demonstrated that both caves possess a classic, substantially hyaena-accumulated, 'Coygan fauna' suggestive of a *terminus ante quem* of 25,000 b.p. The artefacts were seemingly emplaced by debris flows (Collcutt 1984: 58; Green 1991: 40). Evidence from the nearby Pontnewydd and Cae Gronw caves (Green 1986a:

39; Hedges *et al.* 1996: 391–2; Hedges *et al.* 1997: 247–8) is suggestive of the emplacement of debris flows there after 20,000 b.p., possibly associated with the Last Glacial Maximum. A determination of 18,000+1400/–1200 b.p. (Birm-146) on mammoth from Ffynnon Beuno (*not* Cae Gwyn as in Lister 1991 and elsewhere — see Green 1991: 41) has been regarded as unreliable (Lister 1991: 54) but is not far removed from the range of determinations on ivory from Paviland. At 2σ, the Ffynnon Beuno determination overlaps with the youngest ivory date from Paviland and forms a group with a mammoth tooth dredged, with numerous other mammoth remains, at a depth of c. 60 m from the English Channel, and with an age of 19,300±700 b.p. (Gif-1110) (Delibrias *et al.* 1971: 233). A comprehensive dating programme on Ffynnon Beuno and Cae Gwyn is currently under consideration.

Kent's Cavern

Kent's Cavern has a direct date of 30,900±900 b.p. (OxA-1621) for human presence based on the dating of a maxilla fragment of *Homo sapiens sapiens*. The maxilla is said to have come from a level beneath Aurignacian artefacts (comment by R. M. Jacobi in David 1990: 16), although the recognition of the layer, Campbell's A2, as a debris flow would now seem to rule out a simple interpretation of its cultural or chronostratigraphic significance. As it stands, the result provides the earliest radiometric evidence for anatomically modern human presence in Britain and falls within a 2σ range of 32,700–29,100 b.p. This result may be compared with a date of 31,300±550 b.p. (OxA-3405) on a modified reindeer antler from Pin Hole, but the latter lacks contextual information and both Mousterian and Early Upper Palaeolithic interpretations are possible.

Paviland

Study of the Paviland artefacts by Campbell (1977) confirmed that the bulk of the diagnos-

ref no.	sample	age	lab. no.	2σ range
HM-362	indeterminate bone	27,900±600 b.p.	OxA-1024	29,100–26,700
HM-1065	reindeer antler	26,500±550 b.p.	OxA-6227	27,600–25,400
HM-1244	reindeer phalanx	26,200±600 b.p.	OxA-6226	27,400–25,000

TABLE 3. Radiocarbon determinations of potential Aurignacian age at Hoyle's Mouth. All unmodified bone.

tic elements present may be referred to the Aurignacian in general, and to Aurignacian II in particular, on the strength of the presence of busked burins which are unknown outside of the Aurignacian. In this context it is tempting to regard the ochreous layer reported by Sollas (1913: 336–7) as a *niveau rouge* of a kind attested in Aurignacian contexts, for example at Spy or Marche-les-Dames in Belgium (Otte 1979: 597). Unfortunately, the layer no longer survives at Paviland and there is no means of testing its potential significance. Sollas (1913: 336) reported the discovery of burnt bone and Vivian (1912: 16) refers to traces of 'cinders or fire'. It seems possible that the presence of charred bone (still preserved in quantity in the Oxford University Museum) may refer to a single substantive phase of occupation, perhaps Aurignacian, given the dates on this material of $29,600 \pm 1900$ b.p. (OxA-365), $28,860 \pm 260$ b.p. (OxA-7789) and $27,780 \pm 320$ b.p. (OxA-7877). These results, whilst falling into different groups as defined above (TABLE 2), could even so represent a single event with an average mean of 28,750 overall (or of 28,320 b.p. for the 'best' two results). Indeed, with the Kent's Cavern maxilla result of $30,900 \pm 900$ b.p. (OxA-1621), these results may offer the best estimate of the age range of the British Aurignacian, for all of these determinations directly date human activity. Overall, however, the results provide no chronometric support for an Upper Palaeolithic human presence in the British Isles earlier than 30,900 b.p. and seem to indicate an age at the younger end of the Aurignacian chronological range.

