



Cave Archaeology – past, present and future

July 1st -2nd 2010

Kanaris Lecture Theatre, Manchester Museum



Arts & Humanities
Research Council

Thursday July 1st

- 10.00** Arrival and coffee
- 10.30** Introduction to the network
- 10.35** **Sally Reynolds** *The view from the Lincoln Cave: mid- to late Pleistocene fossil deposits from Sterkfontein hominid site, South Africa*
- 11.00** **Phil Murphy** *Victoria cave – revisiting a forgotten climate change controversy*
- 11.25** **Tim Taylor & Chris Calveley** *Cove Hole 2009: the Rumsfeld approach*
- 11.50** **Mike Morley & Jamie Woodward** *Geoarchaeological Investigations at Crvena Stijena Rockshelter: A long Pleistocene record in the upland karst of Montenegro*
- 12.15** Discussion
- 12.30** Lunch
- 2.00** **Rick Petersen** *Slippery Bodies and Changing Places: Caves and Neolithic human remains in Britain*
- 2.25** **Robin Skeates** *Journeys to the Underworld: Ritual Transformations of Persons, Objects and Caves in Prehistoric Central Sardinia*
- 2.50** **Kristina Jennbert** *Perspectives on Scandinavian cave archaeology, with special attention to the caves on Kullaberg, north western Scania, southern Sweden*
- 3.15** Coffee
- 3.45** **Marion Dowd** *'The Irish Cave Archaeology Project'*
- 4.10** **Mark Lewis** *Palynology of hyaena (*Crocota crocuta*) coprolites from British Pleistocene sites*
- 4.35** Depart



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Friday July 2nd

- 10.00** Arrival and coffee
- 10.30** Welcome
- 10.35** **Elizabeth Walker** *The History of the Caves of Cefn Meiriadog, Denbighshire: a Bishop, Darwin, a chimney sweep, landmines and science*
- 11.00** **Agni Prijatelj** *Hi)Stories of Cave Archaeology in Slovenia: Politics, Institutions, Individuals, Methods and Theories*
- 11.25** **Dave Wilkinson & Hannah O'Regan** *The cautionary tale of Helsfell Fissure*
- 11.50** **Ian Smith** *Cumbrian Cave Bones*
- 12.15** **Lunch**
- 1.45** **Tom Lord** *the taphonomy of Later Prehistoric (Neolithic - Iron Age) cave assemblages from the Yorkshire Dales*
- 2.10** **David C. Walker & Julia E. Clarke** *A Servant of Two Masters: the Nottingham Caves Survey*
- 2.35** **Martin Roe** *3D survey of the Ryedale Windypits*
- 3.00** **Coffee**
- 3.30** **Tour of the Manchester Museum Creswell collection (limited to the first 40 people to sign up) / discussion**
- 4.30** Depart



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The Irish Cave Archaeology Project

Marion Dowd, Institute of Technology Sligo, Ireland (dowd.marion@itsligo.ie)

The Irish Cave Archaeology Project (ICAP) was established in June 2009 further to a Research Fellowship awarded to M. Dowd by the Irish Research Council for the Humanities and Social Sciences. The aim of the project is to bring to publication a significant body of unpublished research on Irish caves that has been generated over the past 13 years. In addition, the fellowship has provided funding for new analyses of materials recovered from caves. Thus, a variety of specialists are working on elements as diverse as the prehistoric lithics, prehistoric pottery, stone axes, Late Bronze Age metalwork, Early Medieval shrine fragments, Medieval pottery and coins that have been recovered from caves. A suite of new radiocarbon dates from human remains are also an important component of the project.

Synthesis of the data has revealed that there are 200 or so caves in Ireland that are significant either archaeologically, historically or from a folkloric perspective. The latter is seen as extremely important in revealing how people perceived caves over the past 500 years, particularly as there is little or no archaeological evidence to indicate caves were actively used over this period.

As a multi-period and all-island study, the ICAP has illustrated that caves were important locations in the lives of people from the Early Mesolithic through to recent times. Overwhelmingly, the prehistoric evidence suggests that caves were used primarily for ritual deposition of artefacts, burial and token deposition of small quantities of human bones. There is little evidence that caves were used for settlement, except in the Bronze Age. The Early Medieval period brings a marked transformation in how caves were used and for the first time there is extensive evidence that caves functioned as places of occupation, workshop occupation and storage. Ritual activities continue, incorporated into a Christian framework. And the preponderance of Viking material indicates caves were seen as appropriate places at which to deposit the dead as well as votive hoards. From the Medieval period onwards there is a paucity of archaeological material. However, the early texts and the later folklore reveal that to the Gaelic Irish population, caves were commonly perceived as places of the Otherworld and especially abodes of supernatural women. The book, *The archaeology of caves in Ireland*, is due out in 2011 and will be published by Oxbow.

