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Further investigations at Merlin's Cave, Symond's Yat West, Herefordshire

Report prepared by
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Further investigations at Merlin's Cave, Symond's Yat West, Herefordshire

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EHE80151

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Herefordshire Archaeology is Herefordshire Council's county archaeology service. It advises upon the conservation of archaeological and historic landscapes, maintains the county Sites and Monument Record, and carries out conservation and investigative field projects. The County Archaeologist is Dr. Keith Ray.

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Summary:

Two human burials were recovered from a steep slope overlooking the River Wye within Symond's Yat Gorge. Both burials appear to have been purposefully interred as extended inhumations immediately below Merlin's Cave. The burials came to light as a result of recording works associated with a series of tree throw scars, (Hoverd & Bishop, HAR 284). The cave was the subject of a series of antiquarian excavations in the first quarter of the 20th century and was also examined in the 1990's as part of The Wye Valley Caves Project, (Professor N. Barton, Oxford University).

The works reported upon within this document were funded by the Overlooking The Wye Project, a Heritage Lottery Fund supported project.

During March 2011 the burial closest to the cave was investigated, resulting in the excavation of a complete, articulated skeleton which had been buried under a light stone covering. The burial was aligned north / south with the head at the southern end. The second burial was excavated in September 2011. It too was buried under a light stone covering and the cut for the burial had been lined with stone. However this body had been interred on an east / west alignment. A sample from both burials was submitted for C14 dating.

The first burial was dated to the period AD 550-650, the second to the period AD 430-630, but in practice these results are statistically indistinguishable. The first burial is likely to be slightly later in date than the second, but what can be said with certainty, however, is that both burials fall within the sub-Roman period in this part of Herefordshire.

Both burials were sent to Wessex Archaeology for a full osteological report.

The location and date of the burials together with the presence of a considerable quantity of human bone which appears to be eroding from the hill slope, would suggest that these were not isolated burials and that much of the area below Merlin's Cave may have been used as a cemetery. The age profile of the individuals, the location of their graves and the grave goods within one of the graves raises some interesting possibilities concerning the type of cemetery and the relationship between it and the cave.

Introduction

This report (EHE80151), provides an account of small scale excavations carried out in the immediate vicinity of Merlin's Cave, near Symond's Yat, Herefordshire (NGR SO 5568 1533). The cave is situated in the rock face at the top of a steep slope approximately 58m above the River Wye. On the slope immediately below the cave mouth, five trees had fallen over and flints, animal bone and prehistoric and Roman pottery were observed within the tree throw holes and root plates. These were investigated in 2010 (Hoverd & Bishop, HAR 284). The sides of each tree throw were cut back to the vertical and the sections recorded. It was apparent that the majority of the artefacts had not been thrown out of the cave but were contained within shallow, in-situ stratigraphy. During the course of the cutting back of one of the tree throw holes the pelvis and upper legs of an articulated, human burial were encountered. These were recorded but left in-situ at the time.

During February 2011, Herefordshire Archaeology was contacted by a member of the public and Herefordshire Archaeology volunteer. The individual reported that finger bones, thought to be human, had been washed out of one of the tree throw sections after the winter snow. During a site inspection it was found that this was indeed the case, that the finger bones were human and that they did not relate to the burial discovered during 2010. Due to the shallow nature of the remains and its location on such a steep slope, it was agreed that the remains should be fully excavated, recorded, researched and dated.

The excavation took place over three days from Monday 29th March until Wednesday 31st March 2011. Fieldwork was undertaken by Herefordshire Archaeology staff, assisted by the individual who reported bones. The work was funded by the Overlooking the Wye (HLF) Project. After the excavation, recording and dating of this burial; funding was again made available from the Overlooking the Wye (HLF) Project to excavate, record and date the burial which was initially discovered as part of the 2010 fieldwork. This fieldwork was undertaken during September 2011. All the skeletal material recovered from within both grave cuts was sent to Wessex Archaeology for a full osteological report. Both burials were sampled for C14 dating as were animal bones found to be buried in close association with one of the burials.

The burials were both located on a steep slope approximately 8m apart. It would seem reasonable to suggest that additional burials might be expected across the slope as two out of the five tree throws investigated have contained burials. The fact that both burials had been interred in similar ways would suggest an organised and regulated burial ground. It is likely that they represent part of a larger cemetery.

Aims and Objectives

The initial aim of the fieldwork in 2011 was to investigate the bones, to see if they were associated with a formal burial. If they were so associated, then the aim would be further, to excavate the burial, record and lift it and to submit the remains for osteological study and C14 dating.

As the C14 dating and osteology reporting progressed, it became apparent that additional funding (through the Overlooking The Wye Project), could be made available. It was therefore decided to fully excavate, record, date and analyse the human remains encountered in 2010. This was done during September 2011, in order to compare and contrast the type of burial, the taphonomy of the burial and its date with the burial excavated during March 2011.

Location

Merlin's Cave is a large cave situated on the west bank of the River Wye, approximately 0.8km south of Symond's Yat West, at SO 5568 1533. It lies in the parish of Whitchurch, Herefordshire, between Monmouth 6km to the southwest and Ross-on-Wye 9km to the northeast.

Figure 1: Map indicating the location of the study area within the county

The area lies at the junction of numerous geological strata. The site is characterised by the carboniferous limestone series of the upper old red sandstone. The lower slopes consist of the lower dolomite series and above this is a significant limestone band (British Geological Survey 1989).

The soils of this area are the Crwbin series, part of the Rankers group and consist of fine silt over carboniferous limestone (Ragg et al, 1984). Merlin's Cave lies within

the northern, upstream, end of the Wye Gorge. The course of the Wye here is thought to have arisen when a large river meandered across a floodplain of soft sediments and then cut down through successive layers of rock as land levels rose, the result is the spectacular Wye Gorge.

The river runs some 120m below the plateau at this point. On the east side the cliffs are virtually vertical whilst on the west they are slightly less steep. The distance between the plateaux at the top of the gorge is 400m. The river is confined within a narrow course leading to dramatic rises in water levels in times of flood. The limestone geology has given rise to some classic Karst features; isolated pillars of rock tower above the river and caves are abundant.

Previous Archaeological Work

The documented investigations within Merlin's cave begin in the 19th century when a "rag and bone" man collected artefacts from Merlin's cave (and others) and sold them to locals. A series of "curio hunters" visited the cave throughout the 19th and into the early 20th century. Part of the cave was disturbed by miners prospecting for iron ore seams during the first half of the 19th century. In the 1870's considerable quantities of bone (both human and animal) were removed from the cave (Phillips, 1931). In 1912 human and animal bones were excavated from the cave during an undocumented excavation by A.E.W. Paine, (*Proceedings of the* Cotteswold Naturalists Field Club 22(2), pp 189.). A series of trenches were excavated within the cave over two seasons in 1924 and 1926 by T.F. Hewer. It was Hewer who named the cave, *"The cave has hitherto been nameless, and it has been decided to call it "Merlin's Cave", on the analogy of the neighbouring "King Arthur's Cave……such a nomenclature will provide names for other caves in the vicinity, when required".* (Hewer, University of Bristol Speleological Society proceedings 21).

