

Under the Uplands

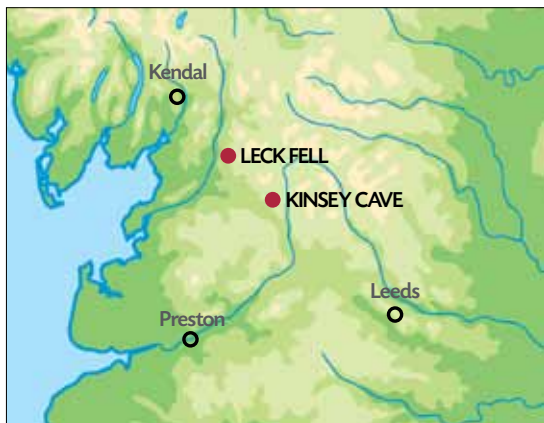
Cave archaeology in the Yorkshire and Lancashire Dales

Caves are one of the most investigated site-types in Yorkshire's limestone uplands, but also the least understood. **Brendon Wilkins** reports on new projects and links being built between the caving and archaeological communities to protect, preserve, and research this threatened resource.

On nearly summer evening in 1837 – not long before the coronation of the young Queen Victoria – a Yorkshire terrier chased a rabbit into what appeared to be a normal foxhole, only to find itself stuck in one of the finest, archaeologically richest caves thus far unearthed. Inching his way into the narrow passage to retrieve the hapless hound, Michael Horner recovered numerous Roman coins and pieces of metalwork. The cave became the site of major excavations.

ABOVE Looking down into 'the House of the Rising Sump' at the point where the cave divers first emerged.

Systematically emptied of many metric tonnes of archaeological deposit, the passage quickly turned from a terrier-sized space to the vast chamber visitors can see today. Even so, Victoria Cave fared better than many other early cave excavations in the north of England: this was the era of Piltdown, the 'missing link', and the great discovery of primitive human remains in the Neander valley in Germany. The 18th-century tourist trade kindled the first wave of interest, with affluent gentry who made the tour to the Lake District stopping to enjoy the crags and caves



of the Dales on the way. The 19th century saw vast earth-moving excavations take place at cave sites like Victoria, Elbolton Cave, and, in the earlier 20th century, along Giggleswick Scar at Sewells, Greater and Lesser Kelco, and Kinsey Cave.

Early cave excavations were haphazard, and driven by the rivalry of major participants – Boyd Dawkins and Richard Tiddeman in the 1870s, and Wilfred Jackson and Arthur Raistrick in the 1930s. *Cave Hunting*, by Boyd Dawkins, captures the spirit of the time, when large collections of bioarchaeological and archaeological remains were built up by societies, field clubs, and individuals. Unfortunately, much of the data was kept in private hands, and has subsequently been lost, along with any records that may have been made regarding excavation methods and stratigraphy.

Despite the problems with these early excavations, enough evidence survives to suggest that caves and overhanging rock shelters in the north of England were used and re-used from the Upper Palaeolithic to the Medieval period. Caves act as natural sediment traps, preserving remains of past human activities that would otherwise have been removed by glaciations on open-air sites. It was all the more alarming, then, that when two archaeologists visited nearby Kinsey Cave in 2005 (originally discovered in the 1870s, it is known to contain lower Palaeolithic archaeology), they discovered freshly exposed human and animal bone.

BELOW Elbolton Cave, in Wharfedale, excavated by Rev E Jones in 1888. It contained 11 burials and one cremation, probably dating to the Neolithic Period.



Cold case archaeology

Cave archaeology has entered an exciting period with the development of new scientific techniques such as AMS radiocarbon dating, stable light isotope analysis, and OSL dating. These advances enable archaeologists to reassess existing museum archives and collections, as well as underpinning a high-tech approach to strategic and targeted excavation. The disturbed human bone at Kinsey Cave offered an opportunity to employ new technical methods to re-analyse the cave as a repository for Palaeolithic burials; but the first step was to establish who, or what, had been tampering with the cave.

By nature, cave sites are vulnerable to damage by both people and animals: they are destinations for ramblers, dog walkers, cavers, climbers, and those wishing to use the site for other purposes such as metal detecting, campfire parties or rough sleeping. The major natural threat is from burrowing animals like badgers, and with no evidence of human disturbance at Kinsey Cave, it looked increasingly likely that the site was an active badger set. Fresh tracks were found, as well as remnants of badger fur, bedding, and various freshly dug passageways in close proximity to the disturbed bones. Given the archaeological potential of the undisturbed material that still

survived in the cave, Dr Timothy Taylor from the University of Bradford put together a rescue team that comprised caving specialists and archaeologists, supported with funding from English Heritage, to devise a cold case investigation.