*Perspectives on Scandinavian cave archaeology, with special attention to the caves
on Kullaberg in southern Sweden*

Kristina Jennbert, Department of Archaeology and Ancient History, Lund, Sweden
(Kristina.Jennbert@ark.lu.se)

Cave archaeology in Scandinavia has got a fresh interest since the research in the late 1900 century. Most caves in Scandinavia are postglacial formations. A short survey of the present state of research is followed by a presentation with focus on Kullaberg in southern Sweden. Along the foot of Kullaberg is twenty coastal caves. Rocks and steep cliffs make them difficult to reach both by sea and by land. Ever since the ice age, they have been used in different ways and visited a variety of reasons.

The study of caves is interdisciplinary. Archaeological excavations and osteological analysis of animal bones from some of the caves provides some clues to how they were used. Geology and Quaternary Geology helps with the chronology and natural understandings. Folklore, local history and political events provide different approaches to put in the caves into a cultural historical context.

Palynology of hyaena (Crocuta crocuta) coprolites from British Pleistocene sites.

Mark Lewis, Natural History Museum (mark.lewis@nhm.ac.uk)

Spotted hyaena (*Crocuta crocuta*) coprolites from four British Pleistocene sites, two open (West Runton and Happisburgh) and two cave sites (Tornewton Cave and Pin Hole) were analyzed for pollen content and chemistry. The results from the cave sites provide palynological data, supported by other lines of evidence, such as mammal bones and in one case lithic tools, enabling reconstruction of environments as well as providing insights into the taphonomic complexities of incorporation of pollen into coprolites. Pollen presence and preservation appear to be closely related to mammalian behaviour and post-depositional processes. Age does not seem to be a significant factor as samples from the two open sites are amongst the earliest known from the Pleistocene to provide viable pollen counts.

Geoarchaeological investigations at Crvena Stijena Rockshelter: a long Pleistocene record in the upland karst of Montenegro

Mike Morley , Oxford Brookes University, and **Jamie Woodward**, University of Manchester (Jamie.C.Woodward@manchester.ac.uk)

This paper summarises the outcomes of recent excavations and geoarchaeological research at Crvena Stijena, a large rockshelter in Montenegro. This limestone rockshelter contains one of the longest (>20 m) rockshelter sediment records in Europe, with deposits ranging in age from Middle Pleistocene to mid-Holocene. Archaeological work at Crvena Stijena in the 1960's and 1970's generated much information on the cultural, social and subsistence activities of Middle and Upper Palaeolithic humans in the region and huge volumes of sediment were removed from the site. During this period the excavated sections were made safe through the construction of stone-walled terraces in the site. A new phase of multi-disciplinary investigations was initiated at the site in 2004 and this included a detailed programme of geoarchaeological work to provide high-resolution environmental context for the Middle to Upper Palaeolithic records. A distinctive tephra is clearly exposed within the well stratified record approximately 6 m below the present land surface. This site is unique because the tephra forms an abrupt boundary between the Middle and Upper Palaeolithic records. It is a highly significant chronostratigraphical marker for southern Europe. In the lower part of the record a stacked sequence of hearth features is beautifully preserved. These hearths are the product of Neanderthal fires and food preparation activities and we have studied them in high resolution using micromorphological methods. We have used a range of approaches to extract palaeoenvironmental information from the long sediment record. This paper presents a sample of recent work at Crvena Stijena and outlines some of the key issues involved in comparing rockshelter sediment records with other archives of environmental change.

Victoria Cave - revisiting a forgotten climate change controversy

Phil Murphy, University of Leeds (P.J.Murphy@leeds.ac.uk)

Victoria Cave, situated on the limestone highlands north of Settle, was the site of a Royal Society funded excavation between 1880 and 1888 when the remains of both cold and warm vertebrate faunas were recovered. It again hit the scientific headlines when radiometric dating of speleothems correlated the warm fauna with the Ipswichian interglacial (MIS 5e). Application of modern dating techniques to the site and the rebuilding of the original stratigraphy from excavation accounts has provided a detailed paleoclimate record going back half a million years. These results confirm the importance of the cave as the pivotal late/mid Pleistocene site in the north of England and help us understand why the Victorians dug for eight years at the top of a mountain.