During September of 1924, Hewer excavated a trench 13ft long and 4ft wide running from the cave entrance back into the cave along the eastern cave wall. Hewer stated that there was no stratification of any kind within the trench despite it being excavated to a depth of almost 6ft. Despite this, human bones representing three individuals (two adults and an infant) were recovered from "*different levels*". Animal bone, pottery, glass iron and copper alloy artefacts were recovered as was a worn Roman coin of Tetricus. Further human remains belonging to a single adult were recovered from a trench close to the western side of the cave, these were considered to be earlier in date than any of the remains in the first trench as they were sealed beneath a stalagmite floor. It would appear that Hewer was mostly interested in the recovery of evidence of Pleistocene use of the cave and concluded that the human use of the cave represented sporadic visits from the Bronze Age to the end of the Romano-British period.

Hewer returned to the cave in 1926. In order to make room for further excavations an area at the foot of the cliff was cleared and a level platform was created This involved the excavation of material close to the cliff face which was deposited down-slope to build up the level. A revetment wall was constructed on the down-slope side of the platform. Spoil from the 1924 and 1926 excavations was removed from the cave and placed on this platform. During the construction of the platform several

human bones, animal bones and a single sherd of pottery were recovered. Hewer explained the presence of this material as being *"undoubtedly dropped from the cave above at some earlier disturbance",* (Proc. University of Bristol Speleological Society 2(2), pp 147).

The 1926 excavations comprised a continuation of the eastern trench excavated in 1924 to a total length of 24ft. As in the 1924 season, a mix of material was recovered ranging in date from the early Bronze Age to the late Romano-British period, including fragments of beaker pottery and a coin of Constantine the Great 330-335AD.

The remaining cave floor deposits were fully excavated in 1929 by C.W. Phillips. It is clear from Phillip's report, (Phillips,C.W., 1931), that Hewer and his predecessors had left it in a very poor condition. Phillip's report describes the "final" series of excavations within the cave. It is written more as a gazetteer of finds encountered than an archaeological report, due the lack of surviving stratigraphy. It is however a very full and detailed report, which raises a number of interesting issues (see discussion section below).

In 1993 the Wye Valley Caves Project undertook an exploratory season of survey and trial excavations in a series of caves and rock-shelters within the Wye Valley Gorge, (Barton, R.N.E. University of Bristol Speleological Society proceedings 19-21). This was a 5 year project designed to assess and sample the caves and rock-shelters within the Wye Valley Gorge in relation to their archaeological and paleo-environmental potential. In 1996 Barton et al investigated the micro-faunal remains deposited on the walls of Merlin's Cave. Samples were taken for dating purposes. Associated with these works was a small test pit, excavated outside the cave, next to the cliff face *(N. Barton, pers comm*).

Fieldwork in 2010

In partnership with Forestry Commission and Overlooking The Wye, (HLF), Herefordshire Archaeology investigated the boles of five trees which had recently blown over, resulting in small but deep areas of localised disturbance. (Hoverd, T. & Bishop, L. 2010. Herefordshire Archaeology Report No. 284). Pottery, flint and bone fragments were recovered from three of these areas of disturbance. An assessment of the potential of the area was made by cutting back into the areas of disturbance caused by each tree throw and recording the exposed sections. It was noted that the artefacts appeared to be contained within a series of in situ deposits immediately above a natural soil. This was buried beneath a modern soil, on top of which was the spoil from the early 20th century excavations of Merlin's Cave.

During the course of cleaning one of the tree throws (Trench 2 on Figure 2), articulated human remains (pelvis, femurs and patellae) were discovered. The remains appear to have been buried in a relatively shallow grave cut, aligned on a roughly east / west axis. The grave was clearly sealed by a series of deposits which appeared to closely resemble those of other tree throw holes from which prehistoric finds were recovered. The burial was partially excavated and recorded by Prof. A. Chamberlain, (University of Sheffield). The burial was left in situ at this time whilst

funding for its study was sought. The cleaned sections and bases of each tree throw were then backfilled. The artefactual evidence would suggest that there has been human activity on the site from the Neolithic to the end of the Romano-British period.

Plate 1: Trench 2 in 2010 under excavation showing the human femurs.

Fieldwork in 2011

Trench 1

Trench 1 was located approximately 6m to the east of the base of the cliff, immediately below Merlin's Cave. In 1926, Hewer levelled an area cut into the hill slope in order to provide a platform onto which the spoil from the cave excavations was thrown, forming a cone shaped heap. It was noted during the creation of this platform that a number of human bones were disturbed (Phillips 1931). The 2011 trench cut through the base of the 1926 spoil heap which comprised a loose, well mixed, loamy soil with frequent angular stones, (001). Below this was the pre-1926 ground surface, a 5cm thick loamy soil (002). This covered a 0.5m thick layer of dark earth containing frequent small angular stones (003). Under this was a loose, grey soil which was virtually stone free, (004). Within this layer was a fully articulated prone burial of an adult human male. This overlay a well compacted orange / buff stony layer interpreted as natural formation, (005). This contained a quantity of angular stone, including some large boulders.