Gravettian

Conventional dating of the Gravettian in Western Europe would suggest an age in the range 29,000–21,000 b.p. In Britain, an age of $24,600 \pm 300$ (OxA-3451) on a bone/antler point from the Hyaena Den is relevant here (Hedges *et al.* 1996: 393). Some 50% of the Pleistocene results from Paviland fall into this period. The only diagnostic type represented unequivocally at Paviland, however, is a single damaged tanged artefact. At the Belgian site of Maisières Canal such tanged artefacts are frequent and constitute 19% of an assemblage whose other dominant types are burins (44%) and retouched pointed blades or *pointes à retouches plates* (14%) (Otte in Haesarts & Heinzelin 1979: 72).

There is no real comparison to be made between the Paviland and Maisières Canal assemblages as a whole, even if a Gravettian element really is present at the former. The incomplete tanged artefact from Paviland, if a 'Font Robert' point, may conceivably have been brought back to the site for recycling — or for a replacement to be fitted to the spear shaft — and may therefore represent an isolated event in the history of the cave's use. It may, indeed, be that the substantive use of the site for settlement was now over, a point to which we will return.

Models of interpretation

We move now to an interpretation of the Early Upper Palaeolithic human presence at Paviland. The archaeological evidence strongly suggests a main phase of settlement, perhaps Aurignacian, close to 29,000 b.p. but with a sporadic presence perhaps before and certainly thereafter. The overall Aurignacian presence seems most likely to lie within the range 29,500–28,000 b.p. The reasons for a late beginning to the British Aurignacian as a whole are unclear but a 'frontier model', comparable to Zilhao's interpretation of the Iberian evidence (1993), may be appropriate. There is no reason to suppose, however, that later dates refer to other than relatively brief events: these include the ceremonial burial (c. 26,000 b.p.); the bone spatulae (c. 23,000 b.p.); the two ivory determinations of c. 24,140 and 21,100 b.p., clearly of different radiocarbon ages but possibly representing a single event if fossil ivory were being worked at, or after, c. 21,000 b.p. On the basis of such a minimalist interpretation, the determinations can thus be simplified into a minimum of four separate events. It is possible to offer a largely functional interpretation of the evidence as a series of unconnected visits by hunter-gatherers, whether simply passing by or staying for longer periods, at a cave of convenient size and situation. We believe, however, that such an explanation fails to take account of the nature of the Paviland evidence. Here, we would identify certain events as special: the ceremonial burial, the unique spatulae, and the continuation of visits to the site during a period of extreme climatic downturn, at a period when no other evidence — except for the bone/antler point from the Hyaena Den dated to 24,600 b.p. — is known of human presence in Britain. Indeed, the very scale and range of the Palaeolithic finds and



FIGURE 3. Paviland. Reconstruction painting of the 'Red Lady' burial. The scene, painted c. 1980, shows spears hafted with Aurignacian bone and flint leaf points as tips. Ivory rods are shown in use as ivory wands. Painting from a brief prepared by Stephen Aldhouse-Green. (By permission of the National Museum of Wales.)

activities at the site (and we must remember here that what may once have been extensive external deposits would have been early destroyed by the postglacial rise in sea level), everything from Mousterian to Final Palaeolithic, identifies the cave as a persistent place and so potentially of intrinsic significance.