Slippery Bodies and Changing Places: Caves and Neolithic human remains in Britain

Rick Peterson, University of Central Lancashire (RPeterson@uclan.ac.uk)

Later Prehistoric human remains have been recognised from British caves for a long time but it is only relatively recently that good radiocarbon evidence has been forthcoming for the date of this activity. This paper arises from recent fieldwork and research on rock shelters and small caves in Wales and considers how human remains and caves were used in the Neolithic. Some caves and rock-shelters appear to have been places where human bodies were transformed after death as part of a multi-stage funerary rite. What is also important to consider is how these spaces were themselves changed by the deposition of human remains and artefacts. The paper will consider conceptual transformations – such as the link which has often been proposed between these natural sites and the chambered cairn tradition – but also physical and geochemical transformations to the caves and rock-shelters.

(Hi)Stories of Cave Archaeology in Slovenia: Politics, Institutions, Individuals, Methods and Theories

Agni Prijatelj, Durham University (agni.prijatelj@durham.ac.uk)

Thinking, practicing and writing cave archaeology in Slovenia has been reflecting the wider histories of cave archaeology in Europe, yet, on the other hand, revealing also local and national particularities created first, by regional history, and second, by the national archaeological research agenda, institutional background and patterns of funding, as well as by the few prominent researchers dominating the field. An intricate sequence lasting a hundred and fifty years of field work and publications on archaeology of caves in Slovenia has been constructed by only a few individuals – often more closely related to geology and palaeontology than archaeology. Most prominent researchers of caves have worked within the national institutional infrastructure that was established after the World War II and has remained largely unchanged since then. As research activity of the first post-WWII decades was oriented towards the production of the Archaeological Map of Slovenia, excavations and primary reports on the newly- discovered cave sites were meant to fill in the void on the Archaeological Map of the oldest periods, particularly the Palaeolithic. However, the archaeological mapping of caves was done at the cost of finds from later archaeological periods, which were excavated in the very same caves but unfortunately never properly published. A deficiency of theoretical reflections, frequently observed in the practice of cave archaeology in Slovenia, has only been surpassed in the last decades in a few research projects. These will be critically analysed in the final part of the paper.

The view from the Lincoln Cave: mid- to late Pleistocene fossil deposits from Sterkfontein hominid site, South Africa

Sally C. Reynolds, University of the Witwatersrand, South Africa (reynolds@ipgp.fr)

The Lincoln-Fault cave system lies adjacent to the Sterkfontein Cave system in the Cradle of Humankind World Heritage Site, Gauteng Province, South Africa. Lincoln Cave contains a mid- to late Pleistocene fossiliferous deposit which has been dated using uranium series methods to between $252,600 \pm 35,600$ and $115,300 \pm 7,700$ years old. Although speleologists presumed that there was no connection between the Lincoln Cave and Sterkfontein Cave systems, results of excavations conducted in 1997 suggest a link between the deposits. Detailed comparisons of artifacts, fauna, hominid material, and a statistical correspondence analysis (CA) of the macromammalian fauna in the deposits strongly support this hypothesis. The recovery of Early Acheulean-type artifacts from the Lincoln Cave suggests that older artifacts eroded out of Sterkfontein Member 5 West and were redeposited into the younger Lincoln Cave deposits. The close physical proximity of these deposits, and the nature of the material recovered from them, indicates that the material was probably redeposited via a link between the two cave systems. Although faunal mixing is present, it is possible to say that large carnivorans become more scarce at Sterkfontein during the mid- to late Pleistocene, while small canids and felids appear to become more abundant, indicating that large and small carnivorans probably varied their use of the site through time. This may also reflect an increasing presence of humans in the Sterkfontein area during the mid- to late Pleistocene.

3D survey of the Ryedale Windypits

Martin Roe, Meerstone Archaeological Consultancy (roe_martin@hotmail.com)

The Ryedale Windypits are four archaeologically significant natural underground features. These have been subjected to three dimensional survey to allow a better understanding of the relationship between different parts of the caves and the overlying ground surface. Although LIDAR is currently often presented as the only way to record complex enclosed spaces this survey was achieved by using a combination of conventional and reflectorless total station survey, and traditional compass and tape survey. Data was then processed in various software packages to produce both two dimensional and three dimensional files to allow a better understanding of the caves and to provide estate managers with information about areas where the use of heavy plant and machinery may be hazardous both to the workers and may result in damage to the caves. This method produced competent models of the caves and ground surface at a fraction of the cost of a comparable LIDAR survey.