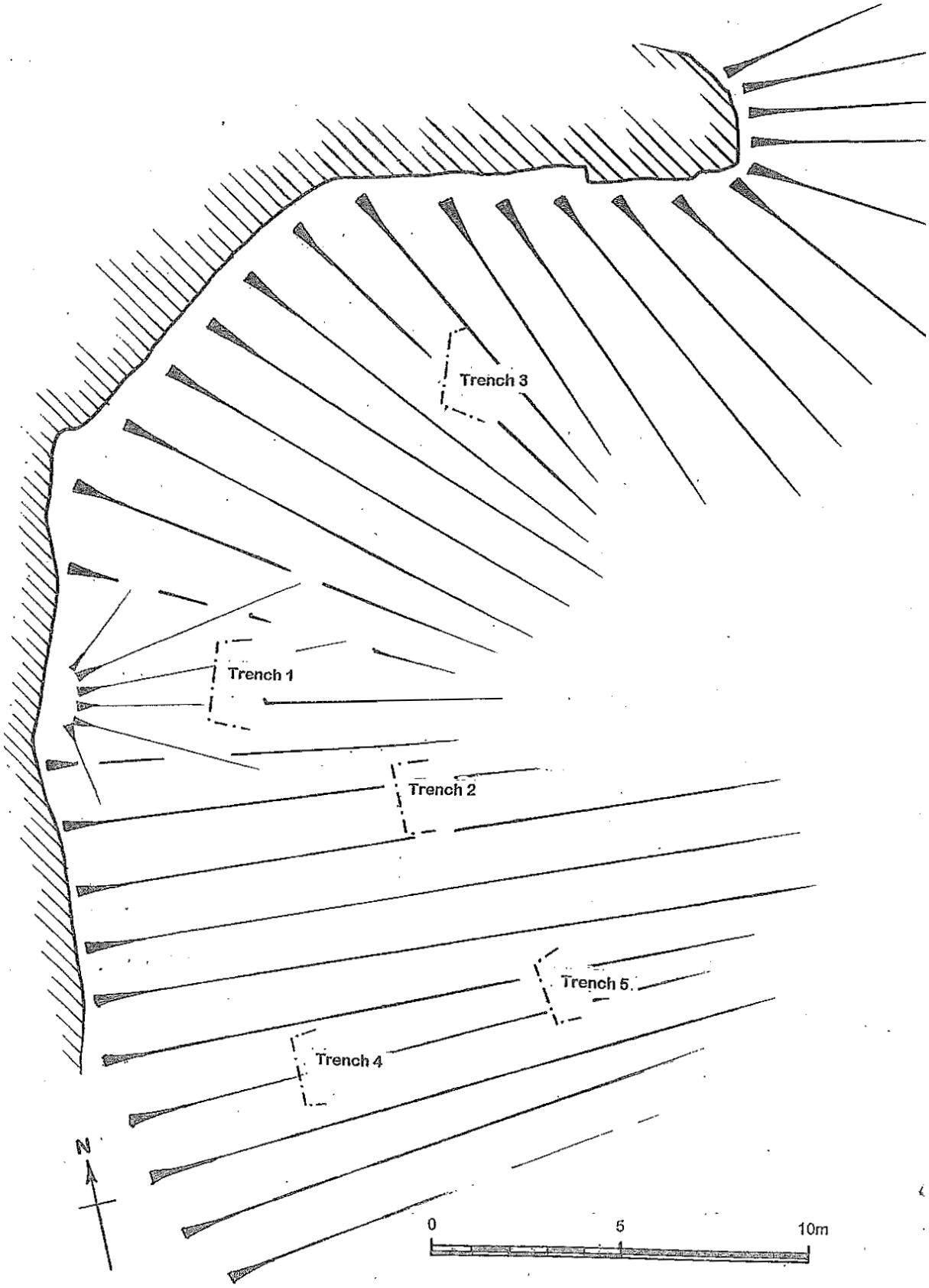

Figure 2: Location Plan of trenches / tree throws. Trench 1 is the location of the human remains excavated in March 2011. Trench 2 is the location of the human remains initially discovered in 2010 and excavated in September 2011.

Plate 2: The burial during excavation. Note the layer of stones immediately above the torso and pelvis.

The majority of finds (animal bone, prehistoric pottery and flint) were recovered from layer (004). This appears to be a buried soil directly overlying the natural sub-soil. A small quantity of finds were recovered from (003). These however were more mixed in age and more fragmented (particularly the pottery), suggesting that this layer had either been previously disturbed or at least partially re-deposited. Rodent bones were recovered from all layers, including the natural subsoil (005).

The burial (004) was aligned roughly north / south, laid prone and comprised an adult male whose right arm was extended along his side with the right hand on the right femur. His left arm had been bent at the elbow to lie over the abdomen / pelvis. The burial was that of a male, of over 50 years of age and approximately 1.85m (6'1'') tall. His teeth were badly worn and showed a history of poor dental hygiene. He suffered from chronic sinusitis although this infection appears to be secondary and associated with a dental abscess. He suffered from osteoarthritis particularly in his shoulders, hips and feet (see appendix 1 for further details).

A sample of the right tibia from the burial was submitted for dating at the Scottish Universities Environmental Research Centre AMS Facility (see Appendix 2). This produced a date of cal. AD 550-650 (1460±30 BP, SUERC-35499)

Plate 3: Showing detail of skull and proximity of ox / cow knuckle bone.

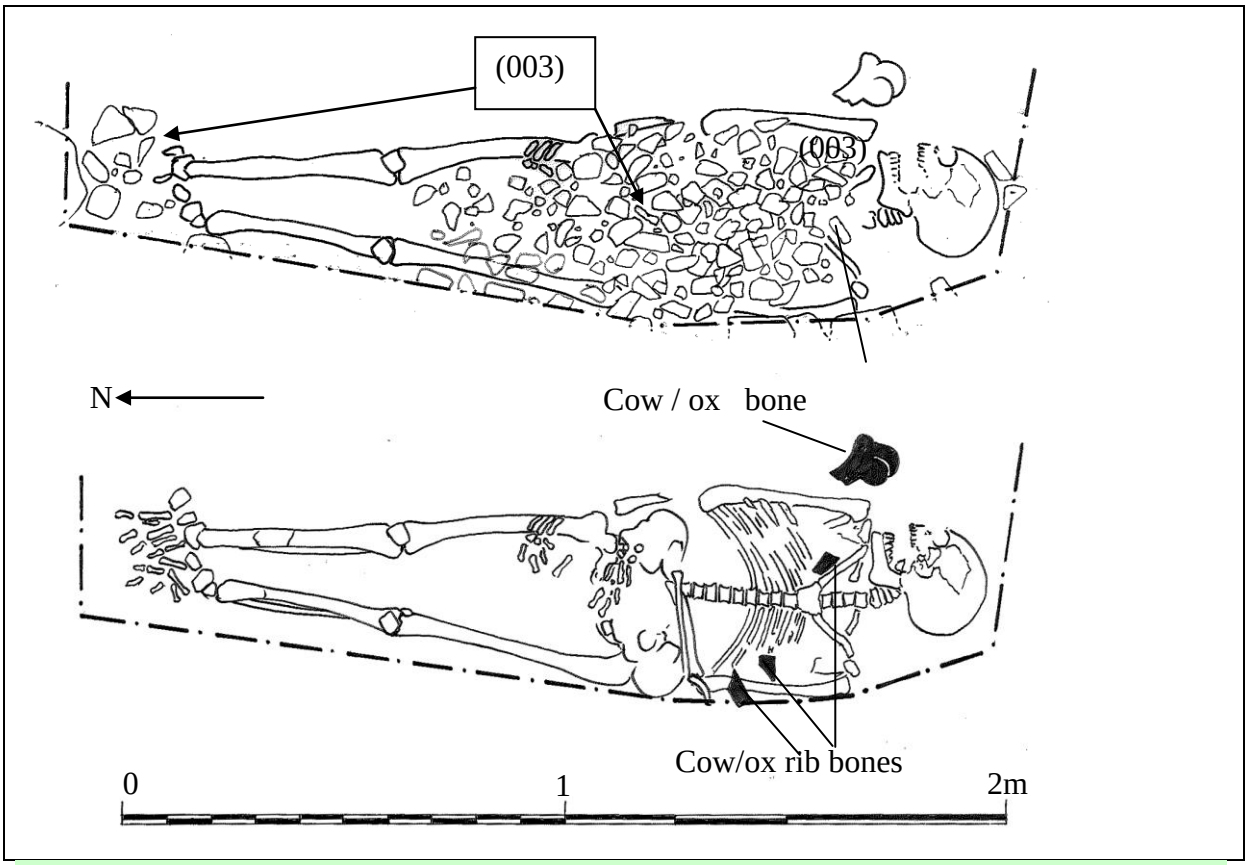

Figure 3: plan of burial showing covering of stones (003) over torso, pelvis and feet (top) and the location of animal bone (coloured black) fragments associated with the burial (bottom)

Positioned approximately 5cms to the south of the right humerus was the knuckle of a cow or ox femur. Scattered over the chest of the individual were three fragments of cow / ox rib (all of which conjoin). The three fragments of animal rib were all sealed by the stone layer (003) and appeared to be within the primary fill of the burial. Whilst the cow/ox knuckle bone was not covered by the stone layer (003), it was clearly within the same deposit (004) as the three other bones, suggesting that these bones were deliberately placed directly on and / or next to the individual during the burial process. The knuckle bone displays marks consistent with deliberate butchery process. It was submitted for dating at the Scottish Universities Environmental Research Centre AMS Facility (see Appendix 2) which produced a Late Bronze Age date, 920-800 cal. BC (2715±30 BP, SUERC-37668).

Plate 4: Northern section of Trench 1 showing natural horizon and angle of hill slope.

Trench 2

This was located at NGR SO: 55674 15330 approximately 8m to the south / east of Trench 1. The scar measured 2.4m long (north / south) and 1.6m wide, (east / west). It was the location at which the human leg bones of an individual had been found in 2010.