Some ivory artefacts are apparently associated with the 'Red Lady' burial but others seem to occur at the site over the next 5000 years along with worked bone. Some objects were probably functional, like two chopped based bone points, although these might plausibly be earlier than the burial; others, however, are of decorative and, perhaps in some cases, of social or ritual significance. Here, one would include the fragments of an ivory bracelet, or bracelets (McComb 1989: 174–5), and a series of ivory rods recovered with the burial; and without recorded associations, an ivory pendant, ivory bead, perforated animal teeth and the three remarkable bone spatulae (FIGURE 2). The ivory rods, whilst capable of interpreta-

tion as possible blanks for bead manufacture, were presented as magical wands in the now well-known reconstruction painting of the burial (FIGURE 3). The use of ochre-coated rods in San ritual (Lewis-Williams 1981: 51) focuses our minds on the possibility of a ritual interpretation; certainly, the Paviland rods display no evidence of preparation for division into beads and one, now lost, is said to have had a swollen end as if the rod fragment had been part of a complete wand (Sollas 1913: 360). The bone spatulae seem to be without close contemporary parallel in Western Europe (McComb 1989: 140–41) and one has to look, for generalized *comparanda*, to the Eastern Gravettian (Gamble 1986: 185): as far, indeed, as Pavlov 1 in Moravia dated c. 26,700–25,000 b.p. (Otte 1981: 378; Svoboda *et al.* 1996: 221), or the Kostenki-Avdeevo complex of sites on the Russian Plain, dated c. 24,000–20,000 b.p. with a *floruit* c. 22,000 b.p. (Gvozdozer 1995; Soffer 1997: 244–7). At the Russian sites in particular analogous artefacts — whether symbolic art objects, designer bone tools, or what you will — may be

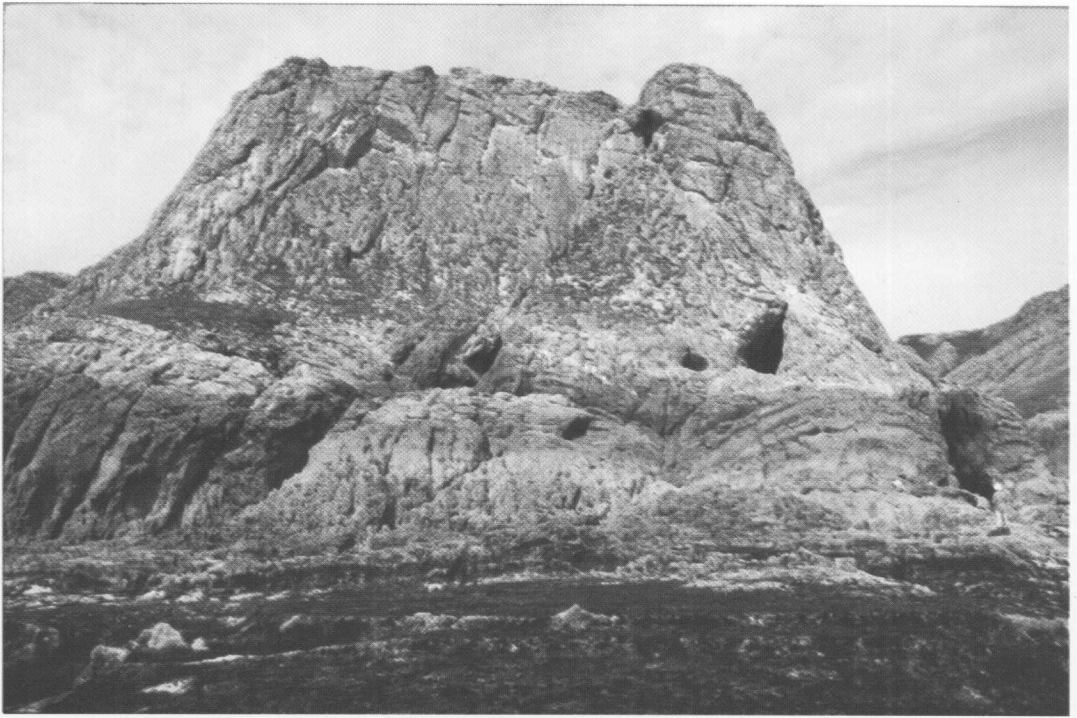


FIGURE 4. *Hound's Hole (centre) and Goat's Hole (right), Paviland. View from the floor of the Pleistocene coastal plain. (Photo Stephen Aldhouse-Green, 1997.)*