Journeys to the Underworld: Ritual Transformations of Persons, Objects and Caves in Prehistoric Central Sardinia

Robin Skeates, Durham University (robin.skeates@durham.ac.uk)

This paper presents the preliminary results of the Seulo Caves Project in Central Sardinia, designed to evaluate ideas about the ritual transformation of persons, objects and caves, using a range of modern scientific techniques, on a new and significant archaeological dataset. The key research aims are to establish: the diversity of natural caves and their human uses in the territory of Seulo; how some of these caves and their natural features were modified from natural spaces into sacred places; the character and variety of rites of passage performed and experienced by people in these caves; and the degree to which these persons and the material dimensions of their cave rituals were connected to (or marginalized from) wider patterns of life.

Over the first year of the project, working with an international team of specialists and volunteers, and funded by the The British Academy, the Fondazione Banco di Sardegna and The Prehistoric Society, we have worked on three levels: a small-scale field survey of the Taccu di Ticci plateau, around which many of the Seulo caves are situated; an extensive survey of caves within the surrounding catchment of the upper Riu Narbonionniga; and the excavation and sampling of four contrasting ritual cave sites known to contain prehistoric deposits: Longu Fresu cave (with Middle-Late Neolithic cave paintings and mortuary deposits); Grutta de is Janas (an extensive cave system with some intensively burnt ritual deposits of the Final Neolithic); is Bittuleris cave (with substantial Middle Bronze Age primary inhumation deposits); and Su Cannisoni rockshelter (with a pile of stones constructed under a spring and over a secondary burial deposit of the Middle Bronze Age).

Cumbrian Cave bones

Ian Smith, Liverpool John Moores University (I.R.Smith@2010.ljmu.ac.uk)

There are records of excavations at cave sites in southern Cumbria from the 18th century onwards. Nearly all of these excavations produced bone assemblages but relatively little research has been undertaken into the nature and origins of most of these assemblages. The artefactual and faunal remains suggest that in some caves human activity dates from as early as the Upper Palaeolithic, and there is also evidence for later prehistoric and historic cave use. Because many of the caves were excavated some time ago there is a bias in the collected evidence so that micro-fauna such as frogs, toads and rodents are underrepresented. In addition there is clearly scope to advance our understanding of how cave type reflects or dictates the type of assemblage that accumulates. In some of the caves the degree of bioturbation is considerable and this provides challenges to the reconstruction of associations between artefactual, human and faunal remains. One of the obvious ways to advance this situation is undertake scientific dating but the number of such dates undertaken so far is small. This paper will focus on a few of these caves, outline some of the difficulties, highlight some new faunal identifications and present the initial results of a new research project.

Cove Hole 2009: the Rumsfeld approach

Tim Taylor, University of Bradford (T.F.taylor@bradford.ac.uk) and **Chris Calveley**, University of Bradford (chris.calveley@btinternet.com)

There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we now know we don't know. But there are also unknown unknowns. These are things we do not know we don't know.

Donald Rumsfeld

This paper will detail collaborative research work conducted by the BCRA, independent cavers, and University of Bradford Archaeologists in September 2009 at Cove Hole near Grassington, with the objective of understand formation processes both recent and modern on a well-known but recently little accessed cave site. Said to be the site of an Iron Age burial and also the blocked entrance to the fabled lost caverns of Grassington Moor, the data recovered points to a resolution of some previous unknowns, but the emergence of others as well as a promise of data of kinds previously wholly unknown in the locality. Post excavation analysis on ceramic assemblages has been progressing through 2010 along with a broader landscape reanalysis of the setting of the cave and its potential importance in a series of prehistoric landscapes.

A Servant of Two Masters: the Nottingham Caves Survey

David J.C. Walker and **Julia E. Clarke**, Trent & Peak Archaeology / The University of Nottingham, (d.walker@nottingham.ac.uk)

The Nottingham Caves Survey is in the process of surveying and visualising as many as possible of Nottingham's 500 man-made sandstone caves. Some of these caves are medieval in date and they have played an important role in the history and development of the city. The project builds on the important work undertaken by the British Geological Survey in the 1980s.