Kinsey Cave is a scheduled ancient monument, situated north of Settle and Giggleswick on a high scar, above the 300m contour. It was excavated sporadically from the 1880s onwards, with major work taking place under the direction of J Wilfred Jackson and W Kinsey Mattinson between 1925 and 1931. A carved reindeer antler tang and five chipped stone tools dating to the end of the Ice Age approximately 11,000 years ago were recovered from the cave environs, although their exact find location was not detailed in the records. ➔

PHOTO: Craven Museum Skipton



ABOVE Kinsey Cave, high on the Giggleswick Scar, with **(INSET)** the narrow entrance that leads deep into the rock.

On this basis, the cave was scheduled in 1949. In addition, significant quantities of Roman artefacts of cultic appearance were recovered from the upper layers of the cave, including perforated bone spoons and round pieces of perforated pottery, as well as items of dress jewellery. Romano-British deposits of this type are known from a number of Dales caves, including Victoria, Attermire, and Sewells – seeming to indicate that Romans utilised the caves for rituals. Roman auxiliary troops stationed in the north, such as Dalmatians, Sarmatians, and Dacians, would have identified the rocky terrain as similar to the karst landscapes of their homeland in south-east Europe.

Faced with a lack of stratigraphic control and of detailed publication records from the original excavation, the first step for the project was a comprehensive assessment of the existing

archive. What followed was an analytical integration of the Kinsey Cave archive with new high-resolution dates from human bones and domestic and wild animals. Beyond the cave mouth, a programme of remote sensing was used to identify the spoil heaps and any potential voiding within the talus slope (the area of debris and scree outside the cave mouth). This helped direct the new excavation strategy, with three-dimensional recording of all recently exposed bone and 100% sampling of disturbed sediments. By establishing a micro-excavation of badger movements, determining the integrity of the remaining cave sediment and the main areas of damage, the team could report to English Heritage and English Nature with recommendations for the cave's future management.

The Kinsey Report

Despite the large quantity of Romano-British artefacts in the site archive, the cave had been seen as a predominantly Palaeolithic site on the basis of lithic and worked antler material, and associated animal bone from long-extinct species. A reassessment of the archive material, though, casts doubt on the stratigraphic integrity of the animal



ABOVE The site team at work, with three-dimensional recording of all deposits disturbed by badgers.

bones, challenging the earlier assumptions that the cave was used as a Palaeolithic burial place. Mattinson and Jackson, the original excavators, had recorded their finds in a number of illustrated notebooks, attributing human bones to a catch-all 'bear horizon'. Given the associations of animal bone from 'ancient' wild species such as bear and lynx, they assumed that the cave was used in the immediate post-glacial period for human burial – a conclusion supported by the carved antler and lithic artefacts.

By taking a distribution of 22 radiocarbon dates in the existing cave archive, cross-referenced with the new excavation, the team established

that rather than originating from one single phase of activity, the 'bear horizon' excavated by Mattinson and Jackson contained material dating to three main phases separated by over 10,000 years. The earliest dated evidence was from a brown bear specimen dating to 12,500 BC, but this pre-dated evidence for humans by at least 1,000 years. A carved reindeer antler tang found during Mattinson's excavations inside the cave dated to 11,400 BC, corresponding to chipped stone tools that date to this time, and was likely to have been found after the excavation on the slope outside the cave.

This demonstrates that the cave may well have been a significant site to late glacial hunters, but the most important result came from dating the human bone. This was expected to be Palaeolithic, but in fact dated to between 3960-3790 BC, making it some of the earliest Neolithic material dated in this part of the Dales. Rather than late glacial hunter burials, these could plausibly be viewed as part of the founder population of incoming farmers. During the Mesolithic/Neolithic interface, similar remains were deposited at sites like Gough's Cave in the Cheddar Gorge, Somerset, associated with complex cannibalistic burial rites. Green bone processing, curation, and secondary burial are known from contemporary sites, and these dates point the way towards research into similar practices in the upland cave archive.

A further surprise for the excavators was that the cave produced the latest recorded date for wild lynx in the British Isles, placing the animal's extinction around AD 425-600. This has significant implications for our understanding of the landscape, and the part humans have played in shaping it. Until recently, the Eurasian lynx was believed to have become extinct when the climate became cool and wet around 4,000 years ago. Eurasian lynx depend on a habitat with at least 40% tree cover, and the presence of large predators suggests a wild landscape, perhaps artificially maintained as a 'wild forest' during the early Medieval period.

It was only once this land was brought back into cultivation that the lynx was driven to extinction. As the European Union's Habitats Directive obliges member-states to consider re-introducing a species that has been killed off by human action, this could have important ramifications. If the National Park committee applies the results from Kinsey Cave literally, ramblers in the Dales might soon find their pace quicken! ➔



LEFT Two Palaeolithic chipped tools, probably found in scree outside Kinsey Cave between 1925 and 1935.