Plate 5: Femurs and pelvis as revealed in 2010

The stratigraphy apparent after cleaning was broadly similar to that present in Trench 1, with the exception that the spoil (001) from within Merlin's Cave was absent. As in Trench 1, a 0.5m thick layer of dark soil and frequent angular stones (003) was apparent. This layer contained a significant quantity of animal and human bone but no pottery or diagnostic flint. Below this deposit was a layer of more compacted grey / buff material. This was similar in make up to (004) in Trench 1 but was thicker (0.4m) and appeared to have disturbed natural in its matrix. A small amount of animal bone and flint was recovered from this deposit. A stone lined cut (006) was apparent (to be seen to the left of the ranging pole in Plate 3), which appears to extend from the base of layer (003) and cut through (004) and into the top of the natural subsoil (005). The upper-most fill (007) of cut (006) closely resembled (004), but was less well compacted and contained the occasional fragments of charcoal. This directly overlay the femurs and pelvis of a human skeleton (008). The burial was aligned roughly east – west, with its head to the east. The pattella were present at both knees however the feet and lower leg bones were absent. The burial (008) and layer (004) both directly overlay the well compacted buff / orange natural subsoil (005). It would appear that the grave cut (006) was cut from the top of

deposit (004) subsequent slumping has resulted in the top 0.15m containing the top 0.15m containing the also slumped material of (003).

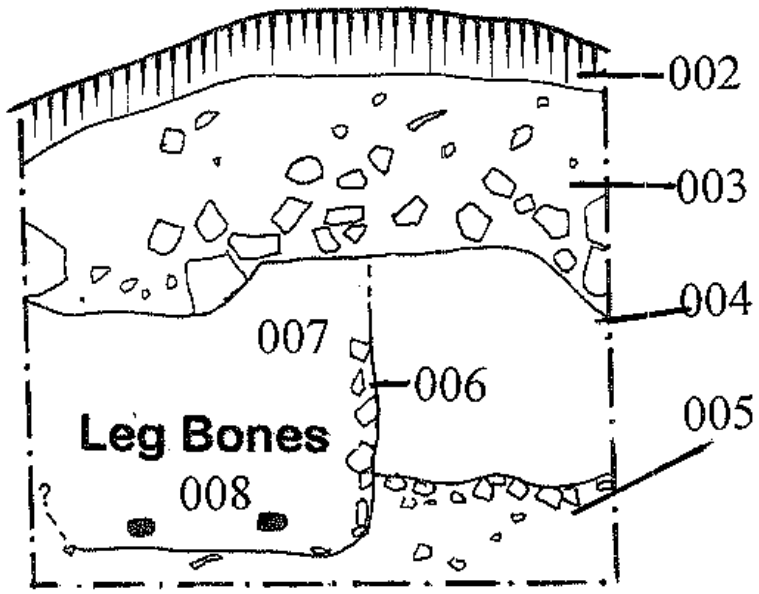

Figure 5: western section of Trench 2 recorded during 2010

Plate 6: The burial prior to lifting in 2011

The grave fill (007) produced a human lower jaw bone and a large fragment of unused quern stone. The burial (008) was aligned roughly east / west and in the prone position. Both arms were extended along the sides although the left arm was slightly underneath the ribs suggesting that the body had been placed in the grave at a slight angle. Small angular stones had been placed around the grave cut. Immediately under the burial was a single sherd of pottery. This comprised a wheel-thrown, sandy, buff fabric with shallow parallel incised decoration on its outside surface. Initial identification would indicate a Romano-British date (S.Ratkai, *pers com*).

The remains represent a male of over 60 years of age and approximately 1.72m (5'8'') tall. He had advanced osteoporosis and also had a wedge compression fracture of a thoracic vertebra, two fractured and healed ribs and a fractured and healed right clavicle. His teeth were badly worn and showed a history of poor dental hygiene. Like burial (004) he suffered from chronic sinusitis. The infection appears to be primary, with possible causes including irritation from airborne pollutants such as smoke and dust (see appendix 1 for further details)

A sample of the right femur from the burial was submitted for dating at the Scottish Universities Environmental Research Centre AMS Facility (see Appendix 2). This produced a date of cal. AD 430-630 (1510±30 BP, SUERC-37667).

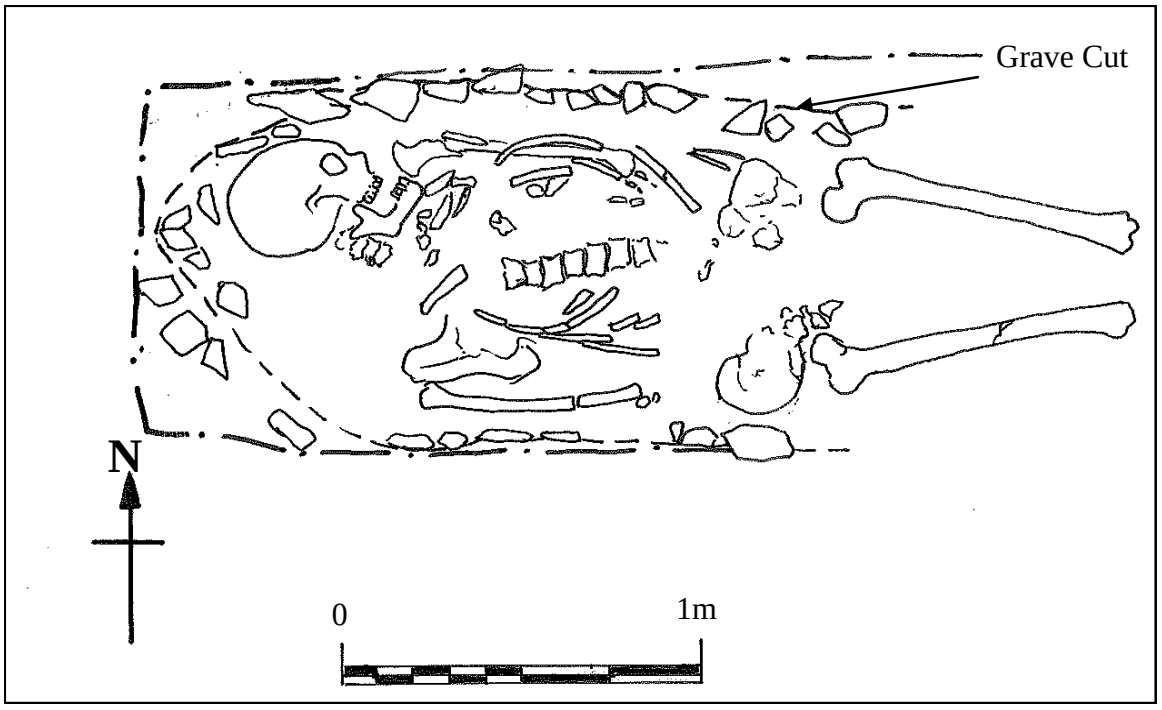

Figure 6: Burial (008) from Trench 2.

Discussion

The location of the two burials recovered during the 2010 / 11 fieldwork is unusual and unexpected. The site is relatively inaccessible, surrounded by 20m high cliffS on three sides and comprising a steep slope down to the river. The date of the burials also came as some surprise The post-Roman / early Saxon period is a period severely under-represented within the county.

The setting of the site is of interest due to its inaccessibility. Western, northern and southern boundaries of the site are defined by 20m high, vertical cliffs (within which "Merlin's Cave" is located). The present angle of slope is approximately 50 degrees from the horizontal and there is no evidence to suggest that this differs dramatically from the slope profile of the 6th or 7th century AD. This rendered the practice of burial especially in such a location difficult. It is assumed that the deceased were lowered down the cliff face rather than carried up from the river. Whichever way the corpses arrived at the location, there must have been a significant reason (or reasons) for the choice of this location for their burial. Was it the vista over the river? The presence of the cave? Or something less tangible? If the presence of a cave was the defining factor in the location of the site; then why this cave? There are a number of similar caves within a short distance from Merlin's Cave. Some of these are far more accessible, with larger chambers and with equally impressive views over the River Wye (although it must be noted that so far none of these caves have been looked at with regard to the possibility of human activity outside them). Could it have been the fact that this site is so inaccessible which made it such a "special" location or could it have been more to do with the perceived traditions of use of the cave itself? Or, indeed, some particular relationship between the deceased and the (then) contemporary use of the cave?