identified. The Paviland spatulae are tripartite in the manner of the 'hatted top' ivory artefacts at Avdeevo which are thought to represent a stylized image of the female form (Gvozdover 1995: 39; Soffer 1997: 245–6). Such an interpretation, to be evaluated more fully elsewhere (Aldhouse-Green forthcoming), is clearly also possible at Paviland also, with the head symbolized by the articular end of the bone, the breasts/buttocks by the medial swelling, and perhaps a belt by the opposed notches which may once have held a decorative binding. Chipping on the ends of the surviving blades may result from use in antiquity, an example of 'symbols in action'. It is interesting, too, that the Eastern Gravettian artefacts do not come from burials but from settlement or other contexts, with the spatulae known to have been deposited in pits at Avdeevo (Soffer 1997: 247). We do not know their provenance within the Paviland sedimentary sequence, but the likely original context of three such special artefacts seems likely to have been as a single deposit.

Ceremonial burials, like that from Paviland, whilst well known, are actually quite rare in

Palaeolithic Europe. The selection of Paviland for such an event may, therefore, reflect the numinosity of the site — a sensation experienced by many at the present day who are able — at low tide — to view the cave as its prehistoric occupants did, from below on the plain, now drowned by the Bristol Channel, that existed when global sea-levels were low during the later Pleistocene (FIGURE 4). Seen from this viewpoint, Goat's Hole appears as a south-facing cave clearly visible from some distance and set into the high cliffs of a promontory defined, on either side, by 'slades' or valleys.

The concept of natural landmarks, including mountains or hills, as sacred or imbued with mythic importance was widespread in the ancient and pre-industrial world (Flood 1990: 251). Such a concept would be appropriate to a shamanistic (or daemonistic) system of belief and cultic practice which is viewed (Vitebsky 1995: 28–33; Alekseev 1997: 101–2) as typical of hunter-gatherer societies in general, and has been inferred for the European Upper Palaeolithic (Lewis-Williams 1991). Studies of Turkic Siberian shamanism report the invocation of

mountain spirits among the Khakass; again, a mountain spirit is recorded in Tuvian cult practice as a shaman's helper 'embodied' in the form of a pendant tied to the shaman's clothing, perhaps a flint or a knife; among the Tofalars, reindeer or horses were sacrificed by the shamans to the mountain spirits in order to obtain cures for the sick (Alekseev 1997: 68–71, 73–4, 76, 95). It is interesting, too, that the oral history of the Siberian Evenks identifies the mammoth as creator of mountains through using its tusks to dig deep into the earth, an interesting link between lithosphere and biosphere, and perhaps the numinosphere (Vasilevich 1963: 60–61). In early oriental religions, particularly, sanctuaries served as the points of linkage between Heaven, Earth and the Netherworld (Eliade 1961: 40–43). In this context, the coincidence of hill and cave at Paviland may be relevant, for the idea of the *mons sacra* as a ladder between Earth and Heaven is reflected also in the shamanic tree of central and northern Asiatic shamanism. Here, the shaman ascends a notched tree with nine notches defining each of the celestial levels and, at the ninth level, prostrates himself before the Supreme Being and offers him the soul of a sacrificed horse (Eliade 1961: 46). Mountains, hills, and other solitary places are identified as the object of journeys or pilgrimages in the context of the vision-quests of many North American indigenous peoples (Evans-Wentz 1981: 147–51). In Japan, sacred mountains were the scenes of worship by people who had made long journeys for that purpose; moreover, the beliefs associated with such *montes sacrae* are thought to have had shamanic roots. The sacred mountains of Japan are seen also as abodes of the dead and as liminal places where the world of the living and the dead meet (Hori 1968: 141, 177).