The project is largely funded by two very different bodies: the *Greater Nottingham Partnership*, who have a primary interest in the exploitation of the caves as a tourism resource; and *English Heritage*, who are principally interested in the development of a management and preservation tool.

This paper discusses how the Nottingham Caves Survey tries to balance these divergent needs. The use of a phase-based laser scanner coupled with digital photography (and text-based descriptions and analysis) allows extremely quick but very high quality surveys to be achieved, with survey points taken approximately every millimetre across the surface of the cave. The resulting 'point cloud' provides an extremely detailed record which can be archived and utilised as a management tool, but also enables the production of flythrough videos and 'virtual tours'. This data is uploaded to the Nottingham Caves Survey website (NottinghamCavesSurvey.org.uk), enabling exciting and public-friendly virtual access to previously hidden heritage.

The History of the Caves of Cefn Meiriadog, Denbighshire: a Bishop, Darwin, a chimney sweep, landmines and science

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The Parish of Cefn Meiriadog, Denbighshire is located in the beautiful Elwy Valley and has long been a place of interest for antiquarian visitors and later scientists. The limestone cliffs that flank the valley contain caves that have become highly significant to our understanding of the Pleistocene period in Wales and the relationship between the deposits within the caves and their use by hominins, anatomically modern humans and other mammals. Early visitors included Thomas Pennant whose tour of north Wales 1778–1783 took him along the valley and which led him to write a romantic description of it. In the early 19th century landowner Edward Lloyd of Cefn created a series of landscaped walks through the valley. Darwin's tour of North Wales with Professor Adam Sedgwick took them to Cefn Caves on Saturday 6th August 1831 on their journey from Llangollen to Abergele. The Reverend Stanley, later to become the Bishop of Norwich, visited Cefn in 1833 and described how the landowner, Lloyd, had excavated the largest cave in the valley for thirty yards dismissing most of the ancient animal bones he found to use as fertilizer on the meadows below. Stanley was the first to undertake any formal excavation in the caves.

Increasingly throughout the 19th century Cefn Caves played their part in the debates about the theories of glaciations and the collections at Cefn were seen by some key people during the late nineteenth century. Boyd Dawkins also visited and dug in the caves on several occasions. Yet as debates about the antiquity of the deposits and extinct mammals were raging in the Geological Society of London, it was to be a chimney sweep from Rhyl who grabbed the national newspaper headlines with his reported discoveries in the cave.

Thomas McKenny Hughes revealed deposits and finds of stone tools and an exceptionally large human molar in the higher cave, now known as Pontnewydd Cave. The discoveries here influenced the understanding of an early human presence in north Wales. During the Second World War the army left its mark on Pontnewydd Cave using it to store landmines. More recently excavations undertaken by Amgueddfa Cymru - National Museum Wales in both the main Cefn Caves and Pontnewydd Cave have changed our understanding of a human presence in Wales.

The cautionary tale of Helsfell Fissure

David M Wilkinson and Hannah O'Regan, Liverpool John Moores University
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Helsfell Fissure, near Kendal in North West England, was excavated during the 19th Century and produced a large collection of animal bones which were influential in contemporary histories of the vertebrate fauna of the area. Material reputed to be from this cave is now stored in three museums in North West England, however, our study of the history of these assemblages suggests that only the material in Ruskin Museum, Coniston, has good provenance. A reassessment of this material shows that bones previously identified as belonging to wild animals or humans are actually from domestic species. In this cautionary tale we emphasise the implications of these results for the interpretation of material from nineteenth century excavations. Helsfell suggests we need a sceptical approach when using 19th century species lists of remains from caves (and other archaeological sites) – the original specimens should be checked whenever possible. In addition the uncritical acceptance of provenance data on such material in museums should be avoided and any archival documents consulted to attempt to check provenance.

Our work on this cave has been described in two publications:

O'Regan, H.J., Clare, T. and Wilkinson, D.M. (2008) The nineteenth century excavation of Helsfell Fissure near Kendal, Cumbria, and the reassessment of the surviving bone assemblage. *Naturalist* 133, 121-133. [the main publication on this work].

Wilkinson, D.M., O'Regan, H.J. and Clare, T. (2006). A tale of two caves – the history of the archaeological exploration at Haverbrack and Helsfell in Southern Cumbria. *Studies in Speleology* 14, 55-57. [The extended abstract of a conference presentation, includes additional illustrations not reproduced in the *Naturalist* paper].