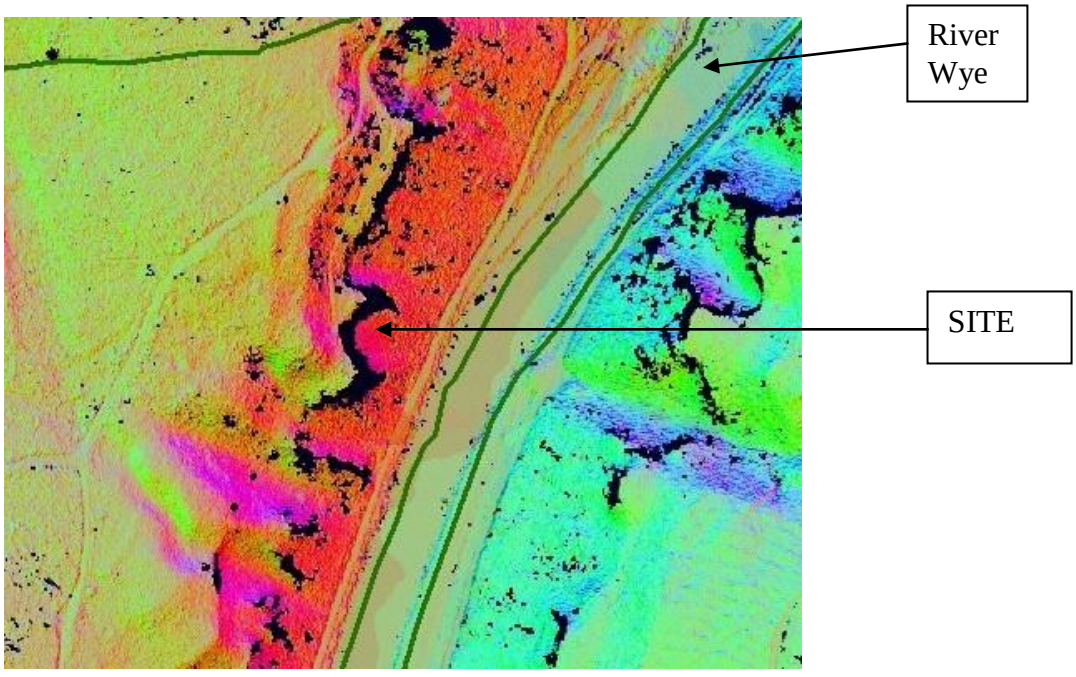

Figure 7: Lidar image showing the distinctive semi-circular "bay" from which the burials were recovered. (Image reproduced by kind permission of The Forestry Commission).

As noted in both excavation reports (Hewer, 1924 and Phillips, 1931) it is clear that considerable quantities of human and animal bone were removed from the cave during the latter half of the 19th century. The reports of bone removal on this scale, together with the frequent reports of the cave being visited by “curio hunters”, would suggest that there had been a very considerable amount of faunal remains within the cave prior to these “works”. Despite this antiquarian emptying of the cave, enough material was left to capture the interests of at least two archaeologists, at least one of whom (C.W. Phillips), was held in high regard to the extent that he was subsequently running the 1939 excavations of the ship burial at Sutton Hoo, Woodbridge Meer in Suffolk. It may be reasonable to suggest that any of the more recognisable, complete or striking finds would have long been removed from the cave. Whilst we will never be sure of the type, quantity or date of the material removed, the quantity of references to its removal over a considerable period of time would suggest a very artefact rich cave. Indeed Hewer and Phillips recorded finding a number of bones relating to a minimum of six human skeletons between them.

Burial (004) in Trench 1, in contrast outside the cave, appears to have been purposefully interred with fragments of animal bone, (figure 3). Three fragments of ox / cow rib were laid over the chest and sealed by the angular stone deposit (003). Although spread over the chest and left arm, all three rib fragments conjoin. Next to the right shoulder of the human burial was the knuckle of an ox or cow. Although this was not sealed by deposit (003), it was lying directly over the base of the grave and in such close proximity to the right shoulder (less than 5cms away) that it is highly unlikely that it found its way there by accident. The size of the bone arguably precludes it from arriving there through natural processes. In light of this, a sample from the bone was submitted for C14 dating. The bone showed marks consistent with butchery and provided a date of 920-800BC. Does this represent some form of ritual deposition using significant or revered material from the cave used as a form of veneration? Could the burials investigated in this report be ”overflow” from the cave itself?

It would appear likely that if two burials have been found during the investigation of five random (or at least naturally occurring) tree throws then more burials remain to be discovered. The recovery of part of a human jaw bone from within the grave fill of trench 2 may also support this reasoning. The manner of burial is also of interest. Both graves were found to contain deliberate deposits of small angular stones. In the case of the burial from trench 1 (004), the torso and pelvic region and the feet were covered in a layer comprising such stones. The burial within trench 2 (008) had the grave cut defined by angular stones.

The way in which each grave was prepared should also be considered. Burial (004) in trench 1 was aligned along the slope (roughly north / south in orientation). This would seem the easiest method of burial on such a steep slope. It appears that a terrace was cut into the slope in order to form the grave and during the course of its construction a large boulder was encountered. This was moved and the resulting depression filled with stone and soil in order to achieve a flat base on which to place the body. The boulder was then used as part of a revetment on the eastern (downslope) side of the platform. The body was apparently laid directly onto this prepared platform. The torso, pelvis and feet were then covered by a discrete deposit of angular stones (003) prior to the terrace being backfilled.

The burial within trench 2 was aligned East / west with the head at the western end. In order to cover the feet with any depth of soil at all the western end of the grave would have had to be excavated to a depth in excess of 2m. It is assumed that the feet and lower legs were not buried to a great depth which is why they have eroded from the grave prior to the excavation The cutting of such a grave on a slope such as this would have been a considerable task (not least in storing the spoil from the grave prior to backfilling!).

The care and effort involved in the creation of both graves would indicate the presence of a small, formal cemetery rather than the casual disposal of bodies. The dates from both burials are interesting in that they point to the burial of human remains over a relatively long period. If the entire date range for both burials is looked at as one then this represents 230 years. It is however, far more likely that the burials are separated by considerably less time than this with the most probable dates of burial falling around 610 AD for burial (004) (Trench 1) and 550 AD for burial (008), (Trench 2).

The burials were both of relatively old males (004) was over 50 years of age and (008) over 60. A lower jaw bone recovered from the grave fill of trench 2 originated from a younger adult (sex unknown), suggesting that there may be a wider age at death range than these two burials imply. Although the jaw bone could itself have been retrieved from an earlier burial in a similar way to the cow / ox bone of Late Bronze Age origin associated with the burial in trench 1.

Hewer and Phillip's reports contain much useful information concerning the finds assemblages from the cave. The sheer amount of animal and human bone which appears to have been removed from the cave is unusual. Phillips states that no horn cores or animal skulls were found suggesting that the material was deposited in the cave for a specific processing or production process. This type of assemblage including the species present is similar to an assemblage recovered from Little Doward Hill fort, (Dorling, P. 2012, HAS 295). This has been C14 dated to the 3rd Century BC. The Doward assemblage appears to represent industrial bone waste from the manufacture of awls, pins and gaming pieces. Several pieces of gaming counter were recovered with the same dot and ring decoration as that recovered on a bone fragment by Phillips (Phillips, C.W. 1931 Plate II, no. 15)., the inscribed dot and ring is exactly the same size as the examples recovered from Little Doward.