PHOTOS: Timothy Taylor

The Kinsey Cave investigation results demonstrated the great benefits of target excavation coupled with scientific analysis of existing archives. The remains disturbed by badgers in 2005 were shown to come from small pockets of remaining archaeology within a cave that had, to all intents and purposes, been emptied of its archaeological fill. If, however, the Victorian and 20th-century ‘cave hunters’ have cleared out many of the more accessible and larger caves in the limestone uplands, real opportunity still exists for archaeological investigation in caves that are harder to access.

ABOVE The interior of Kinsey cave with (INSET) small pockets of remaining archaeology within a cave that had been emptied of its archaeological fill during excavations in the early 20th century.

A growing number of reports of animal bone finds by cavers working in smaller caves and potholes led to the realisation that greater collaboration was needed between cavers and archaeologists. This led to the creation of ‘The Upland Cave Network’ – a group set up by Dr Hannah O’Regan from Liverpool John Moores University that brings together cavers, geologists, archaeologists, palaeontologists, and others interested in archaeological aspects of northern caves. Funded by the Arts and Humanities Research Council, the group has hosted seminars to present recent work and develop guidelines for excavating and

How to make a cave

The popular impression of unspoilt scenery cherished by visitors to the Yorkshire Dales National Park is a far cry from the reality of a landscape that has been altered almost beyond recognition. This is exemplified by the enigmatic black holes one occasionally sees leading deep into the limestone hillside. Elemental forces created caves during the Ice Age, but their continued use during prehistory and systematic ‘emptying out’ by Victorian excavators makes them equally artefacts of human intervention.

The process began 350 million years ago, when the region’s principle bedrock, Great Scar Limestone, formed from coral on the bed of a subtropical sea. The main outcrops were first exposed 2 million years ago. Alternating climatic conditions throughout the Ice Age resulted in contrasting types of erosion. During warm interglacials, water would be the main agency of change, enlarging tiny cracks in the limestone to make gaping fissures and cave systems. When the ice returned, the valleys were deepened, leaving fossil cave systems high and dry. An abundance of water flowed into lower cave systems, leaving relict caves as ideal repositories for deep archaeological and natural sediments.

Crucially, these deposits were protected from later periods of glaciation, when the same forces re-sorted, removed, and greatly disturbed contemporary Pleistocene open-air sites. At Victoria Cave, excavators found a series of ‘cave earths’ containing large quantities of animal bone separated by successive layers of clay – evidence for a changing glacial landscape dating back 130,000 years. The earliest of these bones include hippos, narrow-nosed rhino, and elephants. They lived in a warm interglacial (subsequently dated by modern techniques to the Upper Pleistocene, between 126,000 and 10,000 years before the present) and were probably scavenged by spotted hyenas using the cave as a den. The upper deposits were laid down at the end of the Ice Age. These contained brown bear, lynx, and reindeer bones, as well as, importantly, the first evidence for humans in the Yorkshire Dales: an 11,000-year-old barbed harpoon point, carved from deer antler.





conserving caves in future. Additionally, by putting cavers in touch with local archaeologists and other experts, the group fosters communication so that anything of interest discovered during cave exploration can be properly assessed and understood. This has been so successful that Dr O'Regan and John Howard have set up a special cave archaeology group under the umbrella of the British Cave Research Association. There have been many examples of cavers in the Yorkshire/Lancashire area coming forward with new discoveries, but the best case so far was *Shuttleworth Pot into Witches Cave II*, published this summer by the Council for Northern Caving Clubs.

House of the Rising Sump

For anyone who has ever felt even the slightest bit claustrophobic in a small room or lift, the thought of cave diving – exploring dark, submerged tunnels hundreds of feet underground with only a limited air supply – is excruciatingly uncomfortable. To tick a difficult cave system off the list is meat and drink to the hardy cave-diving folk, who experience real joy in exploring underground backwaters and blind alleys in vast networks of twisting underground shafts, in the hope that they may discover new connections and cave systems.

Headlines were made last year when cavers digging through deep tunnels 100m below ground

came close to linking separate cave systems in Lancashire, Yorkshire, and Cumbria (*Daily Mail* 17 January 2011). Fossil cave systems become silted with mud and rocks, and cavers toiling to open these passageways occasionally come into contact with archaeological material. As the work to open up a passageway in Lancashire's Leck Fell shows, the caving community is as diligent as the archaeological when recording underground features – and perhaps a lot more nimble.

The story of Shuttleworth Pot began in 1997, when cave divers Jason Mallinso and Rick

ABOVE Contemplating the rock formations in a break from digging.