The ochre-strewn interment, the possibly positioned mammoth skull, and the inferred shamanic importance of Paviland find a collective link in the broadly contemporary Brno II burial which was accompanied by the bones of large herbivores and was interpreted, on the basis of grave goods, as the grave of a shaman (Oliva 1996). This association of a burial with the deposit of large herbivore remains may, perhaps, be seen also at Predmostí I (Oliva 1997). The concept of the site as a sacred hill and/or cave implies that it was a well-established land-

mark, perhaps reflecting folk memory of an earlier phase of ancestral, probably Aurignacian, settlement. It may be, indeed, that Paviland was simply a *locus consecratus* whose mythic significance did not depend upon its topographical situation or features. In either case, this model may explain the evidence for repeated visits, perhaps episodes of pilgrimage, to the site which seem to have continued until a time when the British Isles were otherwise virtually depopulated with the nearest areas of settlement some hundreds of kilometres distant.

Occupation during the climatic downturn

The demonstration of human presence right down to 21,000 b.p. — a wholly unexpected result of the dating programme — finds support in the palaeoclimatic evidence presented by a Uranium-series determination of $20,000 \pm 1,000$ BP (SL-1062) — equivalent to a radiocarbon age of 17,000 b.p. (Van Andel 1998) — on derived stalagmite from Paviland cave (Ivanovich in Aldhouse-Green forthcoming). This clearly demonstrates that climatic conditions may, locally, have been less extreme during the period of the Last Glacial Maximum than might have been expected. A favoured local environment is further attested 5000 radiocarbon years later by a determination on red deer of $15,250 \pm 120$ b.p. This interpretation is reinforced by analysis of Oxford accelerator dates in the range 40,000–10,000 b.p. (from *Archaeometry* datelists 1–23) which show a bimodal distribution with peaks in the 29th and 13th millennia BP. In the trough marked by the period from 22,000–15,000 b.p., there are only eight AMS dates and all come from Wales: six from Paviland (this paper), one from Cae Gronw, Denbighshire (unmodified reindeer bone — $20,000 \pm 460$ b.p. [OxA-5990] (Hedges *et al.* 1997: 247–8)), and one from Little Hoyle, Pembrokeshire (unmodified ungulate bone — $17,600 \pm 200$ b.p. [OxA-1026] (Hedges *et al.* 1987: 290–91)). The conventional ^{14}C result of 18,000 b.p. from Cae Gwyn discussed above may be relevant here. This group of results from Wales may be a reflection of the location of the sites within the maritime zone of western Britain and may indicate that it is in just such geographical areas that sites of this period may be found.

Information of possible relevance to the environment at the time of the deposition of the spatulae at Paviland comes from Little Hoyle

cave situated 35 km to the west and at a virtually identical height above modern sea level (15 and 20 m O.D. respectively for Paviland and Little Hoyle). There are two strands of evidence. First, faunal analysis attests the local existence of a breeding population of barnacle geese at $22,800 \pm 360$ b.p. (OxA-1027) (Green & Walker 1991: 63; Hedges *et al.* 1987: 291). This is suggestive, on modern analogy, of high arctic conditions with a pure tundra environment, probably with no more than a few dwarf trees. Second, pollen analysis of this level by Geraint Coles (in Green 1986b: 119 — layer 4) is indicative of scrub or park tundra with large expanses of grassland probably punctuated by thin stands of pine, birch and juniper. We should not, perhaps, be surprised by the possibility of human presence under such conditions given the evidence that humans were present in the Rhineland and Central Europe during the early Pleniglacial (Hedges *et al.* 1998: 443–44), as also in the Paris Basin at Arcy-sur-Cure (Leroi-Gourhan & Leroi-Gourhan 1964) and Saint-Sulpice de Favières (Sacchi *et al.* 1985; Schmider 1990), and in the caves of the Erve valley on the edge of the Armorican *massif* (Allard 1985; Monnier 1991: 67–8).