The Key factors may be that:

- The two burials are of two mature / very mature adult males.
- That they had endured considerable trauma during their lives
- That they suffered from sinus problems that could be related to living in the dusty / smoky environs of limestone caves.
- That they were deliberately buried close to the cave.
- That there was a likely considerable interval between their respective deaths.

These factors may suggest that the site does not represent a "cemetery" in any conventional sense. Could the burials therefore be regarded as the revered "custodians" of the cave? In such a situation, the dates are significant. This was a

period when, by all accounts, Christianity was becoming more important. However the burial customs were not “Christian” and burial in such a location was contrary to Christian belief. Rather, the burials stand at the end of a local tradition of cave burial that extends back at least into the Upper Palaeolithic, several thousand years earlier. Could these burials therefore represent the end-point in a long continuous tradition of the veneration and curatorship of caves / rock-shelters as traditional / religious sites?

Recommendations for Further Work/Research

This is clearly an interesting site with the potential for considerable further information to be obtained.

An appraisal of the location of all previous finds from the site to facilitate a re-assessment and full publication of the site record, (although it is understood that much of Hewer’s records and artefacts were lost during the bombing of Bristol in the Second World War), would be beneficial, particularly the ceramic assemblage.

Further useful on-site work would include a re-assessment of the cave, including accurate recording of its location and a more detailed description, in order to distinguish it from the several other caves in the area with the same name. Furthermore, a series of small test pit investigations would be useful on the slope below the cave in order to determine the degree of preservation and the extent of archaeological deposits across and down the slope. The recovery of more articulated burials would provide important information concerning the length of time the site was used as a cemetery in addition to information regarding the age profile of the individuals being buried.

Prior to further fieldwork taking place it would be desirable for a number of the trees growing on the upper slope to be felled. This would rapidly mitigate further damage by tree throw.

Interestingly, despite the long history of exploration within the cave, Phillips was the only person to have considered investigating the slope at the base of the cliff. He would have excavated the area from which the 2011 human remains came from as part of his final works in 1929, but did not because Hewer’s spoil tip was in the way and could not be moved without causing damage to a newly planted ash plantation covering the rest of the slope, (Phillips, 1931 pp 14). Had circumstances been different then the cemetery outside Merlin’s Cave would have undoubtedly been discovered by Phillips eighty years ago! As things turned out, Phillips only had to wait another ten years before excavating a rather more spectacular early Saxon cemetery at Sutton Hoo!

Appendix 1

Merlin's Cave, Symond's Yat West, Herefordshire 74570.5 (MC11) Human Bone Publication Report

Kirsten Egging Dinwiddy, March 2012

Introduction
Human bone from three contexts was subject to analysis, comprising the remains of two inhumation burials (004 (grave 007) and 008 (grave 006)), and redeposited bone from deposit 002. The burials were made within stone lined graves situated *c.* 8m apart, on the east facing slope in front of 'Merlin's Cave'. The results of radiocarbon dating (see Appendix 2) indicate that the burials were made in the early Saxon period. The cattle bone (grave 007) dates to the Late Bronze Age and is considered to be residual.

Methods
Bone condition was recorded using the grading system devised by McKinley (2004, fig. 6.1-7). Age was assessed from the stage of tooth and skeletal development (Beek 1983; Scheuer and Black 2000), and the patterns and degree of age-related changes to the bone (Buikstra and Ubelaker 1994). Sex was ascertained from the sexually dimorphic traits of the skeleton (*ibid*; Bass 1987). Measurements were taken and skeletal indices calculated where possible (Brothwell and Zakrzewski 2004; Trotter and Gleser 1952, 1958; Bass 1987). Non-metric traits were recorded in accordance with Berry and Berry (1967) and Finnegan (1978).

Results
The following text and table HB1 provide a summary of the analysis results; details are in the archive.

Disturbance and preservation
The stone-lined graves survived to a depth of *c.* 0.15m (grave 007, burial 004) and *c.* 0.50m (grave 006, burial 008). The steep slope of the location allowed the erosion of part of grave 007 and the loss of skeletal remains from burial 008 (from the knees down). There was some bioturbation.

The bone is in good condition (grade 1-2), though some axial elements of 008 are more degraded (grade 3). The slight to moderate fragmentation includes both old and fresh breaks. The rate of skeletal recovery is high (table HB1) with bone loss primarily due to truncation and disturbance rather than decay. Green copper alloy staining was evident on the upper jaw and left humerus of 004.

Demographic data
A minimum of three adults are represented in the assemblage: two males (>50 yr. and >60 yr.) from the *in situ* burials and an unsexed adult (>18 yr.) from the redeposited material (table HB1).

Skeletal indices and non-metric traits
Individual 008 is estimated to have been of a stature equal to the average calculated for the period (1.72m/5' 8"; Roberts and Cox 2003, 220). At an estimated 1.85 m (*c.* 6' 1") the adult male 004 was considerably taller; however, similar statures have been identified in other

Anglo-Saxon assemblages e.g. Old Gas Works, Southampton (1.82m) and Collingbourne Ducis, Wiltshire (1.83m) (McKinley 2005, 49; Egging Dinwiddy in prep.).

The skulls of both the adult males are dolichocranic, i.e. long and/or narrow (cranial index: 70.3 (004) and 71.2 (008)).

The platymeric indices (shape of the proximal femur shaft) show that both femora of 004 are equally eurymeric (88.1 left; 88.2 right). The platymeric left femora of 008 is substantially broader/flatter than the eurymeric scoring right (80.9 *vs*. 93.2). The platycnemic index (degree of tibial medio-lateral flattening) was calculated for both tibiae of 004 (eurycnemic; 72.0 left; 72.1 right). The scores indicate a similarity in type and degree of biomechanical stresses of the legs of individual 004, and a disparity in those of 008. The robusticity index was calculated for both males (004 - 127.8 (right femur); 008 - 138.4 (left femur)).

Variations in skeletal morphology may indicate population diversity and/or activity related modifications (Tyrrell 2000, 292). A few relatively common non-metric traits were observed (see the archive), while more notable examples are listed in table HB1. Bilateral *os acromiale* (non-fusion of the acromion epiphysis) suggests that 004 may have undertaken physically demanding activity using the arms and shoulders before the age at which fusion of the acromion epiphyses would normally occur (*c*. 20 years) (Stirland 2005, 121; Scheuer and Black 2000, 268).

context	**cut**	**deposit type**	**quanti-fication**	**age/sex**	**pathology**
002	topsoil	redeposited	2 bones s. a.	adult >18 yr.	-
004	007	inh. burial (stone-lined)	*c*. 90%	adult >50 yr. male	abscess; amtl; calculus; caries; dental enamel hypoplasia; periapical void; periodontal disease; hypercemetosis; extreme tooth wear (chipped); sinusitis; Schmorl's nodes - ; osteoarthritis – 1st MtT-Ps & sesmoids; osteophytes – 4 r. & 5 l. ribs, sternum, r. elbow; enthesophytes – sterno-claviculars;, MV – wormian bones; mandibular tori; *os acromiale*; supra-condyloid process
008	006	inh. Burial (stone-lined)	*c*. 75%	adult >60 yr. male	calculus; caries; periapical void; periodontal disease; extreme tooth wear (chipped); sinusitis; osteoporosis; fracture – T9 (wedge); 2 ribs, r. clavicle; trauma – r. humerus (rotator cuff); ddd – C6, T9-10; ankylosis – T6-7; osteoarthritis – T1 (apj), T6-7 (c-v), 3 ribs; osteophytes – C6, T1, T6-7 & 9-11; enthesophytes – sterno-claviculars;, femora; enthesopathies – clavicles; exostoses – r. scapula; calcified cartilage - ribs; cortical defect – r. distal IP (hand); MV – wormian bones; metopic suture; occipital fossa