BELOW Commencing work on the sink hole that would become Shuttleworth Pot. Later, as the excavation proceeded (**BELOW LEFT**), John Thorp used an 'A' frame scaffolding winch to draw up buckets of spoil from the long vertical drop.





PHOTO: Tony Brown

Stanton made an epic 1,160m cave dive. Pock-marked with sinkholes and with a near absence of surface drainage, a network of subterranean caves twist below Leck Fell, and the cavers were trying to connect two of them: 'Witches' and 'Pippkin'. Part way through the dive, they surfaced into a large chamber, which they called 'House of the Rising Sump'. Before continuing, they noted dry passageways leading off towards the surface, but no sign of light. If a surface entrance could be found, the chamber would make an excellent staging post for later expeditions. Ten years later, with permission to excavate a sinkhole secured from both Andrew Hinde at Natural England and the landowner, a team of cavers from the Council for Northern Caving Clubs put plans into action, and the exploration of Shuttleworth Pot began.

ABOVE Carefully transporting bones to the surface from deep within the cave.

BELOW A selection of human and animal bone from the cave, including partial remains of a human left scapula and left humerus, canine teeth from a wolf, a black grouse caracoid, and an aurochs molar.

The first job for the cavers was to ensure that they were digging in the right place. They placed a radio beacon in the cavern as close to the surface as they could. Readings from above on Leck Fell detected a signal coming from a sinkhole, suggesting the beacon was between 5m and 17m below ground. A small dig showed that the top layers were composed of a relatively recent infilling of peat, followed by cobbles and alluvial deposits that had been formed from the sides of the sinkhole, which had collapsed inwards when it was fed by an active stream.

The shaft was excavated downwards for 8m, before it veered off to a depth of 16m, entering the cavernous space discovered by the cave divers. Animal bones were collected, overseen by experienced caver and amateur archaeologist John Thorp, and identified by Tom Lord. The bones were found to cluster in two distinct concentrations: Location 1 (directly below the cave entrance) and Location 2 (deep within the cave, on a small flat section of cobbles). The Location 2 assemblage included goat, horse, pig, and sheep bones, and had probably been washed into the cave from an adjacent passage, accumulating on the cobbles above the high-water mark. Two small and delicate palmate newts were also identified from deep within the cave – the first recorded examples from cave environments.

The Location 1 bones included a number of domestic and wild species: human, dog, domestic pig, domestic cattle (with a flint tool cut mark), sheep or goat, wolf, red deer, black grouse, and wild cattle (aurochs). With no radio-carbon dating evidence it is difficult to properly interpret this assemblage, but these are perhaps



PHOTOS: John Thorp



more informative to the human picture than the bones found deeper in the cave. The mix of wild and domestic species is similar to that found at a similar cave 4km away – North End Pot – where bones found at a similar depth below ground were dated to 2700 BC. With large predators such as wolf and wild boar roaming the landscape, herdsmen would have been on constant vigil.

Prior to the formation of blanket peat in the Bronze Age, Leck Fell would have been a very different landscape, with small clearings interspersed with areas of dense scrub woodland. Sinkholes would have been much deeper, and posed a constant hazard to domestic animals and wild animals, with scavengers succumbing to the same fate. Exploring a side passage, the cavers made one of the most poignant finds. In a shallow scoop in the cave floor, a medium-sized dog skeleton was curled up, as though it had laid down there and died. The dog would not have survived falling down the entrance from Shuttleworth Pot, so it must have come in from an unknown entrance, only to become lost in the dark. It puts one in mind of the much luckier terrier that discovered Victoria Cave – and lived to point the way.

Amateurs

The Shuttleworth Pot excavation stands proud alongside the high-tech professional laser survey of the subterranean Nottingham city caves reported in CA 260. The Shuttleworth Pot artefacts and site survey has been published, and

RIGHT Dog skeleton found in a side passage, curled up in a natural scoop in the rock.



PHOTO: Pete Monk

a selection of bones will be dated with funds provided by Natural England and the British Cave Research Organisation. This was an amateur excavation in the truest sense, following the Latin *amare* – meaning to ‘love’. Cavers are clearly passionate about their sport, but through initiatives like the Upland Cave Network have also become adept amateur archaeologists. With sharp eyes trained on new discoveries, we can only hope that cavers get there before the badgers. @



FURTHER INFORMATION ↗

The Council for Northern Caving Clubs

<http://www.cncc.org.uk>

Cave Archaeology Group

<http://www.cag.bcra.org.uk/index.html>

Dawkins, Boyd 1874. *Cave hunting: researches on the evidence of caves respecting the early inhabitants of Europe.* London: MacMillan.

Monk, P (ed.) 2011. *Shuttleworth Pot into Witches Cave II.* The Council for Northern Caving Clubs.