Conclusion

Paviland Cave has now yielded over a dozen Palaeolithic dates on humanly modified bone or ivory, including artefacts, and actual human remains. It is a sobering thought that, outside of Paviland, the only radiocarbon determinations unambiguously relating to human presence in the British Early Upper Palaeolithic are the results on the human maxilla from Kent's Cavern and the bone/antler point from the Hyaena Den.

The oldest dates obtained relate to a possible phase, or phases, of human occupation *c.* 29,500–28,000 b.p. Unless these results attest a remarkably late Mousterian occupation, a situation here thought unlikely, the most straightforward interpretation would be to refer them to the Aurignacian phase of settlement at the site. The British Aurignacian itself seems to be late, a circumstance possibly arising, in part, from the presence on the British peninsula of an indigenous Neanderthal population and, in part perhaps also, from the lack of a demographic imperative for expansion by Modern Humans. The occurrence at the site both of numerous

Aurignacian lithics and quantities of charred bone, the latter dated to *c.* 28,500 b.p., may identify this period as one when settlement could be described as substantive. It may be that the Paviland leaf points formed part of the equipment of these Aurignacian hunters, although a Mousterian context for some or all of the leaf points cannot wholly be discounted.

The next period of human presence, *c.* 26,000 b.p., is marked by the apparently isolated loss or discard of a possible broken 'Font Robert' point and by the ceremonial interment of the 'Red Lady'. The date of *c.* 26,000 b.p. on the 'Red Lady' is consistent with the grave belonging to a similar chronological horizon as the well-known burials of Dolní Věstonice (Klíma 1987) and Sunghir (Bader 1978). The ceremonial burial at Paviland probably implies a formal social role for the deceased and the penecontemporaneous Sunghir evidence is suggestive of a dynastic basis for individual importance in Upper Palaeolithic society (White 1993: 295–6). Such a situation might suggest that the burial of the 'Red Lady' may both have reflected and reinforced the ancestral importance of the site, to which its topographical situation may have contributed.

The final period of Early Upper Palaeolithic human presence, *c.* 25,000–21,000 b.p., is marked by artefacts of ivory and bone (excluding those items securely linked to the ceremonial interment). This phase is marked by evidence of apparently brief visits into what was then possibly largely empty territory. There are two ivory artefact determinations: the Sollas pendant ($24,140 \pm 400$ b.p.) and a modified ivory object ($21,100 \pm 550$ b.p.). What is clear is that it is no longer possible to sustain a parsimonious view whereby all of the bone and ivory-working at the site reflects a single period of activity associated with the interment of the 'Red Lady'. The bone spatulae undoubtedly represent a single phase of activity *c.* 23,000 b.p. and it seems likely that these reflect the development of far-flung social and exchange networks extending to the very gates of Asia, in the manner articulated in Gamble's model of Palaeolithic society during the phase of climatic downturn leading to the Last Glacial Maximum.

We see Paviland as a site, therefore, where Aurignacian occupation, substantive by British standards but late in comparison with the

continental Aurignacian, took place. Later involvement with the cave before the Last Glacial Maximum may reflect activity of a ceremonial or ritual nature. In such a context it may be appropriate to invoke the concepts of *mons sacra* — or *locus consecratus* or other special status — for what may, according to our model, have been a site of pilgrimage. Visits to the cave apparently continued right down to 21,000 b.p. in conditions of increasing climatic stress. These visits, too, are suggestive of the specialness of the site. They also provide a valuable marker for what may have been the last point in time before the human population of the British peninsula was wiped out by climatic downturn or retreated to the *refugia* of southern Europe. Here, we may glimpse the social operation

of concepts of status and power, integrated through the discourse of ceremonial life and burial, shamanism and participation in far-flung exchange networks (Lourandos 1997: 67).

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