KEY: s. a. u. l. = skull, axial, upper limb, lower limb (where not all regions represented); amtl – *ante mortem* tooth loss; C, T, L, S – cervical, thoracic, lumbar and sacral vertebra; ddd – degenerative disc disease; apj – articular process joint; bsm – body surface margin; c-v – costo-vertebral joint; MtT-P – metatarsal-phalangeal joint; IP – interphalangeal joint; MV – morphological variation

Table HB1: summary of human bone analysis

Pathological lesions

Dental

A total of 61 teeth and 63 tooth positions from two dentitions were observable. However, extreme dental attrition may preclude the observation of some conditions (e.g. hypoplasia).

Dental calculus (calcified plaque; Brothwell 1972, fig. 58b) is evident on 54 teeth (88.5%), presenting most severely on the distal third molars. Slight to severe (score 2 to 3+) periodontal disease lesions (gingivitis; Ogden 2007, 283-308) are present in 29 tooth sockets (46.0%; 20 in 004, 9 in 008), with the mandible most severely affected. Similarly high rates of these conditions have been noted in other contemporaneous assemblages (Roberts and Cox 2003, 193).

Dental caries are evident in 11 teeth (18.0%); seven in 008 and four in 004. Most examples affect mandibular molars and are situated interdentally at the tooth neck. Roberts and Cox (2003, 189) suggest a much lower average rate of 4.2% for the period.

One tooth was lost ante mortem (maxillary third molar), a true prevalence rate (TPR) of 1.6%, a rate somewhat lower than was calculated by Roberts and Cox (8.0%; 2003, 191). However, caution should be exercised when interpreting data from small samples as comparisons may be misleading.

Four periapical voids are present (6.3% *vs.* 2.8% average for the period (Roberts and Cox 2003, 191)); all occur in the maxilla. The nature of the voids (rounded, smooth walled) suggest that all initiated as a granuloma – a sac of soft tissue that develops in response to exposure of the tooth pulp (Katzenberg and Saunders 2008, 322-3; Dias and Tayles 1997, 548; Soames and Southam 2005, 45-63). Two voids indicate small granuloma, whilst a larger example probably housed a cystic granuloma. Extreme attrition is most likely the cause. A further void (004) represents an abscess, probably caused by a carious lesion. The infection was active at the time of death.

Dental enamel hypoplasia (interruption in enamel production through nutritional/health stresses during tooth development; Hillson 1986 376; Lewis and Roberts 1997, 581) were observed as multiple fine linear depressions in the anterior teeth of 004 (23.0%). Their distribution and location suggests the individual probably suffered repeated, mild periods of stress through infancy and childhood, peaking around the traditional weaning period.

Hypercementosis (often associated with inflammation of the tooth root) is evident in most teeth of individual 004, affecting at least half of the root. Possible causes include localised trauma, granuloma, and certain conditions (e.g. Padget's disease). Several teeth are chipped and split, whilst others are noticeably buffed. The buccal roots of some molars are also highly polished. The modifications suggest that both soft and hard materials had been habitually grasped or passed between the teeth. The presence of mandibular tori, periapical granuloma and hypercementosis (linked to prolonged and/or repeated clenching of the jaws and localised dental trauma) support this notion. However, the chipping and extreme attrition may also be partly due to a tough or gritty diet and advanced age. Similar non-masticatory tooth wear patterns have been noted in other Anglo-Saxon assemblages e.g. Twyford School, Hampshire (Egging Dinwiddy 2011, 103-4) and Blacknall Field, Wiltshire (Stuckert 2010, 135).

The dental pathology implies fairly poor oral hygiene, and probably a diet rich in soft and sticky carbohydrates. Advancing age and extreme wear are likely to be contributory to the higher rates of some dental pathology.

Infection
Both 004 and 008 have changes consistent with chronic sinusitis. In the case of 004, the infection was secondary to a dental abscess. In 008 the infection appears to be primary, with possible causes including irritation from airborne pollutants such as smoke and dust.

Osteoporosis
Osteoporosis (diminished trabecular bone mass and structure) weakens the bones making them more prone to fracture. The condition is strongly associated with advancing age, though factors such as disease, diet, lifestyle, and genetics also play a role (Roberts and Manchester 1997, 177-180). The condition was evident in 008, who also had a wedge compression fracture of a thoracic vertebra and an excessively lightweight previously fractured clavicle (see below).

Trauma
Individual 008 had sustained fractures in two ribs and the right clavicle. All are classic examples and most likely result from one or more falls or direct blows (Adams 1987, 107-8, 119-120). The healing and remodelling occurred without significant displacement or obvious complications other than a lack of density. Associated pathology comprises various enthesopathies (see below) in the right shoulder girdle.

Joint disease
Joint diseases are the most frequently recorded conditions on archaeological skeletal assemblages. Though sometimes due to certain conditions, degenerative changes such as osteophytes and pitting are thought to be reflective of 'wear-and-tear'. Degeneration increases in severity with age, though other factors are often involved.

Spinal joint disease is common in both spines, with slight osteophytes observed on most vertebral body surface margins (61.8%) and articular process joints (*c.* 61%). Pitting is limited to a few thoracic articular joints and facets (*c.* 14%). Osteoarthritis (Rogers and Waldron 1995, 43-44) is present in six vertebrae (14.3%), affecting the articular joints of two cervical and one thoracic vertebra, and three thoracic rib facets. Eburnation (glassy polish) is evident in all but two cases.

Mild to moderate Schmorl's nodes (a defect resulting from a rupture in the intervertebral disc; Rogers and Waldron 1995, 27; Roberts and Manchester 1997, 107) are present in seven vertebrae (20%; thoracic and lumbar); all are from 004. Mild-moderate degenerative disc disease (degeneration of the intervertebral disc (Rogers and Waldron 1995, 27)) is manifest in one cervical, six thoracic, two lumbar and one sacral vertebra (28.6%). Fusion of the sixth and seventh thoracic vertebrae of 008 was also noted, with the non-prolific ankylosis of both the body surfaces and articular process joints; the morphology of the vertebrae has been maintained. There is no indication of trauma, osteoarthritis or potential conditions other than osteoporosis. It is possible that the vertebrae are congenitally fused.

A total of 163 extra-spinal joints are observable. Lesions consistent with osteoarthritis are manifest in five joints (3.1%; see table HB1). The most advanced example (gross deformity, grooving and eburnation) is in the distal first metatarsal and sesmoids of the right

foot of 004 (the base of the big toe). Lone marginal osteophytes are evident on 29 extra-spinal joints (17.8%), mostly affecting the upper limb, ribs and hips. Lone pitting affected six joints (3.7%), comprising both hips of 004 and the shoulders of 008.

The joint disease lesions are generally consistent with age-related wear-and-tear in individuals taking part in fairly heavy physical activity from young adulthood. There is some bias towards degeneration of the upper limb joints that may be indicative of participation in activities that require comparatively more biomechanical stresses on these joints.

Enthesopathies

Enthesopathies (ossification or erosion of tendon and ligament insertion sites (Rodgers and Waldron 1995, 24-25)) are present in the usual sites i.e. pelvic crests, calcanea and patellae, with notable examples in the sterno-clavicular joints of both individuals. Age and activity are most likely the predominant factors in their formation. Enthesopathies and exostoses associated with trauma are present in the right shoulder girdle of 008 (see above).

Substantial calcification of the various cartilaginous structures (e.g. rib cartilage; 008) is also considered to be indicative of advanced age.

Concluding remarks

The *in situ* remains comprise two robust, older adult males, one of greater than average stature. The dental health observations concurs with those of Roberts and Cox (2003, 193), who remark that the cleaning of teeth was clearly *not* a major preoccupation during this period. Both men probably used their teeth for non-masticatory tasks. Apart from the traumatic injuries, most changes and observations point to a physically demanding lifestyle and advancing age. The pathological, degenerative and activity-related changes are consistent with those seen in other skeletal assemblages from the Anglo-Saxon period.

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Appendix 2

Radiocarbon Report for Merlins Cave, Symonds Yat (74570.5)

by Chris J. Stevens

Introduction

Three samples of bone were submitted for radiocarbon dating from the site. Two came from burials, a right tibia from (004) and a right femur from (008), the last came from a butchered cattle bone also from context (004).

The samples were identified, weighed and submitted to the Scottish Universities Environmental Research Centre, East Kilbride (SUERC) for radiocarbon dating.

Results

The radiocarbon determinations were calibrated using OxCal 4.1.7 (Bronk Ramsey 2001; 2009) and the IntCal09 calibration curve (Reimer *et al.* 2009) and are quoted in the form recommended by Mook (1986) with the end points rounded outward to 10 years. (**Table 1; Fig. 1**).

Table 1 Radiocarbon determination for the two burials and the cattle bone

Context	Identification	Lab. Code	$\delta^{13}C$	δ15N‰	C:N Ratio	Date BP	calibration (2 sig. 95.4%)
004	Right Tibia Shaft (4g.)	SUERC-35499	-20.1‰	9.80	3.20	1460±30	cal. AD 550-650
008	Human R. femur (2.7g)	SUERC-37667	-20‰	9.40	3.3	1510±30	cal. AD 430-630
004	Bos humerus (butchered) (1.6g)	SUERC-37668	-21.7‰	7.40	3.3	2715±30	920-800 cal. BC

Figure 1 Probability distribution for the two burials and cattle bone

The results indicate that the burials both date to the early Saxon period, (004) to cal. AD 550-650 (1460±30 BP, SUERC-35499) and (008) to cal. AD 430-630 (1510±30 BP, SUERC-37667) and are statistically indistinguishable (χ^2-Test df=1 T=0.0 (5% 3.8)). The date on the butchered cattle bone is of some interest as it yielded a Late Bronze Age date, 920-800 cal. BC (2715±30 BP, SUERC-37668) and therefore can probably be associated with occupation or use of the cave during that period.

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Appendix 3

Pottery from Merlin's Cave

Rick Peterson

The assemblage is very small; comprising two larger sherds and a number of fragments. All of the pottery except for one fragment is likely to be prehistoric in date. The sherds were examined using basic macroscopic techniques with inclusions indentified under low-powered (x30) binocular microscope following the procedures described in Orton et al. (1993, 231-42). Detailed descriptions are provided in appendix 1.

There are parts of three vessels represented. There are two surviving sherds from vessel 1, which is a hand-built flat-based pot. The fabric was tempered with angular limestone pieces, which were poorly sorted and included some very coarse fragments. Vessel 1 varied from pink to very pale brown in external colour, with a relatively light core, indicating a good oxygen supply during firing. The two surviving sherds had black interiors and there was evidence of carbonised material adhering to the inner surface of one; probably indicating use in cooking. Vessel 1 is likely to be a cinerary urn or food vessel of Early Bronze Age date but without further details of form and decoration a precise identification is difficult.

Vessel 2, which is only represented by four fragments, is even more problematic. It is another hand-built vessel. The fabric was tempered with both grey flint or chert and limestone. The chert was fairly well sorted, ranging from fine to coarse in size, and was extremely angular. The limestone inclusions were coarser, less plentiful but more well sorted. The surviving fabric is much less heavily oxidized than vessel 1. The external surface and margin are pale brown but the rest of the fabric is either dark grey or black. Vessel 2 could belong to any period between the Middle Neolithic and the Early Bronze Age.

Vessel 3 is a single very small and abraded sherd from a wheel-thrown pot. The fabric is tempered with very fine sub-angular quartz or quartzite. The external surface of the sherd appears to have been smoothed or, just possibly, burnished and the whole of the fabric is black except for traces of a fire cloud on the internal surface. The sherd is likely to be Roman coarseware, fired in a reducing atmosphere.

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Appendix 1

Vessel 1

Flat-based hand-built vessel with walls around 10 mm thick. The fabric is hard (around 3 on the Mohs' scale of hardness) with a rough surface and an irregular fracture.

Inclusions

Type	Abundance	Size	Angularity	Sorting
limestone	c.10%	fine-very coarse	angular	poor

Sherd catalogue

Type	Mass (g)	Colour				
		External surface	External margin	Core	Internal margin	Internal surface
Body sherd	21.0	7.5YR7/4 (pink)	5YR6/6 (reddish yellow)	7.5YR6/2 (pinkish grey)	7.5YR3/1 (v. dark grey)	10YR2.1 (black)
Base sherd	21.6	10YR7/3 (v. pale brown)		10YR5.2 (greyish brown)	2.5Y2.5/1 (black)	

Vessel 2

Indeterminate hand built vessel with walls around 9.5 mm thick. The fabric is hard (around 3 on the Mohs' scale of hardness) with a rough surface and an irregular to smooth fracture.

Inclusions

Type	Abundance	Size	Angularity	Sorting
limestone	c.5%	Coarse	sub-angular	Good
chert or flint	c.10%	fine-coarse	very angular	Fair

Sherd catalogue

Type	Mass (g)	Colour				
		External surface	External margin	Core	Internal margin	Internal surface
4 fragments	8.0	10YR6/3 (pale brown)		2.5Y2.5/1 (black)	2.5Y4/1 (dark grey)	

Vessel 3

Wheel thown vessel with walls around 4 mm thick. The fabric is very hard (around 4 on the Mohs' scale of hardness) with a smooth surface and an irregular fracture.

Inclusions

Type	Abundance	Size	Angularity	Sorting
quartzite/quartz	c.10%	very fine	sub-angular	good

Sherd catalogue

Type	Mass (g)	Colour				
		External surface	External margin	Core	Internal margin	Internal surface
Body sherd	0.5	2.5Y2.5/1 (black)				7.5YR6/3 (light brown) to 2.5Y2.1 (black) [fire cloud]

Site Archive

2 Sheets of site drawings
2 Entries in field notebook
90 digital photographs
2 sheets of inked drawings
3 Boxes of finds
This Document

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List of Illustrations

Plate 6: The burial prior to lifting in 2011

Figure 6: Burial (008) from Trench 2.

Figure 7: Lidar image showing the distinctive semi-circular “bay” from which the burials were recovered. (Image reproduced by kind permission of The Forestry Commission).

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Validation

Herefordshire Archaeology operates a validation system for its reports, to provide quality assurance and to comply with Best Value procedures.

This report has been checked for accuracy and clarity of statements of procedure and results.

Dr. Keith Ray, County Archaeologist